Chapter 25
Hazards, Hazardous Materials, and Wildfire

This chapter describes the environmental setting and study area for hazards, hazardous materials, and wildfire; analyzes impacts that could result from construction, operation, and maintenance of the project; and provides mitigation measures to reduce the effects of potentially significant impacts. This chapter also analyzes the impacts that could result from implementation of compensatory mitigation required for the project and describes any additional mitigation necessary to reduce those impacts, and analyzes the impacts that could result from other mitigation measures associated with other resource chapters in this Draft Environmental Impact Report (Draft EIR).

25.0 Summary Comparison of Alternatives

Table 25-0 provides a summary comparison of important hazards, hazardous materials, and wildfire impacts by alternative. The table presents the CEQA findings after all mitigation is applied. Under all project alternatives, there is the potential to encounter hazardous materials through the handling of reusable tunnel material (RTM), excavation and tunneling near oil and natural gas production facilities, and while tunneling near gas fields.

Alternative 5 would have a greater potential to expose sensitive receptors at a school to hazardous materials, substances, or waste during construction because this alternative is the only one that has project facilities within 0.25 mile of a school.

Alternatives 3, 4a, 4b, and 4c would have the greatest potential to conflict with a known hazardous materials site and, as a result, create a potentially significant hazard to the public or environment because those alternatives would be constructed within 0.25 mile of two known hazardous materials sites. Conversely, Alternatives 1, 2a, 2b, 2c, and 5 would have the least potential to conflict with known hazardous sites because those alternatives would be constructed within 0.25 mile of only one known hazardous materials site.

The risk of wildfire is similar under all project alternatives. However, the magnitude of potential impacts during construction may be greater under Alternatives 2a, 3, 4a, 4b, 4c, and 5 because construction of these alternatives would take longer and thereby require the presence of personnel and equipment for a longer duration.

Table ES-2 in the Executive Summary provides a summary of all impacts disclosed in this chapter.

Table 25-0. Comparison of Impacts on Hazards, Hazardous Materials, and Wildfire by Alternative

Chapter 25 – Hazards, Hazardous Materials, and Wildfire	Alternative								
	1	2a	2b	2c	3	4a	4b	4c	5
Impact HAZ-1: Create a Substantial Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact HAZ-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact HAZ-3: Expose Sensitive Receptors at an Existing or Proposed School Located within 0.25 Mile of Project Facilities to Hazardous Materials, Substances, or Waste	NI	NI	NI	NI	NI	NI	NI	NI	LTS
Impact HAZ-4: Be Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 and, as a Result, Create a Substantial Hazard to the Public or the Environment	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact HAZ-5: Result in a Safety Hazard Associated with an Airport or Private Airstrip	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact HAZ-7: Expose People or Structures, Either Directly or Indirectly, to a Substantial Risk of Loss, Injury, or Death Involving Wildland Fires	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

NI = no impact; LTS = less than significant.

25.1 Environmental Setting

This section describes the environmental setting and affected environment for hazards, hazardous materials, and wildfire in the study area.

25.1.1 Study Area

This section discusses the hazards, hazardous materials, and wildfire study area (the area in which impacts may occur), which consists of the construction footprint (and 0.25-mile buffer) for all project alternatives. In the case of airports, the study area extends 2 miles from the construction footprint.

The Delta is characterized as a multi-use landscape, with agriculture accounting for approximately 75% of land use within the study area. Other land uses include industrial/manufacturing, transportation, recreation, habitat conservation, and residential, as described in Chapter 14, *Land Use*. The built environment of the study area contains a variety of roads, transportation facilities, waterways and canals, utilities, petroleum production and processing facilities, urban lands, and other structures. As described in Chapter 20, *Transportation*, the study area is home to several major transportation arteries, such as Interstate (I-) 5 and other highways in the region. Shipping centers include the Ports of Sacramento and Stockton, and several national and regional railroads operate within the study area.

A discussion of historical and existing land uses with the potential to result in hazardous conditions is provided in Section 25.1.2, *Potential Hazards and Hazardous Materials in the Study Area*.

25.1.2 Potential Hazards and Hazardous Materials in the Study Area

This section describes naturally occurring and anthropogenic hazards in the study area. Historic agricultural, industrial, and urban/recreational activities in the study area and, in some cases, upstream of it, have resulted in the presence of hazardous materials in soils, sediments, and groundwater in the study area. Additionally, current agricultural, industrial, urban, and recreational activities (e.g., boating) within the study area use and introduce hazardous materials (e.g., pesticides, fertilizers, industrial waste). Further, infrastructure, such as electrical transmission lines and crude oil and natural gas pipelines, is present throughout the study area. These materials have the potential to be released into the environment during construction of the project alternatives and during the project's operation. Specific types of hazards and hazardous materials are discussed in greater detail in the following sections.

25.1.2.1 Naturally Occurring Hazards

Historic geologic conditions in the study area have led to the formation of peat and other organic soils with thicknesses of up to approximately 55 feet on the western side of the Delta; peat deposits are not commonly found on the eastern side of the Delta. The thick organic soils and peat have the potential to generate flammable gases such as methane that can pose hazards to workers during deep excavations and tunneling. In addition, petroleum deposits underlying the study area could result in the migration of oil or natural gas from deep reservoirs into shallow strata that may be

disturbed during construction. See Figure 25-1 for locations of oil and gas fields. Additional information on organic soils in the study area is provided in Chapter 10, *Geology and Seismicity,* and Chapter 11, *Soils*.

Much of the study area consists of lowlands capable of supporting insects such as mosquitos, which can be vectors for infectious diseases. The potential hazards associated with vector-borne diseases are discussed in Chapter 26, *Public Health*.

The study area also contains water bodies with the potential to grow cyanobacteria harmful algal blooms (CHABs). The potential for CHABs to harm human health or aquatic ecosystems is also discussed in Chapter 26, *Public Health*. The nutrient-associated water quality concerns of CHABs are discussed in Chapter 9, *Water Quality*.

Valley fever is a disease caused by inhaling *Coccidioides immitis* (*C. immitis*) fungus spores that are found in certain types of soil and become airborne when the soil is disturbed. Naturally occurring asbestos (NOA) is found in ultramafic rock that has undergone partial or complete alteration to serpentine rock and often contains chrysotile asbestos. The inhalation of asbestos fibers into the lungs can result in a variety of adverse health effects. Earthmoving activities during construction could release *C. immitis* spores and/or NOA if either are present in the soil. The potential for the project to expose people to increased risk of developing Valley fever and health effects from NOA are discussed in Chapter 23, *Air Quality and Greenhouse Gases*.

25.1.2.2 Hazards from Agricultural Practices

Agriculture has been the primary land use in the study area for more than a century. As described in Chapter 14, *Land Use*, the majority of the 738,000 acres of the Delta area is used for agriculture.

A wide variety of pesticides, including insecticides, herbicides, and fungicides, have been used throughout the study area for decades and may be present in and near agricultural lands. Pesticides that have been widely and historically applied, but that are no longer in use, may also continue to persist within the soils (e.g., dibromochloropropane). Because of their relatively low water solubility, persistent pesticides and compounds generally accumulate in the environment in sediment and soil, as well as in the fatty tissue of terrestrial and aquatic animals and humans. Generally, human exposure to persistent pesticides is primarily through diet and the consumption of fatty animal-based foods, such as meat, fish, poultry, and dairy products. The effects of exposure to any hazardous substance depend on many variables, including the dose, duration, and route of exposure.

No comprehensive area-wide soil or sediment sampling program is known to have been conducted to evaluate pesticide residues from agricultural use. Further discussion of the fate, transport, and bioaccumulative properties of pyrethroid, organochlorine, and organophosphate pesticides that have been applied to study area crops is provided in Chapter 9, *Water Quality.*

Pesticide and fertilizer supply companies, including facilities that sell, store, concentrate, dilute, or distribute agricultural chemicals, are present in the study area. These supply facilities may be large-volume supply businesses that have tanks holding thousands of gallons of agricultural chemicals, which are sold to farmers or distributors for local use. Other pesticide and fertilizer facilities may be farm-level batch plants, which take the raw material from a supply yard or tanker and temporarily store the material prior to loading it into distribution equipment.

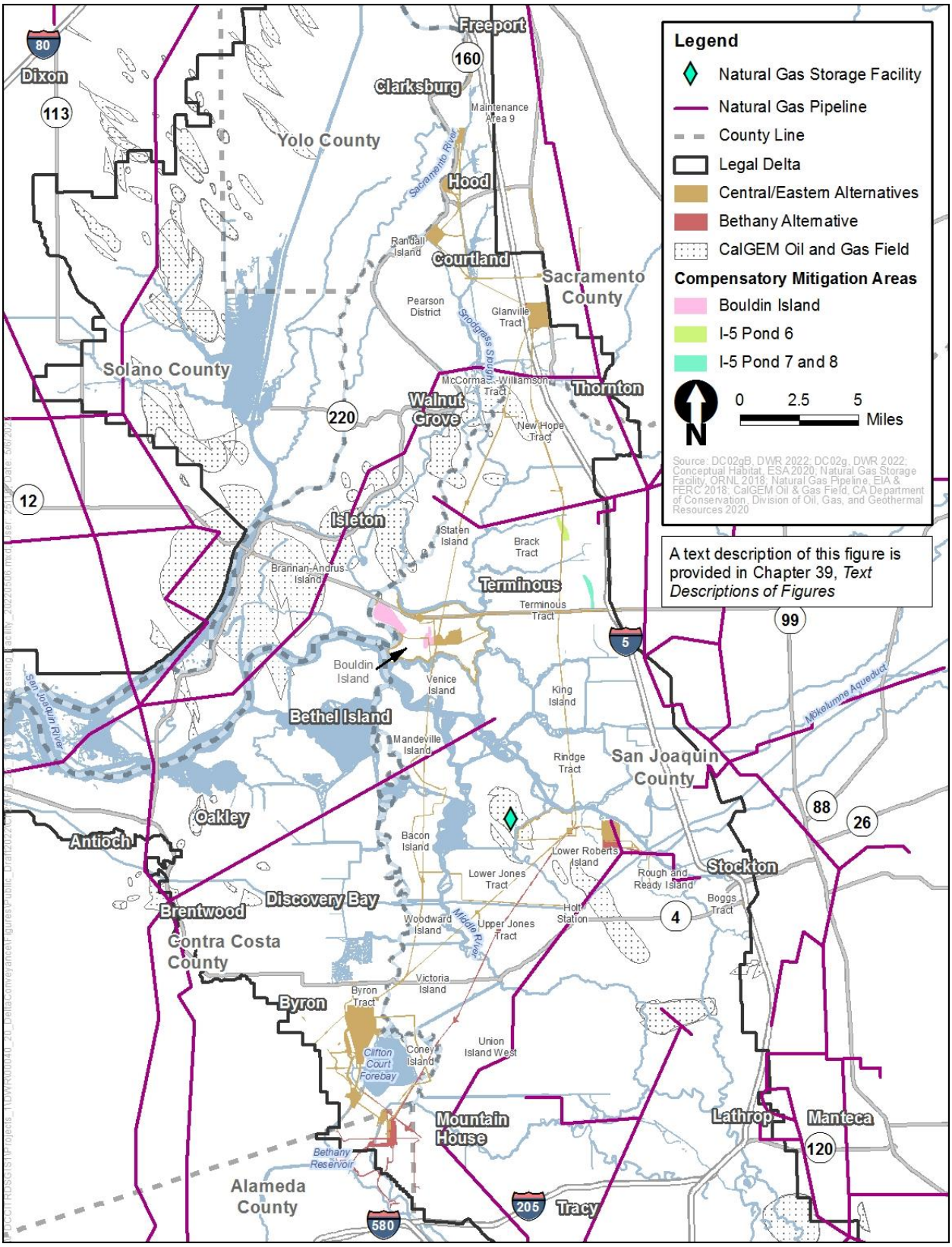

Figure 25-1. Oil and Gas Processing Facilities

In addition to agricultural pesticide and fertilizer use, other activities associated with farming can generate hazardous materials. Most farming properties have land that is not engaged directly in crop production (e.g., buildings used for equipment storage and maintenance). Aboveground and underground storage tanks (ASTs, USTs) potentially containing hazardous materials (e.g., fuel) used in farm operations may also be present. In addition to pesticides and fertilizers, storage of petrochemical products is prevalent. Farms also often have a waste disposal area where waste crop material may be stored for later offsite disposal, and composting storage areas may also contain drums of lubricants, agricultural chemicals, or other potentially hazardous materials (e.g., paint, solvents) temporarily stored before disposal.

The study area has a wide variety of processing facilities for the variety of crops grown (e.g., pears, asparagus). Contaminants of concern for these types of properties vary, but are primarily pesticides, fertilizers, and chemicals for maintaining farm equipment (e.g., solvents, grease, oil, gasoline). Waste disposal areas on farms may have petroleum products (e.g., waste materials from equipment maintenance) or agricultural chemicals (spillage from containers containing residual volumes of chemicals such as pesticides). Health studies of petroleum products have shown effects on lungs, the central nervous system, the immune system, reproduction, skin, and eyes (Agency for Toxic Substances and Disease Registry 2014a).

25.1.2.3 Hazards from Electrical Transmission Lines

Electricity within the study area is transmitted by power lines owned and maintained by the participants in the California-Oregon Transmission Project, which include Transmission Agency of Northern California (TANC), Western Area Power Administration (WAPA), Pacific Gas and Electric (PG&E), and Sacramento Municipal Utilities District (SMUD), and by the individual entities of WAPA, PG&E, and SMUD. The existing transmission lines are sized at 500 kilovolts (kV), 230 kV, 115 kV, 69 kV, or 60 kV. Distribution lines are lower voltage and therefore carry a smaller amount of power (e.g., 24 kV) and are generally owned by the utility companies that use them. When work is performed near transmission lines, electrical contact can occur even if direct physical contact with a line is not made because electricity can arc across an air gap. Accidental or inadvertent contact with energized 500-kV transmission lines and towers could result in public health and safety impacts including serious injury, electrocution, and in some instances, death. For a discussion regarding the project's potential to impact utility providers and utility infrastructure, see Chapter 21, *Public Services and Utilities.*

25.1.2.4 Hazards from Oil and Gas Production and Processing

Active oil and gas extraction fields are present throughout the study area. Petroleum production in the study area mainly consists of natural gas extraction, though minor quantities of crude oil and condensate are also produced.

Petroleum production has occurred in the study area at least since the discovery of the Rio Vista gas field in 1936. Numerous oil and gas wells have been drilled throughout the study area; many of these wells are present along the alignments under consideration for the project alternatives (Figure 25-2). Oil and natural gas production emits benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) as well as n-hexane and other volatile organic compounds. Short-term exposure to these compounds can result in nose, throat, eye, skin, and gastric irritation; nausea; vomiting; and neurological effects. Chronic exposure can result in blood disorders, birth defects, developmental disorders, neurological effects, respiratory problems, and cancer (U.S. Environmental Protection

Agency 2016). The locations of active wells can be determined with relative ease; however, the locations of abandoned or plugged wells may be unknown due to inadequate or missing data or poor record keeping.

Active, abandoned, and idle oil and gas wells may be present in areas where excavation is planned. Improperly sealed natural gas wells have the potential to act as natural gas conduits from deep reservoirs to shallow strata where flammable gases may pose hazards to excavation or tunneling activities.

Chapter 27, *Mineral Resources*, provides a discussion of known oil and gas resources throughout the study area. Two active gas wells have been identified in the study area. The first is located near King Island just outside the eastern tunnel alignment. The second active gas well is located along the central tunnel alignment on Staten Island (Figure 25-2).

Previously active oil and natural gas well fields may have areas of contaminated soil and/or groundwater. In addition to production facilities, an active, producing well field may have areas used during exploration that may currently have soil or groundwater contamination. For example, during typical drilling activities, mud pits have served as surface impoundments for drilling fluids that can contain hazardous materials (e.g., cadmium, mercury, chromium, naphthalene, and fluorine), resulting in a potential source of contamination. Drilling fluids often contain petroleum compounds in both raw (crude) form and refined form (drilling enhancement additives). Generally, mud pits are a series of open tanks, usually made of steel plates, through which the drilling mud is cycled to allow sand and sediments to settle out. Former mud pits, although usually lined, may be a source of hydrocarbon contamination.

Other oil and gas exploration and production activities that can release hazardous materials into the environment, where they may be encountered during excavation or construction, include drilling, production, treatment and temporary storage areas, and storage and shipment to refineries and processing facilities. Oil and natural gas pipelines are also present throughout the study area and several pipelines are aligned west to east across the study area's southern half (Figure 25-1). A discussion of oil and natural gas resources in the study area is found in Chapter 27, *Mineral Resources*.

25.1.2.5 Hazards from Historical Mining

Mercury has been identified as a chemical of concern in Delta area sediments. Historically, mercury was used extensively upstream of the study area in mining to extract gold from ores and placer gravel deposits. Mercury released into the environment by historic gold mining practices has been flowing into the study area via water, primarily from the Sacramento River watershed, and sediments since the mid-1800s and is expected to continue to do so. An unknown amount of mercury, primarily as methylmercury, is present in sediments within the study area, but estimates of mercury flowing into the study area, mainly associated with suspended sediment, range from approximately 200 to 400 kilograms per year (Central Valley Regional Water Quality Control Board 2008:27–28). Discussions of mercury and other metals and their bioaccumulative properties are provided in Chapter 9, *Water Quality*, and Chapter 26, *Public Health.*

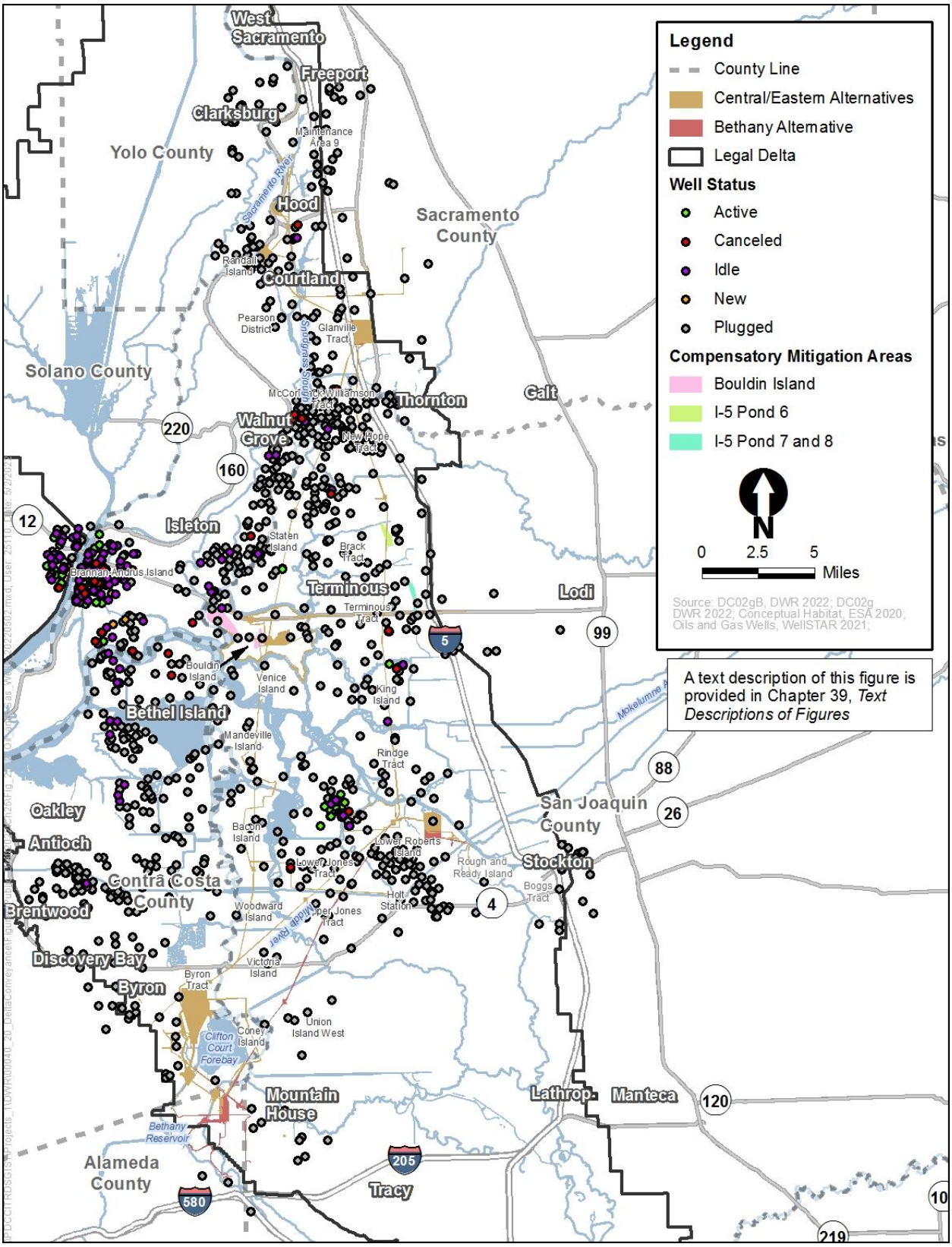

Figure 25-2. Oil and Gas Wells

25.1.2.6 Urban, Residential, and Recreational Land Use

In general, hazardous materials releases from cities and towns are associated with stormwater runoff and primarily affect water bodies. Urban stormwater discharges are generally characterized by varying levels of metals and hydrocarbons that can accumulate in river sediments over time. Historically, polychlorinated biphenyls (PCBs) have been associated with urban discharge, and these contaminants have been detected in fish tissues in San Francisco Bay.

Urban areas have many facilities that could have hazardous materials releases, including gas stations, dry cleaners, automotive repair facilities, and, in larger towns, manufacturing facilities. Stockton, for example, has large shipping and port facilities, as well as federal facilities with a history of hazardous materials use, storage, and releases. Possible contaminants of concern from urban land uses are extensive, but the most common contaminants in soil and groundwater are petroleum and associated compounds (typically from gasoline and diesel releases from USTs), chlorinated solvents and degreasers (from dry cleaning and vehicle repair facilities), and various heavy metals, such as arsenic and lead.

In addition, large marinas, service houseboats, pleasure craft, and commercial craft are present throughout the study area. Marinas typically have bulk fuel storage and overwater fueling facilities, various boat repair/maintenance facilities, stores, boat storage, and camping facilities. Typical chemicals associated with marinas include fuels, lubricants, cleaners, anti-fouling paints, and fiberglass components.

Wastewater discharges from treatment plants also are associated with urban and suburban land use. Given the small percentage of urban land in the study area, urban-related toxicants are of less concern than other potential sources of hazardous materials. A detailed discussion of water quality is provided in Chapter 9, *Water Quality*.

25.1.2.7 Hazardous Materials Transportation

The study area and surrounding region are home to urban centers, including the cities of Antioch, Stockton, Sacramento, and San Francisco. Major east–west surface transport routes and ship channels cross the Delta. These transportation corridors move a variety of products, including hazardous materials. Transportation of hazardous materials involves some risk of spillage and subsequent contamination of soil, water, or sediments.

Various hazardous materials are transported through the study area by water, pipeline, rail, and road. The hazardous materials shippers and transporters must comply with specific requirements of the Code of Federal Regulations (CFR), Title 49, Part 171 including proper classification, labeling, packaging, and handling. Figure 25-3 displays the locations of designated hazardous materials transportation routes, including rail, within the study area.

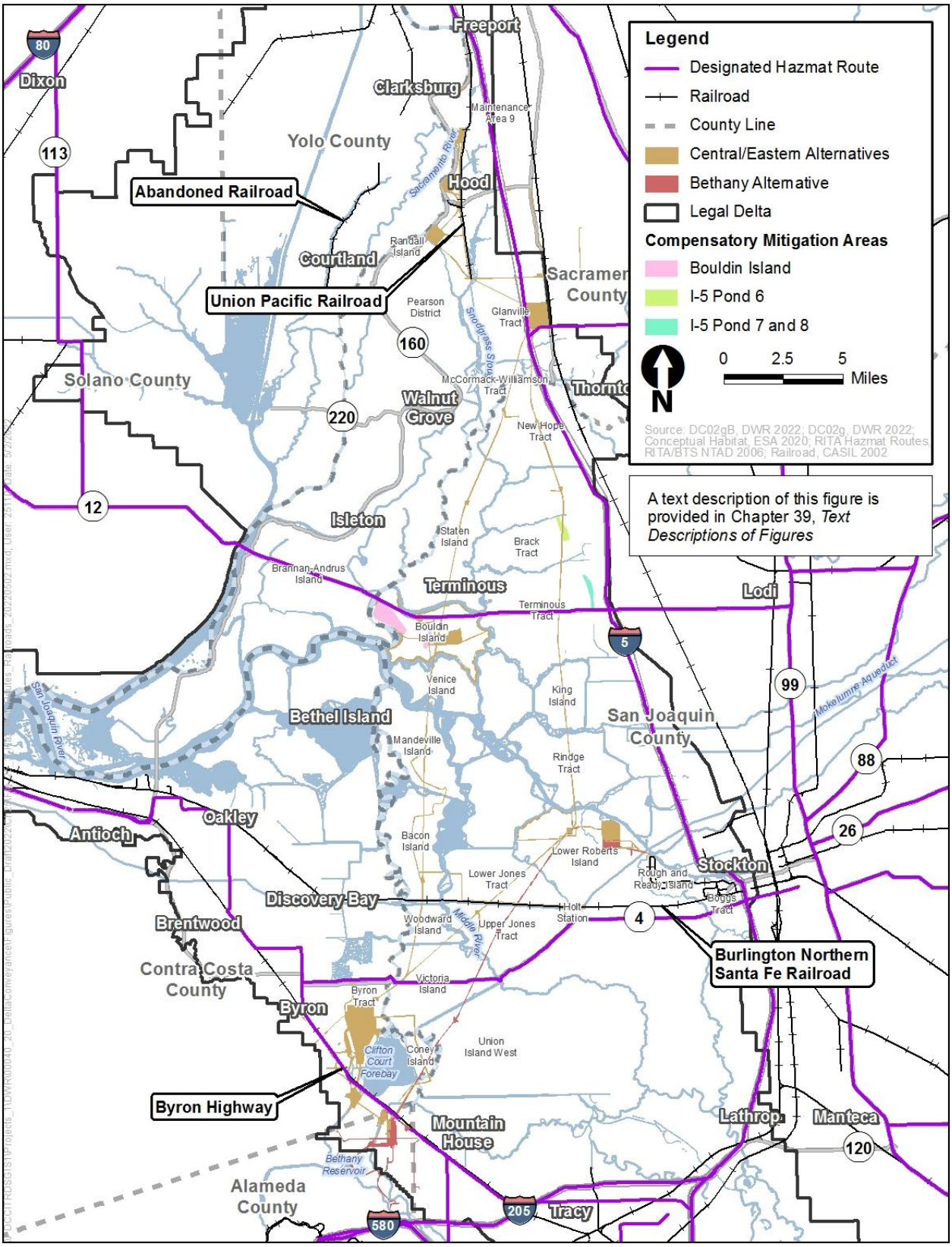

Figure 25-3. Hazardous Materials Routes and Railroads

Transported Commodities of Concern

The following commodities are known to be transported through the study area by one or more modes of transportation. Acute, short-term health effects of exposure to these chemicals (commodities) are briefly described below. The effects of exposure to any hazardous substance depend on many variables, including the dose, duration, and route of exposure.

- Anhydrous ammonia is commercially used directly or indirectly in the production of pharmaceuticals. Anhydrous ammonia is also used in the production of fertilizer. It is a caustic or corrosive, colorless gas. Ammonia is an irritant that is corrosive to the skin, eyes, respiratory tract, and mucous membranes. Exposure to liquid or rapidly expanding gases may cause severe chemical burns and frostbite to the eyes, lungs, and skin (Tanner Industries, Inc. 2011:1).
- Crude oil, or petroleum, is a naturally occurring, combustible liquid. It is the base product that is processed to produce other petroleum products.
- Diesel, or petro-diesel, is a product of crude oil used as fuel for vehicles, trucks, ships, and generators. It is a volatile, flammable liquid. Direct contact with diesel fuel causes severe skin irritation. Inhalation of diesel fuel can result in lung damage (California Office of Environmental Health Hazard Assessment 2021).
- Gasoline is a product of crude oil used primarily as engine fuel. It is a volatile, flammable liquid. Typical gasoline contains about 150 different chemicals, including BTEX compounds. Many adverse health effects of gasoline are due to individual chemicals in gasoline, mainly BTEX, that are present in small amounts. Inhalation of gasoline vapors can cause nose and throat irritation, headaches, dizziness, nausea, vomiting, confusion, and breathing difficulties. Skin contact with gasoline can result in rashes, redness, and swelling (Agency for Toxic Substances and Disease Registry 2014b).
- Natural gas consists primarily of methane and is a colorless, nearly odorless gas. Natural gas is volatile and flammable. Acute dizziness may result immediately or shortly after exposure to methane with oxygen levels of less than 15% in air; no long-term health effects are known to be associated with exposure to methane (Wisconsin Department of Health Services 2019).
- Propane is normally a colorless gas, but it can be compressed into a transportable liquid. Propane is volatile and flammable. Potential health effects associated with short-term exposure to propane include dizziness, disorientation, and excitation (i.e., hallucinations, euphoria); nausea and vomiting; unconsciousness; cardiac arrest; and frostbite (from contact with liquid) (U.S. Department of Health and Human Services 2017).
- Ethanol is a volatile, flammable, colorless liquid. It is a skin, eye, and lung irritant (Velocity EHS 2014).
- Coal fly ash is a fine particulate residue generated in the combustion of coal. The main components of coal fly ash are oxides of silicon, aluminum, iron, and calcium, with lesser amounts of magnesium, sulfur, sodium, and potassium. Other metals and metal-like elements are found in trace quantities, and can include arsenic, lead, cadmium, mercury, and other metals. Fly ash is a respiratory irritant, and some of the compounds found in fly ash can be toxic to the nervous system and cardiovascular system and can adversely affect the kidneys (U.S. Environmental Protection Agency 2019a).
- Radioactive material occurs in many forms. The type and severity of adverse health effects from radiation depend on the amount and duration of radiation exposure. Adverse health effects from

radiation exposure generally range from acute exposure effects such as skin burns, nausea, weakness, hair loss, or diminished organ function to DNA mutations and cancer (U.S. Environmental Protection Agency 2019b).

- Common acids and bases used in industry and research include sodium hydroxide, ammonium hydroxide, hydrochloric acid, and sulfuric acid. Strong acids and bases such as these are corrosive to skin as well as nasal and lung tissue (if inhaled).

Rail

Union Pacific Railroad (UPRR) and BNSF Railway (formerly Burlington Northern Santa Fe Railway) are the major railroads in the Delta. Two smaller railroads operate locally: Central California Traction Company (CCT) and Sierra Northern Railway. Both are short-line railroads at the Ports of Stockton and West Sacramento, respectively. These railroads provide service to UPRR and BNSF at the respective ports of their operations (Central California Traction Company n.d.; Sierra Northern Railway 2020). In addition to freight trains, Sierra Northern Railway also owns the Sacramento River Train, a passenger/tourist train that runs from West Sacramento to Woodland (Sierra Northern Railway 2020). For locations of railroads in the Delta and immediate vicinity, please refer to Figure 20-4 in Chapter 20, *Transportation*, which provides additional information about rail transport in the study area.

On their national rail network, BNSF transports several types of fuel (e.g., liquefied petroleum gas, ethanol, coal) plastics, dry and liquid fertilizers, chemicals used in manufacturing, and other unspecified hazardous materials (BNSF Railway 2021a), as well as nonhazardous freight such as food and beverages (BNSF Railway 2021b). On its California routes, UPRR transports various chemicals, manufactured goods, agricultural products, industrial products, and energy products (Union Pacific Railroad 2019:26).

The exact types, quantities, or volumes of commodities transported through the study area by UPRR and BNSF Railway are not publicly available, presumably because of hazardous materials security plans required by U.S. Department of Transportation. Such non-disclosure is also consistent with definitions and regulations pertaining to protection of sensitive security information at 49 CFR Part 1520, Sections 1520.5(a)(3) and (8)(i) and 1520.9, applicable to maritime, rail, and aviation transportation. It is assumed that commodities carried on the short-line railroads would be transferred to the main railroad companies; however, this cannot be confirmed because of the safety and proprietary issues restricting access to commodity information from the ports and state and federal agencies.

Commodities transported by CCT, which operates freight service between Stockton and Lodi, include food, steel, lumber, and general commodities (Union Pacific Railroad n.d.). The short-line Sierra Northern Railway handles approximately 6,000 cars annually. Publicly available information indicates commodities carried by Sierra Northern Railway include unspecified chemicals, ethanol, and propane (Sierra Northern Railway 2020).

Federal, State, and County Roadways

Designated hazardous materials transportation routes avoid population centers, environmentally sensitive areas, narrow bridges, and tunnels. Designated routes are generally wider to provide easier access for first responders en route to an event (e.g., accident, release, or spill). Figure 25-3 shows the California designated routes for hazardous materials in the study area.

Designated hazardous materials routes in the study area are listed below.

- I-5, generally along the east side of the Delta boundary, and extending from Sacramento to south of Tracy.
- State Route (SR) 12, aligned from west to east across the central study area from Rio Vista to Lodi.
- SR 4, generally aligned from west to east across the southern portion of the study area from Pittsburg to Stockton.
- Byron Highway, a county road along the southwestern boundary of the study area; it intersects with SR 4 and trends southeasterly to the intersection with I-205.

Several alternative highway routes within and around the study area are available in the event of a hazardous materials accident and/or release. Refer to Chapter 20, *Transportation*, for more detail about highways in the Delta.

Marine Transportation

Ships using ports in the study area transport hazardous materials by the Sacramento River, the San Joaquin River, the Sacramento River Deep Water Ship Channel (SRDWSC), and Stockton Deep Water Ship Channel (SDWSC). Ships enter the mainland at the Port of San Francisco and travel through San Pablo Bay, Suisun Bay, and Honker Bay before making their way to either the Sacramento River or the San Joaquin River, where they travel the SRDWSC or SDWSC to the port of choice.

The Port of West Sacramento is on the Sacramento River and the SRDWSC. This port's location provides for immediate access to major highways and rail service. I-80 is approximately 0.25 mile from the front gate of the port. BNSF, UPRR, and Sierra Northern Railway provide rail service to the port. Intermodal services provided at the port are receiving from and loading out to ship, truck, or rail car. The port's primary cargoes are rice and cement (City of West Sacramento 2021:2), but also fertilizer, mineral/ore, and metals (SSA Marine 2022).

The Port of Stockton is on the SDWSC, approximately 1 mile from I-5 and other interconnecting major highway systems. It is centrally located, providing service for shipment and warehouse storage facilities for containerized and liquid bulk and dry bulk cargo. BNSF and UPRR serve these facilities. Commodities that are brought through the Port of Stockton include bulk materials, such as dry bulk (e.g., rice), cement, aggregate, steel products, coal, petroleum coke, slag, ores, clay, sulfur, liquid fertilizer, and anhydrous ammonia (Port of Stockton 2022).

25.1.2.8 Wildfire Hazards

In general, wildfire is a serious hazard in undeveloped areas with extensive areas of nonirrigated vegetation. Ninety-five percent of wildfires in California are caused by people, particularly where homes encroach on the wildland-urban interface (California State University n.d.). The typical "fire season" runs from June to October when vegetation is generally dry, but in recent history, the season is starting earlier and ending later each year. Climate change is considered a key driver of this trend—warmer spring and summer temperatures, reduced snowpack, and earlier snowmelt result in longer, more intense dry seasons (California Department of Forestry and Fire Protection 2019).

Fire hazard classification varies by areas in and around the study area. The California Department of Forestry and Fire Protection (CAL FIRE) has a legal responsibility to provide fire protection on all

State Responsibility Area (SRA) lands, which are defined based on land ownership, population density, and land use. For example, CAL FIRE does not have responsibility for densely populated areas, incorporated cities, agricultural lands, or lands administered by the federal government. The SRA Fire Hazard Severity Zone maps show areas of legal responsibility for fire protection, including SRAs, Federal Responsibility Areas (FRAs), and Local Responsibility Areas (LRAs). According to CAL FIRE's Natural Hazard Disclosure (Fire) maps, the majority of the study area is not in a fire hazard region nor is it served by CAL FIRE under an SRA or LRA (California Department of Forestry and Fire Protection 2007). The southwest portion of the project under all alternatives is within an area mapped as moderate for fire hazards and is served by CAL FIRE. Areas identified as FRAs are in the Stone Lakes National Wildlife Refuge and just outside the study area in the Cosumnes River Preserve. Figure 25-4 shows CAL FIRE's fire hazard severity zones in relation to the study area. The types of fire hazards shown in Figure 25-4 are related to aboveground conditions and do not identify the potential for peat fires, discussed below.

Peat that has built up consists of decayed wetland vegetation (tule) and—when ignited—can cause fires that are particularly difficult to handle. Once ignited, peat's high carbon content and a propensity to burn at a lower temperature can smolder for very long periods of time (months or even years), slowly spreading underground. Peat fires are usually started by forest or grassland fires or—on rare occasions—lightning strikes. The thick organic soils and peat have the potential to generate flammable gases such as methane that can pose hazards to workers during deep excavations and tunneling. Figure 11-3 in Chapter 11, *Soils,* shows the thickness of organic soils of which peat is a major component in the study area.

25.1.3 Airports within 2 Miles of the Water Conveyance Project Footprints

Four public and seven private airports are within 2 miles of the study area. These airports are described briefly below (Figure 25-5).

25.1.3.1 Public Airports

Byron Airport. This airport is 2 miles south of Byron and is owned by Contra Costa County. Byron Airport has two runways and averages 227 operating aircraft per day, based on a 12-month period ending December 31, 2017 (AirNav, LLC 2020a). There is no control tower.

Franklin Field Airport. This airport is approximately 4 miles southeast of Franklin and is owned by the County of Sacramento. The Franklin Field Airport has two runways and averages approximately 89 operating aircraft per day, based on a 12-month period ending December 31, 2017 (AirNav, LLC 2020b). There is no control tower.

Lost Isle Seaplane Base. This airport is approximately 8 miles northwest of Stockton and is owned by the California State Lands Commission. The Lost Isle Seaplane Base has one runway and averages approximately 12 operating aircraft per year, based on a 12-month period ending October 10, 2018 (AirNav, LLC 2020c). There is no control tower.

Kingdon Airpark. This public-use airport is approximately 3 miles west of Lodi. The airport has two lighted asphalt runways averaging 11 aircraft operations per day. There is no control tower (AirNav, LLC 2021a).

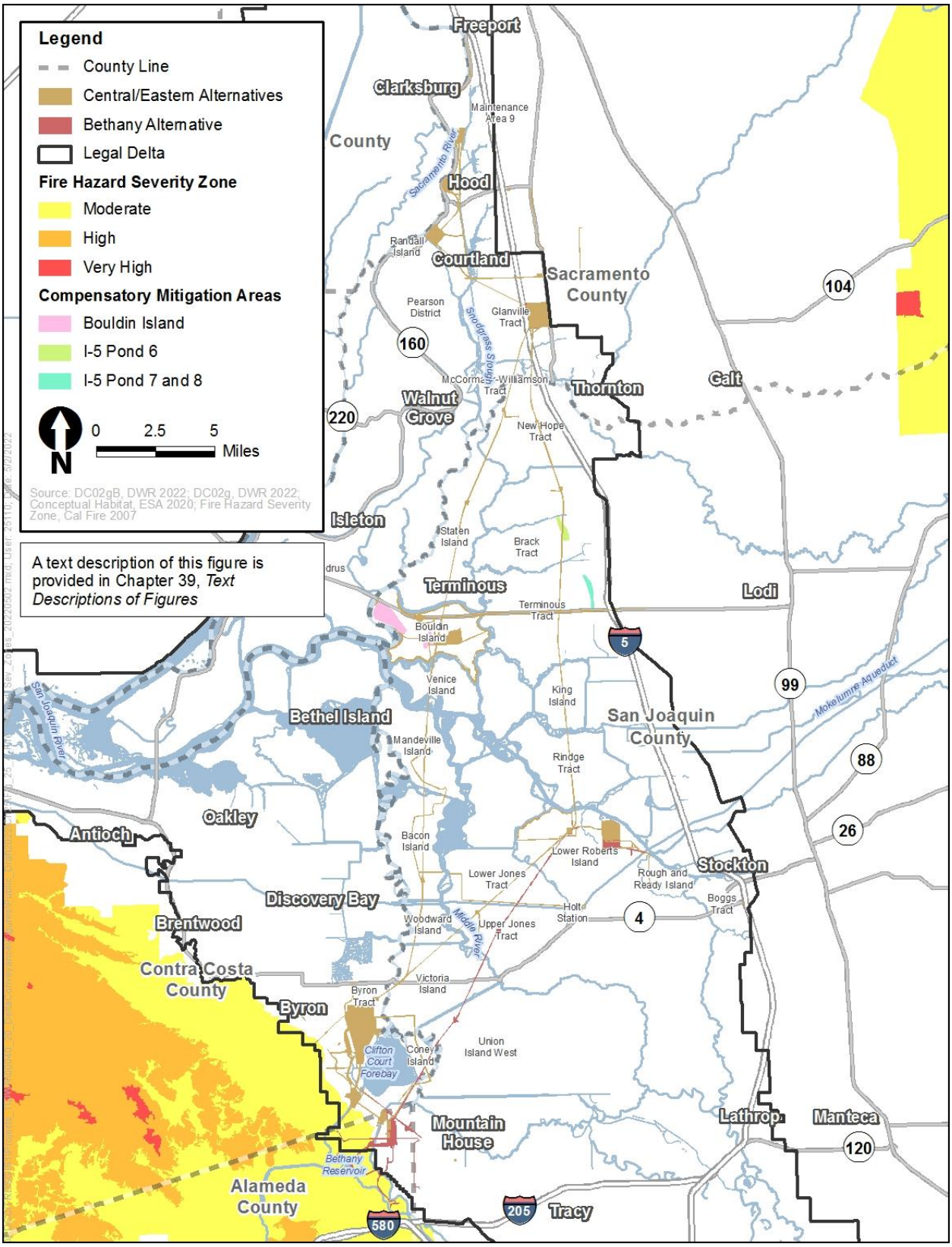

Figure 25-4. Fire Hazard Severity Zones

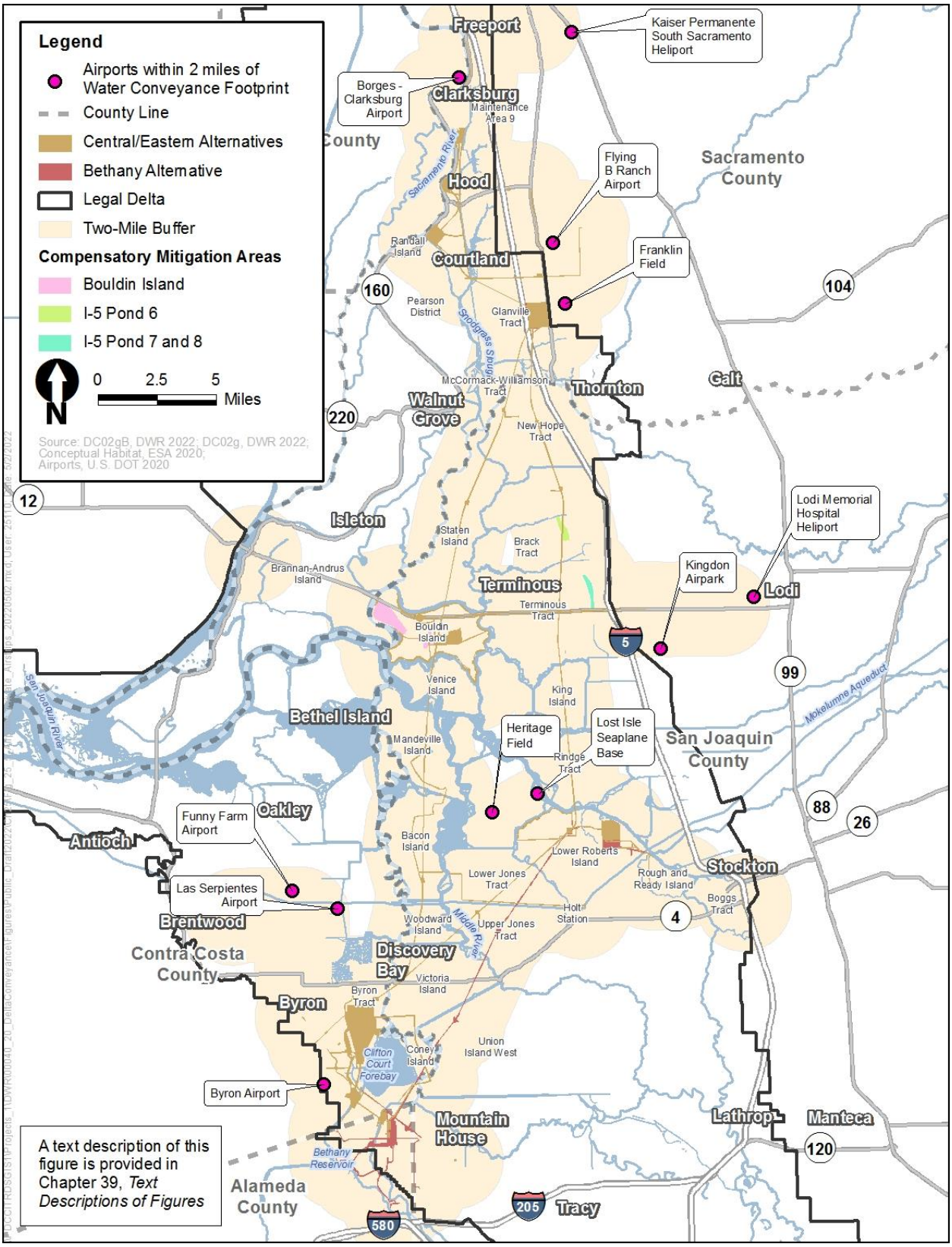

Figure 25-5. Airports within 2 Miles of Water Conveyance Facilities

25.1.3.2 Private Airports

Kaiser Permanente South Sacramento Heliport. The Kaiser Permanente South Sacramento Hospital heliport is located at 6600 Bruceville Road, Sacramento. The heliport used for hospital business and patient care is a private 40-foot by 40-foot helipad (AirNav, LLC 2021b).

Borges-Clarksburg Airport. This airport is approximately 2 miles northeast of Clarksburg and has one turf runway. There is no control tower, and permission is required to land. The Borges-Clarksburg Airport averages approximately 57 operating aircraft per week, based on a 12-month period ending December 31, 2001 (AirNav, LLC 2020d).

Lodi Memorial Hospital Heliport. The Lodi Memorial Hospital heliport is a private, medical-use heliport located at 975 South Fairmont Avenue, Lodi (AirNav, LLC 2021c).

Flying B Ranch Airport. This airport is approximately 2.3 miles south of Elk Grove and has two dirt runways. The airport serves single-engine aircraft and has no control tower (AirNav, LLC 2021d).

Heritage Field. This airport is on Mc Donald Island approximately 7 miles northwest of Stockton and has two asphalt runways. There is no control tower, and permission is required to land (AirNav, LLC 2020e).

Funny Farm Airport. This airport is in Brentwood and has two asphalt runways. There is no control tower, and permission is required to land (AirNav, LLC 2021e).

Las Serpientes Airport. This airport is approximately 2 miles southeast of Knightsen and has two dirt runways. There is no control tower, and permission is required to land (AirNav, LLC 2021f).

25.1.4 Evacuation and Emergency Routes

Emergency response for most of the study area is under the jurisdiction of the Sacramento County Office of Emergency Services (SacOES) and San Joaquin County Office of Emergency Services (SJOES). Both agencies are responsible for alerting and notifying appropriate agencies when disaster strikes; coordinating all agencies that respond; ensuring resources are available and mobilized in times of disaster; developing plans and procedures in response to and recovery from disasters; and developing and providing preparedness materials for the public (County of Sacramento 2020; County of San Joaquin 2019:5). SacOES and SJOES are responsible for coordinating plans for all types of emergencies including emergency evacuations. Yolo, Contra Costa, and Alameda Counties also have offices of emergency services that provide coordinated emergency management. Local emergency response teams, including fire, police, and sheriff's departments, provide most of the services in an emergency response.

Emergency evacuations are implemented by local jurisdictions according to local laws, policies, and authority. The decision to evacuate depends on the nature, scope, and severity of the emergency, as well as the number of people affected and what actions are necessary to protect the public. Local jurisdictions activate their own resources and emergency operation centers for an evacuation of their communities based on the local situation. Mitigation Measure TRANS-1 requires that the project would develop site-specific Transportation Demand Management and Traffic Management Plans in consultation with the applicable transportation entities, including the following.

- Caltrans for state and federal roadway facilities.
- Local agencies for local roadway facilities.

- Local agencies for local intersection facilities (vehicles, pedestrians, and bicyclists).

25.1.5 Known Hazardous Materials Sites

To identify potential hazardous materials sites within the study area, the California Department of Toxic Substances Control (DTSC) EnviroStor database and the State Water Resources Control Board (State Water Board) GeoTracker database (i.e., Cortese List) were reviewed. Both resources are included in the Cortese List, a planning document used by state and local agencies and developers to comply with CEQA requirements in providing information about the locations of hazardous materials release sites. Per Government Code Section 65962.5, the Cortese List must be updated at least once annually. DTSC's EnviroStor database identifies sites that have known contamination or sites requiring further investigation, including State Response and Voluntary Cleanup sites. State Water Board's GeoTracker database identifies sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater such as Cleanup Program Sites (also known as Site Cleanups). The search area covered the study area (Department of Toxic Substances Control 2021a). Most hazardous materials sites identified were related to leaking underground storage tanks (LUSTs) and oil and/or gasoline pipeline leaks. Sites identified in the database search along with their location, site summary, and current status are listed in Table 25-1.

Table 25-1. Sites of Concern within or near the Study Area

Site Name	Location	Site Type	Summary and Site Status	Alignment and Alternatives	Site within Study Area
GTE Data Services	7901 Freeport Blvd, Sacramento	LUST	Aquifer contamination was caused by diesel leaking from an underground storage tank. Cleanup was completed. The case was closed in 1996.	North Delta Intakes, North Tunnels (All Alternatives)	No. Near SCADA fiber line route
MNTN Shop #32	3250 Meadowview Road, Sacramento	LUST	Soil contamination was caused by gasoline leaking from an underground storage tank. The tank was removed, and soil remediation was completed. The case was closed in 1990.	North Delta Intakes, North Tunnels (All Alternatives)	No. Near SCADA fiber line route
Chevron	8110 Freeport Blvd, Sacramento	LUST	Soil contamination caused by benzene was reported January 1990. Soil and groundwater testing commenced. The case was listed as completed and closed in 1990.	North Delta Intakes, North Tunnels (All Alternatives)	Yes. Near SCADA fiber line route and access road
Delta Shores	8145 Freeport Blvd, Sacramento	Cleanup Program Site	Soil and groundwater contamination from gasoline was reported in 2007. The site was assessed and remediated starting in 2008. It was listed as completed and the case was closed in October 2019.	North Delta Intakes, North Tunnels (All Alternatives)	No. Near SCADA fiber line route and access road
Freeport Marina	8250 Freeport Blvd, Sacramento	LUST	Soil contamination was caused by gasoline leaking from an underground storage tank. First reported in 1994, the case was closed in 1996.	North Delta Intakes, North Tunnels (All Alternatives)	Yes. Near SCADA fiber line route and access road
Gil's Garage	10413 Franklin Blvd, Elk Grove	LUST	Soil contamination was caused by gasoline leaking from an underground storage tank. First reported in 1997, the case was closed in 2000.	North Delta Intakes, North Tunnels (All Alternatives)	No. Near permanent utility line

Site Name	Location	Site Type	Summary and Site Status	Alignment and Alternatives	Site within Study Area
Govan Property	10464 Franklin Blvd, Elk Grove	LUST	Soil contamination was caused by gasoline leaking from an underground storage tank. First reported in 1992, the case was closed in 1996.	North Delta Intakes, North Tunnels (All Alternatives)	No. Near permanent utility line
Primasing Residence	10751 6th Street, Hood	LUST	Soil contamination was caused by diesel leaking from an underground storage tank. The tank was removed in 1998 and soil remediation was completed. The case was closed in 1999.	North Delta Intakes, North Tunnels (All Alternatives)	No. Near access route for employee van to intake sites
Southern Pacific Pipeline Shell	West side of Cook Road, Holt	Voluntary Cleanup	Groundwater and soil contamination of various TPHs. The pipeline leak occurred under the Arcady Oil Company site in 1986. Surface water affected by the petroleum fuel leak was cleaned up by Arcady and Southern Pacific Pipelines, Inc. Groundwater and soil may have been affected by the fuel leak; this was never addressed. The contamination from the leak is on the same site as Arcady Oil Company's drilling mud disposal landfill, also a hazardous waste site. The RWQCB is currently working with Arcady Oil Company to close the landfill and address contamination at the site. This case is ongoing.	Eastern alignment (Alternatives 3, 4a, 4b, 4c)	No. Near access road
KMEP Holt Petroleum Pipeline	3851 South Whiskey Slough Road, Holt	Cleanup Program Site	Soil and water contamination of fuels from underground pipeline in 1986. Site investigations and remedial activities commenced and included groundwater monitoring, bailing of free product, operation of a groundwater extraction and treatment system, and operation of a soil vapor extraction system. In 2005 and 2006, KMEP implemented phytoremediation and planted about 240 trees at the site. KMEP is using phytoremediation to remove soil contamination that is within the peat layer. Monitoring ongoing as of May 2009 and the case is still open.	Eastern alignment (Alternatives 3, 4a, 4b, 4c)	No. Near access road
Flag City Shell	6437 West Banner Street, Lodi	LUST	Groundwater contamination from fuel oxygenates was reported in 2005. Groundwater monitoring indicated that the plume affected other wells. The case was closed in 2012.	Eastern alignment (Alternatives 3, 4a, 4b, 4c)	No. Near permanent utility line, SCADA fiber route
Flag City Chevron	6421 Capital Road, Lodi	LUST	Groundwater contamination of gasoline from a LUST was reported in 2005. The tank was removed, and the case was closed in 2012.	Eastern alignment (Alternatives 3, 4a, 4b, 4c)	No. Near permanent utility line, SCADA fiber route

Site Name	Location	Site Type	Summary and Site Status	Alignment and Alternatives	Site within Study Area
Three B's Truck Plaza	14749 Thornton Road, Lodi	LUST	Groundwater contamination of gasoline from four LUSTs. Tanks removed and remediation completed. The case was closed in 2016.	Eastern alignment (Alternatives 3, 4a, 4b, 4c)	No. Near permanent utility line, SCADA fiber route
Byron Corners	15031 Byron Highway, Byron	LUST	Soil contamination from a leaking pipeline was reported in 2004. Remedial action included pipeline repair. The case was closed in 2008.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	No. Near park-and-ride lot
Byron Garage	14711 Byron Highway, Byron	LUST	Soil contamination of diesel was first reported in 1996. The leak was stopped, and the case closed in 1996.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	No. Near park-and-ride lot
Bay Standard	24485 March Creek Road, Brentwood	Evaluation	The facility manufactures bolts, nuts, screws, and washers. Operations include zinc plating. The waste from this operation was discharged to an unlined pond on-site. The pond was closed and replaced with a lined pond. This pond was also eventually closed. On May 13, 1993, the regional water quality board approved the closure of the pond.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	No. Near power transmission line
King's Island	21334 Highway 4 West, Stockton	LUST	Storage tank leaking gasoline was reported in 1995. No files were found to indicate that investigation or cleanup was undertaken; however, the case was completed and closed in January 1997.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	Yes. Near Southern Forebay
Chevron Texaco	Byron Road (milepost 225.6), Byron	Cleanup Program Site	Discharge of heating oil/fuel from former Old Valley Pipeline was discovered during geotechnical investigations in 1991. The case was closed in November 2003.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	Yes. Near access railroad: Southern Forebay on-site rail
Chevron, Holey-Byron Road	Holey Road, Byron	Cleanup Program Site	Petroleum-impacted soil was discovered in 2003 from former Old Valley Pipeline. No files were found to indicate that investigation or cleanup was undertaken; however, the case was completed and closed in September 2012.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	Yes. Near SCADA fiber line route
Chevron Old Valley Pipeline	Bruns and Byron Roads	Voluntary Cleanup	Leakage of unspecified oil from historic pipelines resulted in soil and groundwater contamination. Central Valley RWQCB is lead agency for the site and is overseeing the soil and groundwater investigation. Investigations are ongoing.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	Yes. Near construction water pipeline

Site Name	Location	Site Type	Summary and Site Status	Alignment and Alternatives	Site within Study Area
Chevron, Bruns Property	999 W. Byron Highway, Byron	Cleanup Program Site	Site status was updated to "Completed, Case Closed" following inactive case review in March 2017.	Central and eastern alignments (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)	Yes. Southern Forebay
Shell Pipeline – Kelso Road	16091 Kelso Road, Byron	Cleanup Program Site	Soil and groundwater contamination from petroleum hydrocarbons was reported in 2010. Remediation in 2011 included excavation of contaminated soils and groundwater. Remediation was deemed complete and the cased was closed in 2014.	Bethany Reservoir alignment (Alternative 5)	Yes. SCADA fiber line and adjacent to the Bethany Reservoir Pumping Plant and Surge Basin facility
D&D Flying Services	1540 N. Inland Drive, Stockton	Cleanup Program Site	It was reported that airplane tanks used for aerial pesticide application were rinsed in field. However, inspection indicated that the airstrip looked clean, and no spills or evidence of washing were observed. The flying service closed in 1988. Listed as inactive since 1985.	Eastern alignment (Alternatives 3, 4a, 4b, 4c), Bethany Reservoir alignment (Alternative 5)	No. Near Lower Roberts Island RTM and levee improvements
Stockton Naval Communication Station	Rough and Ready Island, Stockton	State Response	Former naval base and firing range with various soil and groundwater contaminants including organochlorine pesticides (e.g., DDT) and petroleum. To expedite reuse of the property and to comply with environmental cleanup requirements, the site has completed an Environmental Baseline Survey. Remediation is ongoing and listed as active April 2020.	Eastern alignment (Alternatives 3, 4a, 4b, 4c), Bethany Reservoir alignment (Alternative 5)	Yes. Near SCADA fiber routes
Tiki Lagoon Resort & Marina	12988 Mc Donald Island Road West, Stockton	LUST	Soil contamination from leaking gasoline tank was reported in 1993. No files were found to indicate that investigation or cleanup was undertaken; however, the case was completed and closed as of September 1996.	Eastern alignment (Alternatives 3, 4a, 4b, 4c) and Bethany Reservoir alignments (Alternative 5)	Yes. Near levee access road on Lower Roberts Island
Byron Bethany Irrigation District	7995 Bruns Road, Byron	LUST	Discharge of gasoline onto soil was discovered and reported in 1989 during tank testing. The case was completed and closed in September 1989.	Bethany Reservoir alignment (Alternative 5)	Yes. Near permanent utility line

Site Name	Location	Site Type	Summary and Site Status	Alignment and Alternatives	Site within Study Area
Byron Power Company	4901 Bruns Road, Byron	Cleanup Program Site	This site was a former power plant. Petroleum hydrocarbons were detected in soil samples collected in operational areas of the facility. Site investigations commenced. After demolition, remedial excavation was conducted beneath the foundation of the power plant building. Remedial excavations were also conducted in the areas of the evaporator pads and lined surface impoundment. The case was closed on May 20, 2014.	Bethany Reservoir alignment (Alternative 5)	No. Near water treatment plant and storage tanks near Bethany Reservoir Aqueduct
Schropp Ranch	3880 Mountain House, Byron	LUST	Groundwater contamination by gasoline leak. The tank was removed, and the site was remediated in 1993. The case was closed in 2006.	Bethany Reservoir alignment (Alternative 5)	Yes. SCADA fiber routes; access road
Willow Berm Marina	140 Brannan Island Road, Isleton	LUST	Aquifer was contamination from gasoline leak. Monitoring wells were installed, and the site was sampled. The case was completed and closed in 2011.	Compensatory Mitigation Area (Bouldin Island)	No

Sources: Department of Toxic Substances Control Board 2021b, 2021c, 2021d, 2021e; State Water Resources Control Board 2021a, 2021b, 2021c, 2021d, 2021e, 2021f, 2021g, 2021h, 2021i, 2021j, 2021k, 2021l, 2021m, 2021n, 2021o, 2021p, 2021q, 2021r, 2021s, 2021t, 2021u, 2021v, 2021w, 2021x, 2021y.

LUST = leaking underground storage tank; RTM = reusable tunnel material; RWQCB = Regional Water Quality Control Board; SCADA = supervisory control and data acquisition; TPH = Total Petroleum Hydrocarbon.

25.2 Applicable Laws, Regulations, and Programs

The applicable laws, regulations, and programs considered in the assessment of project impacts related to hazards, hazardous materials, and wildfire are indicated in Section 25.3.1, *Methods for Analysis*, or the impact analysis, as appropriate. Applicable laws, regulations and programs associated with state and federal agencies that have a review or potential approval responsibility have also been considered in the development of CEQA impact thresholds or are otherwise considered in the assessment of environmental impacts. A listing of some of the agencies and their respective potential review and approval responsibilities, in addition to those under CEQA, is provided in Chapter 1, *Introduction*, Table 1-1. A listing of some of the federal agencies and their respective potential review, approval, and other responsibilities, in addition to those under NEPA, is provided in Chapter 1, Table 1-2.

25.3 Environmental Impacts

This section describes the direct and cumulative environmental impacts associated with hazards, hazardous materials, and wildfires that would result from project construction, operation, and maintenance of the project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts are provided. Indirect impacts are discussed in Chapter 31, *Growth Inducement*.

25.3.1 Methods for Analysis

This section addresses the assessment methods used for the analysis of potential environmental impacts associated with construction, operation, and maintenance of the project alternatives. As a result of the project, potential impacts would be generated and/or created by reasonably foreseeable upset or accident conditions involving the release of hazardous materials; routine transport, use, and disposal of hazardous materials; construction activities; and routine operation and maintenance activities.

25.3.1.1 Process and Methods of Review for Hazards and Hazardous Materials

The baseline for hazards and hazardous materials includes known hazardous materials facilities and sites that currently exist in the study area, and which are identified in sources cited in Section 25.1, *Environmental Setting*.

In general, the analysis methodology was developed by reviewing previous documents prepared for the study area; searching DTSC's EnviroStor and State Water Board's GeoTracker databases for tracking hazardous waste facilities and sites; and reviewing engineering project reports, technical memoranda, and preliminary engineering drawings pertaining to the construction, operation, and maintenance of the water conveyance facilities.

Impacts related to hazards and hazardous materials were assessed by identifying recognized environmental conditions located in the study area and hazards within 2 miles of airports.[1]

The impact analysis associated with wildfires uses data from various state sources to determine the proximity of the study area to various wildfire responsibility and risk locations. CAL FIRE data of SRAs were used to determine if the study area is in or near a designated SRA.

25.3.1.2 Evaluation of Construction Activities

Project construction could potentially cause impacts associated with the creation of hazards and accidental release of hazardous materials, as well as the routine transport, use, and disposal of hazardous materials. Specifically, potential impacts would occur if construction resulted in one of the following conditions.

- Encountering contaminated soils, sediment, or groundwater resulting from historical land use practices.
- Release of hazardous constituents into the environment as a result of the disturbance of pipelines or other subsurface infrastructure.
- Increase in the risk of releases from vehicles carrying hazardous materials to construction sites and from rerouting hazardous materials vehicles around the construction activities.
- Improper use and/or disposal of hazardous materials.

Potential effects were determined using a variety of resources and standards as described below.

[1] A *recognized environmental condition* is defined as hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances into structures or into the ground, groundwater, or surface water of a property.

Designated Hazardous Materials Transportation Routes

Construction impacts related to potential upset (e.g., loss of cargo) or accident conditions regarding transport of hazardous materials via trucks, trains, ships, and pipelines were evaluated qualitatively. Designated transportation routes were mapped and compared with the construction footprint and the study area boundaries to evaluate the increased potential for releases/spills of hazardous materials as a result of traffic rerouting.

Soil or Groundwater Contamination from Known Hazardous Materials Sites

DTSC's EnviroStor database and the State Water Resources Control Board GeoTracker database (i.e., Cortese List), compiled pursuant to California Government Code Section 65962.5, was searched. The mapped locations of listed hazardous materials sites and facilities were compared to the construction footprints of the alternatives to assess the relative risk of encountering contaminated soil or groundwater during clearing, grading, excavation, tunneling, and construction of the alternatives. For the purpose of the impact analysis presented in Section 25.3.3, *Impacts and Mitigation Approaches*, a conservative approach was taken, and any sites within 0.25 mile of the construction footprint were considered to have the potential to pose a hazard resulting from migration of contaminants in groundwater.

Oil and Natural Gas Wells and Processing Facilities

Mapped locations of oil and natural gas wells and processing facilities within the construction footprints (Figures 25-1 and 25-2) were overlaid to assess the relative risk of disturbing a well or encountering petroleum products or processing chemicals in soil or groundwater, respectively. The numbers of oil and natural gas wells within the study area were obtained from publicly available data on the California Energy Commission's California Natural Gas Pipeline and Station ARC/GIS website.

Reusable Tunnel Material

RTM is the by-product of tunnel excavation using an earth pressure balance tunnel boring machine (TBM). RTM from the construction of the water conveyance facilities would be a mixture of soil cuttings and soil conditioning agents (water, foaming agents, and/or polymers). Tunnel boring operations would require the use of soil conditioners to control the behavior of excavated material. The soil conditioners would consist of slightly ionized organic molecules that would affect neither soil pH, nor the leachability of metals from the RTM. The main purpose of soil conditioners is to help support the face and encourage loose, coarse-grained soils to move smoothly through the excavation chamber. Secondary benefits of using conditioners include reduced torque of the cutter head, reduced wear of tunneling components, and lower risk of blockages.

RTM intended for reuse as structural fill would require drying. After excavation, the RTM would be moved to a mechanical dewatering facility for drying. RTM mechanical dryers would be used at the Twin Cities Complex and the Southern Complex (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c). Mechanical dryers considered include rotary mechanical dryers utilizing electric, natural gas, or propane heat sources. Natural drying and long-term storage of RTM would occur at Lower Roberts Island and Bouldin Island. For natural drying, RTM would be spread over a broad area and allowed to dry and drain naturally for up to 1 year.

At the Twin Cities Complex and the Southern Complex, RTM would be moved to lined, temporary stockpiles to be tested for hazardous materials. If the test results are negative for hazardous substances, the RTM would be moved to a dry stockpile storage area near the tunnel launch shaft sites at the Twin Cities Complex and Southern Complex. If test results indicate soils contain hazardous constituents above regulatory thresholds, that material would be transported to a disposal location licensed to receive those constituents (Delta Conveyance Design and Construction Authority 2022a:44, 2022b:23).

At the sites with only natural drying, the RTM would be moved to lined, temporary stockpiles to be tested for hazardous materials. The nonhazardous RTM would then be moved to areas for natural drying.

There would not be any long-term stockpiles of RTM at the Southern Complex for Alternatives 1, 2b, 2c, and 4b (see Chapter 3, *Description of the Proposed Project and Alternatives*, Section 3.4.4, *Reusable Tunnel Material*, for details regarding RTM handling and storage.)

Impacts associated with RTM management were analyzed based on stated toxicity of the soil conditioners, estimates of the volume of anticipated residue, and the results of tests done using soil samples mixed with representative soil conditioners (Delta Conveyance Design and Construction Authority 2022a:2).

Previous soil tests were conducted for the California WaterFix project. Soil samples were obtained from the tunnel horizon (100 to 170 feet bgs) from 19 boreholes along the Central Corridor.[2] Initial testing of soil samples was conducted to measure the consistency of moisture-conditioned baseline soils (without conditioner added) to help guide conditioner type selection and application rates. This was done to mimic the field conditions of the TBM excavating moisture-laden soils. Then, soils were mixed in two batches, with different conditioner foams. The concentration of conditioner added to water for testing soil samples ranged from 3% to 5%. The amount of soil conditioner added to the soil samples varied according to manufacturer recommendations. Application rates of the soil conditioner used for testing were purposefully higher than recommended by the conditioner manufacturers. These mixture samples were tested to assess the geotechnical properties to determine if RTM would be suitable as structural fill; the potential toxicity; and the suitability for plant growth for both wildlife habitat and agricultural use (URS 2014:2-5).

It should be noted that during testing, the conditioned soil samples were saturated and allowed to air dry at room temperature for one week. Originally, the testing plan included one month for air drying to simulate anticipated field construction procedures and allow for biodegradation of the conditioner products. However, after one week the conditioned soil samples were dry enough for testing to begin. Testing did not include mechanical drying methods, although it is not anticipated that mechanical drying would alter the properties of conditioned soils (URS 2014:2-4).

Although the study consisted of a limited number of samples and tests, and does not constitute a complete evaluation of RTM, California Department of Water Resources (DWR) concluded from the results that RTM, following storage and drying, is suitable for strengthening Delta levees; habitat restoration; fill on subsiding Delta islands; and as structural fill for construction of conveyance facilities (Delta Conveyance Design and Construction Authority 2022a:43). The construction contractor would be required to verify, by certification of the supplier, that the additives used for

[2] The Central Corridor varies slightly from the central alignment proposed for this project.

soil conditioning during tunneling operations were inert, biodegradable, and nontoxic to prevent contamination of the surrounding ground and the RTM.

Potential Hazards in Proximity to Schools

For the purposes of this analysis, existing or proposed schools are considered sensitive receptors. Schools are places where sensitive populations, (i.e., children) congregate. Children are generally more susceptible to the significant impacts of exposure to toxic chemicals and other pollutants.

The proximity of project facilities to schools was calculated using geographic information system (GIS) methods to determine the distance from the construction footprints to schools in the study area. Hazardous emissions and accidental release or combustion of hazardous materials near existing schools could result in health risks or other dangers to students.

Under Alternative 5, the Mountain House Elementary School (3950 Mountain House Road, Byron) is approximately 0.18 mile south of the proposed Bethany Reservoir Aqueduct. There are no public or private schools within 0.25 mile of the project footprints under Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c.

Potential air quality effects on sensitive receptors such as schools, hospitals, and parks are discussed in Chapter 23, *Air Quality and Greenhouse Gases*.

Wildland Fire Hazard Analysis

Wildland fire safety hazards were analyzed using GIS methods to map Fire Hazard Severity Zones. GIS maps were obtained from CAL FIRE's Fire Hazard Severity Zone Re-Mapping Project. County fire hazard maps from Alameda, Contra Costa, Sacramento, and San Joaquin Counties were compared to the alternatives for each of the project construction footprints to assess the relative risk of wildland fire hazard throughout the study area.

Air Safety Hazard Analysis

The locations of airports within 2 miles of construction footprints were mapped and identified. The airports were then evaluated to determine whether they were classified as public or private airports by the Federal Aviation Administration (FAA). Airport locations were analyzed to assess the risk of the project interfering with aircraft operations and the potential for the project to increase the risk of bird-aircraft strikes.

25.3.1.3 Evaluation of Operations

Alternative narratives and conceptual engineering drawings found in the *Delta Conveyance Final Draft Engineering Project Reports* (Delta Conveyance Design and Construction Authority 2022a, 2022b) were reviewed for information on operation and maintenance activities, frequencies, and materials, and expected operations and maintenance parameters that may present hazards to operations and maintenance workers, the public, and the environment. These were evaluated to determine if these activities could expose workers, the public, or the environment to hazards or hazardous materials.

25.3.2 Thresholds of Significance

The project would be considered to have a significant impact if it would result in any of the conditions listed below.

- Create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. For the purposes of this analysis, a substantial hazard is defined as the direct exposure of the public, including construction or operation and maintenance personnel, or surface water and groundwater to physical and/or chemical hazards (i.e., hazardous materials as defined by Health & Saf. Code § 25501) through construction or operational activities or interference with hazardous materials transport routes.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. For the purposes of this analysis, a "substantial hazard" related to "the release of hazardous materials to the environment" is defined as circumstances in which project construction or operational activities involving the use of hazardous materials would result in the release of hazardous materials, where these hazardous materials could directly or indirectly negatively affect surface water, groundwater, or the public.
- Expose sensitive receptors at an existing or proposed school within 0.25 mile of project facilities to hazardous materials, substances, or waste.
- Be located on a site that is included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a substantial hazard to the public or the environment. For the purposes of this analysis, a "substantial hazard" is defined as circumstances in which project construction or operational activities could result in the release of hazardous materials from hazardous materials sites and thereby have the potential to directly or indirectly negatively affect surface water, groundwater, or the public.
- Result in a safety hazard associated with an airport or private airstrip. For the purposes of this analysis, air "safety hazards" are defined as conditions in which high-profile construction equipment (200 feet or taller) or project structures could be located within 2 miles of an airport and would potentially result in aircraft accidents. Further, increasing the risk of bird-aircraft strikes as a result of implementation of the project alternatives within 2 miles of an airport would also be considered an air safety hazard.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a substantial risk of loss, injury, or death involving wildland fires. For the purposes of this analysis, "substantial risk" is defined as circumstances in which construction or operational activities would increase the potential for wildland fire hazards or occur within an area designated as a High or Very High Fire Hazard Severity Zone.

25.3.2.1 Evaluation of Mitigation Impacts

CEQA also requires an evaluation of potential impacts caused by the implementation of mitigation measures. Following the CEQA conclusion for each impact, the chapter analyzes potential impacts associated with implementing both the Compensatory Mitigation Plan and the other mitigation measures required to address with potential impacts caused by the project. Mitigation impacts are

considered in combination with project impacts in determining the overall significance of the project. Additional information regarding the analysis of mitigation measure impacts is provided in Chapter 4, *Framework for the Environmental Analysis*.

25.3.3 Impacts and Mitigation Approaches

25.3.3.1 No Project Alternative

As described in Chapter 3, *Description of the Proposed Project and Alternatives,* CEQA Guidelines Section 15126.6 directs that an EIR evaluate a specific alternative of "no project" along with its impact. The No Project Alternative in this Draft EIR represents the circumstances under which the project (or project alternative) does not proceed and considers predictable actions, such as projects, plans, and programs, that would be predicted to occur in the foreseeable future if the Delta Conveyance Project is not constructed and operated. This description of the environmental conditions under the No Project Alternative first considers how hazards, hazardous materials, and wildfire could change over time and then discusses how other predictable actions could affect hazards, hazardous materials, and wildfire.

Future Hazards, Hazardous Materials, and Wildfire Conditions

For hazardous materials, hazards, and wildfire, future conditions are not anticipated to substantially change compared to existing conditions because land uses are not expected to change if the project (or project alternative) does not proceed.

However, indirect impacts relating to hazards and hazardous materials within the Delta may occur under the No Project Alternative as the result of changes in sea level rise and continuing seismic risk to Delta levees. In the instance of levee failure causing flooding, inundation could result in the release of a range of hazardous materials including, but not limited to, fuel, chemicals, fertilizers, and pesticides. A large-scale seismic event could also rupture gas and oil pipelines resulting in exposure to hazardous materials. Thus, there would be a potential for adverse effects on the environment and public in the case of a catastrophic event due to climate change or a seismic event. Continued, periodic area flooding could also affect roadways and, thus, emergency response and evacuation routes. Potential impacts related to wildfire for the No Project Alternative would be the same as existing conditions because other foreseeable projects would occur in the same geographic area and involve the presence of personnel and equipment, both of which could inadvertently cause a fire (e.g., from smoking, sparks from equipment). However, under future conditions, indirect impacts of climate change, such as an increase in temperature, could cause drier conditions and create drought, leading to longer and more intense wildfire seasons.

Predictable Actions by Others

A list and description of actions included as part of the No Project Alternative are provided in Appendix 3C, *Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions*. As described in Chapter 4, *Framework for the Environmental Analysis,* the No Project Alternative analyses focus on identifying the additional water-supply-related actions public water agencies may opt to follow if the Delta Conveyance Project does not occur.

Public water agencies participating in the Delta Conveyance Project have been grouped into four geographic regions. The water agencies within each geographic region would likely pursue a similar

suite of water supply projects under the No Project Alternative (Appendix 3C). Construction of water supply projects, regardless of project type or region, could result in exposing people and the environment to hazards and hazardous materials through various means described below.

Construction could involve ground-disturbing activities that would require equipment for earthmoving. The use of these types of equipment and vehicles would involve the handling and use of different quantities of commonly used materials, such as fuels, lubricants, and oils, to operate equipment. Accidental releases of small quantities of these substances during construction could result in a potential safety hazard through soil, water, or air contamination.

Hazardous emissions and accidental release or combustion of hazardous materials near schools could result in health risks or other dangers to students. This could occur for any of the project types, regardless of region if the project is near schools or other sensitive receptors.

During construction, contaminated soils, sediments, and groundwater may be encountered where historical releases have occurred, such as former gasoline stations, farms, and mining sites. Ground-disturbing activities in these areas could expose workers and the public to contaminants that are harmful to human health. Also, demolition of older buildings and handling of certain structure components have the potential to release lead particles and asbestos fibers to the air where they may be inhaled by construction workers and the public.

Construction or operations of any of the project types, regardless of region, that include equipment or structures 200-feet tall within 2 miles of an airport would have the potential to interfere with the airspace of an airport. Other water reliability projects might consider surface water storage as a means to provide flexibility during dry years. If located within 2 miles of an airport, the creation of large waterbodies could attract wildlife, potentially endangering local aircraft due to the possibility of bird strike incidents.

It is unlikely that project operations for any of the project types would impair or interfere with any adopted emergency response or evacuation plans. However, during construction, projects could cause temporary changes in emergency access because of potential lane closures or detours that could result in interference with the designated evacuation routes and access for emergency service vehicles.

Project proximity to various wildfire responsibility and risk locations determines the potential for wildland fire risks. Project construction would involve the use of heavy equipment, welding, and other activities that have potential to ignite fires. Increase in human presence in a wildland/urban interface also has the potential to increase fire risks (e.g., smoking, handling of combustible chemicals).

Desalination projects would most likely be pursued in the northern and southern coastal regions. The southern coastal regions would likely require larger and more desalination projects than the northern coastal region in order to replace the water yield that otherwise would have been received through the Delta Conveyance Project. These projects would be sited near the coast. Groundwater recovery (brackish water desalination) would involve similar types of ground disturbance but could occur across the northern inland, southern coastal, and southern inland regions, and in both coastal and inland areas, such as the San Joaquin Valley. Grading and excavation at the desalination and groundwater recovery plant sites would be necessary to construct foundations, and trenching would occur to install water delivery pipelines and utilities. Ground-disturbing activities for these projects would require construction equipment and involve the same hazards and hazardous materials

described above. Operation and maintenance of desalination projects could require the storage and use of chemical cleaning solutions (e.g., antiscalants) to remove deposits from filtration membranes, as well as chemicals (e.g., chlorine) used to treat product water. Improper storage or handling of some of these materials could expose workers and the environment to increased health risks.

The northern and southern coastal regions are also most likely to explore constructing groundwater management projects. Groundwater management projects could occur in a variety of locations and require use of equipment, and the associated use of hazardous materials (fuels, lubricants, and oils), to operate equipment for construction of recharge basins, conveyance canals, and pipelines.

Water recycling projects could be pursued in all four regions. The northern inland region would require the fewest number of wastewater treatment/water reclamation plants, followed by the northern coastal region, followed by the southern coastal region. The southern inland region would require the greatest number of water recycling projects to replace the anticipated water yield that it otherwise would have received through the Delta Conveyance Project. Construction techniques for water recycling projects would vary depending on the type of project (e.g., for landscape irrigation, groundwater recharge, dust control, industrial processes) but could require earth moving activities, grading, excavation, and trenching. Because construction would involve ground-disturbing activities, such actions could involve the handling and use of hazardous materials, such as fuels, lubricants, and oils, to operate equipment. Accidental releases of these substances during construction could result in a potential safety hazard to workers and the environment.

Water conservation projects could be pursued in all four regions and involve a wide variety of project types, such as flow measurement or automation in a local water delivery system, lining of canals, use of buried perforated pipes to water fields, and additional detection and repair of commercial and residential leaking pipes. These projects could occur anywhere in the regions and most would involve little ground disturbance or handling of hazardous materials.

As detailed above, all project types across all regions would involve relatively typical construction techniques and be required to comply with regulations enforced by the local Certified Unified Program Agency (CUPA), California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA), DTSC, and U.S. Environmental Protection Agency (EPA) regarding the use, storage, and disposal of hazardous materials. In addition, all storage of hazardous materials would be compatible with the recommendations of the supplier of the hazardous materials and comply with all relevant regulations. If needed, projects would prepare and implement Hazardous Materials Management Plans (HMMPs), which describe procedures and protocols for the safe storage, handling, transport, and disposal of hazardous materials. Compliance with these regulations and implementation of standard best management practices (BMPs), such as spill prevention plans, would reduce the potential for accidental release or exposure of hazardous materials during either project operation or construction.

The potential for hazardous emissions and accidental release of hazardous materials near existing and proposed schools is similar for most projects involving the use and storage of hazardous materials. Schools are located throughout the state in all regions. Projects would undergo environmental review and be required to identify and assess the risks to nearby schools and other sensitive receptors prior to project construction or implementation.

The potential for encountering known and previously unknown hazardous materials sites (including those on the Cortese List) is similar regardless of region. Existing regulations would ensure that

sites containing hazardous materials be cleaned up to existing standards for the proposed land use prior to development.

As airports are located throughout California, potential impacts associated with airport operations are the same regardless of region. Identification of airports near projects would occur during environmental review. The airports would then be evaluated to analyze and assess the risk of the project interfering with aircraft operations. Also, projects would comply with FAA regulations reducing the potential for conflicts between projects and airport operations.

Any project involving construction could cause temporary changes in emergency access or evacuation routes. If needed, projects would prepare TMPs, which could include measures such as signage, notifications, flaggers, and coordination with local jurisdictions. Preparation of TMPs and compliance with existing local requirements would ensure continued emergency and evacuation route access.

The potential for wildland fire risks is similar regardless of region because Very High and High Fire Hazard Severity Zones are located throughout California. Project types involving any kind of construction could increase these fire risks. However, wildfire risks would be assessed during environmental review, and project proponents would be required to comply with all pertinent fire prevention laws and regulations including Cal/OSHA fire prevention and safety standards. The use and staging of equipment would follow standard BMPs (e.g., spark arrestors for vehicles in high grass, no smoking zones). The use and storage of flammable materials would also comply with regulations enforced by the local CUPA and Cal/OSHA.

25.3.3.2 Impacts of the Project Alternatives Related to Hazards and Hazardous Materials

Impact HAZ-1: Create a Substantial Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

All Project Alternatives

This section addresses potential impacts associated with the routine transport, use, or disposal of hazardous materials as a result of construction and operation of all nine project alternatives. Under any of the alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5), the same type of hazardous materials would be handled and used in a similar manner (e.g., fuel and oil for equipment), but the volumes may differ because of the varying scope of facilities. The nature of potential impacts under all nine project alternatives is similar, and all alternatives are discussed together.

Project Construction

Construction of any one of the alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) would involve the handling and use of different quantities of commonly used hazardous materials, such as fuels, lubricants, and oils, to operate equipment at the intakes and pumping plants. All project alternatives would involve construction of multiple fuel storage areas at the intakes, tunnel shaft sites, and pumping plants at the Southern Complex or Bethany Complex and South Delta Conveyance (part of the Southern Complex). Fuel storage locations are shown in Mapbooks 3-1, 3-2, and 3-3. Bulk fuel stored at fuel storage areas would potentially pose the risk of vehicle fueling spills and leakage from aboveground storage tanks at fuel storage areas.

In addition to fuel use and bulk fuel storage, oils, lubricants, and other hazardous materials would be stored on-site and used in equipment, such as compressors, generators, pile drivers, cranes, forklifts, excavators, pumps, and soil compactors throughout the construction footprint. Spills and releases could occur during transfer and use of these materials in the field and over water or adjacent to waterways. Hazardous materials, including paints, solvents, and sealants, would be used to construct water conveyance facilities (e.g., intakes, pumping plants, conveyance piping). During fueling and transfer of oils, lubricants, and other materials during construction, there could be spills or other releases to the environment that may result in a hazard.

Construction equipment maintenance is expected to be performed in the field and in maintenance facilities operated by contractors during construction of the water conveyance facilities. While equipment could be maintained at any work area identified for all project alternatives, the highest risk of hazards related to maintenance activities would be anticipated to occur at those sites where the duration and intensity of construction activities would be greatest. Construction equipment maintenance activities would also be expected to be performed at work areas related to main tunnel construction shaft sites. For a map of all permanent facilities and temporary work areas associated with all conveyance alignments, see Mapbooks 3-1, 3-2, and 3-3. Construction equipment maintenance at these facilities would likely include rebuilding pumps or motors, maintaining equipment hydraulic systems, minor engine repairs and routine lubrication, and replacing worn parts. Spills and other accidental releases of degreasers, fuels, oils, or lubricants could result in temporary human health hazards to workers related to chemical exposure immediately adjacent to these releases.

Field investigations that would occur under all of the project alternatives would involve activities such as geotechnical and hydrogeologic sampling and other construction test projects supporting geotechnical analysis. These investigations would be used to more specifically identify appropriate construction methodologies given existing site conditions and guide the development of any geological and groundwater monitoring programs for the project. Field investigations for project construction would occur within the construction footprints and in portions of the underground tunnel alignments of the individual alternatives and may involve the use of similar quantities of fuels, lubricants, and oils to operate equipment. Accidental release of these materials could result in a safety hazard to human health or the environment. Geotechnical and hydrogeologic testing would result in soil disturbance and the possibility of encountering contaminated soils which could be hazardous to human health or the environment.

While there would be no difference in the nature of the potential impacts between the project alternatives, the magnitude of potential impacts may be greater under Alternatives 2a and 4a. Construction of these alternatives would occur over a longer duration (13 and 14 years, respectively) and include three intakes and larger diameter tunnels, which would require additional excavation and therefore, an increased use of hazardous materials. This would increase the potential for exposure to hazardous materials possibly causing harm to workers' health and the environment. Therefore, this analysis is based on these longer duration alternatives (i.e., a more conservative approach).

Regardless of the alternative, maintenance and repair of equipment would be completed on-site. Accidental releases of hazardous substances (e.g., fuels, lubricants, and oils) during construction, or maintenance activities could contaminate soils and degrade the quality of surface water and groundwater, or be released into the air, resulting in a potential public safety hazard to workers' health. The transport, handling, use, and disposal of hazardous materials would comply with

regulations enforced by regulatory agencies such as CUPAs and Cal/OSHA. The project includes the testing of RTM to further reduce potential exposure to hazardous materials (Chapter 3, Section 3.4.4.1, *Disposal of Reusable Tunnel Material*), as well as Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*, which would provide detailed information on hazardous materials used and stored and protocols to reduce the likelihood of a spill of hazardous materials, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, which requires that personnel be trained in emergency response and spill containment techniques. The full text of these measures can be found in Appendix 3B, *Environmental Commitments and Best Management Practices.* In addition, the implementation of Environmental Commitment EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans*, as described under the Stormwater Pollution Prevention Plan (SWPPP), would further reduce the potential for accidental releases or exposure during construction and operation through weekly site inspections and maintaining equipment and materials necessary for spill cleanup (Appendix 3B).

Operations and Maintenance

Operations and maintenance would involve the handling and use of different quantities of commonly used hazardous materials, such as fuels, lubricants, and oils, to operate vehicles and equipment at the intakes and pumping plants. Accidental releases of these substances during operations and maintenance activities could contaminate soils and degrade the quality of surface water and groundwater, or be released into the air, resulting in a potential public safety hazard to workers' health. The transport, handling, use, and disposal of these materials would comply with regulations enforced by regulatory agencies such as CUPAs and Cal/OSHA. In addition, Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans* and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans* would further reduce the potential for accidental release or exposure during project operations and maintenance.

CEQA Conclusion—All Project Alternatives

The nature of construction, operation, and maintenance impacts would be the same under all project alternatives. During construction and operations, the project would comply with regulations enforced by CUPAs and Cal/OSHA and other applicable laws and regulations.

The magnitude of impacts may be greater under alternatives with longer construction durations and three intakes (Alternatives 2a and 4a) that would require more excavation over a longer time period (13 and 14 years, respectively) and require excavation at more intake sites and for larger diameter tunnels. Regardless of the magnitude, the nature of potential impacts of all the project alternatives is the same and could create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials because of the use of hazardous materials over the multi-year period of construction. However, compliance with applicable laws and regulations would reduce potential impacts resulting from the transport, handling, use, and disposal of these materials. BMPs for the disposal of RTM (Chapter 3) and the environmental commitments described in Appendix 3B, such as Environmental Commitment EC-2: *Develop and Implement Hazardous Materials Management Plans*; EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*; and EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans* would reduce the potential for hazardous materials effects by identifying known hazardous materials sites, designing protocols for reducing hazardous materials exposure, and treating and

disposing of hazardous substances at construction sites. Therefore, impacts from construction, operations, or maintenance of any of the project alternatives would be less than significant.

Mitigation Impacts

Compensatory Mitigation

Although the Compensatory Mitigation Plan described in Appendix 3F, *Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources*, does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in hazards, hazardous materials, and wildfire impacts.

Construction of compensatory mitigation (on Bouldin Island, three ponds along I-5, and within the North Delta Arc, as described in Appendix 3F) would require equipment for earthmoving activities, such as grubbing, soil excavation, and placement of fill or gravel. The use of these types of equipment and vehicles would involve the handling and use of different quantities of commonly used materials, such as fuels, lubricants, and oils, to operate equipment. In addition, herbicide application could occur at Bouldin Island and the pond sites for weed control and management of riparian habitat. Impacts associated with construction of compensatory mitigation together with the project would not vary by alternative because the same types of equipment would be used and require the use of similar hazardous materials. The type and magnitude of activities on the Compensatory Mitigation Plan sites does not vary by alternative. Accidental releases of fuels, lubricants, or oils during construction or improper herbicide application could result in a potential safety hazard through soil, water, or air contamination. However, compliance with applicable laws and regulations would reduce potential impacts resulting from the transport, handling, use, and disposal of these materials. BMPs for the disposal of RTM would reduce the potential for hazardous materials effects for the same reasons identified for project alternatives. Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*; EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*; and the implementation of BMPs as described under EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans* (Appendix 3B, *Environmental Commitments and Best Management Practices*) would further reduce the potential for accidental release or exposure during construction by reducing the potential for accidental releases of hazardous materials at construction sites. Therefore, impacts from the project alternatives together with implementation of the Compensatory Mitigation Plan from the routine transport, use, or disposal of hazardous materials during construction would not change the impact conclusion of less than significant.

Other Mitigation Measures

Some mitigation measures would involve the use of heavy equipment, such as graders, excavators, dozers, and haul trucks, that would have the potential to involve the handling and use of different quantities of commonly used materials, such as fuels, lubricants, and oils, to operate equipment. In addition, pesticide application could occur for mosquito control. The mitigation measures with potential to result in increased impacts from handling and use of hazardous materials are: Mitigation Measures BIO-2c: *Electrical Power Line Support Placement*, AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*, AES-1c: *Implement Best Management Practices to Implement Project Landscaping Plan,* AQ-9: *Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping Emissions to Net Zero,* and PH-1b: *Develop and Implement a Mosquito Management Plan for*

Compensatory Mitigation Sites on Bouldin Island and I-5 Pond 6. Temporary increases in the handling and use of hazardous materials resulting from implementation of other mitigation measures would be similar to construction effects of the project alternatives in certain construction areas and would contribute to handling and use of hazardous materials impacts of the project alternatives. Compliance with applicable laws and regulations would reduce potential impacts resulting from the handling and use of these materials. Therefore, implementation of mitigation measures is unlikely to create a substantial hazard through the transport, use, or disposal of hazardous materials, and the impact of hazardous materials would be less than significant.

Overall, increased transport and use of hazardous materials impacts for construction of compensatory mitigation and implementation of other mitigation measures, combined with project alternatives, would not change the less-than-significant impact conclusion.

Impact HAZ-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment

All Project Alternatives

Project Construction

The physical footprints of the project alternatives vary with the three alignments (central, eastern, and Bethany Reservoir), as does the number of intakes (one, two, or three), and there are also small differences in total acreages among project alternatives. Under Alternatives 2a and 4a, three intakes would be constructed, requiring more excavation and therefore a greater potential to encounter hazardous materials in soil and sediment (e.g., mercury in river sediments).

Except for the West Tracy Fault and Bethany Fault studies, field investigations for project construction would occur within the facility footprints and tunnel alignments of the individual alternatives and could involve encountering the potentially hazardous scenarios described below. The West Tracy Fault study would involve trenching along a line running from the southeast of Byron to the southeast of the Clifton Court Forebay. This area was included as part of the study area for hazards and hazardous materials. Therefore, the following impacts and mitigation measures described for project construction would also apply to all field investigations. The Bethany Fault study is primarily a Cone Penetration Test study.

General Construction Activities

Construction of the project could create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Potentially toxic substances (such as petroleum and other chemicals used to operate and maintain construction equipment) would be used in the construction footprint and transported to and from the area during construction. Accidental releases of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. However, the use and disposal of these materials would be compliant with regulations enforced by CUPAs and Cal/OSHA, as previously discussed. In addition, standard BMPs, as discussed above, would further reduce the potential for an accidental release of hazardous materials. The project also includes BMPs for the disposal of RTM, which includes testing of RTM to further reduce exposure to hazardous materials (Chapter 3). Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*, which would provide detailed information on

hazardous materials used and stored and protocols to reduce likelihood of a spill of toxic chemicals, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, which requires that personnel be trained in emergency response and spill containment technique, would reduce the potential for hazardous materials release during construction.

Reusable Tunnel Material

RTM would be transported for handling, drying, and storage near launch shaft sites, as described in Chapter 3, Section 3.4.4. Drying of RTM would be accomplished through air drying and/or the use of mechanical dryers depending upon the tunnel launch shaft location. RTM would be moved to a concrete-lined area, and temporary stockpiles would be tested for hazardous materials. At tunnel launch shaft sites where mechanical drying would be used, RTM would be dried prior to testing. When RTM generation rate is greater than the capacity of the mechanical drying equipment, the RTM would be placed in a temporary wet stockpile and tested prior to drying. When natural drying is used, RTM would be tested prior to drying.

Potential hazards associated with handling the RTM include metals and inorganic elements normally present in soil, organic compounds introduced to soil (such as agricultural fertilizers, herbicides, and pesticides), accidental release of hazardous materials or petroleum products and potential chemical additives included in soil conditioners used during tunneling as described above. Soil conditioners or additives used to facilitate tunneling could cause eye and skin irritation if mishandled. Therefore, construction personnel and the public could be inadvertently exposed to RTM contaminants.

Excavated RTM would be tested in accordance with the requirements of the Central Valley Regional Water Quality Control Board and DTSC for the presence of hazardous materials at concentrations above the regulatory threshold criteria. As described in Chapter 10, *Geology and Seismicity*, the geologic materials encountered during tunneling are expected to be comprised of alluvial sediments consisting of a mixture of clay, silt, sand, gravel, and minor amounts of organic matter, the majority of which was deposited prior to the arrival of settlers to California and subsequent mining, agricultural, and urban land uses that have produced potential contaminants of concern, as discussed above.

Previous soil tests were conducted for the California WaterFix project. Soil samples were obtained from the tunnel horizon (100 to 170 feet bgs) from 19 boreholes along the Central Corridor.[3] These samples were blended to generate a baseline sample of anticipated RTM (Delta Conveyance Design and Construction Authority 2022c). Test results on native soil samples indicated that no petroleum hydrocarbons or pesticide residues would likely be detected in RTM samples. Metals and inorganic elements were detected throughout the soil profile resembling naturally occurring levels, with the exception of cadmium. Although cadmium was detected, levels remained acceptable and far below regulatory thresholds. Arsenic and chromium concentrations were the same as those found in naturally occurring soils, and the addition of conditioners did not affect concentrations of arsenic. Mercury concentrations were below naturally occurring levels (Delta Conveyance Design and Construction Authority 2022c).

Preliminary studies indicated that use of soil conditioners in the tunneling process would not pose a risk to human health, wildlife, or the environment provided standard procedures are followed

[3] The Central Corridor varies slightly from the central alignment proposed for this project.

(Delta Conveyance Design and Construction Authority 2022c). As per standard Cal/OSHA regulations, personnel would use personal protective equipment. Chapter 3 describes the disposal of RTM, which requires testing of RTM for hazardous materials concentrations above regulatory thresholds and the proper disposal of any contaminated soils. The project also includes Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*, which includes protocols for proper handling and storage of contaminated soil, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, which requires compliance with applicable legal requirements in relation to recovered materials (Appendix 3B, *Environmental Commitments and Best Management Practices).* These measures would reduce potential RTM impacts on workers, the public, and sensitive receptors.

The RTM would be placed in temporary stockpile areas while it is tested for the potential presence of hazardous materials. It is anticipated that several stockpiles would be developed to allow for determination of the changes in geology and geographic locations as the TBM proceeds. Each temporary area would be generally sized to accommodate up to 1 week of RTM production and lined with impermeable lining material.

Despite testing results indicating safe use of RTM, testing only included samples. It is possible that some RTM could still contain constituents that may not be suitable for reuse. To determine if RTM is suitable for safe reuse, it would be tested for hazardous constituents present in concentrations that exceed applicable regulatory thresholds, in accordance with the requirements of the Central Valley Regional Water Quality Control Board and DTSC. Any RTM that does not meet the requirements for safe reuse would be transported to a disposal location licensed to receive the material.

At sites with mechanical drying, the RTM would be dried prior to testing. However, when RTM generation rate is greater than the capacity of the mechanical drying equipment, the RTM would be placed in a temporary wet stockpile and tested prior to drying. Mechanical dryers would not be used under Alternative 5. If portions of the RTM were identified as hazardous, that material would be transported in trucks licensed to handle hazardous materials to a disposal location licensed to receive those constituents. If the RTM meets the criteria for reuse, the material would be moved by conveyor to a long-term on-site storage site or transported off site for subsequent reuse.

For the RTM not slated for reuse, the RTM would be spread over a broad area in relatively thin lifts (e.g., 18 inches) and allowed to drain and dry naturally over a period of up to 1 year. Continuous spreading in thin lifts would allow RTM that is not mechanically dried to be dried naturally without excessive earth moving requirements. This method of natural drying would prevent any decant liquid from seeping into the soil. Testing RTM before reuse, complying with Cal/OSHA regulations and standard SWPPP BMPs, and implementing EC-2: *Develop and Implement Hazardous Materials Management Plans* would reduce the potential for this impact.

Electrical Transmission and Distribution Lines

DWR has identified eight overhead transmission/distribution lines that could be potentially crossed with the project alternatives (Chapter 21, *Public Services and Utilities*, Table 21-4). The table identifies areas where any of the surface impacts of the project (e.g., intakes, access roads, other aboveground infrastructure) would cross an existing overhead transmission/distribution line. Crossing a utility does not necessarily mean there would be a physical conflict but shows where potential conflicts could occur. At some locations, electrical lines may require relocation to maintain utility service.

Disturbance of electrical infrastructure during construction activities that employ high-profile equipment, such as cranes, could result in safety hazards for construction workers in the immediate vicinity of an energized line. The most significant risk of injury from any power line is the danger of electrical contact between an object on the ground and an energized conductor. Generally, there is less risk of contact with higher voltage lines as opposed to low-voltage lines because of the height of the conductors. When work is performed near transmission and distribution lines, electrical contact can occur even if direct physical contact is not made because electricity can arc across an air gap. Accidental or inadvertent contact with energized transmission and distribution lines could result in substantial public health and safety impacts, including serious injury, electrocution, and in some instances, death.

The State Water Project (SWP) Power and Risk Office would coordinate with WAPA, PG&E, TANC, SMUD, and the California Independent System Operator to identify, evaluate, and establish the electrical interconnection of the project facilities to the California electric grid. In addition, DWR would comply with Cal/OSHA and electrical safety standards, including California Code of Regulations, Title 8, Sections 2299-2599 (Low Voltage Electrical Safety Orders) and Sections 2700-2989 (High Voltage Electrical Safety Orders). These measures detail safe electrical work practices and procedures on and around transmission lines and would ensure that worker and public safety is safeguarded during work on or in immediate proximity to low- and high-voltage transmission lines. Compliance with the existing regulations would reduce impacts regarding electrical transmission line hazards by employing standard construction safety requirements.

Other hazards associated with electrical transmission lines include potential health risks from exposure to electromagnetic fields. These potential effects are described and assessed in Chapter 26, *Public Health.*

Oil and Gas Facilities

As previously discussed in Section 25.1.2.4, *Hazards from Oil and Gas Production and Processing*, hazards associated with oil and natural gas production include emissions of BTEX compounds as well as n-hexane and other volatile organic compounds. Abandoned and plugged oil and natural gas wells may be present in areas where excavation is planned. Improperly sealed natural gas wells have the potential to act as natural gas conduits from deep reservoirs where flammable gases may pose hazards to excavation or tunneling activities. Figures 25-1 and 25-2 show oil and natural gas facilities and wells along the water conveyance facilities alignments. Two active natural gas wells have been identified in the project footprint. The first is located near King Island just outside the footprint of the eastern tunnel alignment. The second active gas well is located within the footprint of the central tunnel alignment on Staten Island. Pre-excavation surveys would identify, confirm, and pinpoint exact locations of oil and gas wells to ensure tunnel excavation does not intersect with pipelines. As a result, tunnel activities are not expected to intersect with any natural gas wells.

All alignment tunnels (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) would cross several natural gas pipelines. Some of the facilities under all project alternatives would be excavated within an area of natural gas fields. The natural gas pipelines are generally located near the surface, with depths of less than 10 feet below the surface and pipe diameters less than 24 inches. The top of the tunnel excavation nearest the natural gas lines would be approximately 115 to 120 feet below the surface. Pre-excavation surveys would identify pipeline locations to ensure tunnel excavation does not intersect with pipelines. In addition, tunnel shafts and tunnel facilities would be significantly deeper

than pipelines. As a result, tunnel activities are not expected to intersect with any natural gas pipelines.

Soil and groundwater contamination can also be associated with abandoned oil and gas wells. Previous mining activities, such as the use of petroleum drilling fluids, may have deposited hydrocarbons in the soil or groundwater.

Project construction involving ground-disturbing activities (e.g., tunneling) could expose construction personnel and the public to contaminated soils or groundwater in the form of petroleum products or processing chemicals. Exposure to these compounds can result in short-term and long-term health effects.

During the design phase of the project, additional desktop surveys of documented wells would be conducted and include research of historical topographic mapping that may document the presence of wells that were not previously identified in the California Geologic Energy Management Division (CalGEM) oil and natural gas database. The locations of identified wells within the tunnel alignment would be used to determine methods to abandon, relocate, or avoid the wells (Delta Conveyance Design and Construction Authority 2022a:104; 2022b:66).

In addition, during the design phase, a comprehensive exploration program would be conducted using the suitable geophysical methods to identify and/or confirm the location of well casings along the alignment, including wells that have not been previously identified. These methods could include wide-area airborne (i.e., drone, helicopter, or fixed-wing aircraft) magnetic surveys followed by more site-specific walk- or tow-over ground-based magnetic surveys (Delta Conveyance Design and Construction Authority 2022a:104; 2022b:66).

These measures to identify and avoid oil and natural gas wells that would potentially pose risks to project personnel or facilities would reduce the potential impact of encountering hazardous constituents from abandoned or previously unidentified oil and gas wells.

Gas Accumulation in Tunnels

All project alignments pass through areas of the Delta that are underlain with natural gas fields that extend more than 1,000 feet below the ground surface. During construction, there is the potential to encounter these gases, which could enter and accumulate to flammable or explosive concentrations in tunnel bores or other excavations. Gases could include methane generated by peat and organic soils or other natural gases, which could seep from deep natural gas reservoirs either through improperly sealed boreholes or natural conduits such as faults and fractures.

Tunneling activities in areas with flammable gases and hydrocarbons are regulated by the Cal/OSHA Mining and Tunneling Unit (M&T Unit). The M&T Unit outlines the rules and regulations for safety, monitoring frequency for gas levels, and procedures for notifying Cal/OSHA based upon the expected level of flammable gases and/or hydrocarbons. Although the tunnel classification for the project has not yet been provided by Cal/OSHA, it may receive a “potentially gassy” or “gassy” classification due to the presence of gas fields in the region.

Tunnel boring operations for the project in areas with a potential for flammable gases would be required to include redundant safety features and practices. For example, TBMs are required to be equipped with gas monitoring equipment that automatically shuts down the TBM if gas is detected. Additional special access and egress requirements may be imposed by Cal/OSHA. These requirements would be determined later during the design phase. If a particular reach of tunnel is

classified as "gassy" then all equipment used in the tunnels would be required to be incapable of causing an explosion (Delta Conveyance Design and Construction Authority 2022a:104).

In addition, the contractor would be required to follow gas monitoring and fire prevention requirements mandated by Cal/OSHA based on the tunnel gas classification in accordance with the Tunnel Safety Orders set forth in California Code of Regulations, Title 8, Section 8400 to Appendix E (Tunnel Classifications). Compliance with safety regulations for tunneling would reduce the potential for accidents involving gas accumulation in tunnels.

Mercury

Due to historic mining operations, it is possible that mercury-contaminated sediments would be resuspended during sediment-disturbing activities related to in-river construction activities (e.g., cofferdam construction at intake sites). In general, sediment-bound mercury concentrations in rivers can vary seasonally by source and depend on weather patterns that influence runoff and river flows. However, concentrations of potential contaminants in the sediments where in-river construction activities would be taking place are not known; therefore, the associated risk cannot be identified.

Exposure to mercury-contaminated sediments is unlikely to be a hazard for construction workers because it is not expected that workers would be in direct contact with sediments during in-river construction activities. Also, during construction, sediments would be contained to a relatively small area, limiting exposure to the public and environment. Furthermore, the project includes BMPs for the disposal of RTM (Chapter 3), which require testing of sediment for hazardous materials concentrations above regulatory thresholds and the proper disposal of any contaminated soils. The project also includes the environmental commitments, such as EC-2: *Develop and Implement Hazardous Materials Management Plans*, which would provide detailed information on hazardous materials used and stored and protocols to reduce the likelihood of a spill of toxic chemicals; EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, which requires compliance with applicable legal requirements in relation to recovered materials. The full text of these measures can be found in Appendix 3B.

Agricultural and Railroad Land Uses

As previously discussed, much of the study area was and still is used for agricultural purposes. As a result, soils contaminated with pesticides, herbicides, and other agricultural chemicals may be present within the study area. Ground-disturbing activities, such as grading and excavation, may expose construction workers and the general public to hazardous materials in agricultural soils and near railroad tracks that may result in health effects. Similarly, if soils adjacent to railroad tracks are disturbed during construction (e.g., construction of an overpass road over BNSF railroad tracks), workers could be exposed to heavy metals and total petroleum hydrocarbons such as diesel, fuel oil, and polychlorinated biphenyls.

The project would comply with BMPs and requirements of state and federal permits (i.e., National Pollutant Discharge Elimination System [NPDES], SWPPP), and this would reduce the potential for impacts. Environmental commitments include EC-2: *Develop and Implement Hazardous Materials Management Plans*, which includes development of a plan that details protocols for proper handling and storage of contaminated soil. These measures would reduce impacts for handling of contaminants but do not address preconstruction identification.

Previously Unknown Hazardous Materials Sites

There may be contaminated areas within the study area that have not been previously identified because of inadequate or missing data or poor record keeping. During construction, contaminated soils, sediments, and groundwater may be encountered where historical releases have occurred, such as former storage and distribution facility locations (e.g., gasoline stations, farms). Ground-disturbing activities during construction in these areas could expose workers and the public to soil contaminants that are harmful to human health.

Hazardous Materials Routes

Project construction under any alternative would require substantial transportation facility improvements to serve the construction and material delivery processes. Chapter 3 provides details regarding road relocations, new construction, and improvements.

Federally designated hazardous materials routes in the study area include SR 4, SR 12, and SR 113; I-5, I-80, I-205, and I-580 (Figure 25-3). These routes are preferred designated routes for the transportation of hazardous materials (Federal Motor Carrier Safety Administration 2014).

Traffic rerouting and relocation of hazardous materials routes together with increased construction traffic could increase the potential for releases/spills of hazardous materials due to increased traffic and less familiar routes.

To address project construction traffic issues, analysis was conducted on potential truck routes, including SR 4, SR 12, and SR 160; I-5 and I-205; and over 30 local roads with direct access to potential construction sites (Delta Conveyance Design and Construction Authority 2022b:48). As a result of the analysis, it was determined that a portion of SR 160 would be temporarily rerouted during intake construction to east of the existing alignment and subsequently realigned near the existing location, and Byron Highway near the Southern Forebay would be realigned west of the current alignment. Neither road is a hazardous materials transportation route designated by the Federal Motor Carrier Safety Administration.

Assumptions for access roads to construction sites would be included in the design specifications for each key feature and designed to further reduce traffic impacts (see Chapter 3, *Description of the Proposed Project and Alternatives*, for additional information regarding design specifications). To further reduce the daily effect of truck trips on local roadways, certain construction material hauling would be assigned to rail lines. Materials transported include tunnel liner segments, TBM equipment, and aggregate to tunnel launch shaft sites. Under all alternatives except Alternative 5, RTM could also be transported from the tunnel launch shaft sites at Twin Cities Complex by railway to the Southern Complex, and for the central alignment, RTM material would be transported from Twin Cities Complex to tunnel shaft sites on Mandeville and Bacon islands. Project design specifications and realignment of SR 160 would reduce the potential for releases/spills of hazardous materials due to increased traffic and travel on less familiar routes.

Operations and Maintenance

Operations and maintenance would include regular dredging of the sedimentation basins at each intake and removing the sediment to drying lagoons. When dry, sediment would be collected and disposed of at a permitted offsite disposal location. There is the potential to encounter hazardous materials in the sediment in the form of mercury. However, handling of sediment during operations would comply with proper Cal/OSHA regulations to limit workers', the public's, and other sensitive

receptors' exposure. Furthermore, the project includes BMPs for the disposal of RTM and Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans.* The full text of these measures can be found in Appendix 3B.

If project facilities are sited on or near a previously unknown hazardous materials site, workers, the public, or other sensitive receptors or the environment could be exposed to previously unknown hazardous materials sites.

CEQA Conclusion—All Project Alternatives

Construction of any one of the alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) would involve handling and storage of RTM and excavated soils that could contain hazardous materials such as petroleum products. This could expose workers to potential human health hazards. However, the depths of excavation for tunnels indicate low potential to encounter historic contaminants of concern from mining, agricultural, and urban land uses. Testing of soil samples representative of RTM indicated that levels of metals and inorganic compounds were below regulatory thresholds. Finally, compliance with Cal/OSHA regulations and standard SWPPP BMPs and testing of RTM before reuse (Chapter 3) would reduce potential impacts on workers, the public, and the environment regarding the handling and reuse of RTM.

Excavation and tunneling could expose workers, the public, and the environment to soil and groundwater contamination associated with abandoned oil and gas wells. Previous mining activities, such as the use of petroleum drilling fluids, may have deposited hydrocarbons in the soil or groundwater. However, project design would include desktop surveys and research of historical topographic mapping to identify and avoid wells. Other methods used could include airborne surveys and site-specific ground-based magnetic surveys. These measures would reduce the potential impact of encountering hazardous constituents from abandoned or previously unidentified oil and gas wells to a less-than-significant level.

Gas accumulation in tunnels during construction could pose a danger to workers and the public if gases are inadvertently ignited. This could expose workers or the public to potential human health hazards. However, compliance with safety regulations for tunneling would reduce the potential for accidents involving gas accumulation in tunnel. In addition, compliance with gas monitoring and fire prevention requirements in accordance with the Tunnel Safety Orders set forth in the Tunnel Classifications regulations would reduce potential impacts regarding gas accumulation in excavated areas. EC-2: *Develop and Implement Hazardous Materials Management Plans* would further reduce the potential for encountering hazardous materials during excavation activities. This impact would be less than significant.

Construction involving excavation and tunneling could expose workers, the public, and the environment to agricultural chemicals and contaminated soil and groundwater from previously unknown hazardous waste sites. Compliance with BMPs and requirements of state and federal permits would reduce this impact but does not address preconstruction identification (i.e., potential to encounter previously unknown hazards and hazardous waste). This is considered a significant impact.

In addition to the inclusion of BMPs for the disposal of RTM and environmental commitments such as EC-2: *Develop and Implement Hazardous Materials Management Plans*; EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans* (Appendix 3B), the following

actions would reduce the potential for releases/spills of hazardous materials during project construction under all alternatives: transportation facility improvements, design specifications to reduce project construction traffic, offsetting of traffic via rail use, and early consultation with California Department of Transportation and local jurisdictions.

Overall, considering the potential for release of hazardous materials during construction, operations and maintenance of the project alternatives, the potential exists for accidental spills and exposure to hazardous materials to occur. The environmental commitments described above could partially reduce impacts related to hazardous materials but not to a less-than-significant level because of the uncertainty that exists about the locations and nature of potential hazardous materials sites and the potential for construction worker and public exposure to hazardous materials. Implementing Mitigation Measure HAZ-2: *Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate* would include a Phase I environmental site assessment before construction, the identification and evaluation of potential sites of concern within the construction footprint, and the development of a remediation plan before construction and operations commence. This would reduce all impacts related to accidental release of hazardous materials into the environment to a less-than-significant level with mitigation.

Mitigation Measure HAZ-2: Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate

1. Prior to construction, DWR will conduct a Phase I environmental site assessment in conformance with the American Society for Testing and Materials Standard Practice E1527-05. All environmental investigation, sampling, and remediation activities associated with properties in the project area will be conducted under a work plan approved by the regulatory oversight agency (e.g., DTSC, EPA) and will be conducted by an appropriate environmental professional.

    a. Areas to be excavated as part of construction (e.g., for water conveyance facilities, shaft locations, concrete batch plants, intake locations, RTM areas, staging areas) where historical contamination has been identified or where contamination is suspected (e.g., as evidenced by soil discoloration, odors, differences in soil properties, abandoned underground storage tanks [USTs]) will undergo soil and/or groundwater testing at a certified laboratory provided that existing data are not available to characterize the nature and concentration of the contamination. A Phase I environmental site assessment must include the following components (40 CFR § 312.20).

        i. An on-site visit to identify current conditions (e.g., vegetative dieback, chemical spill residue, presence of aboveground or underground storage tanks [ASTs or USTs]).

        ii. An evaluation of possible risks posed by neighboring properties.

        iii. Interviews with persons knowledgeable about the site's history (e.g., current or previous property owners, property managers).

        iv. An examination of local planning files to check prior land uses and any permits granted.

        v. File searches with appropriate agencies (e.g., State Water Board, fire department, county health department) having oversight authority relative to water quality and groundwater and soil contamination.

vi. Examination of historical aerial photography of the site and adjacent properties.

vii. A review of current and historical topographic maps of the site to determine drainage patterns.

viii. An examination of chain-of-title for environmental liens and/or activity and land use limitations.

b. If the Phase I environmental site assessment indicates likely site contamination, a Phase II environmental site assessment will be performed (also by an appropriate environmental professional).

c. A Phase II environmental site assessment will comprise the following components.

i. Collection of original surface and/or subsurface samples of soil, groundwater, and building materials to analyze for quantities of various contaminants.

ii. An analysis to determine the vertical and horizontal extent of contamination (if the evidence from sampling shows contamination).

d. If contamination is uncovered as part of Phase I or II environmental site assessments, remediation will be required. If materials such as asbestos-containing materials, lead-based paint, or PCB-containing equipment are identified, these materials will be properly managed and disposed of prior to or during the demolition process.

e. Any contaminated soil identified on a project site must be properly disposed of in accordance with the DTSC regulations in effect at the time.

f. If, during construction/demolition of structures, soil or groundwater contamination is suspected, the construction/demolition activities will cease and appropriate health and safety procedures will be implemented, including the use of appropriate personal protective equipment (e.g., respiratory protection, protective clothing, helmets, goggles).

Mitigation Impacts

Compensatory Mitigation

Although the Compensatory Mitigation Plan described in Appendix 3F does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in hazards, hazardous materials, and wildfire impacts.

The compensatory mitigation would consist of local grading and inundation of some locations associated with restoration sites, including the creation of tidal wetland and channel margin habitat in the North Delta Arc as described in Appendix 3F. There is the potential for encountering soil and or groundwater contamination from the historical use of agricultural chemicals and contaminated soil and groundwater from previously unknown waste sites at restoration locations. This could expose construction personnel and the public to contaminated soils or groundwater, potentially causing adverse health effects and contamination of surface water, which would be a significant impact.

The project, together with compensatory mitigation, would implement EC-2: *Develop and Implement Hazardous Materials Management Plans*, which includes development of a plan that details protocols for proper handling and storage of contaminated soil. These measures would reduce impacts for

handling of contaminants but do not address preconstruction identification (i.e., potential to encounter previously unknown hazards and hazardous waste). However, implementation of Mitigation Measure HAZ-2: *Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate* would require preconstruction surveys to identify potentially hazardous conditions and remediate, if necessary. This mitigation measure would reduce the potential for encountering previously unknown hazardous materials sites. Therefore, with implementation of Mitigation Measure HAZ-2, the combined impact of project alternatives and Compensatory Mitigation Plan implementation relating to accidental release of hazardous materials would be less than significant with mitigation.

There are gas fields on Bouldin Island (Figure 25-1). No other natural gas or oil facilities were identified in the compensatory mitigation areas. However, abandoned and plugged oil and natural gas wells may be present in areas where excavation is planned. Inadvertent contact with a previously unknown gas or oil facility could expose workers or the public to human health hazards, which would be a significant impact.

The same measures to identify oil and gas wells in the project footprints (including desktop surveys of documented wells and research of historical topographic mapping and a comprehensive exploration program using geophysical methods to identify the location of well casings and wide-area airborne and ground-based magnetic surveys) would be implemented for compensatory mitigation. Furthermore, implementation of Mitigation Measure HAZ-2 would help identify previously unknown gas and oil facilities and other potentially hazardous conditions. These measures and implementation of Mitigation Measure HAZ-2 would reduce this impact. Therefore, impacts from the project alternatives together with implementation of the Compensatory Mitigation Plan would not increase the potential for accidental release of hazardous materials into the environment. Impacts of the Compensatory Mitigation Plan, combined with project alternatives, would not change the impact conclusion of less than significant with mitigation.

Other Mitigation Measures

Some mitigation measures would involve the use of heavy equipment such as excavators and dozers that would have the potential for encountering previously contaminated soil and or groundwater and accident conditions involving the release of hazardous materials. The mitigation measures with potential to result in accident conditions involving the release of hazardous materials are Mitigation Measures BIO-2c: *Electrical Power Line Support Placement*; AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*; AES-1c: *Implement Best Management Practices to Implement Project Landscaping Plan;* CUL-1: *Prepare and Implement a Built-Environment Treatment Plan in Consultation with Interested Parties*; and AQ-9: *Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping Emissions to Net Zero*. Temporary accident conditions involving the release of hazardous materials resulting from implementation of mitigation measures would be similar to construction effects of the project alternatives in certain construction areas. This would increase the potential for impacts from the release of hazardous materials for the project alternatives. Implementation of Mitigation Measure HAZ-2: *Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate* would require preconstruction surveys to identify potentially hazardous conditions and remediate, if necessary. This would reduce the potential for encountering previously unknown hazardous materials to a less-than-significant level. Therefore, implementation of other mitigation measures is unlikely to create a substantial hazard from the accidental release of hazardous

materials, and the potential impact of encountering hazardous materials would be less than significant with mitigation.

Overall, the impact from accident release of hazardous materials for construction of compensatory mitigation and implementation of other mitigation measures, combined with project alternatives, would not change the impact conclusion of less than significant with mitigation.

See Chapter 26, *Public Health*, for a full discussion of methylmercury and human health.

Impact HAZ-3: Expose Sensitive Receptors at an Existing or Proposed School Located within 0.25 Mile of Project Facilities to Hazardous Materials, Substances, or Waste

All Project Alternatives

This section addresses potential impacts on schools, existing or proposed, that could be exposed to hazardous materials as a result of project construction or operation due to their proximity to the project footprint. Except for Alternative 5, there are no public or private preschools or K–12 schools within 0.25 mile of proposed water conveyance facilities. Therefore, there is no potential for the project to expose sensitive receptors at schools to hazardous materials under Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c either from construction or from operations and maintenance activities.

Under Alternative 5, the Mountain House Elementary School (3950 Mountain House Road, Byron) is approximately 0.18 mile south of the Bethany Reservoir Aqueduct. The aqueduct system would consist of four 15-foot-diameter belowground pipelines that would convey water from the Bethany Reservoir Pumping Plant to the Bethany Reservoir Discharge Structure. Access to the aqueduct would be provided by an access road constructed approximately 0.22 mile east of the school. This road would be a 2.1-mile-long paved road to provide access to the Bethany Complex via Byron Highway Frontage Road to Mountain House Road. No RTM storage would occur at the Bethany Complex.

Potential air quality effects on sensitive receptors are discussed in Chapter 23, *Air Quality and Greenhouse Gases*.

Project Construction

Construction of Alternative 5 would occur within 0.25 mile of Mountain House Elementary School. Construction activities could result in the release of hazardous emissions or entail the use of hazardous materials, substances, or waste. However, consistent with applicable laws and regulations, the transport, use, and disposal of hazardous materials would comply with regulations enforced by regulatory agencies such as CUPAs and Cal/OSHA. Environmental commitments include EC-2: *Develop and Implement Hazardous Materials Management Plans*, which would provide detailed information on hazardous materials used and stored and protocols to reduce the likelihood of a spill of toxic chemicals, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, which requires that personnel be trained in emergency response and spill containment technique. In addition, implementation of BMPs as described under the SWPPP (EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans*) would further reduce the potential for accidental release or exposure during construction. Therefore, the sensitive receptors at Mountain House Elementary School are not anticipated to be exposed to hazardous materials related to construction of Alternative 5.

Operations and Maintenance

Once constructed, operations and maintenance at the Bethany Reservoir Aqueduct may require the occasional use of hazardous materials for vehicles and equipment. The storage and use of these materials, however, would be regulated by CUPAs and Cal/OSHA. Regulations and laws pertaining to these materials, in addition to Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, would further reduce the potential for accidental release or exposure during project operations and maintenance.

CEQA Conclusion—All Project Alternatives

There are no schools located within 0.25 mile of the water conveyance facilities under Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c. Therefore, these alternatives would not expose sensitive receptors at schools to hazardous materials, substances, or waste, and there would be no impact.

Under Alternative 5, the Bethany Reservoir Aqueduct and associated access road would be within 0.25 mile of Mountain House Elementary School. Construction, operations, and maintenance may require the use of hazardous materials and, if mishandled, could expose people at the school to hazardous materials. Construction of the access road at the Bethany Reservoir Aqueduct would take half a year. An emergency response facility would be located south of the Bethany Reservoir Pumping Plant near the aqueduct alignment. The facilities would include a fire truck with accommodations for a full-time crew (nominally comprised of five personnel covering each construction shift). Emergency personnel would be available to respond to emergency situations such as a hazardous materials spill. Additionally, the Lammersville Unified School District (which Mountain House Elementary School is a part of) regularly runs emergency drills designed to train students in evacuation procedures and to allow district employees to test their emergency response plans (Rizzo 2016). The District's Safe Schools Plan is updated every fall and includes provisions for a Hazardous Spill or Release (Lammersville Unified School District 2019:40). Also, the project would comply with all applicable laws and regulations regarding the transportation, use, and disposal of these materials and implement EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans*, which would reduce the potential for accidental release or exposure during construction and operation through weekly site inspections; EC-2: *Develop and Implement Hazardous Materials Management Plans*, which includes detailed contact information for applicable city, county, state, and federal emergency response agencies and emergency response procedures; and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans*, which requires that personnel be trained in emergency response and spill containment technique. Therefore, the potential for hazardous materials to be emitted near Mountain House Elementary School under Alternative 5 would be less than significant.

Mitigation Impacts

Compensatory Mitigation

Although the Compensatory Mitigation Plan described in Appendix 3F does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in impacts on this resource as analyzed in this chapter.

There are no public or private K–12 schools within 0.25 mile of the compensatory mitigation (on Bouldin Island, the three ponds along I-5, and the North Delta Arc as described in Appendix 3F,

Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources). Therefore, compensatory mitigation together with the project under Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c would have no potential to expose sensitive receptors at schools to hazardous materials or emissions. Therefore, implementation of compensatory mitigation would not change the no impact conclusion for Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c. For Alternative 5, the effect of compensatory mitigation would create no additional impact related to the Mountain House Elementary School or other schools because they are not located within 0.25 mile of compensatory mitigation sites. Therefore, implementation of compensatory mitigation would not change the overall impact conclusion of less than significant for Alternative 5.

Other Mitigation Measures

There are no schools located within 0.25 mile of the water conveyance facilities under Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c. Therefore, implementation of mitigation measures at these alternatives would not expose sensitive receptors at schools to hazardous materials, substances, or waste, and there would be no impact.

Under Alternative 5, the Bethany Reservoir Aqueduct and associated access road would be within 0.25 mile of Mountain House Elementary School. Some mitigation measures would involve the use of heavy equipment such as graders, excavators, dozers, and haul trucks that would have the potential to expose sensitive receptors at schools to hazardous materials, substances, or waste. The mitigation measures with potential to expose sensitive receptors at schools to hazardous materials are Mitigation Measures BIO-2c: *Electrical Power Line Support Placement*; AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*; AES-1c: *Implement Best Management Practices to Implement Project Landscaping Plan;* CUL-1: *Prepare and Implement a Built-Environment Treatment Plan in Consultation with Interested Parties*; and AQ-9: *Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping Emissions to Net Zero*. Temporary exposure of sensitive receptors at schools to hazardous materials resulting from implementation of mitigation measures would be similar to construction effects of the project alternatives in certain construction areas and would contribute to exposure at schools to hazardous materials impacts of the project alternatives. Compliance with applicable laws and regulations regarding the transportation, use, and disposal of these materials, and implementation of BMPs as described under the SWPPP (EC-4b: *Develop and Implement Stormwater Pollution Prevention Plans*) would further reduce the potential for accidental release or exposure during construction. In addition, implementation of Environmental Commitments EC-2: *Develop and Implement Hazardous Materials Management Plans*, and EC-3: *Develop and Implement Spill Prevention, Containment, and Countermeasure Plans* would further reduce the potential for accidental release or exposure during project operations and maintenance. Therefore, implementation of other mitigation measures is unlikely to expose sensitive receptors at schools to hazardous materials, substances, or waste, and the impact of hazardous materials exposure would be less than significant.

Overall, the impact from exposing sensitive receptors at schools to hazardous materials, substances, or waste from construction of compensatory mitigation and implementation of other mitigation measures would not change the Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c no impact conclusion or the Alternative 5 less-than-significant impact conclusion.

Impact HAZ-4: Be Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 and, as a Result, Create a Substantial Hazard to the Public or the Environment

All Project Alternatives

The results of the database review did not indicate differences between alternatives with respect to the potential to encounter sites on the Cortese List (Cortese sites). See Table 25-1 for a summary of all sites discussed in the following sections.

Project Construction

The preliminary search of government databases to identify Cortese List sites revealed that there are sites within 0.25 mile of project facilities, as shown in Table 25-1. Project construction would include ground-disturbing activities and, in some cases, dewatering. If these activities were to occur in contaminated media, workers and the public could be exposed to contaminants harmful to human health.

North Delta Intakes, North Tunnels (All Alternatives)

Eight Cortese List sites are within 0.25 mile of the north Delta intakes and North Tunnels. Of these eight, six are within 0.25 mile of the project footprint, but not within the project footprint. All six are listed as "case closed." The other two sites (Chevron and Freeport Marina) are within the project footprint. Both are LUST sites located at the proposed SCADA fiber optic line routes and access roads. Both sites have completed cleanup, and both sites have been closed (State Water Resources Control Board 2021c, 2021e). Therefore, neither site within the project footprint is expected to expose workers, the public, or the environment to contaminants during project construction.

Eastern Alignment (Alternatives 3, 4a, 4b, 4c)

Seven listed sites are within 0.25 miles of the eastern alignment (Table 25-1). Three are LUST sites that have completed remediation, and their cases have been closed. Two sites, Southern Pacific Pipeline Shell and KMEP Petroleum Pipeline, are undergoing remediation of contaminated soil and water involving TPHs (i.e., jet, diesel, gas fuels) (Department of Toxic Substances Control 2021b; State Water Resources Control Board 2021i). Project activities at these locations include temporary surface impacts for road upgrades near Holt. Since road upgrades would not involve dewatering, there would be no risk of exposing workers or the public to contaminated water. However, contaminated soil could still be present in areas of proposed ground disturbance, thereby exposing workers or the public to hazardous constituents.

One site, D&D Flying Services is located within both the eastern alignment (Alternatives 3, 4a, 4b, and 4c) and the Bethany Reservoir alignment (Alternative 5). D&D Flying Services was inspected for possible pesticide misuse. However, inspection indicated that the airstrip looked clean, and no spills or evidence of washing were observed. The flying service closed in 1988. This site is near the Lower Roberts Island RTM and levee improvements, but because no violations were found, work in this area would not expose workers or the public to site contaminants.

The Stockton Naval Communication Station is within both the eastern alignment (Alternatives 3, 4a, 4b, and 4c) and the Bethany Reservoir alignment (Alternative 5) and is discussed below under *Bethany Reservoir Alignment (Alternative 5)*.

Southern Complex (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c)

Eight Cortese List sites are within 0.25 mile of the Southern Complex. Two are LUST sites and one is an evaluation site that completed remediation; these three cases are closed (Table 25-1). The remaining five are Cleanup Program Sites/voluntary cleanup sites.

Soils at the Chevron, Holey-Byron Road site were contaminated by petroleum from the former Old Valley Pipeline. No files were found to indicate that investigation or cleanup was undertaken; however, the case was listed by the State Water Board as completed and closed September 2012. Project activities near this location include installation of SCADA fiber line route.

Chevron Texaco near Byron Road is in the project footprint near the access railroad for Byron Tract on-site rail line. Discharge of heating oil/fuel from former Old Valley Pipeline was discovered during geotechnical investigations in 1991. The case was closed in November 2003.

The Chevron Old Valley Pipeline site is a voluntary cleanup site where there was soil and groundwater contamination due to oil leaking from historic pipelines. Soil and groundwater remediation and investigations are ongoing. This site is near the construction water pipeline.

The Chevron Bruns Property site is within the Southern Complex project footprint at the forebay at Bryon Tract. This site was known as the Arcady Oil Company opened in 1960. It was used as a landfill for drilling muds and closed in 1984. In 1986, a section of Southern Pacific Pipeline's fuel pipeline that passed beneath the site leaked. The Central Valley Regional Water Quality Control Board has been involved in oversight of environmental investigations at this site. It is listed as completed and closed as of March 2017.

Bethany Reservoir Alignment (Alternative 5)

Seven sites are listed within the Bethany Reservoir alignment. Four are LUST sites that have completed remediation, and the cases are closed. Three LUST sites (Tiki Lagoon Resort, Byron Bethany Irrigation District, Schropp Ranch) are within the project footprint for Alternative 5 and involved petroleum/gasoline leaks that contaminated both soil and groundwater. The three sites are near project facilities: proposed utility line, SCADA fiber line route, and levee access road. Because the three sites have undergone remediation and their cases have been closed, it is not expected that the project would expose workers or the public to contaminants.

The Shell Pipeline—Kelso Road site is within 0.25 mile of a proposed SCADA fiber line and adjacent to the Bethany Reservoir Pumping Plant and Surge Basin facility. This site involved soil and water contamination from petroleum hydrocarbons. Remediation in 2011 included excavation of contaminated soils and groundwater. Remediation was deemed complete, and the case was closed in 2014. Therefore, it is not expected to pose a risk of exposing workers or the public to contaminated soil or water.

Two sites, D&D Flying Services and Byron Power Company, are listed under cleanup programs. D&D Flying Services is discussed above under eastern alignment (Alternatives 3, 4a, 4b, 4c). There were no reported violations, and it is not a site of concern for contaminants. Byron Power Company is near the proposed water treatment and storage tanks at 4901 Bruns Road in Byron. This site was a former power plant. Petroleum hydrocarbons were detected in soil samples collected in areas of the facility. Remedial excavations were conducted at the site, and the case was closed on May 20, 2014. Because remediation was completed at this site, it is not expected that project activities at this location would expose workers or the public to contaminants.

The Stockton Naval Communication Station is listed as a state Response Site and is part of a former naval base and firing range with various soil and groundwater contaminants, including organochlorine pesticides (e.g., DDT) and petroleum hydrocarbons. To expedite reuse of the property and to comply with environmental cleanup requirements, the site has completed an Environmental Baseline Survey. Remediation, however, is ongoing, and this site is listed as active as of April 2020. This site is within the project footprint for SCADA fiber routes on Rough and Ready Island. If project construction in this area involves ground disturbance, workers could be exposed to contaminants in the soil.

Conclusion

The potential for construction activities to encounter hazardous materials at a Cortese List site is increased where remediation has not been completed or verified. The following four sites within or near the project footprint have the potential to expose workers and the public to hazardous materials.

- Southern Pacific Pipeline Shell and KMEP Petroleum Pipeline sites in the eastern alignment for Alternatives 3, 4a, 4b, and 4c.
- Chevron, Holey-Byron Road, Chevron Old Valley Pipeline, and the Chevron Bruns Property site in the Southern Complex for Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c.
- Chevron Bruns Property site in the South Delta Conveyance/Southern Complex for Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c.
- Stockton Naval Communication Station site in the Bethany Reservoir alignment for Alternative 5.

Except for the West Tracy Fault and Bethany Fault studies, field investigations for project construction would occur within 0.25 mile of the footprints of the individual alternatives. The West Tracy Fault study would involve trenching along five fault trench lines running from the southeast of Byron to the southeast of the Clifton Court Forebay. This area was included as part of the study area for hazards and hazardous materials, including Cortese List sites. Therefore, the potential for field investigations to encounter hazardous materials at a Cortese List site is the same as under project construction. The Bethany Fault study is primarily a Cone Penetration Test study.

Operations and Maintenance

Operation and maintenance under all project alternatives would occur within the same footprint as construction. Project operations and maintenance activities would occur after identified Cortese List sites were evaluated and, if needed, remediated. Therefore, the risk to expose workers, the public, or environment to hazardous materials from a known Cortese List site is low.

CEQA Conclusion—All Project Alternatives

The project alternatives would construct facilities on or near known Cortese List sites. Ground-disturbing activities and dewatering at or near sites that have not been fully remediated could expose workers and the public to contaminated soil and/or groundwater resulting in adverse health effects. The potential for exposure during construction would be a significant impact because of the proximity of these sites to project alternatives and the potential for hazardous materials exposure during site excavation and grading. Operations and maintenance activities at project alternatives

would not result in employee exposure because a plan (e.g., Environmental Site Assessment) for remediating hazardous sites would be implemented prior to project operations.

For all alternatives, Mitigation Measure HAZ-2: *Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate* would reduce the potential for significant impacts to a less-than-significant level by requiring preconstruction investigations and remediation to reduce the potential for encountering contaminants and other hazardous materials at construction sites.

Mitigation Measure HAZ-2: Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate

See description of Mitigation Measure HAZ-2 under Impact HAZ-2.

Mitigation Impacts

Compensatory Mitigation

Compensatory mitigation would result in the creation of wetlands and other habitats on Boudin Island, the I-5 ponds (Ponds 6, 7, 8), and tidal wetland and channel margin habitat in the North Delta Arc, as described in Appendix 3F. Although the Compensatory Mitigation Plan does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in hazards, hazardous materials, and wildfire impacts.

One Cortese List site designated as a LUST site (Willow Berm Marina) is within 0.25 mile of the compensatory mitigation. Willow Berm Marina is in Isleton, adjacent to Bouldin Island. Records indicate aquifer contamination at this location resulted from a gasoline leak at an underground storage tank. Remediation at the site was completed and the case closed in 2011. Because remediation activities were completed, the site is not expected to expose workers or the public to soil or groundwater contamination as a result of compensatory mitigation construction, operations, or maintenance. Therefore, the combined impact of project alternatives and Compensatory Mitigation Plan implementation would not change the overall impact conclusion of less than significant with mitigation.

Other Mitigation Measures

The project alternatives would construct facilities on or near known Cortese List sites. Some other mitigation measures would involve the use of heavy equipment such as excavators and dozers that would have the potential to expose workers and the public to contaminated soil and/or groundwater from a known Cortese List site. The other mitigation measures with potential to expose workers and the public to contaminated soil and/or groundwater are: Mitigation Measures BIO-2c: *Electrical Power Line Support Placement*; AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*; AES-1c: *Implement Best Management Practices to Implement Project Landscaping Plan;* and AQ-9: *Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping Emissions to Net Zero*. Temporary exposure of workers and the public to contaminated soil and/or groundwater resulting from implementation of mitigation measures would be similar to construction effects of the project alternatives in certain construction areas and would contribute to exposing workers and the public to contaminated soil and/or groundwater impacts of the project alternatives thereby resulting in a significant impact. However, implementation of Mitigation Measure HAZ-2: *Perform a Phase I Environmental Site Assessment Prior to Construction Activities and Remediate* would reduce potential

impacts by requiring preconstruction investigations and remediation to reduce the potential for encountering contaminants and other hazardous materials at construction sites. Therefore, implementation of other mitigation measures is unlikely to expose workers and the public to contaminated soil and/or groundwater from a known Cortese List site, and the impact of hazardous materials exposure would be less than significant with mitigation.

Overall, the impact of exposing workers and the public to contaminated soil and/or groundwater from a known Cortese List site for construction of compensatory mitigation and implementation of other mitigation measures, combined with project alternatives, would not change the less than significant with mitigation impact conclusion.

Impact HAZ-5: Result in a Safety Hazard Associated with an Airport or Private Airstrip

All Project Alternatives

Impacts under all nine project alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) described in Chapter 3 would be similar and are discussed together.

Project Construction, Operations, and Maintenance

Airspace safety hazards occur when project components, such as buildings or construction equipment, encroach on the airspace of an airport runway. Federal law requires that the FAA determine whether a structure that is proposed to be built or altered 200 feet above ground level or higher, or near an airport, poses a hazard to the airspace (Federal Aviation Administration 2015).

In addition, under 14 CFR Part 77, the FAA requires project proponents to inform them about proposed construction or alteration of objects within 20,000 feet of a public-use or military runway and having a height exceeding a 100:1 imaginary surface (1 foot upward per 100 feet horizontally) beginning at the nearest point of the runway for runways greater than 3,200 feet in length. For shorter public-use or military runways, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. Notice must be provided for temporary objects such as construction cranes and any permanent facility or object more than 200 feet in height above ground level or above the established airport elevation. Upon FAA evaluation of the effects of the proposed object on air navigation, an aeronautical study (Obstruction Evaluation/Airport Airspace Analysis [OE/AAA]) would be prepared by the FAA and indicate whether the project would have an impact on air safety.

As described in the *State Aeronautics Act*, Caltrans requires notification for proposed construction of any state building or enclosure within two miles of any airport before an agency acquires title to the property for the building or enclosure or for an addition to an existing site (Public Util. Code § 21655). Caltrans would respond with a written investigation report of the proposed site and provide recommendations, as necessary, to reduce potential hazards to air navigation.

No aspect of the project under any alternative would require equipment that would exceed 200 feet in height. The tallest equipment used during construction would be cranes. Mobile cranes would be used to load and unload intake features, are approximately 15 feet tall, and would include a 100-foot-long boom. During operation and maintenance, no structures would be tall enough to impede aircraft use of runways. Gantry cranes used to move equipment during maintenance procedures would be approximately 25 feet tall, reaching a total height of 75 feet when placed on other structures (e.g., intake structure). Neither type of crane is tall enough to interfere with airplanes or their airspace. The tallest permanent facilities would be the intakes, which would be approximately

21 to 28 feet from top of the river's water surface to the top of the structure's deck. As such, no permanent project structures would impede airspace.

As discussed in Section 25.3.1, *Methods for Analysis*, 11 public and private airports/heliports are within 2 miles of project facilities (Figure 25-5). Six of these airports are within 2 miles of proposed access roads and SCADA fiber optic routes: Funny Farm Airport and Las Serpientes Airport (central alignment Alternatives 1, 2a, 2b, and 2c); Lodi Memorial Hospital Heliport and Kingdon Airpark (eastern alignment Alternatives 3, 4a, 4b, and 4c); and Kaiser Permanente South Sacramento Heliport and the Borges-Clarksburg Airport (all project alternatives).

Flying B Ranch Airport is 0.64 mile east of a proposed utility line and 1.06 miles west of a SCADA fiber optic route along all alternatives (SCADA underground fiber optic route along the central alignment and utility line [to be added to existing lines] along the eastern alignment and Bethany Reservoir alignment). However, DWR would coordinate with Flying B Ranch Airport prior to initiating construction to determine if transmission line stringing could interfere with airport operations.

Franklin Field is approximately 0.8 mile east of the Twin Cities Complex under all project alternatives. The project alternatives would comply with the policies in the Franklin Field Comprehensive Land Use Plan (Sacramento Area Council of Governments 1988). The plan designates different land use and development policies based on proximity to the airport within three safety zones: a Clear Zone that covers the runway and extends outward 1,000 feet from the ends; an Approach/Departure Zone located under the takeoff and landing slopes; and an Overflight Zone that generally coincides with normal air traffic patterns. Project components in the vicinity of the safety zones include intakes, launch shaft, access roads, underground utilities, and rail spur. DWR would coordinate with Sacramento County prior to initiating construction to determine if the project could interfere with airport land uses.

Lost Isle Seaplane Base is within 1.4 miles west of proposed tunnels of the eastern alignment (Alternatives 3, 4a, 4b, and 4c) and Bethany Reservoir alignment (Alternative 5). Heritage Field is 1.3 miles west of proposed levee improvements of the eastern alignment (Alternatives 3, 4a, 4b, and 4c) and Bethany Reservoir alignment (Alternative 5). Construction, operations, and maintenance would not include equipment or structures that would have the potential to interfere with the airspace of these airports.

Byron Airport is within 1 mile of the Southern Complex under Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c, as well as a proposed access road and a SCADA fiber optic route. Similarly, project components do not include structures or equipment over 200 feet tall. However, the Southern Complex is within the Byron Airport influence area in Compatibility Zones including a Height Exception Overlay Zone (County of Contra Costa 2000:4–12). Policies regarding these zones stipulate consultation with and review by the Contra Costa Airport Land Use Commission for any proposed object taller than 100 feet. Construction of structures more than 100 feet above ground level within the airport influence zones could cause an obstruction or hazard to air navigation.

DWR would coordinate with Contra Costa Airport Land Use Commission prior to initiating construction and comply with its recommendations based on its investigations and with the recommendations of the Obstruction Evaluation/Airport Airspace Analysis for Byron Airport. These recommendations, which could include limitations necessary to minimize potential problems such as the use of temporary construction equipment, supplemental notice requirements, and marking and lighting high-profile structures, would reduce the potential for impacts on the Byron Airport.

Recommendations to avoid conflicts with existing airports located near construction areas would be implemented prior to construction. Field investigations for project construction would occur primarily within the footprint of the individual alternative and would not include structures that would impede airspace. Likewise, the West Tracy Fault study involves trenching and would not interfere with airspace. Helicopters could be used to facilitate surveys but would operate under all applicable FAA regulations, thereby reducing the potential for airspace interference. Field investigations would not result in a safety hazard involving airports.

The Southern Complex includes the Southern Forebay with a water surface of approximately 750 acres. Located northwest of the existing Clifton Court Forebay, the addition of a large waterbody could become a bird attractant. More birds near the Byron Airport could increase the possibility of airplane-bird strikes. Although most bird strikes do not result in significant damage to airplanes or their passengers, large birds can get sucked into airplane engines, causing significant damage and sometimes even causing a crash.

The combination of open water and vegetation is particularly attractive to waterfowl. Nearby waterbodies in the Delta, such as the Clifton Court Forebay, sloughs and rivers, and wildlife refuges, already attract ducks, gulls, and other waterbirds to the area, especially in the winter months. Generally, these birds are foraging and roosting on the water, not flying in large flocks. It is not likely that the addition of the Southern Forebay would cause a substantial increase of birds in the area. Birds would not necessarily be drawn westward to the proposed forebay because other aquatic roosting habitat would be to the east and foraging habitat located in uplands. Also, the forebay would not contain fish, and the depth of the forebay along with maintenance activities, including biannual removal of aquatic vegetation, would limit suitability of habitat for waterfowl. Periodic removal of roosting materials for structures near the Byron Airport (e.g., outlet structure, control structure) would also reduce the likelihood of birds gathering in the forebay during nesting season. Lastly, bird strikes do not appear to be a significant issue at Byron Airport, according to the FAA Wildlife Strike Database. Since 1990, one bird strike, resulting in no damage, was reported in 2017 at Byron Airport (Federal Aviation Administration 2022).

- The FAA identifies activities such as agriculture, landfills, or large waterbodies as potential wildlife attractants and cautions that considerations should be given as to whether a proposed land use would increase wildlife hazards. For airports serving turbine-powered aircraft (such as Byron Airport) the FAA AC 150/5200-33C recommends a 10,000-foot (1.89-mile) separation distance between hazardous wildlife attractants and the nearest airport operations area. The proposed Southern Forebay is located approximately 1.78 miles (9,398 feet) from the Byron Airport runway and within Zones B1, B2, C1, and D as designated by the Contra Costa Airport Land Use Commission. FAA AC 150/5200-33C suggests the airport prepare a Wildlife Hazard Assessment for FAA review. If FAA determines a hazard risk may be present as a result of the project, per FAA direction, a Wildlife Hazards Management Plan (WHMP) could be prepared for the airport to evaluate the risks associated with implementation of the project. The plan would include an assessment methodology prepared in accordance with FAA Advisory Circular 150/5200-38, *Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans* and appropriate measures to eliminate the hazard risk and would be developed in consultation with DWR. Title 14 CFR Section 139.337 (“Wildlife hazard management”) defines requirements for the preparation and implementation of wildlife hazard management protocols and plans. Some specific requirements include: The wildlife hazard assessment must be conducted by a wildlife damage management biologist who

has professional training and/or experience in wildlife hazard management at airports or an individual working under direct supervision of such an individual.

- The wildlife hazard assessment must contain, in part:
  - An analysis of the events or circumstances that prompted the assessment.
  - Identification of the wildlife species observed and their numbers, locations, local movements, and daily and seasonal occurrences.
  - Identification and location of features on and near the airport that attract wildlife.
  - A description of wildlife hazards to air carrier operations.
  - Recommended actions for reducing identified wildlife hazards to air carrier operations.

CEQA Conclusion—All Project Alternatives

Airspace safety hazards occur when project components, such as buildings or construction equipment, encroach on the airspace of an airport runway. The locations of airports within 2 miles of the project are shown on Figure 25-5. Eleven airports are within 2 miles of the construction footprint. No aspect of the project under any alternative would include equipment or structures that would be taller than 200 feet. Also pursuant to the State Aeronautics Act, DWR would adhere to FAA and Caltrans recommendations and comply with the recommendations of the OE/AAA.

In areas where the project intersects with the Byron Airport influence area, construction of structures more than 100 feet above ground level could cause an obstruction or hazard to air navigation. However, construction would not introduce equipment or temporary structures in locations that could obstruct an airport or conflict with airport land uses. In addition, consultation with the Contra Costa Airport Land Use Commission would ensure that potential impacts of airspace interference would be reduced. As such, impacts on airports within 2 miles of the construction footprint due to construction of any of the project alternatives would be less than significant.

Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c would include construction of the Southern Forebay, which, under operation, could serve as a bird attractant and might increase hazards to aircraft from birds flying in the area and colliding with aircraft. This potential effect is considered a significant impact because of the proximity of the proposed forebay to an existing airport and the potential for it to attract waterfowl and other birds.

However, nearby waterbodies in the Delta already attract birds to the area and the addition of the forebay would not necessarily increase the number of birds relative to baseline conditions and bird strikes are not currently an issue at Byron Airport (Federal Aviation Administration 2022). Landscaping and ground cover around the forebay and within the project boundary would be maintained so as to minimize attractants to wildlife. This would decrease the potential for food sources, resting areas, and the creation of cover for wildlife species that could be a hazard to aviation. Other bird-deterrent measures, such as mechanical removal of vegetation from the interior and exterior embankments of the forebay, would be conducted quarterly and would reduce the use of the forebay by birds near Byron Airport. Lastly, implementation of Mitigation Measure HAZ-5: *Wildlife Hazards Management Plan and Wildlife Deterrents (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c)* would reduce this impact from significant to less than significant by requiring consultation with the Contra Costa Airport Land Use Commission and, if deemed necessary, preparation of a WHMP by the Byron Airport, and implementation of wildlife deterrent measures within the project footprint to reduce, minimize, and/or avoid wildlife hazards on air safety.

Mitigation Measure HAZ-5: Wildlife Hazards Management Plan and Wildlife Deterrents

Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c

1. The FAA requires public service airports to maintain a safe operation, including conducting hazard assessments for wildlife attractants within 5 miles of an airport. The hazard assessment is submitted to FAA, which determines if the airport needs to develop a Wildlife Hazard Management Plan (15 CFR Part 139). The airport's Wildlife Hazard Management Plan contains measures to reduce wildlife hazards, including habitat modification (e.g., vegetation management, filling in of wetlands), wildlife control measures (e.g., harassment, trapping and removing), and use of a radar-based alert system.

    a. DWR will consult with the Contra Costa Airport Land Use Commission during the project-level environmental assessments, when site-specific locations and design plans are finalized. At that time, appropriate management plans, strategies, and protocols will be developed to reduce, minimize, and/or avoid wildlife hazards on air safety. Wildlife deterrent measures will include one or more physical, mechanical, visual, or biological devices and features to deter avian wildlife attraction to the Southern Forebay.

    b. DWR will incorporate the following wildlife (specifically bird) deterrents:

        i. Conduct periodic (e.g., biannual) removal of roosting/nesting materials from DWR-managed structures near the Byron Airport.

Nonmigratory birds, left undisturbed, will establish territories on building roofs, ledges, and open girders associated with nearby waterbodies such as the Southern Forebay. Techniques to exclude birds from the area will be incorporated into final project design Examples include anti-perching devices (spikes or other obstructions) installed on ledges, roof peaks, rafters, signs, posts, and other roosting and perching areas; netting and wire can also be used for larger areas.

Mitigation Impacts

Compensatory Mitigation

Although the Compensatory Mitigation Plan described in Appendix 3F does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in hazards, hazardous materials, and wildfire impacts.

Because there are no airports within 2 miles of the compensatory mitigation sites, implementation of compensatory mitigation would not affect airports operations. No impact would occur. Therefore, the combined impact of implementation of the Compensatory Mitigation Plan and Alternative 5 would not change the Alternative 5 impact conclusion of less than significant. The impact of Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c combined with the impact of the Compensatory Mitigation Plan would be the same as the impacts of those alternatives alone and would not change the overall impact conclusion of less than significant with mitigation.

Other Mitigation Measures

Other mitigation measures proposed would not have impacts on safety hazards associated with an airport because no mitigation measures would introduce equipment or temporary structures in locations that could obstruct an airport or conflict with airport land uses in the area where the project alternatives would be constructed or operated. Therefore, implementation of other

mitigation measures is unlikely to result in a safety hazard associated with an airport, and there would be no impact.

Overall, safety hazards associated with an airport for construction of compensatory mitigation and implementation of other mitigation measures, combined with project alternatives, would not change the impact conclusion for Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c of less than significant with mitigation and would not change the impact conclusion for Alternative 5 of less than significant.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

All Project Alternatives

The potential impacts under all nine project alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) would be similar and are discussed together.

Project Construction

As discussed above under Section 25.1.4, *Evacuation and Emergency Routes*, each local jurisdiction in the study area has policies, regulations, and plans related to emergency response and evacuation. Local emergency response plans identify specific routes for emergency evacuations. Generally, construction of any project alternative could result in short-term, temporary traffic delays on existing roads used to access project facilities and infrastructure, and consequently, could potentially interfere with implementation of an emergency response plan and delay emergency responders.

Under all project alternatives, transportation facility improvements are provided to serve the construction and material delivery processes. Access roads would be constructed to serve the project alternatives, which would help alleviate traffic congestion on existing roads in the study area. Access road activities would involve widening and improving roads, constructing new roads and bridges, and widening bridges. See Chapter 3 for assumptions regarding access roads to construction sites. These assumptions include restricting project traffic on many heavily used roadways for each key feature to reduce construction traffic on local roadways.

As described in Chapter 3, emergency response facilities would be located at each intake and launch shaft construction site, and at the Southern Complex (for central and eastern alignment alternatives) and Bethany Complex (Alternative 5). Resources would include a full-time crew and a helipad for emergency evacuations. Intakes would also have a rescue boat. These facilities would help reduce the burden on local emergency providers.

Except for the West Tracy Fault and Bethany Fault studies, field investigations for project construction would occur within the facility footprint of project alternatives and along tunnel alignments and not substantially conflict with emergency response plans. The West Tracy Fault study would involve trenching along a line running from southeast of Byron to southeast of the Clifton Court Forebay and not directly conflict with emergency plans and evacuation routes. Therefore, impacts on emergency plans and evacuation routes from the project alternative facilities would be similar to, but of lower magnitude than, the West Tracy Fault study. The Bethany Fault study is primarily a Cone Penetration Test study.

Operations and Maintenance

During operations and maintenance, all construction work would be completed, and the project alternatives would not impair or interfere with any adopted emergency response or evacuation plans. Generally, these activities would involve employees commuting to facilities daily, annually, or as-needed for the life of the facilities. Operation and maintenance of facilities under all project alternatives could increase traffic on local roads to facilities when regular and routine tasks are scheduled. However, these activities would be spread over 24 hours and consist of a relatively low number of individuals with few vehicles and equipment; therefore, they would not likely affect emergency access or evacuation routes. In addition, operations and maintenance of the project alternatives would not result in the average vehicle miles traveled (VMT) per operation and maintenance employee to exceed the regional average of 22.5 miles on a daily basis.

CEQA Conclusion—All Project Alternatives

Construction under all project alternatives could result in short-term, temporary traffic delays potentially interfering with implementation of an emergency response plan and delaying emergency responders. This could significantly impact emergency response plans or routes during the multi-year construction period. As stated in Chapter 20, *Transportation*, access to and from the project alternatives would be designed to meet local and regional emergency access requirements, including procedures for construction area evacuation in the case of an emergency. Therefore, this impact is considered to be significant because construction-related traffic would increase traffic volumes on local roadways, potentially impacting emergency evacuation routes.

During operations and maintenance, after all construction work is complete, the project would not impair or interfere with any adopted emergency response or evacuation plans. Under all project alternatives, operations and maintenance of the project would not result in the average VMT per operation and maintenance employee to exceed the regional average of 22.5 miles on a daily basis. However, operations would involve additional truck traffic and transportation of materials, as compared to current conditions, that could increase roadway traffic. This would be a significant impact.

As identified in Chapter 20, *Transportation*, Mitigation Measure TRANS-1: *Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan* requires preparation and implementation of a Transportation Demand Management Plan that addresses specific steps (e.g., signage, notifications, flaggers) to be taken before, during, and after construction to minimize traffic impacts, limit hours of construction, and make good-faith efforts to enter into mitigation agreements with affected state, regional, or local agencies.

With implementation of Mitigation Measure TRANS-1, additional evaluations and discussions with local agencies would be required during the design phase to determine the most appropriate method to coordinate between project-provided emergency response services at the construction sites and integration with local agencies. Because project construction would not take place without a Transportation Demand Management Plan and good-faith coordination with local agencies on appropriate emergency response services, impacts from construction or operations and maintenance of any of the alternatives would be reduced to less than significant with mitigation.

Mitigation Measure TRANS-1: Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan

See description of Mitigation Measure TRANS-1 under Impact TRANS-1 in Chapter 20, *Transportation*.

Mitigation Impacts

Compensatory Mitigation

Although the Compensatory Mitigation Plan described in Appendix 3F does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in hazards, hazardous materials, and wildfire impacts.

Compensatory mitigation (Appendix 3F, *Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources*) would occur on Bouldin Island, three ponds along I-5 (Ponds 6, 7, and 8), and within the North Delta Arc. Construction of the compensatory mitigation would consist of breaching levees, local grading, and inundation of the locations. Operation of the compensatory mitigation areas would entail ongoing vegetation and water management to disk vegetation, excavate sediment, and repair berms and water control structures. The potential impact with respect to emergency plan and evacuation routes would be construction interference with roadways near the compensatory mitigation sites. However, the number of personnel and equipment required for compensatory mitigation would not be enough to impair emergency access. Early coordination with local jurisdictions and compliance with all local plans pertaining to emergency evacuations at the compensatory mitigation sites would also occur.

While the number of personnel and equipment required for these occasional activities would not be enough to impair emergency access, compensatory mitigation, together with the project, could result in short-term, temporary traffic delays potentially interfering with implementation of an emergency response plan and delaying emergency responders. This would be a significant impact.

However, implementation of Mitigation Measure TRANS-1 would require additional evaluations and discussions with local agencies during the design phase to determine the most appropriate method to coordinate between project-provided emergency response services at the construction sites and integration with local agencies. Therefore, impacts of project alternatives combined with Compensatory Mitigation Plan implementation would not change the overall impact conclusion of less than significant with mitigation.

Other Mitigation Measures

Some mitigation measures would involve the use of heavy equipment such as graders, excavators, dozers, and haul trucks that would have the potential to increase construction-related traffic volumes on local roadways, potentially impacting emergency evacuation routes. The mitigation measures with potential to result in increased construction-related traffic and emergency evacuation route impacts are Mitigation Measures BIO-2c: *Electrical Power Line Support Placement*; AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*; AES-1c: *Implement Best Management Practices to Implement Project Landscaping Plan;* CUL-1: *Prepare and Implement a Built-Environment Treatment Plan in Consultation with Interested Parties*; and AQ-9: *Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping Emissions to Net Zero*. Temporary increases in traffic volumes impacting

emergency evacuation routes resulting from implementation of mitigation measures would be similar to construction effects of the project alternatives in certain construction areas and would contribute to traffic volumes on local roadways and emergency evacuation route impacts of the project alternatives. Implementation of Mitigation Measure TRANS-1: *Implement Site-Specific Construction Transportation Demand Management Plan and Transportation Management Plan* would minimize traffic impacts, limit hours of construction, and make good-faith efforts to enter into mitigation agreements with affected state, regional, or local agencies. Therefore, implementation of other mitigation measures is unlikely to impair or interfere with an emergency response plan or emergency evacuation plan, and the impact of emergency response would be less than significant with mitigation.

Overall, impairment of an emergency response plan or emergency evacuation plan impacts for construction of compensatory mitigation and implementation of other mitigation measures, combined with project alternatives, would not change the less than significant with mitigation impact conclusion.

Impact HAZ-7: Expose People or Structures, Either Directly or Indirectly, to a Substantial Risk of Loss, Injury, or Death Involving Wildland Fires

All Project Alternatives

This section addresses impacts associated with the potential for all project alternatives to expose people or structures to wildland fires. Under all of the alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5), the risk of wildland fire is similar. The magnitude of these risks could differ depending on the longer construction duration of some project alternatives (Alternatives 2a, 3, 4a, 4b, and 5). The nature of potential impacts under all nine project alternatives is similar and discussed together.

Project Construction

Human activities are the primary reason wildfires start, although lightning strikes do occasionally start wildfires. Project construction would involve the use of heavy equipment, welding, and other activities that have the potential to ignite fires. Construction of any one of the project alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5), including field investigations, would involve the presence of personnel and equipment, both of which could inadvertently start a fire. The probability of starting a fire would be greater under Alternatives 2a, 3, 4a, 4b, 4c, and 5 because construction of these alternatives would take 1 to 2 years longer to complete than Alternatives 1, 2b, and 2c; thereby, they would require the presence of personnel and equipment for a longer duration (Table 25-2).

Table 25-2. Construction Durations

Construction Duration	12 years	13 years	14 years
Alternative(s)	1, 2c	2a, 2b, 3, 4b, 4c, 5	4a

As discussed above, peat is found throughout the study area, particularly along the central and eastern alignments (Figure 11-2), and the study area is at risk for peat fires. As noted above, peat consists of partially decayed wetland vegetation (tule) that has built up and when ignited it can cause fires that are particularly difficult to handle compared to fires fueled by trees or grass. Peat

fires are usually started by forest or grassland fires or on rare occasions, by lightning strikes. See Impact HAZ-2 for a discussion of gas accumulation in tunnels.

No portion of the project would be located in or near an area designated as a High or Very High Fire Hazard Severity Zone (Figure 25-4). Although there are heat sources (e.g., construction equipment, vehicles) that would be present during project construction, standard BMPs (e.g., spark arrestors for vehicles in high grass, no smoking zones) would reduce the potential for a fire to start. Additionally, as described in Chapter 3, emergency response facilities would include fire, rescue, medical equipment, a helipad, and trained emergency personnel at main construction sites (intakes, tunnel launch shaft sites, and the Southern Complex [for central and eastern alignment alternatives] and Bethany Complex [Alternative 5]).

Operations and Maintenance

Project operations and facility maintenance of any one of the alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5) would consist of activities such as painting, cleaning, repairs, and other routine tasks. Some of these activities would involve the use of flammable chemicals, such as fuels and solvents, which could be inadvertently ignited by sparks from equipment/machinery if proper safety measures were not employed. During project operation, however, fewer personnel and equipment would be on-site, thereby lowering the potential for fire. Also, the project would comply with all pertinent fire prevention laws and regulations including Cal/OSHA fire prevention and safety standards.

CEQA Conclusion—All Project Alternatives

Construction of any one of the project alternatives (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, 4c, and 5), including field investigations, would involve the presence of personnel and equipment, both of which could inadvertently cause a fire (e.g., smoking, sparks from equipment). However, no portion of the project is in or near an area designated as a High or Very High Fire Hazard Severity Zone. To further prevent the potential for fire, emergency response facilities would be on-site and include a fire truck and full-time crew located at each intake and launch shaft construction site and at the Southern Complex (for central and eastern alignment alternatives) and Bethany Complex (Alternative 5). This impact would be less than significant because conditions do not exist near the project that would result in exposure of people or structures to significant risk of exposure to wildfire, and standard fire safety and prevention measures would be implemented.

Operations and maintenance involve equipment and personnel that could inadvertently start a fire. Project operation could also involve the use of flammable materials such as fuels and solvents, which could be inadvertently ignited by sparks from equipment or machinery. However, use of flammable materials would comply with regulations enforced by CUPAs and Cal/OSHA. In addition, all standard fire safety and prevention measures would be implemented.

Compliance with applicable laws and regulations regarding fire prevention and safety and implementation of EC-5: *Develop and Implement a Fire Prevention and Control Plan* would include provisions such as consultation with fire agencies, spark arrestors on construction equipment, and maintaining appropriate fire suppression equipment to further reduce impacts related to wildland fires. The potential for the project and field investigations to expose people or structures to a substantial risk of wildland fire would be less than significant.

Mitigation Impacts

Compensatory Mitigation

Although the Compensatory Mitigation Plan described in Appendix 3F does not act as mitigation for hazards, hazardous materials, and wildfire impacts from project construction or operations, its implementation could result in hazards, hazardous materials, and wildfire impacts.

Construction of compensatory mitigation (on Bouldin Island, the three ponds along I-5 (Ponds 6, 7, and 8), and within the North Delta Arc, as described in Appendix 3F) would involve the presence of personnel equipment and vehicles, all of which could inadvertently spark a fire. However, no portion of the project or compensatory mitigation area is in or near an area designated as a High or Very High Fire Hazard Severity Zone. Emergency response facilities would be on-site and include a fire truck and full-time crew located at each intake and launch shaft construction site and at the Southern Complex (for central and eastern alignment alternatives) or Bethany Complex (Alternative 5). Finally, standard BMPs (e.g., spark arrestors for vehicles in high grass, no smoking zones) and compliance with applicable laws and regulations regarding fire prevention and safety would reduce the potential for wildland fires. Therefore, the potential for the project, combined with compensatory mitigation, to expose people or structures to a substantial risk of wildland fire would not change the overall impact conclusion of less than significant.

Other Mitigation Measures

Some mitigation measures would involve the presence of personnel equipment and vehicles that would have the potential to inadvertently spark a fire. The mitigation measures with potential to result in increased exposure of people or structures to wildfire risk are Mitigation Measures BIO-2c: *Electrical Power Line Support Placement*; AG-3: *Replacement or Relocation of Affected Infrastructure Supporting Agricultural Properties*; AES-1c: *Implement Best Management Practices to Implement Project Landscaping Plan;* CUL-1: *Prepare and Implement a Built-Environment Treatment Plan in Consultation with Interested Parties*; and AQ-9: *Develop and Implement a GHG Reduction Plan to Reduce GHG Emissions from Construction and Net CVP Operational Pumping Emissions to Net Zero*. Temporary increases in the risk of fires resulting from implementation of mitigation measures would be similar to construction effects of the project alternatives in certain construction areas and would contribute to fire risk impacts of the project alternatives. However, no portion of the project is in or near an area designated as a High or Very High Fire Hazard Severity Zone. To further prevent the potential for fire, emergency response facilities would be on-site. Conditions do not exist near the project that would result in exposure of people or structures to substantial risk of exposure to wildfire, and standard fire safety and prevention measures would be implemented. Therefore, implementation of other mitigation measures is unlikely to expose people or structures to a substantial fire risk and the impact of fire risk would be less than significant.

Overall, increased fire risk impacts for construction of compensatory mitigation and implementation of other mitigation measures, combined with project alternatives, would not change the impact conclusion of less than significant.

25.3.4 Cumulative Analysis

This cumulative impact analysis considers past, present, and probable future projects in the study area that could affect the same resources and, where relevant, occur within the same timeframe as

the project alternatives. The cumulative geographical context for hazards and hazardous materials is the Delta. In general, a project's potential impacts related to hazards are individual and localized, depending on activities occurring at the project site and in proximity to hazardous facilities.

When the effects of the project alternatives and compensatory mitigation are considered in combination with the effects of the projects listed in Table 25-3, the cumulative impacts on hazards, hazardous materials, and wildfire are potentially significant. Table 25-3 identifies past, present, and probable future projects relating to cumulative hazards and hazardous materials impacts that are outside of DWR's control. For a description of each jurisdiction's general plan, see Appendix 3C.

Table 25-3. Cumulative Impacts on Hazards, Hazardous Materials, and Wildfire from Plans, Policies, and Programs

Program/Project	Agency	Status	Description of Program/Project	Impacts on Hazards, Hazardous Materials, and Wildfire
Lower Mokelumne River Spawning Habitat Improvement Project	EBMUD	Ongoing	Placement of 4,000 to 5,000 cubic yards of salmonid spawning gravel annually for a 3-year period at two specific sites, and then annual supplementation of 600 to 1,000 cubic yards thereafter.	Hazardous material impacts associated with the use of chemicals, such as diesel fuel and oil in machinery during construction. Wildfire impacts due to increased presence of construction personnel.
Lookout Slough Tidal Habitat Restoration Project	DWR and Ecosystem Investment Partners	DWR certified EIR November 2020	Tidal restoration project located in the Cache Slough area of the Delta northwest of Liberty Island. Project goals are to restore approximately 3,400-acre site to a tidal wetland, creating habitat and producing food for delta smelt and other listed fish species.	Hazardous material impacts associated with the use of chemicals, such as diesel fuel and oil in machinery during construction. Wildfire impacts due to increased presence of construction personnel.
Lower Yolo Ranch Restoration Project	DWR and SFCWA	Ongoing	Project is near Liberty Island in the Delta and would restore about 1,670 acres on a site that has historically been used for pasture/cattle grazing.	Hazardous material impacts associated with the use of chemicals, such as diesel fuel and oil in machinery during construction. Wildfire impacts due to increased presence of construction personnel.
Lower Cache Creek/Woodland Flood Risk Management Project	City of Woodland, USACE, DWR, CVFPB	Ongoing	Project would identify and implement flood-risk-reduction measures to meet the state's urban level of protection requirements. Project components include secondary earthen levees and diversion channel to redirect overland flood flows into the Yolo Bypass, modification of the Cache Creek Settling Basin to allow conveyance of flood flows into the Yolo Bypass, and various bridge and/or culvert improvements to facilitate conveyance of flood flows in the diversion channel.	Hazardous material impacts associated with the use of chemicals, such as diesel fuel and oil in machinery during construction. Wildfire impacts due to increased presence of construction personnel.

CDFW = California Department of Fish and Wildlife; DWR = California Department of Water Resources; EBMUD = East Bay Municipal Utility District; EIR = environmental impact report; SFCWA = State and Federal Contractors Water Agency; USACE = U.S. Army Corps of Engineers; CVFPB = Central Valley Flood Protection Board.

25.3.4.1 Cumulative Impacts of the No Project Alternative

The ongoing projects and programs in the Delta under the No Project Alternative, in addition to the cumulative projects, involve constructing new facilities or implementing restoration and habitat enhancement goals. SWP/CVP operations would require repair, maintenance, or protection of infrastructure such as levees and may also include actions for water quality management, habitat and species protection, and flood management. These actions require construction activity throughout the Delta and other areas of California and could potentially result in significant hazards to the public through the routine transport, use, or disposal of hazardous materials, or the release of hazardous materials into the environment. However, construction and operations/maintenance of these types of projects would include standard BMPs to reduce accidental spills and ensure proper handling, transport, and disposal of hazardous materials to reduce injury or risk to people and the environment. These projects would also adhere to existing regulations regarding the transport, disposal, and handling of hazardous materials and minimizing wildfires.

25.3.4.2 Cumulative Impacts of the Project Alternatives

Construction and operations/maintenance of projects often requires the use of heavy construction equipment, the operation and maintenance of which would involve the use and handling of hazardous materials, including diesel fuel, gasoline, lubricants, and solvents (Table 25-3). Simultaneous construction and operations and maintenance of the Delta Conveyance Project and other projects in the vicinity could potentially result in significant hazards to the public through the routine transport, use, or disposal of hazardous materials or the release of hazardous materials into the environment. However, impacts from minor spills or releases would be avoided by thoroughly cleaning up minor spills as soon as they occur. While foreseeable projects have the potential to cause similar impacts, it is assumed that these projects would also implement similar BMPs and follow all regulations regarding the transport, disposal, and handling of hazardous materials and wastes during construction. Furthermore, if the project results in the remediation of contaminated sites within the study area, conditions would improve. Accordingly, the combined effects of construction of the project alternatives with other projects in the vicinity would not result in a significant cumulative impact.

The Delta is at moderate risk for wildland fire hazards. Although the project alternatives and the cumulative projects would introduce new facilities and personnel in the study area, the project would not contribute to wildland fire risk because it would develop and implement a fire prevention and control plan that would further reduce the potential for impacts related to wildland fires. Additionally, existing regulations are in place to minimize fire hazards. These measures reduce fire risks associated with project construction and operations. Similar practices can be assumed for foreseeable projects in the study area. As such, any incremental contribution of the project alternatives to the cumulative conditions with regards to hazards, hazardous materials, and wildfire in the Delta would not be cumulatively considerable and would not result in a significant cumulative impact.