CALIFORNIA HIGH-SPEED TRAIN

Program Environmental Impact Report/Environmental Impact Statement

Los Angeles to San Diego via Inland Empire

Public Utilities Technical Evaluation

January 2004

Prepared for:

California High-Speed Rail Authority

U.S. Department of Transportation
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CALIFORNIA HIGH-SPEED TRAIN PROGRAM EIR/EIS

Task 2.4

Los Angeles to San Diego via Inland Empire

Public Utilities Technical Evaluation

Prepared by:

HNTB

in association with

CH2MHILL

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ACRONYMS

AB	Assembly Bill
ARB	Air Reserve Base
ATSF	Atchison, Topeka & Santa Fe (railway)
Authority	California High-Speed Rail Authority
CCWRF	Carbon Canyon Wastewater Reclamation Facility
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CPUC	California Public Utilities Commission
DC	direct current
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMWD	Eastern Municipal Water District
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
HAARF	Hale Avenue Resource Recovery Facility
HST	high-speed train
I	Interstate
IEUA	Inland Empire Utilities Agency
km/h	kilometers per hour
kV	kilovolt
LACSD	Los Angeles County Sanitation Districts
LADWP	City of Los Angeles Department of Water and Power
LOSSAN	rail corridor from Los Angeles to San Diego through Orange County

mgd	million gallons per day
mph	miles per hour
NEPA	National Environmental Policy Act
NGA	Natural Gas Act of 1938
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory Database
OSFM	Office of the State Fire Marshal
RIX	Rapid Infiltration and Extraction
RP	Regional Plant
RTP	Regional Transportation Plans
RWQCB	Regional Water Quality Control Board
SBMWD	San Bernardino Municipal Water Department
SCE	Southern California Edison Company
SDC	County of San Diego
SDG&E	San Diego Gas & Electric Company
SDMWD	San Diego Metropolitan Wastewater Department
SR	State Route
STIP	State Transportation Improvement Program
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WMWD	Western Municipal Water District
WRCRWA	Western Riverside County Regional Wastewater Authority

1.0 INTRODUCTION

The California High-Speed Rail Authority (Authority) was created by the Legislature in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger train system.[1] After completing a number of initial studies over the past 6 years to assess the feasibility of a high-speed train system in California and to evaluate the potential ridership for a variety of alternative corridors and station areas, the Authority recommended the evaluation of a proposed high-speed train system as the logical next step in the development of transportation infrastructure in California. The Authority does not have responsibility for other intercity transportation systems or facilities, such as expanded highways, or improvements to airports or passenger rail or transit used for intercity trips.

The Authority adopted a Final Business Plan in June 2000, which reviewed the economic feasibility of a 1,127-kilometer-long (700-mile-long) high-speed train system. This system would be capable of speeds in excess of 321.8 kilometers per hour (200 miles per hour [mph]) on a dedicated, fully grade-separated track with state-of-the-art safety, signaling, and automated train control systems. The system described would connect and serve the major metropolitan areas of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. The high-speed train system is projected to carry a minimum of 42 million passengers annually (32 million intercity trips and 10 million commuter trips) by the year 2020.

Following the adoption of the Business Plan, the appropriate next step for the Authority to take in the pursuit of a high-speed train system is to satisfy the environmental review process required by federal and state laws, which in turn will enable public agencies to select and approve a high-speed rail system, define mitigation strategies, obtain necessary approvals, and obtain financial assistance necessary to implement a high-speed rail system. For example, the Federal Railroad Administration (FRA) may be requested by the Authority to issue a Rule of Particular Applicability, which establishes safety standards for the high-speed train system for speeds over 200 mph and for the potential shared use of rail corridors.

The Authority is the project sponsor and the lead agency for purposes of the California Environmental Quality Act (CEQA) requirements. The Authority has determined that a Program Environmental Impact Report (EIR) is the appropriate CEQA document for the project at this conceptual stage of planning and decisionmaking, which would include selecting a preferred corridor and station locations for future right-of-way preservation and identifying potential phasing options. No permits are being sought for this phase of environmental review. Later stages of project development would include project-specific detailed environmental documents to assess the impacts of the alternative alignments and stations in those segments of the system that are ready for implementation.

The decisions of federal agencies, particularly the FRA related to high-speed train systems, would constitute major federal actions regarding environmental review under the National Environmental Policy Act (NEPA). NEPA requires federal agencies to prepare an environmental impact statement (EIS) if the proposed action has the potential to cause significant environmental impacts. The proposed action in California warrants the preparation of a Tier 1 Program-level EIS under NEPA, due to the nature and scope of the comprehensive high-speed train system proposed by the Authority, the need to narrow the range of alternatives, and the need to protect/preserve right-of-way in the future. FRA is the federal lead agency for the preparation of the Program EIS, and the Federal Highway Administration (FHWA), the United Stated (U.S.) Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (USACE), the Federal Aviation Administration (FAA), the U.S. Fish and Wildlife Service (USFWS), and the Federal Transit Administration (FTA) are cooperating federal agencies for the EIS.

[1] Chapter 796 of the Statutes of 1996; SB 1420, Kopp and Costa

A combined Program EIR/EIS is to be prepared under the supervision and direction of the FRA and the Authority in conjunction with the federal cooperating agencies. It is intended that other federal, state, regional, and local agencies will use the Program EIR/EIS in reviewing the proposed program and developing feasible and practicable programmatic mitigation strategies and analysis expectations for the Tier 2 detailed environmental review process that would be expected to follow any approval of a high-speed train system.

The statewide high-speed train system has been divided into five regions for study: Bay Area-Merced, Sacramento-Bakersfield, Bakersfield-Los Angeles, Los Angeles-San Diego via the Inland Empire, and Los Angeles-Orange County-San Diego. This discipline-specific *Public Utilities Technical Evaluation* for the Los Angeles to San Diego via the Inland Empire region is one of five such reports being prepared for each of the regions on the topic. It is 1 of 11 technical evaluations for this region. This evaluation will be summarized in the Program EIR/EIS, and it will be part of the administrative record supporting the environmental review of alternatives.

1.1 ALTERNATIVES

1.1.1 No-Project Alternative

The No-Project Alternative serves as the baseline for the comparison of Modal and High-Speed Train Alternatives. The No-Project Alternative represents the state's transportation system (highway, air, and conventional rail) as it existed in 1999-2000, and as it would be after implementation of programs or projects currently programmed for implementation and projects that are expected to be funded by 2020 (Figure 1.1-1). The No-Project Alternative addresses the geographic area serving the same intercity travel market as the proposed high-speed train (generally from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego). The No-Project Alternative satisfies the statutory requirements under CEQA and NEPA for an alternative that does not include any new action or project beyond what is already committed.

The No-Project Alternative defines the existing and future statewide intercity transportation system based on programmed and funded (already in funded programs/financially constrained plans) improvements to the intercity transportation system through 2020, according to the following sources of information:

- State Transportation Improvement Program (STIP)
- Regional Transportation Plans (RTPs) for all modes of travel
- Airport plans
- Intercity passenger rail plans (California Rail Plan 2001-2010, Amtrak 5- and 20-Year Plans)

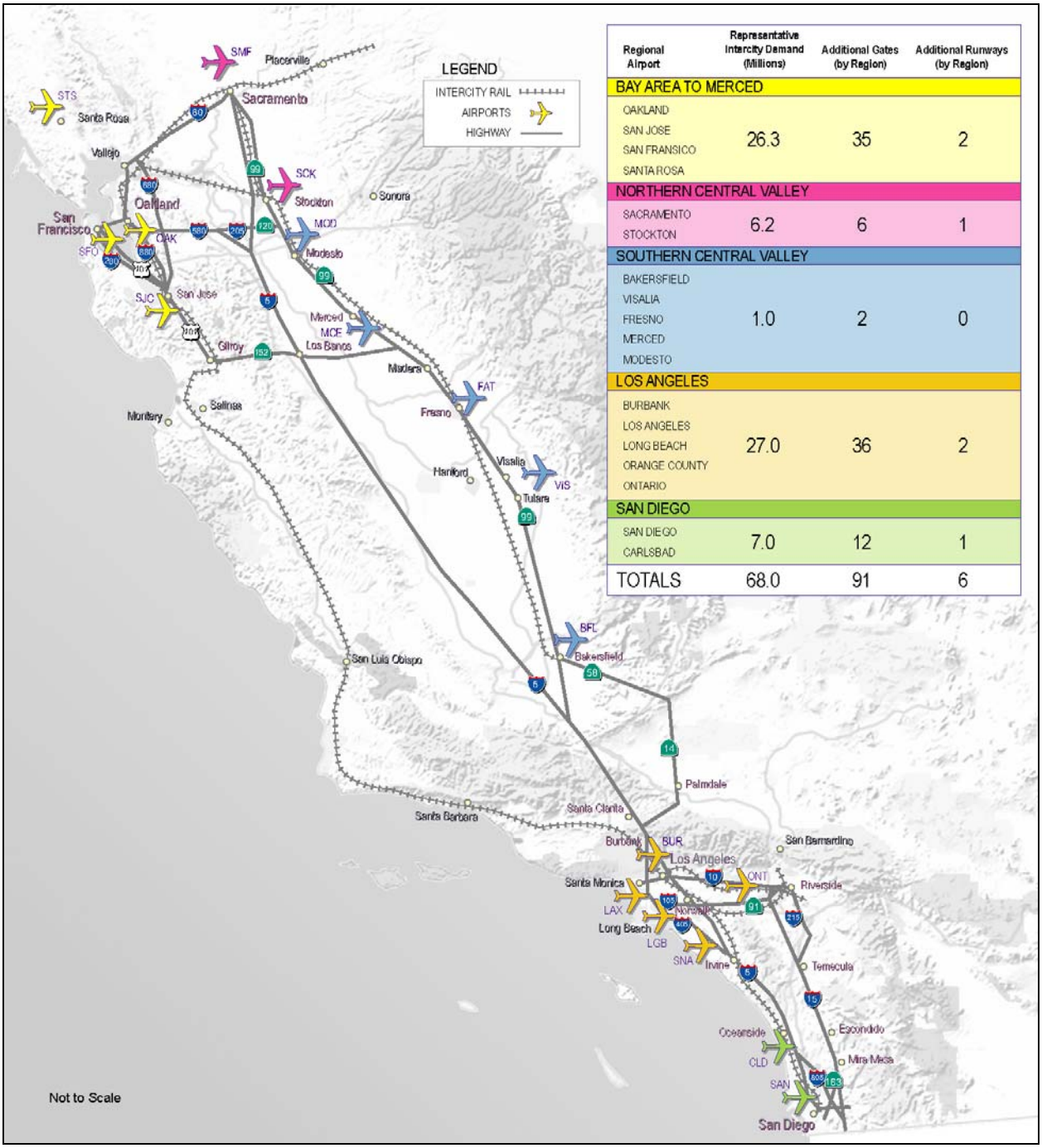
As with all of the alternatives, the No-Project Alternative will be assessed against the purpose and need topics/objectives for congestion, safety, air pollution, reliability, and travel times.

1.1.2 Modal Alternative

There are currently three main options for intercity travel between the major urban areas of San Diego, Los Angeles, the Central Valley, San Jose, Oakland/San Francisco, and Sacramento: vehicles on the interstate highway system and state highways, commercial airlines serving airports between San Diego and Sacramento and the Bay Area, and conventional passenger trains (Amtrak) on freight and/or commuter rail tracks. The Modal Alternative consists of expansion of highways, airports, and intercity and commuter rail systems serving the markets identified for the High-Speed Train Alternative (Figures 1.2-2 and 1.2-3). The Modal Alternative uses the same intercity travel demand (not capacity) assumed under the high-end sensitivity analysis completed for the high-speed train ridership in 2020. This same travel demand is assigned to the highways, airports, and passenger rail described under the No-Project Alternative.

Figure 1.1 -1 No-Project Alternative – California Transportation System

Figure 1.1-2 Modal Alternative – Highway Component



Regional Airport	Representative Intercity Demand (Millions)	Additional Gates (by Region)	Additional Runways (by Region)
BAY AREA TO MERCED			
OAKLAND SAN JOSE SAN FRANSICO SANTA ROSA	26.3	35	2
NORTHERN CENTRAL VALLEY			
SACRAMENTO STOCKTON	6.2	6	1
SOUTHERN CENTRAL VALLEY			
BAKERSFIELD VISALIA FRESNO MERCED MODESTO	1.0	2	0
LOS ANGELES			
BURBANK LOS ANGELES LONG BEACH ORANGE COUNTY ONTARIO	27.0	36	2
SAN DIEGO			
SAN DIEGO CARLSBAD	7.0	12	1
TOTALS	68.0	91	6

Figure 1.1-3 Modal Alternative – Aviation Component

The additional improvements or expansion of facilities are assumed to meet the demand, regardless of funding potential and without high-speed train service as part of the system.

The Modal Alternative for the Los Angeles to San Diego via the Inland Empire region consists of two major proposed improvements:

- Improvements to Highways: Consisting of additional highway lanes to provide sufficient highway capacity and associated interchange reconfiguration, crossing bridge widening, ramp widening, cross street and intersection widening (Figure 1.1-2). Within the study area corridor, these improvements, therefore, would occur along proposed portions of Interstates (I-) 10, 215, 15, and State Route (SR) 163. Table 1.1-1 lists the proposed highway improvements along the Los Angeles to San Diego via the Inland Empire corridor.

Table 1.1-1 Proposed Modal Alternative Highway Improvements Los Angeles to San Diego via the Inland Empire

Highway Corridor	Segment (From – To)	No. of Additional Lanes[1] (Total – Both Directions)	No. of Existing Lanes (Total - Both Directions)	Type of Improvement
I-10	I-5 to East San Gabriel Valley	2	10	widening
I-10	East San Gabriel Airport to Ontario Airport	2	8	widening
I-10	Ontario Airport to I-15	2	8	widening
I-10	I-15 to I-215	2	8	widening
I-15	I-10-I-215	2	8	widening
I-215	Riverside to I-15	2	4	widening
I-215	I-10 to Riverside	2	6	widening
I-15	I-215 to Temecula	2	10	widening
I-15	Temecula to Escondido	2	8	widening
I-15	Escondido to Mira Mesa	2	10	widening
I-15	Mira Mesa to SR-163	2	10	widening
SR-163	I-15 to I-8	2	8	widening

[1] Represents the number of through lanes in addition to the total number of existing lanes that approximate an equivalent level of capacity to serve the representative demand

- Improvements to Airports: Primarily consisting of improvements to terminal gates and runways to provide sufficient landside and airside capacity and associated taxiways, ground access, parking, terminal and support facilities and airports that can serve the same geographic area and demand as the proposed High-Speed Train (HST) Alternative. Within the study area corridor, these proposed improvements would occur at Ontario International Airport (ONT) and the San Diego International Airport (SAN) (Figure 1.1-3). Table 1.1-2 lists the airport improvements associated with the Ontario and San Diego airports.

Table 1.1-2 Proposed Modal Alternative Airport Improvements – Year 2020 Los Angeles to San Diego via the Inland Empire

Airport Name	Additional Gates	Additional runways
Ontario International Airport	8	1
San Diego International Airport	12	1

Source: Parsons Brinckerhoff, November 2002

1.1.3 High-Speed Train Alternative

The Authority has defined a statewide high-speed train system capable of speeds in excess of 200 miles per hour (mph) (320 kilometers per hour [km/h]) on dedicated, fully grade-separated tracks, with state-of-the-art safety, signaling, and automated train control systems. State-of-the-art, high-speed, steel-wheel-on-steel-rail technology is being considered for the system that would serve the major metropolitan centers of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego (Figure 1.1-4).

The High-Speed Train Alternative includes several corridor and station options. A steel-wheel-on-steel-rail, electrified train, primarily on exclusive right-of-way with small portions of the route on shared track with other rail is planned. Conventional "nonelectric" improvements are also being considered along the existing rail corridor from Los Angeles to San Diego through Orange County (LOSSAN). The train track would be at grade, in an open trench or tunnel, or on an elevated guideway, depending on terrain and physical constraints.

For purposes of comparative analysis the high-speed train corridors will be described from station to station within each region, except where a bypass option is considered when the point of departure from the corridor will define the end of the corridor segment.

As described in the introduction, the study area is broadly defined by the Los Angeles to San Diego via Inland Empire corridor segment, which may be broadly divided into three regional segments. Each segment has several alternative alignments for all or a portion of the length of the segment. For example, Segment 1 has three alternative alignments, listed as 1A, 1B, and 1C. Each segment is further subdivided into subsegments for analyzing and reporting potential impacts. The various segment options and subsegments, along with station locations, are described below and shown in Figure 1.2-5.

1.1.3.1 Regional Segment 1 – Union Station to March Air Reserve Base Segment

<u>Segment 1A</u>

Subsegment 1A1: Union Station to Pomona
Subsegment 1A2: Pomona to Ontario (beginning of Segment 1C)
Subsegment 1A3: Ontario (beginning of Segment 1C) to Colton (end of Segment 1C)
Subsegment 1A4: Colton to March Air Reserve Base (ARB)

<u>Segment 1B</u>

Subsegment 1B1: Union Station to Pomona

<u>Segment 1C</u>

Subsegment 1C1: Ontario (beginning of Segment 1C) to Colton (end of Segment 1C)

Station Locations: El Monte (1A1), Pomona (1A2), Ontario (1A2), Colton (1A3), University of California at Riverside (1A4), South El Monte (1B1), City of Industry (1B1), and San Bernardino (1C1)

1.1.3.2 Regional Segment 2 – March ARB to Mira Mesa Segment

<u>Segment 2A</u>

Subsegment 2A1: March ARB to Escondido (beginning of Segment 2B)
Subsegment 2A2: Within Escondido (beginning to end of Segment 2B)
Subsegment 2A3: Escondido to Mira Mesa

Figure 1.1-4 High-Speed Train Alternative – Corridors and Stations for Continued Investigation

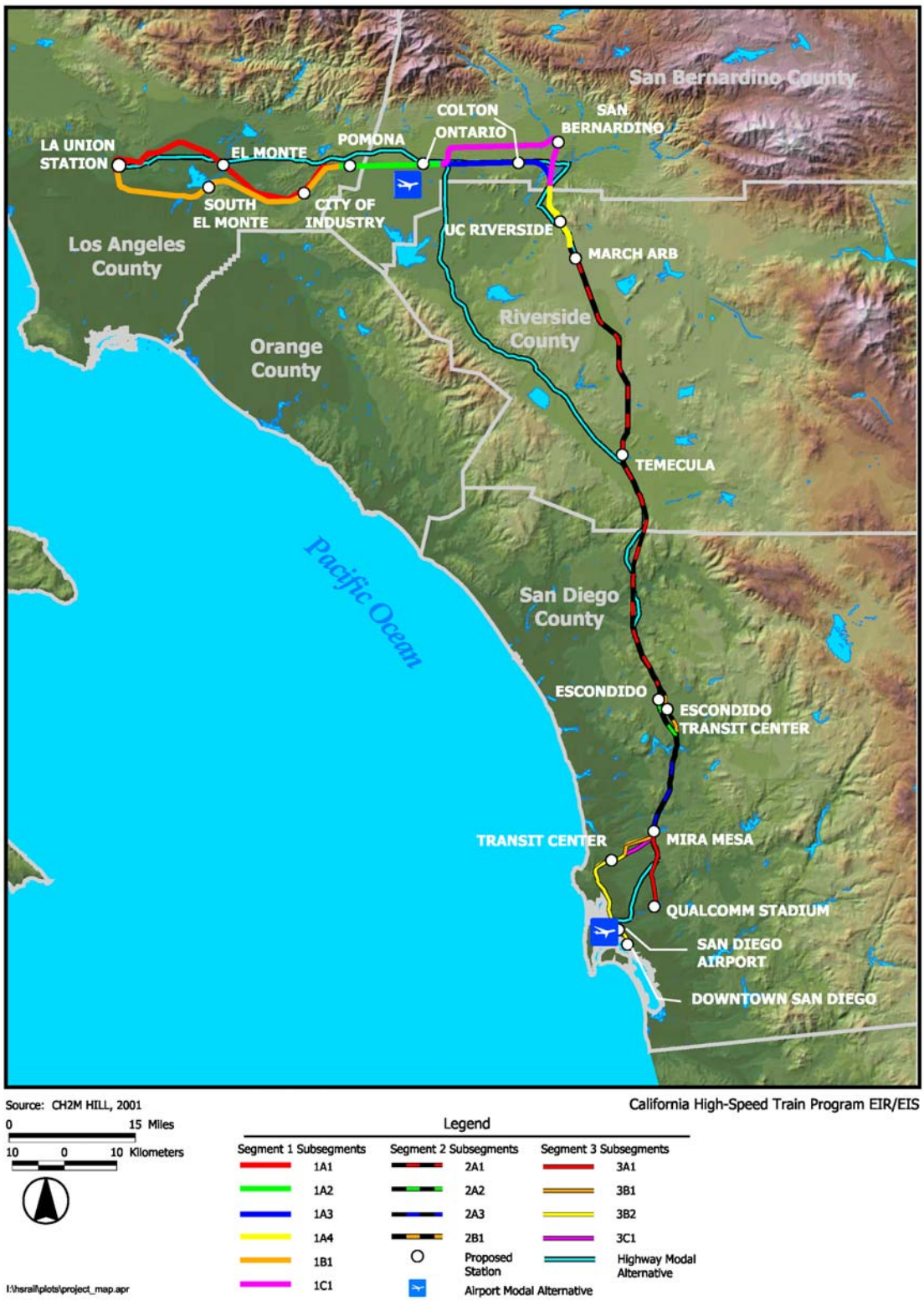


Figure 1.1-5 High-Speed Train and Modal Alternatives
Los Angeles to San Diego via Inland Empire

Segment 2B

Subsegment 2B1: Within Escondido (Beginning to end of Segment 2B)

Station Locations: March ARB (2A1), Temecula (2A2), Escondido (2A2), and Escondido Transit Center(2B1)

1.1.3.3 Regional Segment 3 – Mira Mesa to San Diego Segment

Segment 3A

Subsegment 3A1: Mira Mesa to Qualcomm Stadium

Segment 3B

Subsegment 3B1: Within Mira Mesa (beginning and end of Segment 3C)
Subsegment 3B2: Mira Mesa (end of Segment 3C) to Downtown San Diego

Segment 3C

Subsegment 3C1: Within Mira Mesa (end of Segment 3C)

Station Locations: Mira Mesa (3A1), Qualcomm Stadium (3A1), Transit Center (3B2), San Diego International Airport (3B2), and Downtown San Diego (3B2)

2.0 BASELINE/AFFECTED ENVIRONMENT

This section describes the affected environment for the alternatives under consideration. The study area encompasses various jurisdictions in Southern California, which include various cities within the Counties of Los Angeles, San Bernardino, Riverside, and San Diego.

2.1 STUDY AREA: 100-FOOT BUFFER FROM CENTERLINE AND AROUND FACILITIES

For purposes of this technical report, the study area for the build alternatives has been defined to encompass the area within 100 feet of the centerline of the alignments of the alternatives and 100 feet around facilities such as stations (High-Speed Train Alternative) or facilities (such as the Ontario Airport under the Modal Alternative). Therefore, utility conflicts are defined as any major utility located within 100 feet of an alignment or station. Potential utility conflicts could include utility crossings (of the alternative alignments) regardless of depth or height. Where scale of the data makes resolution unclear, a potential conflict is identified.

2.2 REGULATORY SETTING

2.2.1 California Public Utilities Commission

Utilities within California are primarily regulated by the California Public Utilities Commission (CPUC), which regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The CPUC is responsible for assuring that California utility customers have safe, reliable, utility services at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. The CPUC does not issue permits for utility line crossings. The CPUC does, however, regulate at-grade rail crossings. Thus, any at-grade rail crossing for the HST Alternative will require CPUC approval (CPUC, 2003a and 2003c).

Regarding electricity, Assembly Bill (AB) 970 requires the CPUC to identify constraints in California's transmission and distribution system and to take actions to remove them. In 2001, the CPUC prepared a report that identified 51 constraints on California's transmission and distribution systems that would exist by summer 2001. This report also identified an additional 107 constraints that would affect the system's reliability from 2002 to 2005. The report recommended that utilities complete various projects to increase system capacity to allow more energy to flow to consumers, improve system reliability by making the system more stable, and/or allow access to a wider range of generation sources, some of which may supply cheaper power (CPUC, 2001a). Since these projects have not yet been defined, future HST conflicts could occur that are not noted in this report.

Regarding natural gas facilities, the CPUC regulates the rates and services of California's natural gas utilities, including backbone gas transmission systems, local gas transmission, storage, gas distribution, and gas procurement (CPUC, 2001b). The CPUC does not issue permits for utility crossings.

2.2.2 California Energy Commission

The California Energy Commission (CEC) is the state's primary energy policy and planning agency. Created by the Legislature in 1974 and located in Sacramento, the Commission's five major responsibilities are listed below (CEC, 2003a).

- Forecasting future energy needs and keeping historical energy data
- Licensing thermal power plants of 50 megawatts or larger
- Promoting energy efficiency through appliance and building standards

- Developing energy technologies and supporting renewable energy
- Planning for and directing state response to energy emergency

The CEC does not directly permit utility conflicts; rather the utility companies must comply with CEQA as part of any utility line relocation efforts undertaken resulting from implementation of HST Alternatives. In addition, the utility companies would have to obtain local jurisdiction permits if easements are required as part of utility line relocations (CEC, 2003b).

2.2.3 Federal Energy Regulatory Commission

In addition to the CPUC and CEC, the Federal Energy Regulatory Commission (FERC) approves rates for wholesale electric sales of electricity and transmission in interstate commerce for private utilities, power marketers, power pools, power exchanges, and independent system operators. FERC acts under the legal authority of the Federal Power Act of 1935, the Public Utility Regulatory Policies Act, and the Energy Policy Act (FERC, 2003a).

FERC also administers the Natural Gas Act (NGA) of 1938, the Natural Gas Policy Act of 1978, the Outer Continental Shelf Lands Act of 1953, the Natural Gas Wellhead Decontrol Act of 1989, and the Energy Policy Act of 1992. These are the primary laws that FERC administers to oversee America's natural gas pipeline industry. Under the NGA, FERC regulates both the construction of pipeline facilities and the transportation of natural gas in interstate commerce. Companies providing services and constructing and operating interstate pipelines must first obtain certificates of public convenience and necessity from FERC. If a project alternative requires the relocation of a certificated interstate pipeline, the utility company will have to obtain approval from FERC for the relocation. If the relocation also requires new easements, local approval will be required (FERC, 2003c).

2.2.4 Office of the State Fire Marshall

The Office of the State Fire Marshal (OSFM), Pipeline Safety Division, regulates the safety of approximately 5,500 miles of intrastate hazardous liquid transportation pipelines and acts as an agent of the Federal Office of Pipeline Safety concerning the inspection of more than 2,000 miles of interstate pipelines. Pipeline Safety staff inspect, test, and investigate to ensure compliance with all federal and state pipeline safety laws and regulations. All spills, ruptures, fires, or similar incidents are responded to immediately; all such accidents are investigated for cause.

Under existing law, the Elder California Pipeline Safety Act of 1981, the State Fire Marshal administers provisions regulating the inspection of intrastate pipelines that transport hazardous liquids. Other regulations the State Fire Marshal implements include the Hazardous Liquids Pipeline Safety Act, Code of Federal Regulations (CFR) Title 49 Part 186-199, AB 592, and Section 51010 of the California Government Code. If a project alternative requires the relocation of a hazardous liquid pipeline, the State Fire Marshal will have to inspect and test the relocated pipeline. If the relocation also requires new easements, local approval will be required (OSFM, 2003a).

2.2.5 Wastewater Regulatory Setting

Numerous regulatory agencies are involved in wastewater treatment oversight. These agencies include the U.S. Environmental Protection Agency (EPA), the California Water Resources Control Board, and Regional Water Quality Control Boards (RWQCB). Primary wastewater regulation occurs via water quality discharge standards that are implemented through National Pollutant Discharge Elimination System (NPDES) permits issued by the various RWQCBs.

Wastewater conveyance and treatment facilities in the study area are owned and/or operated by different agencies and jurisdictions. Any potential conflict with such facility would be coordinated with the respective agency. If the project alternatives encroach on wastewater facility easements, permits from the agency and/or local jurisdiction would be anticipated.

2.3 STUDY AREA SETTING

This section presents the general electricity, natural gas, oil, and wastewater utility settings within the study area. Information on wastewater treatment plants, trunk lines, and water facilities is provided where data are readily available.

2.3.1 Electricity

California is part of a larger power grid with connections to Oregon, Washington, Nevada, and Arizona. Electricity within the study area is supplied via a web of transmission lines and electrical substations by a number of regional utility providers.

2.3.1.1 Service Providers

Within the study area, electrical service is provided by the following three utility companies:

- Department of Water and Power, City of Los Angeles
- Southern California Edison
- San Diego Gas and Electric Company

Department of Water and Power

The City of Los Angeles Department of Water and Power (LADWP) provides electricity to all residents and businesses located within the city limits of Los Angeles and portions of the Owens Valley. Some properties located in areas that border Los Angeles also may be served (LADWP, 2003).

Southern California Edison

Southern California Edison (SCE) is California's second largest investor-owned electric utility company, providing electric service to more than 4.2 million business and residential customers over a 50,000-square-mile service area in Southern California. SCE provides electricity to the unincorporated portions of Los Angeles County, San Bernardino County, and portions of Riverside County (SCE, 2003).

San Diego Gas & Electric Company

San Diego Gas & Electric Company (SDG&E), a subsidiary of Sempra Energy, is a regulated public utility that provides service to 3 million consumers through 1.3 million electric meters in southern Orange and San Diego counties (SDG&E, 2003).

2.3.1.2 Substations and Major Transmission Lines

Each of the electricity service providers in the study area maintains a series of transmission lines and substations of various voltages. This report focuses on the major transmission lines and substations. For purposes of this report, transmission lines and substations are defined as major if they meet or exceed a power rating of 220 kilovolts (kV). There are three voltage levels for the major transmission lines, 220-287 kV, 500 kV, and 500 kV DC (direct current). In addition, transmission lines may be overhead lines or underground lines.

The major transmission lines within Los Angeles City and County, San Bernardino County, Riverside County, and San Diego County are located along distinct corridors that traverse large areas. Substations have fixed boundaries and are generally not expected to conflict with project segments.

2.3.2 Natural Gas, Oil, and Major Facilities and Distribution Lines

Natural gas in Southern California is provided by the Sempra Energy Company via its subsidiaries, Southern California Gas and San Diego Gas & Electric. Numerous natural gas transmission lines are located throughout the region, including the study area. Natural gas pipelines generally are subsurface lines, but do occur aboveground at some crossings (such as ravines).

In addition, pressurized oil pipelines owned and operated by various oil companies extend along corridors throughout the Southern California area, including the study area.

2.3.3 Wastewater and Water Facilities

Wastewater trunk lines and treatment plants are used to convey and treat sewage from throughout the study area. Conveyance pipelines owned and operated by numerous jurisdictions extend throughout the study area, but are more extensive in the urbanized portions of the study area (Los Angeles to Riverside and San Bernardino and metropolitan San Diego area).

Wastewater treatment services are provided by cities, counties, and special agencies along the study area. Wastewater treatment plants are relatively large facilities located close to bodies of water or rivers where effluent is discharged. Wastewater treatment and reclamation plants also have distinct site boundaries and generally are not expected to pose conflicts.

Water and reclaimed water pipelines owned and operated by numerous jurisdictions also extend throughout the study area with more lines in the more urbanized portions of the study area.

2.3.3.1 Service Providers

Wastewater and water service providers in the vicinity of the study area include the City of Los Angeles, County of Los Angeles, Inland Empire Utilities Agency (IEUA), Metropolitan Water District, Eastern Municipal Water District (EMWD), Western Municipal Water District (WMWD), City of Riverside, City of San Bernardino, City of San Diego, County of San Diego, and City of Escondido.

<u>City of Los Angeles</u>

The City of Los Angeles owns and operates two treatment plants and two water reclamation plants. The Hyperion Treatment Plant is the city's largest plant with a capacity to treat approximately 450 million gallons per day (mgd) of wastewater. This plant is located in El Segundo. The second treatment plant is the Terminal Island Treatment Plant, which has a capacity of 30 mgd. This plant is located in San Pedro. The Tillman Water Reclamation Plant is located in the Sepulveda Basin and has a capacity of 80 mgd. The Los Angeles – Glendale Water Reclamation Plant is a jointly owned plant (City of Los Angeles and City of Glendale) located along the Los Angeles River in the northern portion of Los Angeles (City of Los Angeles, 2000). None of these plants is located near the study area. Trunk lines are located throughout the service area; however, several large sewer lines are located to the south and north of Union Station.

LADWP also has an extensive water distribution system (about 7,100 miles) that extends into a portion of the study area. The pipelines range in size from 2 inches to 10 feet in diameter (LADWP, 2003).

<u>County Of Los Angeles</u>

Wastewater treatment and water reclamation services in the County of Los Angeles are provided by the Los Angeles County Sanitation Districts (LACSD). LACSD operates 10 water reclamation plants and 1 ocean discharge facility (Joint Water Pollution Control Plant), which treat approximately 520 million gallons per day, 190 mgd of which are available for reuse. The Joint Water Pollution Control Plant is located in Carson. Of the 10 plants, 3 are proximate to the study area (the other plants are located in areas of the county outside of the study area) (LACSD, 2003).

- <u>Whittier Narrows Water Reclamation Plant</u>. This facility is located along the southern side of SR 60 in Whittier and treats and average flow of 15 mgd.
- <u>San Jose Creek Water Reclamation Plant</u>. This plant is located northeast of I-605 and SR 60 (between Segments 1A and 1B) and treats an average of 100 mgd.
- <u>Pomona Water Reclamation Plant</u>. This facility is located near SR 57 and SR 71 and is adjacent to Segment 1B as it approaches the Pomona Station.

Trunk lines are located throughout the service area and in the vicinity of the study area, parallel to the Modal and HST Alternatives from East Los Angeles to Pomona.

Inland Empire Utilities Agency

IEUA is a water management agency that provides water and municipal and industrial wastewater collection and treatment services to more than 700,000 people within a 242-square-mile service area, with its jurisdictional boundary encompassing most of San Bernardino County west of the City of Rialto. IEUA service members include the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, and Upland, as well as Cucamonga County Water District, the Monte Vista Water District, and the Water Facilities Authority. IEUA has five water reclamation plants, Regional Plant No. 1 (RP-1), RP-2, RP-4, RP-5 and the Carbon Canyon Wastewater Reclamation Facility (CCWRF). Of the five water reclamation plants, only RP-1 and RP-4 are located proximate to the study area. RP-2, RP-5, and the CCWRF are located farther to the south (IEUA, 2003).

- Regional Plant No. 1. RP-1 is located south of HST Subsegment 1C1 in the City of Ontario north of SR 60 near Archibald Avenue and serves the cities of Ontario, Rancho Cucamonga, Upland, Montclair, and Fontana and an unincorporated area of San Bernardino County. RP-1 has a capacity of 44 mgd.
- Regional Plant No. 4. RP-4 is located immediately south and east of HST Segment 1C (as it curves east) in the City of Rancho Cucamonga at the intersection of Sixth Street and Etiwanda Avenue, and serves Rancho Cucamonga and unincorporated areas in San Bernardino County.

The IEUA also has various reclaimed water pipelines that extend within its service area.

Eastern Municipal Water District

EMWD provides wastewater and services to their member communities (cities of Hemet, Moreno Valley, Murietta, Perris, San Jacinto, and Temecula, and the portions of the County of Riverside). Of the cities, Moreno Valley, Murietta, and Perris are located near the study area. The EMWD service area is approximately 555 square miles.

Four of EMWD's five regional water reclamation plants are considered proximate to the study area, as follows.

- Moreno Valley Regional Water Reclamation Facility. This facility is located east of March ARB (near Lasselle Avenue and Oleander Avenue) and has a treatment capacity of 16 mgd.
- Perris Valley Regional Water Reclamation Facility. This facility is located immediately to the west of Segment 2A (near Case Road and Mapes Road) where it crosses the Atchison, Topeka & Santa Fe (ATSF) railroad line in Perris. This facility has a capacity of 11 mgd.
- Sun City Regional Water Reclamation Facility. This facility is located to the west of Segment 2A (near the intersection of Murietta Road and Newport Road) and has a capacity of 3 mgd.
- Temecula Valley Regional Water Reclamation Facility. This facility is located immediately west of Segment 2A (near the intersection of Rancho California Road and Diaz Road) in Temecula. This facility has a capacity of 8 mgd.

EMWD maintains approximately 1,200 miles of wastewater collection pipes and 35 pumping stations (EMWD, 2003). In addition, EMWD's water service extends from Moreno Valley to Temecula, encompassing Perris, San Jacinto, Hemet, and parts of Murietta. Because the study area passes through EMWD's service area, wastewater and water pipelines are expected to be located in the study area.

Western Municipal Water District

WMWD operates and maintains domestic and industrial wastewater collection and conveyance systems for retail and contract services customers in Lake Hills, March ARB, Home Gardens, and Norco. WMWD

serves as wastewater treatment system operator for two organizations within its service area: Western Riverside County Regional Wastewater Authority (WRCRWA) and March ARB. The WRCRWA Plant is located outside the study area (WMWD, 2003b).

- March ARB Plant. This plant is located behind the Riverside National Cemetery approximately 300 feet west of the ATSF railroad. The plant has a capacity of approximately 0.75 mgd (WMWD, 2003).

Wastewater trunk lines are expected to connect with the WMWD treatment plants and could cross the study area. In addition, because WMWD is a water provider, water pipelines are expected to be located in the vicinity if the study area.

City of Riverside

The City of Riverside provides for the collection, treatment, and disposal of wastewater generated within the City of Riverside, as well as from Jurupa, Rubidoux, and Edgemont Community Services Districts.

- Riverside Regional Water Quality Control Plant. This facility is located at 5950 Acorn Street in Riverside south of the HST segment. This plant has a capacity of 40 mgd and currently treats an average of 32 mgd (City of Riverside, 2003a).

The city's wastewater collection system includes over 1,100 miles of gravity sewers ranging in size from 6 to 48 inches in diameter. The system also includes 18 wastewater pump stations (Riverside, 2003b).

City of San Bernardino

The City of San Bernardino Municipal Water Department (SBMWD) operates the San Bernardino Water Reclamation Facility, and its service area includes the City of San Bernardino, Loma Linda, East Valley, San Bernardino International Airport, Patton State Hospital, and parts of San Bernardino County. In addition, the cities of San Bernardino and Colton jointly operate the Rapid Infiltration and Extraction Facility.

- San Bernardino Water Reclamation Facility. This facility is located at 399 Chandler Place just east of I-215 in San Bernardino. The reclamation plant is a 33 mgd secondary treatment facility that serves a population of over 185,000 people (SBMWD, 2003a).
- Rapid Infiltration and Extraction (RIX) Facility. This facility is located at 1990 Agua Mansa Road in Colton, just south of Subsegment 1A3 as it curves south towards I-215. The RIX is a filtration plant that uses ground filtration (SBMWD, 2003b).

Wastewater trunk lines are expected to connect with San Bernardino treatment plants and could cross the study area. In addition, because the city is also a water provider with 551 miles of water mains, water pipelines are expected to be located in the vicinity of the study area.

City of San Diego

The City of San Diego's Metropolitan Wastewater Department (SDMWD) treats the wastewater generated in a 450-square-mile area stretching from Del Mar and Poway to the north, Alpine and Lakeside to the east, and south to the border of Mexico. The SDMWD sewerage system serves the greater San Diego population of 2.0 million from 16 cities and districts, generating approximately 190 mgd of wastewater. SDMWD operates three water reclamation plants, Point Loma Wastewater Treatment Plant (not in vicinity of study), North City Water Reclamation Plant, and the South Bay Water Reclamation Plant. Only the North City Water Reclamation Plant is close to the study area (SDMWD, 2003a).

- North City Water Reclamation Plant. This facility is located north of Segment 3B along the east side of I-805 and treats up to 30 mgd of wastewater generated by northern San Diego communities.

SDMWD maintains a network of wastewater trunk lines connected with its treatment plants. These trunk lines are located in the study area.

County of San Diego

The County of San Diego (SDC), Department of Public Works, Wastewater Management Section is responsible for maintaining sewer lines, pump stations, force mains and several treatment plants for the unincorporated areas of Alpine, Julian, Lakeside, Spring Valley, Pine Valley, Campo, East Otay Mesa, and the Winter Gardens area. The Department of Public Works operates six wastewater treatment facilities at Julian, Pine Valley, W.S. Hiese Park, Campo, Descanso Detention Facility, and the San Pasqual Academy. However, these treatment plants, and the associated trunk lines, are located in the eastern portion of the county outside of the study area (SDC, 2003a and 2003b).

City of Escondido

The City of Escondido operates a wastewater treatment plant in Escondido. The Hale Avenue Resource Recovery Facility (HARRF) serves the City of Escondido and the Rancho Bernardo area of the City of San Diego (Escondido, 2003a).

- Hale Avenue Resource Recovery Facility. This facility is located at 1521 South Hale Avenue just west of I-15 south of SR 78. The plant has a capacity of 17.5 mgd.

Escondido has approximately 340 miles of pipelines and 13 pumping stations that serve as the sanitary collection system backbone to direct the community's domestic and industrial wastewater to the HARRF. The wastewater lines are likely to cross the study area (Escondido, 2003a).

The city provides water for 25,000 residential, commercial, and agricultural customers, as well as a recycled water distribution system consisting of approximately 25 miles of pipeline that transfers water from the HARRF to a storage reservoir. Water and recycled water pipelines are likely to cross the study area (Escondido, 2003c).

3.0 EVALUATION METHOD

The study area for the project alternatives traverses various jurisdictional boundaries of cities, counties, agencies, and utility companies. The evaluation methodology involved collecting general setting information and identifying and quantifying utility facilities that could be physically affected by the project alternatives.

3.1 METHODOLOGY FOR SETTING

In gathering appropriate setting information for the study area, the following steps were taken.

- Review of the project GIS system to identify cities and counties in the study area
- Exploration of the identified city and county websites to gather appropriate setting information
- Examination of applicable utility system maps and websites to gain a better understanding of facility distribution

3.1.1 Project GIS Review

To identify the cities and counties along the study area, city and county boundaries within the GIS were reviewed. A list of cities and counties was then compiled. Wastewater treatment services typically are provided by cities, counties, or special-purpose agencies. In many instances, smaller cities contract with counties or special agencies to provide treatment services. Where a larger jurisdiction provides treatment services to smaller jurisdictions, only the larger jurisdiction was identified. In addition, special-purpose agencies were identified based on pre-existing knowledge of the agencies or through identification of the agencies in the city/county websites or phone conversations.

3.1.2 Website Exploration

Following compilation of the cities, counties, and agencies along the study area, information was gathered from their respective websites regarding facility locations and sizes. Where information was lacking in the websites, follow-up calls to the jurisdictions were made to close the information gaps.

3.1.3 Examination of Utility Maps

The State of California CEC regulates utilities such as electrical transmission lines, electrical substations, and natural gas lines and has mapped these facilities. Major electrical transmission lines and substations, as well as natural gas lines in the study area, were identified through review of state maps (CEC, 2000a). In addition, Sempra Energy Company maps of natural gas pipeline in Southern California were reviewed (Sempra, 2001).

Regarding wastewater facilities, maps available online and readily available hardcopy maps were reviewed to identify facility locations.

3.2 METHODOLOGY FOR IMPACTS

3.2.1 Electricity, Gas, and Oil Utility Conflicts

In identifying potential electrical, natural gas, and oil utility conflicts, the following steps were taken.

- Project alignments were overlaid on available utility maps
- Facilities within 100 feet of the project alternatives were identified
- Potential utility conflicts were quantified

- Identified conflicts were verified with a transmission line and gas/oil pipeline GIS made available after the initial work effort

3.2.1.1 Segment Overlays

The segments of the build alternatives were overlaid on the utility maps. Oil pipeline maps housed at the Pipeline Safety Division of the OSFM were reviewed. The overlaid alignments represent rough approximations of actual alternative locations.

3.2.1.2 Facility Identification

Segments (overlaid on the utility maps) for each build alternative were then reviewed and electrical transmission line crossings, apparent substation conflicts, and natural gas pipeline crossings were noted. Where conflicts could not be determined due to the map scales, the aerial photo base maps of the HST project were reviewed.

Because the map scales and the segment locations were such that detailed information could not be definitively determined in some cases, some of the facilities that were identified as potential conflicts may be determined to be nonexistent or easily resolved when a closer, more detailed analysis is conducted at the project level.

3.2.1.3 Potential Conflict Quantification

In order to facilitate segment comparisons and comparisons between alternatives, the number of potential utility crossings or conflicts has been noted on a segment-by-segment basis.

3.2.1.4 Conflict Verification with Utility GIS

Following the above methodology, GIS information with electrical transmission lines and gas and oil pipelines compiled by MapSearch became available and were reviewed to verify the initial findings. Where the GIS data showed a different number of utility line crossings (compared to those initially identified using available hard copies of utility maps), the higher number of potential conflicts was used.

3.2.2 Wastewater Water Facility Conflicts

Potential conflict for wastewater treatment plants, trunk lines, and water facilities followed a different methodology, which involved the following steps.

- Facility locations were plotted along the study area
- Facilities close to project alternatives were identified
- Potential wastewater treatment plant conflicts, if any, were noted

Because wastewater and water facility information is managed by numerous agencies and jurisdictions in the project area and the level of available information varies from agency to agency, only readily available data is presented here.

3.2.2.1 Facility Plotting

The locations of wastewater treatment and water facilities, where available from the identified agencies, were either plotted on a working highway grid map that was also plotted with the segments of build alternatives, or segments were plotted on the available facilities maps. Where the location was difficult to approximate, an online mapping utility (Yahoo Maps) was used to aid in plotting the locations.

3.2.2.2 Facility Identification

Segments (overlaid on the utility maps) for the build alternatives then were reviewed and wastewater and water facility conflicts were noted.

3.2.2.3 Potential Conflict Ranking

For each of the segments of the project alternatives, the number of potential conflicts is provided.

4.0 IMPACTS TO PUBLIC UTILITIES

This section describes the anticipated impacts of the project alternatives. Impacts are assessed on a programmatic level by indicating the number of potential utility conflicts. A summary of the impacts is presented in Table 4.0-1. Descriptions of these impacts follow the table.

Table 4.0-1 Summary of Potential Public Utility Conflicts

Alternative	Electrical Transmission Lines	Electrical Sub or Power Stations	Natural Gas Lines	Oil Pipelines	Wastewater Treatment Facilities
No-Project Alternative					
Highways, Rail	L*	L	L	L	L
Airports	L	L	L	L	L
Modal Alternative					
Segment 1	24	1	30	13	18
Segment 2	4	0	22	0	2
Segment 3	5	0	18	2	1
High-Speed Train Alternative					
Subsegment 1A1	10	1	31	4, RR	26
Subsegment 1A2	0	0	4	RR	2
Subsegment 1A3	8	0	6	3, RR	2
Subsegment 1A4	4	0	5	2	2
Alignment 1B1	11	4	22	8, RR	29
Alignment 1C1	4	3	8	6, RR	3
Subsegment 2A1	3	0	3	0	0
Subsegment 2A2	1	0	3	0	6
Subsegment 2A3	2	1	2	0	2
Subsegment 2B1	1	0	3	0	4
Subsegment 3A1	1	0	4	1	1
Subsegment 3B1	1	0	3	0	4
Subsegment 3B2	2	1	6	2	5
Subsegment 3C1	1	0	1	2	5
Stations					
El Monte			X		
San Bernardino			X		
Transit Center			X		
San Diego Airport				X	
Downtown San Diego	X				

* Qualitative assessment of potential impact of No-Project projects.

RR Pipeline is located in railroad right-of-way.

X Potential public utility conflict with proposed station.

4.1 NO-PROJECT ALTERNATIVE

The No-Project Alternative would not result in the construction and operation of any transportation projects, aside from projects that are currently programmed and funded. The No-Project Alternative would involve programmed/funded highway projects, airport projects, and passenger rail projects. Some of the programmed/funded projects are expected to occur within existing rights-of-way while others may require new rights-of-way.

Because various electrical transmission lines, natural gas pipelines, oil pipelines, and wastewater and water utilities are likely to cross or be located next to existing highways, rail corridors, and airports, utility conflicts under the No-Project Alternative are likely to occur. However, the extent of the programmed and funded projects under the No-Project Alternative are expected to be less than the highway, rail, and airport components of the Modal and HST Alternatives because programmed and funded construction projects are generally near-term projects (within the next 5 years or so), whereas the components of the Modal and HST Alternatives would be longer-term projects implemented over the next 20 years or so. In addition, because of fiscal constraints within the transportation improvement planning and funding system, it is likely that currently programmed and funded projects represent smaller segment improvements than the corridor and longer-term improvements for the Modal and HST Alternatives. Consequently, the No-Project Alternative is considered generally to have a low potential for public utility conflicts when compared to either the Modal Alternative or the HST Alternative.

In addition, each of the individual programmed projects under No Project Alternative is expected to have project-level environmental documents prepared that analyzed the environmental impacts of the respective projects.

4.2 MODAL ALTERNATIVE

Impacts under the Modal Alternative are described by segments that generally correspond to the primary segments for the High-Speed Train Alternative. There are three segments for the Modal Alternative, Segment 1: Union Station to March ARB, Segment 2: March ARB to Mira Mesa, and Segment 3, Mira Mesa to San Diego.

4.2.1 Segment 1: Union Station to March ARB

Segment 1 includes I-10 from I-5 to I-215, I-15 from I-10 to north of SR 91, and I-215 from I-10 to March ARB. Ontario International Airport is located in this segment. There are numerous electrical, natural gas, oil, and wastewater trunk line crossings along this segment. Figure 4.2-1 depicts the electrical, natural gas, and oil pipelines in the vicinity of Segment 1.

- Electrical Utilities. There appear to be approximately 24 locations along Segment 1 that cross overhead electrical transmission lines owned by LADWP or SCE. Three of the crossings are rated at 500 kV and 20 are rated at 220-287 kV. SCE's Vista substation appears close to Segment 1.
- Natural Gas Utilities. There are 30 potential natural gas pipeline conflicts within this segment.
- Oil Pipelines. There are approximately 13 potential oil pipeline conflicts in this segment.

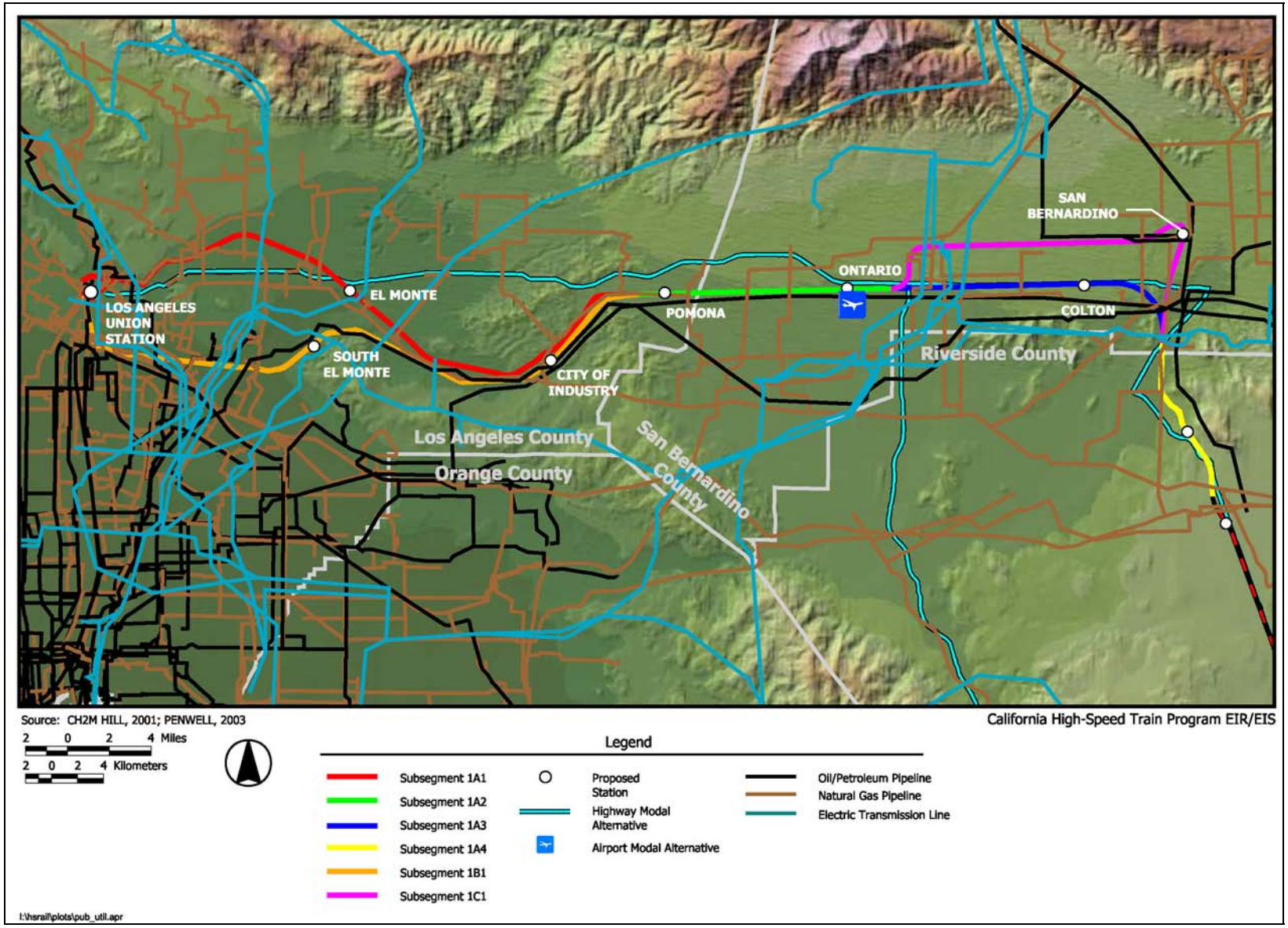


Figure 4.2-1 Public Utilities: Segment 1 Union Station to March ARB

- Wastewater Treatment Facilities. Although some wastewater treatment plants are located in the vicinity of Segment 1 study area, none of the plants appears to be close enough to the alignments to cause conflicts. There are approximately 18 wastewater or water trunk line crossings in this segment, 17 wastewater trunk lines operated by LACSD and 1 recycled water line operated by IEUA.
- Airports. Ontario International Airport would be expanded by one runway and various terminal improvements. There is an oil pipeline in the railroad right-of-way to the north of the airport; however, the additional runway and other airport improvements are assumed to occur within the context of the airport master plan and footprint. Consequently, utility conflicts are not anticipated.

4.2.2 Segment 2: March ARB to Mira Mesa

Segment 2 includes I-215 from March ARB to I-15, and I-15 from north of SR 91 to Mira Mesa. There are numerous electrical, natural gas, and wastewater trunk line crossings along this segment. Figure 4.2-2 depicts the electrical, natural gas, and oil pipelines in the vicinity of Segment 2.

- Electrical Utilities. There appear to be four locations along Segment 2 that cross overhead electrical transmission lines owned by SCE or SDG&E. Two of the crossings are rated at 500 kV and two at 220-287 kV.
- Natural Gas Utilities. There are 22 potential natural gas pipeline conflicts within this segment.
- Oil Pipelines. There are no apparent oil pipeline crossings in this segment.
- Wastewater Treatment Facilities. Although some wastewater treatment plants are located in the vicinity of Segment 2 study area, none of the plants appears to be close enough to the segment to cause conflicts. There are two known wastewater trunk line crossings owned by the City of San Diego in this segment.

4.2.3 Segment 3: Mira Mesa to San Diego

Segment 3 includes I-15 from approximately Mira Mesa to SR 163, I-8 from SR 163 to I-5, and SR 163 from I-15 to I-8. San Diego International Airport is located in this segment. There are numerous electrical, natural gas, oil, and wastewater trunk lines crossings along this segment. Figure 4.2-3 depicts the electrical, natural gas, and oil pipelines in the vicinity of this segment.

- Electrical Utilities. There appear to be five locations along Segment 3 that cross overhead electrical transmission lines that are rated at 220-287 kV and owned by SDG&E.
- Natural Gas Utilities. There are 18 potential natural gas pipeline conflicts within this segment.
- Oil Pipelines. There are two potential oil pipeline conflicts in this segment.
- Wastewater Treatment Facilities. Although some wastewater treatment plants are located in the vicinity of Segment 3 study area, none of the plants appears to be close enough to the segments to cause conflicts. There are four crossings of wastewater trunk lines that are owned by the City of San Diego in this segment.
- Airports. San Diego International Airport would be expanded by one runway and various terminal improvements. There is an oil pipeline in Pacific Highway to the east of the airport. The additional runway and other airport improvements are assumed to occur within the context of the airport master plan and footprint. Consequently, utility conflicts are not anticipated.

Figure 4.2-2 Public Utilities: Segment 2 March ARB to Mira Mesa

Figure 4.2-3 Public Utilities: Segment 3 Mira Mesa to San Diego

4.3 HIGH-SPEED TRAIN ALTERNATIVE

Impacts under the High-Speed Train Alternative are described by segment and subsegment, following the designations described in Section 1.2.3.

4.3.1 Segment 1: Union Station to March ARB

Regional Segment 1 extends from Union Station to March ARB. The impacts of the alignment alternatives within this route are described below. Figure 4.2-1 shows the major electrical, natural gas, and oil lines in the vicinity of this route.

4.3.1.1 Segment 1A

Segment 1A comprises four subsegments, Subsegments 1A1, 1A2, 1A3, and 1A4.

Subsegment 1A1

Subsegment 1A1 extends from Union Station to Pomona. This subsegment crosses several electrical transmission lines and natural gas lines and would be close to one wastewater treatment plant.

- Electrical Utilities. There are 10 locations along Subsegment 1A1 that cross overhead transmission electrical lines. All of the lines are rated at 220-287 kV. There is one power station in the study area of this subsegment owned by Smurfit Newsprint Corp.
- Natural Gas Utilities. There are 31 natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are four oil pipeline crossings in this subsegment. In addition, there are several locations where oil pipelines are located within railroad rights-of-way.
- Wastewater and Water Facilities. Subsegment 1A1 would be proximate to, but not conflict with, Los Angeles County's San Jose Creek Water Reclamation Plant (the plant is located to the south of the subsegment). In addition, there are two wastewater trunk line crossings (North Outfall Sewer) in this subsegment and three future crossings (Northeast Interceptor Sewer currently under construction) in the City of Los Angeles, and approximately 21 LACSD trunk line crossings.
- Stations. There may be a natural gas line conflict at the El Monte Station.

Subsegment 1A2

Subsegment 1A2 extends from the Pomona Station to the Ontario Station. This subsegment has several oil and gas pipeline conflicts.

- Electrical Utilities. There are no apparent conflicts with overhead transmission electrical lines.
- Natural Gas Utilities. There are four natural gas pipelines crossing within this subsegment.
- Oil Pipelines. There are oil pipelines that are located within railroad rights-of-way within this subsegment but do not cross the alignment.
- Wastewater and Water Facilities. There are no apparent conflicts with wastewater treatment plants in this subsegment. There is one potential conflict with a proposed recycled water distribution line and one crossing of an existing recycled water line, both IEUA facilities.
- Stations. There are no apparent station conflicts with utilities.

Subsegment 1A3

Subsegment 1A3 extends from the Ontario Station approximately to SR 91. This subsegment crosses numerous electrical, natural gas, and oil lines.

- Electrical Utilities. There are eight overhead transmission line crossings in this subsegment. All of the transmission lines are owned by SCE. Two of the lines are rated at 500 kV and six at 220-287 kV.
- Natural Gas Utilities. There are six gas pipeline crossings within this subsegment.
- Oil Pipelines. There are three oil pipeline crossings in this subsegment, as well as a pipeline located within railroad right-of-way (at the east end of this subsegment).
- Wastewater and Water Facilities. Subsegment 1A3 would be in the vicinity of, but would not conflict with the City of San Bernardino RIX facility (the plant is located to the south of the subsegment as it curves from east to south). There are two locations in this subsegment that would cross a proposed recycled water line owned by IEUA.
- Stations. There are no apparent utility conflicts with either the Ontario or Colton stations.

Subsegment 1A4

Subsegment 1A4 extends from SR 91 to the March ARB Station. This subsegment crosses numerous electrical, natural gas, and oil lines.

- Electrical Utilities. There are approximately four electrical transmission line crossings in this subsegment. The transmission lines are owned by SCE and are rated at 220-287 kV.
- Natural Gas Utilities. There are five natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are two oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. Conflicts with treatment plants are not anticipated.
- Stations. There are no apparent utility conflicts with the University of California at Riverside Station or the March ARB Station.

4.3.1.2 Segment 1B

Segment 1B has one subsegment only. Subsegment 1B1 follows an alignment parallel to and south of the western portion of Subsegment 1A1.

Subsegment 1B1

Subsegment 1B1 extends from Union Station to Pomona. This subsegment crosses numerous electrical, natural gas, and oil lines.

- Electrical Utilities. There are approximately 11 locations along Subsegment 1B1 that cross overhead electrical transmission lines. The transmission lines are all rated at 220-287 kV. There are two power stations (owned by Anderson Lithographic Co. and Rio Hondo Community College District) and two substations (both owned by SCE) in the study area of this subsegment.
- Natural Gas Utilities. There are 22 natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are approximately eight oil pipeline crossings in this subsegment. In addition, oil pipelines are located in the railroad right-of-way south of Union Station and at the east end of this subsegment.
- Wastewater and Water Facilities. Subsegment 1B1 would be proximate to, but not conflict with Los Angeles County's San Jose Creek Water Reclamation Plant (the plant is located to the north of the segment). In addition, the County's Pomona Water Reclamation Plant is located immediately south of the eastern end of this subsegment. There are two wastewater trunk line crossings in the City of Los Angeles in this subsegment, the existing North Outfall Sewer and the East Central Interceptor Sewer currently under construction. In addition, this subsegment crosses approximately 27 LACSD trunk lines.

- Stations. No utility conflicts are expected at Union Station or the South El Monte Station.

4.3.1.3 Segment 1C

Segment 1C also has a single subsegment. Subsegment 1C1 loops through San Bernardino to the north of and parallel to Subsegment 1A3.

Subsegment 1C1

Subsegment 1C1 extends from the Ontario Station to SR 91. Stations are located in Ontario and San Bernardino. This subsegment crosses numerous electrical, natural gas, and oil lines.

- Electrical Utilities. There are approximately four overhead electrical transmission line crossings in this subsegment (owned by SCE). Two of the transmission line groupings are rated at 500 kV and two at 220-287 kV. There are three substations in the study area in this subsegment, all owned by SCE.
- Natural Gas Utilities. There are approximately eight natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are six oil pipeline crossings in this subsegment. Oil pipelines are located in the railroad right-of-way in the western portion of this subsegment. There also could be conflicts with an oil terminal (Colton Terminal).
- Wastewater and Water Facilities. The IEUA RP-4 is located to the east of this subsegment; however, conflicts are not anticipated because it is outside the study area. There would be two crossings of an existing recycled water line and one crossing of a proposed line owned by IEUA.
- Stations. There may be a natural gas pipeline conflict with the San Bernardino Station.

4.3.2 Segment 2: March ARB to Mira Mesa

Regional Segment 2 extends from March ARB to Mira Mesa. The impacts of the segment alternatives are described below. Figure 4.2-2 shows the major electrical, natural gas, and oil lines in the vicinity of this route.

4.3.2.1 Segment 2A

Segment 2A extends from March ARB to Mira Mesa and comprises three subsegments, Subsegments 2A1, 2A2, and 2A3.

Subsegment 2A1

This subsegment extends from March ARB to Escondido just north of SR 78. This subsegment crosses electrical and natural gas lines.

- Electrical Utilities. There are three locations along Subsegment 2A1 that cross overhead electrical transmission lines owned by SCE or SDG&E. One of the lines is rated at 500 kV and two at 220-287 kV.
- Natural Gas Utilities. There are seven natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are no apparent oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. The March ARB treatment plant is located immediately west of the northern portion of Subsegment 2A1. Because the treatment plant is located approximately 300 feet west of the ATSF railroad and because Subsegment 2A1 will follow the ATSF railroad in this area, conflicts with this plant are not anticipated. Subsegment 2A1 would come close to, but not conflict with, the Perris Valley Regional Water Reclamation Facility and the Temecula Valley Water Reclamation Plant. These plants are located immediately to the west of the segment, but are

estimated to be farther than 100 feet from the study area. Due to the proximity of this subsegment to the treatment plants, there could be potential wastewater trunk line conflicts.

- Stations. There are no apparent utility conflicts with either the March ARB or Temecula Stations.

Subsegment 2A2

This subsegment extends from the end of Subsegment 2A1 to just north of Lake Hodges. This subsegment crosses several electrical, natural gas, and reclaimed water lines.

- Electrical Utilities. There is one overhead transmission line crossings owned by SDG&E along Subsegment 2A2 (rated at 220-287 kV).
- Natural Gas Utilities. There are three natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are no apparent oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. The City of Escondido's HARRF is located to the west of the subsegment but is outside the 100-foot study area. There are six locations where reclaimed water pipelines are crossed in this subsegment.
- Stations. No utility conflicts at the Escondido Station or the currently unnamed station to the south are expected.

Subsegment 2A3

This subsegment extends from just north of Lake Hodges to Mira Mesa. This subsegment crosses several electrical and natural gas lines.

- Electrical Utilities. There are two overhead transmission line crossings (SDG&E) rated at 220-287 kV along Subsegment 2A3. There is one power station in the study area of this subsegment.
- Natural Gas Utilities. There are two natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are no apparent oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. There are no wastewater treatment plants in the study area. There are two locations along this subsegment that cross wastewater trunk lines owned by the City of San Diego.
- Stations. No utility conflicts at the Mira Mesa Station are anticipated.

4.3.2.2 Segment 2B

Segment 2B has only one subsegment, Subsegment 2B1.

Subsegment 2B1

Subsegment 2B1 extends from north of SR 78 approximately to Lake Hodges on a course east of Subsegment 2A2. There are several electrical, natural gas, and reclaimed water lines in this subsegment.

- Electrical Utilities. There is one location along Subsegment 2B1 that crosses an overhead electrical transmission line rated at 220-287 kV and owned by SDG&E.
- Natural Gas Utilities. There are three natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are no apparent oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. There are no wastewater treatment plants along the study area. There are four reclaimed water line crossings owned by the City of Escondido in this subsegment, as well as a section where a reclaimed water line is located parallel and within the study area.

- Stations. No utility conflicts at the Escondido Transit Center station are anticipated.

4.3.3 Segment 3: Mira Mesa to San Diego

Regional Segment 3 extends from Mira Mesa to San Diego. There are three alternative segments for Segment 3. Figure 4.2-3 shows the major electrical, natural gas, and oil lines in the vicinity of this route.

4.3.3.1 Segment 3A

Segment 3A extends from Mira Mesa to San Diego.

Subsegment 3A1

Subsegment 3A1 extends from Mira Mesa to Qualcomm Stadium approximately along I-15. There are several electrical, natural gas, oil, and wastewater trunk lines in this subsegment.

- Electrical Utilities. There is one location along Subsegment 3A1 that crosses overhead electrical transmission lines owned by SDG&E. This transmission line is rated at 220-287 kV.
- Natural Gas Utilities. There are four natural gas pipeline crossings within this segment.
- Oil Pipelines. There is one apparent oil pipeline crossing in this subsegment.
- Wastewater and Water Facilities. There are no wastewater treatment plants along the study area; however, this subsegment crosses one wastewater trunk line owned by the City of San Diego.
- Stations. Utility conflicts at the Mira Mesa Station are not anticipated.

4.3.3.2 Segment 3B

Segment 3B extends from Mira Mesa to downtown San Diego and includes two subsegments, Subsegments 3B1 and 3B2.

Subsegment 3B1

Subsegment 3B1 extends from Mira Mesa to the Miramar area east of I-805. There are several natural gas and wastewater trunk lines in this subsegment.

- Electrical Utilities. There is one location along this subsegment that crosses a 220-287 kV transmission line. The Miramar and Miramar GT substations are proximate, but not expected to pose conflicts.
- Natural Gas Utilities. There are three natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are no apparent oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. Although the City of San Diego North City Water Reclamation Plant is located to the north of the subsegment, there are no wastewater treatment plants in the study area. There are four locations that cross wastewater trunk lines owned by the City of San Diego in this subsegment.
- Stations. Utility conflicts at the Mira Mesa Station are not anticipated.

Subsegment 3B2

Subsegment 3B2 extends from the Miramar area (east of I-805) to downtown San Diego. There are several electrical, natural gas, oil, and wastewater trunk lines in this subsegment.

- Electrical Utilities. There appear to be two locations along Subsegment 3B2 that cross overhead electrical transmission lines rated at 220-287 kV and owned by SDG&E. There is one power station (Marriott Hotel) in the study area within this subsegment.

- Natural Gas Utilities. There are six natural gas pipeline crossings with this subsegment.
- Oil Pipelines. There are two apparent oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. There are no wastewater treatment plants in the study area. There are five locations along this subsegment that cross wastewater trunk lines owned by the City of San Diego.
- Stations. The Transit Center Station may conflict with a natural gas pipeline, and the Downtown San Diego Station may be close to a transmission line. In addition, there is an oil pipeline in Pacific Highway and the potential for the San Diego International Airport Station to conflict with it.

4.3.3.3 Segment 3C

Segment 3C extends from Mira Mesa to the Miramar area east of I-805 (south of Subsegment 3B1) and is composed of one subsegment.

Subsegment 3C1

Subsegment 3C1 extends from Mira Mesa to the Miramar area east of I-805. This subsegment is located south of Subsegment 3B1. There are several natural gas and wastewater trunk lines crossing this subsegment.

- Electrical Utilities. There is one location along this subsegment that crosses an electrical transmission line rated at 220-287 kV.
- Natural Gas Utilities. There are two natural gas pipeline crossings within this subsegment.
- Oil Pipelines. There are two oil pipeline crossings in this subsegment.
- Wastewater and Water Facilities. There are no wastewater treatment plants in the study area; however, there are five locations along this subsegment that cross wastewater trunk lines owned by the City of San Diego.
- Stations. Utility conflicts at the Mira Mesa Station are not anticipated.

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