



I-5 MANAGED LANES PROJECT

RED HILL AVE TO ORANGE / LOS ANGELES COUNTY LINE

Counties of Orange and Los Angeles, California
Cities Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, Buena Park, La
Mirada, and Santa Fe Springs

12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4

07-LA-5 – PM 0.1, 0.3, 0.6, 1.7

12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7, 9.9, 10.2

12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5

12-Ora-91 – PM 0.4, 0.7, 1.1, 1.3, 1.4, 1.6, 1.8, 2.0, 2.2, 2.6, 2.8, 3.4

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HAZARDOUS WASTE INITIAL SITE ASSESSMENT

Prepared for



January 20, 2023

Hazardous Waste Initial Site Assessment

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Acronyms and Abbreviations

Abbreviation	Definition
ACM	asbestos-containing materials
ADL	aerially deposited lead
ASTM	ASTM International
AUL	activity and use limitations
bgs	below ground surface
CA	California
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CEG	Certified Engineering Geologist
CERS	California Environmental Reporting System
CFR	Code of Federal Regulations
CGS	California Geological Survey (formerly California Division of Mines and Geology [CDMG])
CIWQS	California Integrated Water Quality System
Cortese	Cortese Hazardous Waste and Substances List
DOGGR	Division of Oil, Gas, and Geothermal Resources
DRY CLEANERS	Cleaner Facilities
DTSC	Department of Toxic Substances Control
DYA	Diaz•Yourman & Associates
EDR	Environmental Data Resources, Inc.
Envirostor	DTSC's Site Mitigation and Brownfield Reuse Program's EnviroStor Database
EPA	U.S. Environmental Protection Agency
FID	California Water Resources Control Board Facility Inventory Database
FID UST	FID Underground Storage Tank
FINDS	Facility Index System
GE	Geotechnical Engineer
HAZNET	Facility and Manifest Data
HIST Cortese	Historic Cortese
HIST UST	Historic Underground Storage Tank
HOT	high-occupancy toll
HOV	high-occupancy vehicle
I-	Interstate
ISA	Initial Site Assessment
LA	Los Angeles
LBP	lead-based paint
LRTP	Long-Range Transportation Plan
LUST	leaking underground storage tanks
MSL	mean sea level

Abbreviation	Definition
MUTCD	Manual on Uniform Traffic Control Devices
NPDES	National Pollutant Discharge Elimination System
OC	Orange County
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
PCB	polychlorinated biphenyls
PDPM	Caltrans Project Development Procedures Manual
PE	Professional Engineer
RCRA	Resource Conservation and Recovery Act
RCRA-SQG	RCRA-Small Quantity Generator
REC	recognized environmental condition
ROW	right-of-way
RTP	Regional Transportation Plan
RWQCB	California Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SER	Caltrans Standard Environmental Reference
SR	State Route
SSP	Standard Special Provisions
SVOC	semi-volatile organic compounds
SWEEPS UST	Statewide Evaluation and Environmental Planning System Underground Storage Tank
SWRCB	California State Water Resources Control Board
TCA	Transportation Corridor Agency
TPH	total petroleum hydrocarbons
TWW	treated wood waste
UC	undercrossing
USGS	U.S. Geological Survey
VOC	volatile organic compound

EXECUTIVE SUMMARY

This report presents the results of hazardous waste Initial Site Assessment (ISA) performed for the proposed Interstate (I-) 5 Managed Lanes Project in Orange County, California (Project). The ISA was performed in general conformance with the scope and limitations of ASTM International (ASTM) E1527-21, information provided in the California Department of Transportation (Caltrans) Project Development Procedures Manual and Standard Environmental Reference, and Caltrans District 12 ISA guidelines.

The Project improvement limits include I-5 from Red Hill Avenue to the Orange/Los Angeles Countyline, California (Figure 1). The Project improvements are within the cities of Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, Buena Park, La Mirada, and Santa Fe Springs. The I-5 Project improvements include implementing managed lanes improvements in each direction between Red Hill Avenue and the Orange/Los Angeles Countyline. The improvements would modify the existing High Occupancy Vehicle lanes within the project limits to address capacity and operational deficiencies. The proposed modifications would improve the overall movement of people and goods along this section of I-5. Project improvements to the SR 55, SR 57, and SR 91 corridors, as well as north of the Orange/Los Angeles Countyline, include implementing associated signage and tolling infrastructure, where required.

Four alternatives are proposed for the Project. Alternative 4 limits are considered as the study area for the ISA as it involves highest disturbance among all the alternatives studies. The ISA was intended to evaluate the presence or likely presence of hazardous substances (including petroleum products) in, on, or at a site that has potential to impact Project construction activities. Such sites would be considered recognized environmental conditions (RECs) for the Project based on the guidelines and procedures of ASTM E1521-21.

No RECs that might impact Project development and construction were identified. Note that I-5 was improved over the years between 1994 and 2005, and several environmental investigations and remedial actions may have resulted in investigations and remedial actions which would have mitigated contamination from past releases.

There is a possibility of non-ASTM scope hazardous materials to be encountered at the site, including aerially deposited lead (ADL), polychlorinated biphenyls (PCBs), and Title 22 metals. Title 22 metals, specifically hexavalent chromium, are most likely to be encountered where yellow thermoplastic striping will be disturbed. ADL could be encountered in shallow soils that will be disturbed in unpaved areas adjacent to I-5. The non-ASTM scope hazardous materials identified within and adjacent to the Project limits is summarized in Table ES-1 and should be evaluated as part of an Environmental Phase II site investigation using Caltrans Standard Specifications (Caltrans, 2022a) and Standard Special Provisions (SSPs; Caltrans, 2022b, 2022c).

At the time of this report, no parcel acquisitions were planned as part of the Project. If any parcels (or portions thereof) to be acquired are identified in the future to accommodate proposed Project, such parcels should be evaluated separately.

Table ES-1 – Summary of Concerns and Recommendations

Map ID1	Source/ Location	Type Of Concern	Chemicals Of Potential Concern	Potentially Affected Media	Report Section(S)	Recommendation
--	Existing bridges	Non-ASTM scope consideration	ACM, LBP	Existing bridge bearing pads, hinge and joint seal materials, and coatings and graffiti	Section 7.1	Prior to disturbance of the existing structures that are within the Project alignment, ACM and LBP surveys of the potentially affected media should be performed during the PS&E phase as part of a Phase II site investigation.
--	Project ROW	Non-ASTM scope consideration	LBP, Chromium	Yellow thermoplastic striping	Sections 5.7 and 7.2	Yellow thermoplastic striping materials should be handled during construction in accordance with Caltrans Standard Specifications (Caltrans, 2022a) and the corresponding SSPs (Caltrans, 2022c).
--	Project ROW	Non-ASTM scope consideration	ADL	Soil	Section 7.2	Unpaved soils adjacent to the existing roadway should be tested for ADL according to Caltrans ADL testing guidelines during the PS&E phase. The ADL study should include Title 22 testing of surface soils to evaluate the potential presence of other metals that may have been transported by storm water runoff. If ADL concentrations are detected in existing soils, such soils will be handled in accordance with the Caltrans Standard Specifications (Caltrans, 2022a) and the corresponding SSPs (Caltrans, 2022b).
--	Project ROW	Non-ASTM scope consideration	PCB-containing equipment	Soil	Section 5.4	Electrical transformers and equipment should be evaluated during the PS&E phase for PCB content or releases if the transformers will be removed or relocated as part of the Project.
--	Project ROW	Non-ASTM scope consideration	TWW	Soil	Section 7.3	Upon removal, existing power poles or guard rail posts should be managed or disposed offsite during construction in accordance with DTSC guidance for Management of TWW (DTSC, 2020).

1. INTRODUCTION

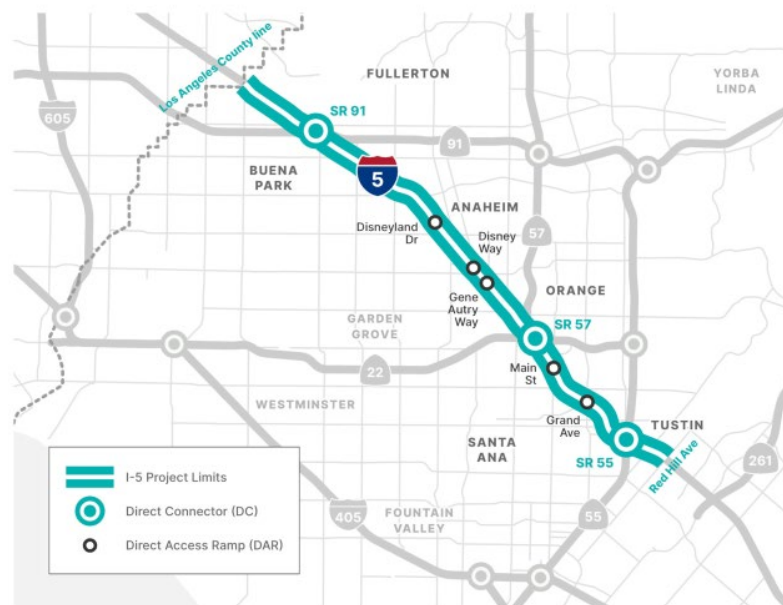
The California Department of Transportation (Caltrans) District 12, in cooperation with Caltrans District 7, and the Federal Highway Administration (FHWA), proposes to improve the overall regional managed lanes network operations, improve mobility, and trip reliability, maximize person throughput by facilitating efficient movement of bus and rideshare users, and apply technology to help manage traffic demand, within the Interstate (I-) 5 Corridor.

The Project improvement limits include I-5 from Red Hill Avenue to the Orange/Los Angeles Countyline (Figure 1). The Project traverses the cities of Tustin, Santa Ana, Orange, Anaheim, Fullerton, Buena Park, La Mirada, and Santa Fe Springs.

The I-5 Project improvements include implementing managed lanes improvements in each direction between Red Hill Avenue and the Orange/Los Angeles Countyline. The improvements would modify the existing High Occupancy Vehicle (HOV) lanes within the project limits to address capacity and operational deficiencies. The proposed modifications would improve the overall movement of people and goods along this section of I-5. Project improvements to the SR 55, SR 57, and SR 91 corridors, as well as north of the Orange/Los Angeles Countyline, include implementing associated signage and tolling infrastructure, where required.

The Project intends to incorporate Context Sensitive Solutions, where applicable, that integrate and consider community, aesthetic, multimodal and environmental values with transportation safety, maintenance, and performance goals. The Project is expected to yield mobility benefits to commuters and freight traffic alike, through reduced travel times, increased vehicle and passenger throughput and reliability, and reduce delay through active traffic management to optimize freeway speeds throughout the corridor.

Figure 1 - Vicinity Map



1.1 Project Alternatives

Based on the conceptual analysis and preliminary engineering studies, three Build Alternatives and a “No-Build” Alternative are being evaluated in the Draft Project Report and Environmental Document (PA&ED) phase.

- Alternative 1 – No-Build Alternative: Existing Conditions

Under the No-Build Alternative, no additional roadway improvements would occur. This alternative includes other projects on the financially-constrained project list in the adopted Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) in the Project limits on I-5 and the Preferred Plan in the Orange County Transportation Authority (OCTA) 2018 Long Range Transportation Plan (LRTP) within the Project limits. Additional land areas would not be impacted, and existing and projected traffic congestion would not be alleviated beyond that associated with other projects in approved regional transportation plans.

- Alternative 2 – Build Alternative: Modify Existing HOV 2+ Lanes to HOV 3+ Lanes

Alternative 2 would maintain the existing lane configurations for I-5 with a modification of the minimum HOV-lane occupancy requirement from two-plus (2+) to three-plus (3+) passengers within the current HOV system in each direction, between Red Hill Avenue and the Orange/Los Angeles Countyline. Under this alternative, no additional roadway improvements would occur.

- Alternative 3 – Build Alternative: Convert Existing HOV Lanes to ExpressLanes

Alternative 3 would convert the existing HOV lane to an ExpressLane, in each direction, between Red Hill Avenue and SR 55; convert two existing HOV lanes to ExpressLanes, in each direction, between SR 55 and SR 57; and convert existing HOV lane to an ExpressLane, in each direction, between SR 57 and the Orange/Los Angeles Countyline.

- Alternative 4 – Build Alternative: Convert Existing HOV Lanes to ExpressLanes and Construct Additional ExpressLanes

Alternative 4 would convert the existing HOV lane to an ExpressLane, in each direction, between Red Hill Avenue and SR 55; convert two existing HOV lanes to ExpressLanes, in each direction, between SR 55 and SR 57; convert the existing HOV lane to an ExpressLane, in each direction, between SR 57 and the Orange/Los Angeles Countyline; and construct additional ExpressLane, in each direction, between SR 57 and SR 91.

Project improvements to the SR 55, SR 57, and SR 91 corridors, as well as north of the Orange/Los Angeles Countyline, include modifying, replacing, and/or implementing associated advanced signage and tolling infrastructure required by the Build Alternatives.

Additionally, two proposed park-and-ride facilities are being evaluated as part of the Build Alternatives in the PA&ED phase. Incorporation of additional park-and-facilities as part of the Project would be constructed within the existing freeway rights-of-way.

For detailed Project Alternatives descriptions and impacts, see the *Draft Project Report* and Draft Environmental Document developed and completed in support of the Project, provided under separate cover respectively.

1.2 Report Overview and Purpose

The intent of the ISA was to evaluate, in general accordance with the standard practices described in ASTM International (ASTM) Practice E1527-21, recognized environmental conditions (RECs) which are defined by ASTM as “the presence or likely presence of any hazardous substance or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; (3) under conditions that pose a material threat of a future release to the environment.” The purpose of the Phase I environmental site assessment, according to ASTM, is to identify RECs with regards to a commercial real estate transaction of a specific parcel of land. In contrast, this assessment was performed for the transportation corridor following general ASTM 1527 guidelines and the purpose of the assessment was limited to identification of potential impacts of hazardous substances to the construction workers during the Project improvements. The report generally adhered to information provided in the Caltrans Project Development Procedures Manual (PDPM; Caltrans, 2006) and Standard Environmental Reference (SER; Caltrans, 2021).

The assessment generally consisted of the following:

- Performing a site reconnaissance.
- Conducting historical research related to the use, storage, disposal, or release of hazardous materials or petroleum hydrocarbons within the Project alignment based on property records, public records, and aerial photographs.
- Reviewing environmental databases and regulatory agency information available to the public for the Project alignment and adjoining properties.
- Preparing this report.

The report did not include a lien and title search or an evaluation of vapor intrusion because no inhabited structures are planned within the Project alignment.

1.3 ISA Study Area

The ISA study area is an approximately 16 mile stretch of the I-5 corridor from Red Hill Avenue in Tustin to the LA Countyline in Buena Park. The improvements comprising Alternative 4 were used as the basis for this ISA, and the associated study area is referred to as the Project alignment throughout this report. The layout of the proposed improvements for Alternative 4 is included in Appendix A.

For the purpose of this report, the Project alignment is divided into three segments:

- Segment 1 consists of I-5 from Red Hill Avenue to SR 57.
- Segment 2 consists of I-5 from the SR 57 interchange to SR 91.
- Segment 3 consists of I-5 from SR 91 to Orange County / Los Angeles Countyline.

2. SITE DESCRIPTION

2.1 Existing Right-of-Way

The existing facilities within the Project ROW consisted of the following features:

- I-5 spans 16.1 miles and is designed as a four to five-lane highway, with auxiliary lanes between most on-ramps and off-ramps, an HOV lane in each direction.
- I-5 right-of-way spans roughly 300-feet, with wider widths to accommodate interchanges.
- Existing I-5 General Purpose and HOV lane widths are typically 12-feet, with a minimum of 10-foot wide interior and exterior shoulders; in addition, a 2 to 4-foot painted buffer or a concrete barrier separation exists between the General Purpose and HOV lanes.
- I-5 posted speed is 65 mph.
- There are three freeway-to-freeway interchanges (SR 55, SR 22/SR 57, and SR 91).
- I-5 runs functions as a major-collector distributor route feeding east-west routes, SR 55, SR 22, SR 57, and SR 91, as well as local streets.
- A HOV Direct Connector currently exists between the I-5 HOV and SR 55, SR 57, and SR 91 HOVs, providing direct HOV connectivity into those corridors.
- HOV direct access ramps exists between the I-5 HOV and Grand Avenue, Gene Autry Way, Disney Way, and Disneyland Drive.
- I-5 traverses the Cities of Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, and Buena Park, in Orange County, and La Mirada and Santa Fe Springs, in Los Angeles County; and
- I-5 is owned and maintained by Caltrans.

2.2 Potential Right-of-Way Acquisitions

At the time of this report, no parcel acquisitions were planned as part of the Project based on discussions with the Project team. If any parcels (or portions thereof) to be acquired are identified in the future to accommodate proposed Project, such parcels should be evaluated separately.

2.3 Adjacent Land Use

The Project corridor is in a highly urbanized area with a mix of residential neighborhoods; educational facilities; recreational, industrial, and commercial properties; and public transportation ROW.

2.4 Geology

The Project lies within the Orange County Coastal Plain feature of the Peninsular Ranges Geomorphic Province of California. The coastal plain is contiguous with the Los Angeles Coastal Plain to the west and is bounded by the Pacific Ocean to the south, the Santa Ana Mountains and San Joaquin Hills to the east, and the Puente Hills to the north. According to the Geologic Map of the Santa Ana Quadrangle, prepared in cooperation with the California Geological Survey (CGS, formerly California Division of Mines and Geology, 1966), the Project alignment

and the margins surrounding the Project were mapped as Quaternary Alluvium, characterized as unconsolidated deposits of silt, sand, clay, and gravel. Alluvial sediments in the central area of the basin where the Project is located are between 1,000 to 2,000 feet thick (Metropolitan Water District, 2007).

The northwest margin of the coastal plain includes the Coyote Hills, low rolling hills mapped by CGS as Pleistocene non-marine terrace deposits overlying the Tertiary-age oil-bearing Puente formation. The Quaternary alluvium is underlain primarily by Tertiary marine sedimentary formations. The east-west-trending Norwalk Fault is mapped near the northern margin of the Project, and the active east-west trending Whitter Fault Zone is mapped along the southern toe of the Puente Hills, located approximately five miles north of the northern end of the Project.

2.5 Topography

According to the U.S. Geological Survey (USGS) 7.5-Minute Topographic maps for Anaheim and Orange Quadrangles, the Project lies within a relatively low relief coastal plain that slopes gently down to the southwest to the Pacific Ocean from the hills to the north and east. The ground surface topography of the Project (in Segments 2 and 3) between the northwestern end and the Euclid Avenue interchange slopes down gently to the northwest from an elevation of approximately 130 feet mean sea level (MSL) at Euclid Street to 70 feet MSL at the northwestern end of the Project. The portion of the Project between Euclid Street and the SR 22/SR 57 interchange in Segment 2 is relatively even along the segment sloping down slightly to the northwest from an elevation of approximately 140 to 130 feet MSL. Segment 3, the southeastern segment of the Project between the SR 22/SR 57 interchange and the southeastern end of the Project, follows the ground surface contour at an elevation of roughly 145 feet MSL.

2.6 Surface Water

The Project corridor is within the Orange County coastal plain. The southern boundary of the coastal plain is the Pacific Ocean. The Santa Ana River is the major surface water body that crosses the Project alignment just west of the intersection of I-5 and SR 22. At the time of the site reconnaissance summarized in Section 5, water was not observed in the Santa Ana River. The other surface water bodies within the Project alignment include La Mirada Creek, Fullerton Creek, Carbon Creek, Bolsa Chica Channel, Walnut Canyon, Lower Santiago Creek, Lower San Diego Creek, Peters Canyon Wash, and Coyote Creek. Additional details regarding Drainage and Water Quality are included in draft project report (WSP, 2022).

2.7 Groundwater

The Orange County Coastal Plain is an alluvial basin containing multi-layered, granular aquifers used for local water supply. Alluvial sediments in the central area of the basin where the Project is located are between 1,000 to 2,000 feet thick (Metropolitan Water District, 2007). According to Orange County Water District (OCWD; 2016), the northern portion of the Orange County Groundwater Basin is mapped as the unconfined aquifer zone associated with the Santa Ana River forebay deposits emanating from Santa Ana Canyon in the northeastern area of the basin. The southern portion is mapped as the confined “pressure” aquifer zone. The Project corridor

lies roughly along the margin of the two zones, with the southeastern half and northernmost end beyond the SR 91 interchange mapped within the confined zone, and most of the remaining northwestern portion between SR 91 and SR 57 mapped as the unconfined zone.

Under natural conditions, groundwater within the basin is 10 to 100 feet deep and generally flows to the southwest. The south-southwest-flowing Santa Ana River crosses the Project immediately west of SR 57 in the central area of the Project. Recharge from the river may impact groundwater conditions in the immediate vicinity of the engineered Santa Ana River channel. The depth to shallow groundwater and local gradients varies considerably due to localized perched groundwater zones and municipal well field pumping depressions. According to Isobath Map of Near Surface Water published by OCWD (2000), near-surface groundwater occurs as a large pumping depression from Anaheim municipal water supply extraction at a depth of approximately 50 to 100 feet below ground surface (bgs), centered roughly in the central area of the Project between Euclid Avenue and the Santa Ana River. There is a smaller pumping depression from Santa Ana municipal supply extraction at the southeastern end of the Project where depth to shallow groundwater is approximately 50 to 80 feet bgs.

Groundwater data within the Project corridor researched from groundwater contour maps by OCWD (2000, 2016) and depths to shallow groundwater at various sites along the Project corridor margins researched on the California State Water Resources Control Board (SWRCB) GeoTracker public information web page indicate the following conditions:

- Segment 1 (Santa Ana River and the SR 57 interchange southeast to the Project’s southern terminus) is within the confined aquifer zone where the depth of the Principal Aquifer is mapped at elevations ranging from approximately -20 to -40 MSL with a southerly gradient. GeoTracker sites located within the boundaries of this segment indicate perched or semi-perched groundwater reported at depths of approximately 80 feet bgs for most of the segment, except the southeastern-most end of the segment, where perched groundwater was reported to be approximately 45 to 95 feet bgs.
- Segment 2 (SR 91 interchange southeast to approximately the SR 22 and SR 57 interchanges) is within the unconfined aquifer zone. The topography slopes gently from about 100 feet MSL near the SR 91 interchange to 140 feet MSL at the Santa Ana River crossing near the SR 57 interchange. Minimum depths to groundwater at various GeoTracker sites located within or near the boundaries of Segment 2 were reported to range from approximately 60 feet to greater than 100 feet bgs, which roughly corresponds to the unconfined OCWD Principal Aquifer elevation contours.
- Segment 3 (SR 91 interchange to the Orange/ Los Angeles Countyline) is within the confined aquifer zone. Depths to shallow perched groundwater at four nearby GeoTracker sites within this segment were reported to be approximately 11 to 20 feet bgs.

3. Historical Land Usage

The objective of consulting historical sources is to develop a history of previous uses of the Project alignment and adjoining sites to assist in identifying the likelihood of past uses having led to RECs in connection with the subject property (ASTM, 2021). For this ISA, historical topographic maps, aerial photographs, historical city directories, and Sanborn reports were reviewed to help evaluate the historical land usage. The findings of review of each of the historical sources are presented in Sections 3.1 through 3.4, and a historical land usage summary is presented in Section 3.5.

3.1 Historical Topographic Maps

The USGS Topographic Maps listed in Table 1 were used to assess the land use and topographic history of the Project alignment and surrounding areas.

Table 1 - Historical Topographic Maps

Quadrangle	Map Year	Scale
Anaheim, Downey, Santa Ana	1896	1:62,500
Anaheim, Downey	1898, 1899	1:62,500
Anaheim, Santa Ana	1901	1:62,500
Downey	1902	1:62,500
Artesia, Whittier	1923	1:24,000
Artesia, Whittier, La Habra	1925, 1927	1:24,000
Orange, Tustin, Newport Beach	1932	1:31,680
Garden Grove, Coyote Hills, Los Alamitos, Orange, Tustin, Newport Beach	1935	1:31,680
Santa Ana, Anaheim, Downey	1942, 1947	1:50,000
Downey	1943	1:62,500
Artesia	1945	1:24,000
Los Alamitos, Anaheim, Whittier, Orange, Tustin, Newport Beach	1948, 1949	1:24,000
Anaheim, Los Alamitos, La Habra, Orange, Tustin, Newport Beach	1950, 1951	1:24,000
Whittier, La Habra	1951, 1952	1:24,000
Orange, Los Alamitos, Tustin, Newport Beach, La Habra, Whittier, Anaheim	1964, 1965	1:24,000
Los Alamitos, La Habra, Anaheim, Whittier, Orange, Tustin, Newport Beach, Costa Mesa	1972, 1974	1:24,000
Los Alamitos, La Habra, Anaheim, Whittier, Orange, Tustin, Newport Beach	1981	1:24,000
Newport Beach, Anaheim, Orange, Tustin, Whittier, Los Alamitos, La Habra	2012, 2015, 2018	1:24,000

The mapped sections of the historical USGS topographic maps reviewed for this ISA were obtained from Environmental Data Resources, Inc. (EDR; 2022a). Copies of the representative historical topographic maps are provided in Appendix B. A summary of the land use and topographic history presented in the historical topographic maps for the Project alignment is presented below.

1896 - 1902: In Segment 1, from approximately Red Hill Avenue to SR 57, land along and adjoining the Project alignment was generally undeveloped. I-5 is not depicted on the topographic maps. Santiago Creek intersected the Project alignment on the northern end of Segment 1 near the current location of SR 57. The Project alignment appeared to be intersected by single-track railroads at the southern portion (current day intersection at I-5 over Newport Avenue) and central portion (current day intersection at Lincoln Avenue over I-5) of Segment 1. Railroad tracks ran parallel for most of the Project alignment. The topographic maps show what appeared to be independent building structures within and adjoining the Project alignment in Segment 1. The ground surface elevation generally increased from south to north.

In Segment 2, from approximately SR 57 to SR 91, land along and adjoining the Project alignment was mostly undeveloped. I-5 is not depicted on the topographic maps. The tributaries of the Santa Ana River intersected the Project alignment at two locations in the southern end of Segment 2 near the current location of SR 57. Railroad tracks ran parallel and ¼-mile west of the Project alignment throughout Segment 2 and intersected the alignment in the southern portion near the current location of the intersection of I-5 over Katella Avenue. The topographic maps show independent building structures within and adjacent to the Project alignment in Segment 2. The Project alignment was intersected by an intermittent river and a forest service administration area in the northern portion of the segment, south of current SR 91. The elevation generally decreased from south to north.

In Segment 3, from SR 91 to the LA Countyline, land along and adjoining the Project alignment was mostly undeveloped. I-5 is not depicted on the topographic maps. Railroad tracks ran parallel and ¼ mile west of the Project alignment throughout Segment 3. The topographic maps show independent building structures within and adjacent to the Project alignment in Segment 3. The Project alignment was intersected by an intermittent river in the southern portion of the segment, north of current SR 91. The Project alignment consisted of a marsh or swamp in the northern end of Segment 3. The elevation generally decreased from south to north.

1932: Land usage along and adjoining the Project alignment appeared to be slightly developed in the southern portions of Segment 1. The 1932 topographic map depicts multiple building structures including Tustin Union High School. The railroad tracks previously shown to intersect the alignment at the southern portion of Segment 1 no longer appeared to be crossing the Project alignment. Segments 2 and 3 are unmapped in the 1932 topographic map.

1935: Land usage along and adjoining Segments 1 and 2 did not significantly change from the 1932 topographic map. The highways and roads intersecting and along the Project alignment were generally more developed. In Segment 2, the Project alignment was intersected by a forest service administration area in the southern portion of the segment, and the northern intersection shown on the 1896 through 1902 topographic maps appeared to be shifted to the south. The Project alignment was intersected by the Santa Ana River once in Segment 2.

In Segment 3, land usage along and adjoining the Project alignment was generally developed. Building density generally increased in the land adjoining the Project alignment. The marsh or swamp in the northern end of Segment 3 was no longer shown on the 1935 topographic map.

1942 - 1950: In Segments 1 and 2, land usage along and adjoining the Project alignment appeared to be primarily agricultural. The highways and roads intersecting and adjacent to the Project alignment were generally more developed. In Segment 2, the forest service administration area intersecting the Project alignment in the northern portion of the segment was no longer shown. The 1949 topographic map shows that the central portion of Segment 2 appeared to be intersected by a forest service ranger district, and there was a flood control settling basin adjoining the Project alignment in the northern portion of the segment. On the 1950 topographic map, the agricultural land along the southern portion of Segment 1 was removed.

Land usage along and adjoining the Project alignment on the southern end of Segment 3 appeared to be primarily agricultural. The 1949 topographic map shows increased building density on the northern portion of Segment 3, which appeared to consist of a mix of residential and industrial use. The highways and roads intersecting and adjacent to the Project alignment appeared generally more developed. A few individual oil wells were shown adjacent to Segment 3 of the Project.

1964, 1965: In Segments 1 and 2, land usage along and adjoining the Project alignment was primarily agricultural with a few areas developed for a mix of commercial, institutional, recreational, and educational purposes. The amount of agricultural area decreased from the 1950 topographic map. Building density generally increased in the land adjoining the Project alignment. The 1965 topographic map shows several recreational facilities including Disneyland. I-5, the SR 55 interchange, the SR 22 interchange, and the SR 91 interchange are depicted on the 1964 and 1965 topographic maps. The highways and roads intersecting and adjacent to the Project alignment are generally more developed.

In Segment 3, land usage along and adjoining the Project alignment was relatively unchanged. The area of agricultural land use depicted on the 1964 topographic map decreased compared to that shown on the 1942 to 1950 topographic maps. The highways and roads intersecting and adjacent to the Project alignment were generally more developed.

1972 - 1981: The overall land use within the Project vicinity appeared to shift towards urban development. The agricultural area decreased significantly from the 1964 and 1965 topographic maps. Building density generally increased in the land adjoining the Project alignment. SR 57 is shown on the 1981 topographic map.

2012: In Segments 1, 2, and 3, land usage along and adjoining the Project alignment was highly developed. The land use in the Project vicinity was significantly developed as a highly urbanized area with a mix of residential neighborhoods; educational facilities; recreational, industrial, and commercial properties; and public transportation. The highways and roads intersecting and adjacent to the Project alignment were very developed.

2015 - 2018: There were no significant changes in the land use overall land use within the Project vicinity. Some land improvements were shown to occur at the Disneyland Park area.

3.2 Historical Aerial Photographs

Historical aerial photographs obtained from EDR (2022b) were reviewed for the Project alignment land use history. A summary of the review of the aerial photographs is presented below. Copies of the aerial photographs are provided in Appendix C.

1938: The land use along Segment 1, from approximately Red Hill Avenue to SR 57, appeared to be undeveloped in the northern and southern portions, while the central portion appeared to be developed with building structures. I-5 is not depicted on the 1938 aerial photographs. Agricultural plots were shown in the northern and southern portions of Segment 1 adjoining the Project alignment, and to the east of the Project alignment in the central portion. Residential development was shown to the east and west of the Project alignment in the central portion of Segment 1. Santiago Creek intersected the Project alignment in the northern portion of Segment 1.

In Segment 2, from SR 57 to SR 91, land adjoining the Project alignment appeared to be primarily used for agricultural purposes. I-5 is not depicted on the 1938 aerial photographs. A surface water body was shown west of the Project alignment in the northern portion of Segment 2. A small area of residential development was shown to the east of the Project alignment in the central portion of Segment 2. The Santa Ana River intersected the Project alignment in the southern portion of Segment 2.

A few areas along Segment 3, from SR 91 to the LA Countyline, appeared to be developed. I-5 is not depicted on the aerial photographs. Agricultural plots adjoining the Project alignment were shown in the southern portion of Segment 3. A few independent building structures were depicted adjoining the Project alignment in the central and northern portions of Segment 3. Railroad tracks ran parallel and approximately $\frac{1}{4}$ mile to the west of the Project alignment. The Project alignment appeared to be intersected by a river in the southern portion of Segment 3, north of current SR 91.

1947: Land usage along Segments 1, 2, and 3 remained relatively unchanged from the 1938 aerial photographs. The water body located west of the Project alignment in the northern portion of Segment 2 appeared to be dry. A discrete building structure was depicted to the east of the Project alignment in the central portion of Segment 2. Several building structures, which appear to be for residential purposes, had been constructed adjoining the Project alignment in the central and northern portions of Segment 3.

1953: In Segments 1 and 2, land usage remained relatively unchanged from the 1947 aerial photographs. A small residential development is depicted to the east of the Project alignment in the northern portion of Segment 2. In the central portion of Segment 2, the roadways and highways were more developed than in the 1947 aerial photographs. Residential developments are depicted to the east of the Project alignment in the southern portion of Segment 2.

In Segment 3, land use was primarily developed with small portions of agricultural land on the northern and southern ends of the segment.

1963: In Segment 1, land use was primarily developed with residential buildings and small portions of agricultural land on the southern end of the segment. The roadways and highways were more developed than in the 1953 aerial photographs. SR 55 is depicted in Segment 1.

In Segment 2, eastbound SR 91 is depicted in the aerial photographs. Land use appeared to be developed for primarily residential and commercial/industrial purposes. The roadways and highways appeared to be more developed than in the 1953 aerial photographs. Disneyland is depicted to the east of the Project alignment in the 1963 aerial photographs. Agricultural land is still depicted to the west of the Project alignment in the central portion of Segment 2. SR 22 is depicted in the southern end of Segment 2.

In Segment 3, land use was relatively unchanged. The agricultural land on the southern end of Segment 3 was no longer shown. The roadways and highways were more developed than in the 1953 aerial photographs. The water channel in the southern portion of Segment 3 north of current SR 91 appears to have been lined.

1972 - 1977: In Segment 1, land usage remained relatively unchanged. Agricultural land use in the southern portion of Segment 1 decreased from that shown on the 1963 aerial photographs. The roadways and highways were more developed than in the 1963 aerial photographs.

In Segment 2, land use appeared to be residential and commercial. The roadways and highways were more developed than in the 1963 aerial photographs. SR 57 is depicted in the 1977 aerial photographs.

In Segment 3, land use appeared to be relatively unchanged and primarily residential and commercial. It appeared land use was industrial in the northern portion of Segment 3 in the 1977 aerial photographs. Westbound SR 91 is depicted in the aerial photographs. The roadways and highways were more developed than in the 1963 aerial photographs. The agricultural land on the northern end of Segment 3 was not depicted.

1987 - 1994: The overall Project alignment and adjoining properties in Segments 1, 2, and 3 appeared to be well developed. The roadways and highways were more developed than in the 1972 through 1977 aerial photographs. Residential and commercial development was increased from that of the 1977 aerial photographs.

1995 – 2003: Google Earth historical images indicated that I-5 was widened at several places within the current Project limits. Google images showed road improvements at the major I-5 intersections including SR 55, SR 57 and SR 91 interchanges, Lincoln Avenue, Katella Avenue and Santa Ana Street. In Segment 2, north of the Santa Ana River, the I-5 appeared to be widened and associated ramps were developed.

2005 - 2016: The overall land use in Segments 1, 2, and 3 appeared to be slightly more developed from that of the 1995 aerial photographs. Residential and commercial development was increased. The roadways and highways were more well developed than in the 1987 through 1995 aerial photographs. Google Earth historical images showed roadway developments in Segment 3 at on-ramps from and off-ramps to Artesia Boulevard. It appears that some of the parcels had been acquired previously to accommodate the recent road widening. In Segment 2 & 3, some lands adjacent to the freeways were developed for parking lots. For instance,

triangular parcel west of I-5 and north of Orangethorpe overcrossing at I-5, area east of the intersection of Ball Road and Harbor Boulevard, vacant land east of I-5 north of the intersection of Chapman Avenue and I-5. The Project alignment was in a highly urbanized area with a mix of residential neighborhoods; educational facilities; and recreational, industrial, and commercial properties.

3.3 Historical Sanborn Maps

A search of historical Sanborn Library fire insurance maps covering the Project alignment was conducted by EDR (2022c) to evaluate the overall historical Project land use. Review of fire insurance maps identified for portions of the Project did not identify any obvious conditions indicative of a potential environmental concern to construction of the proposed Project. The copies of historical Certified Sanborn fire insurance maps provided by EDR are presented in Appendix D.

3.4 Historical City Directories

City Directory Reports are used as a screening tool to identify potential environmental concerns within the Project from past land-use activities. Due to the historical land use of the Project corridor, discussion of city directory review was not considered practical or pertinent to the objectives of this assessment and is therefore not provided in this report.

3.5 Historical Summary

The Project ROW appears to have been used as roadway, agricultural, and commercial land since the 1920s. The overall land development within and adjoining the Project ROW gradually increased starting in the 1960s. Development generally favored public roadways and commercial properties with the remainder of the adjacent properties being developed for mixed industrial, residential, and institutional purposes.

Potential sources of hazardous materials that could impact the Project identified during the review of historical topographic maps, historical aerial photographs, and historical Sanborn maps were generally limited to the following:

- Presence of residual hazardous materials/wastes from the REC sites identified in Sections 4 through 7 of this report.
- Herbicides and pesticides used in former agricultural properties adjacent to the site.
- Potential asbestos-containing materials (ACM) and lead-based paint (LBP) in structures within the project ROW built prior to 1989

Extensive prior improvements were made to I-5 between 1994 and 2005, including widening and changes to the interchanges and grade separations. It is likely that the I-5 improvements between 1994 and 2005 included hazardous waste investigations and remedial actions for some of the older potential impact sites that were previously acquired during widening.

Conclusions and recommendations regarding the hazardous substances are presented in Section 8 and Table 4.

4. RECORDS REVIEW

4.1 Environmental Database Review

The purpose of the environmental database review is to obtain and review public records to identify RECs that might impact proposed Project activities. The records were reviewed to obtain environment-related information and the history of activities at the Project corridor or adjoining properties that could impact the Project. The database information for facilities listed by regulatory agencies as potential environmental concerns was obtained through EDR (EDR, 2022e) in October 2022 and is presented in Appendix E.

A general search radius of 1 mile beyond the Project footprint was specified for EDR's use in identifying nearby sites registered under hazardous materials/wastes databases that could potentially impact the Project. EDR-generated sites, within the standard search distance for each environmental database specified by ASTM D1527-21 that pertains to the objective of this ISA, were reviewed to evaluate the potential impacts of hazardous substances that might be encountered in the soil and/or groundwater during the construction of the Project improvements. The ASTM search distance for each environmental database is presented in Table 2. The sites identified as RECs based on the review of available records are summarized in Section 4.2.

Table 2 - ASTM Search Distance for Environmental Databases

Environmental Database	Minimum Search Radii ¹ (miles)
Federally Managed Environmental Databases	
Brownfields Database (BROWNFIELDS)	0.5
Corrective Action Tracking System (CORRACTS)	1.0
Department of Defense Sites (DOD)	1.0
Department of Transportation Incident and Accident Data (DOT OPS)	0.001
Enforcement and Compliance History Information (ECHO)	0.001
EPA WATCHLIST	0.001
Emergency Response and Notification Systems (ERNS)	0.001
Federal Facility Site Information Listing (FEDERAL FACILITY)	0.5
Facility Index System (FINDS)	0.001
Federal Insecticide, Fungicide, and Rodenticide Act/Toxic Substances Control Act Tracking System (FTTS)	0.001
Formerly Used Defense Sites (FUDS)	1.0
Historic FTTS (HIST FTTS)	0.001
Hazardous Materials Incident Reporting System (HMIRS)	0.001
Integrated Compliance Information System (ICIS)	0.001
Land Use Control Information System (LUCIS)	0.5
Material Licensing Tracking System (MLTS)	0.001
National Priority List (NPL), Proposed NPL, Delisted NPL	1.0
Federal Superfund Liens (NPL Liens)	0.001
National Pollutant Discharge Elimination System (NPDES)	0.001
Polychlorinated Biphenyls Activity Database System (PADS)	0.001
PCB Transformer Registration Database (PCB TRANSFORMER)	0.001
Resource Conservation and Recovery Act (RCRA)-Conditionally Exempt Small Quantity Generator (CESQG)	0.25
RCRA-Large Quantity Generator (RCRA-LQG)	0.25
RCRA-Non-Generator (RCRA-NonGen)	0.25
RCRA-Small Quantity Generator (RCRA-SQG)	0.25
RCRA-Treat, Store, or Dispose Facility (RCRA-TSDF)	0.5
Record of Decision (ROD)	1.0
Superfund Enterprise Management System (SEMS), SEMS Archive - formerly Comprehensive Environmental Response, Compensation and Liability Information System-No Further Remedial Action Planned (CERCLIS-NFRAP)	0.5
U.S. Aerometric Information Retrieval System Facility Subsystem (US AIRS)	0.001
U.S. Brownfields Sites Listing (US BROWNFIELDS)	0.5

U.S. Engineering Controls (US ENG CONTROLS)	0.5
U.S. Institutional Controls (US INST CONTROLS)	0.5
U.S. Mines Master Index File (US MINES)	0.25
Unexploded Ordinance Sites (UXO)	1.0
State and Locally Managed Environmental Databases	
California Aboveground Storage Tank (CA AST)	0.25
California Bond Expenditure Plan (CA BOND EXP. PLAN)	1.0
California Brownfields Database (CA BROWNFIELDS)	0.5
CAL-SITES	1.0
California Clandestine Drug Labs (CA CDL)	0.001
California Cortese Hazardous Waste and Substances List (CA Cortese)	0.5
California Spills, Leaks, Investigation, and Cleanup (CA CPS-SLIC)	0.5
California Deed Restriction Listing (CA DEED)	0.5
California Cleaner Facilities (CA DRY CLEANERS)	0.25
California Emissions Inventory Data (CA EMI)	0.001
California Enforcement Actions (CA ENF)	0.001
California Department of Toxic Substances Control (DTSC)'s Site Mitigation and Brownfield Reuse Program's EnviroStor Database (CA EnviroStor)	1.0
California FEMA/FID Underground Storage Tank Listing (CA UST)	0.25
California Database of Registered Waste Tire Haulers (CA HAULERS)	0.01
California Facility and Manifest Data (CA HAZNET)	0.001
California Historic CAL-SITES (CA HIST CAL-SITES)	1.0
California Historic Cortese (CA HIST Cortese)	0.5
California Historic Underground Storage Tank (CA HIST UST)	0.25
California Hazardous Materials Incident Reporting System (CA HMIRS)	0.001
California Hazardous Waste Permit (CA HWP)	1.0
California Hazardous Waste Transporters (CA HWT)	0.25
California Leaking Underground Storage Tanks on Indian Land (CA INDIAN LUST)	0.5
California Report on the Status of Open Dumps on Indian Land (CA INDIAN ODI)	0.5
California Underground Storage Tanks on Indian Land (CA INDIAN UST)	0.25
California Voluntary Cleanup Program on Indian Land (CA INDIAN VCP)	0.5
California Land Disposal Sites Listing (CA LDS)	0.001
California Los Angeles County Hazardous Materials System Database (CA Los Angeles Co. HMS)	0.001
California Leaking Underground Storage Tanks (CA LUST)	0.5
California Mines Site Location Listing (CA MINES)	0.001

California SWRCB/RWQCB Proposition 65 Incident Database (CA Notify 65)	1.0
Orange Co. Industrial Site	0.001
California DTSC Remediation Site (CA Response)	1.0
California School Sites (CA SCH)	0.25
California Statewide Evaluation and Environmental Planning System Underground Storage Tank (CA SWEEPS UST)	0.25
California Solid Waste Facilities and Landfill (CA SWF/LF)	0.5
California Solid Waste Recycling Facility (CA SWRCY)	0.5
California Toxic Pits Cleanup Act Sites (CA Toxic Pits)	1.0
California Underground Injection Control (CA UIC)	0.001
California Underground Storage Tank (CA UST)	0.25
California DTSC Voluntary Cleanup Program (CA VCP)	0.5
California Waste Discharge System (CA WDS)	0.001
California Well Installation Program (CA WIP)	0.25
California Integrated Water Quality System (CA CIWQS)	0.001
California Waste Management Unit Database System (CA WMUDS/SWAT)	0.5
Additional Environmental Records	
2020 Corrective Action Program List (2020 COR ACTION)	0.250
ABANDONED MINES	0.001
California Environmental Reporting System (CERS)	0.001
California Environmental Reporting System for Hazardous Waste (CERS HAZ WASTE)	0.25
California Environmental Reporting System Tanks (CERS TANKS)	0.25
California Hazardous Materials Incident Reporting System (CHMIRS)	0.001
Steam-Electric Plan Operation Data (COAL ASH DOE)	0.001
Coal Combustion Residues Surface Impoundments list (COAL ASH EPA)	0.5
Superfund (CERCLA) Consent Decrees (CONSENT)	1.0
A Listing of Certified Unified Program Agencies (CUPA LISTING)	0.250
Torres Martinez Reservation Illegal Dump Site Locations (DEBRIS REGION 9)	0.5
Hazardous Waste Compliance Docket Listing (DOCKET HWC)	0.001
FINANCIAL ASSURANCE	0.001
EPA Fuels Program Registered Listing (FUELS PROGRAM)	0.25
Formerly Utilized Sites Remedial Action Program (FUSRAP)	1.0
ICE	0.001
Open Dumps on Indian Land (IHS OPEN DUMPS)	0.5
Indian Reservations (INDIAN RESERV)	0.001
Lead Smelter Sites (LEAD SMELTERS)	0.001

CERCLA Lien Information (LIENS), LIENS 2	0.001
Military Cleanup Sites Listing (MCS)	0.001
MILITARY PRIV SITE	0.001
Medical Waste Management Program Listing (MWMP)	0.25
Non-Case Information Sites (GEOTRACKER) (NON-CASE INFO)	0.001
Open Dump Inventory (ODI)	0.5
Other Oil and Gas Projects Sites (GEOTRACKER) (OTHER OIL GAS)	0.001
Pesticide Regulation Licenses Listing (PEST LIC)	0.001
Certified Processors Database (PROC)	0.5
Produced Water Ponds Sites (PROD WATER PONDS)	0.001
Project Sites (GEOTRACKER) (PROJECT)	0.001
Potentially Responsible Parties (PRP)	0.001
RCRA Administrative Action Tracking System (RAATS)	0.001
Radiation Information Database (RADINFO)	0.001
Risk Management Plans (RMP)	0.001
SAMPLING POINT	0.001
State Coalition for Remediation of Drycleaners Listing (SCRD DRYCLEANERS)	0.5
Spills 90 Data from FirstSearch (SPILLS 90)	0.001
Section 7 Tracking System (SSTS)	0.001
Toxic Chemical Release Inventory System (TRIS)	0.001
Toxic Substances Control Act (TSCA)	0.001
Underground Injection Control Sites (UIC GEO)	0.001
Uranium Mill Tailings Sites (UMTRA)	0.5
U.S. Financial Assurance Information (US FIN ASSUR)	0.001
Oil Wastewater Pits Listing (WASTEWATER PITS)	0.5
Waste Discharge Requirements Listing (WDR)	0.001
Well Stimulation Project (WELL STIM PROJ)	0.001
EDR Proprietary and Supplemental Lists	
Environmental Data Resources, Inc. (EDR) Hist Cleaners	0.125
EDR Hist Auto	0.125
EDR manufactured gas plant (MGP)	1.0
Recovered Government Archive (RGA) leaking underground storage tanks (LUST)	0.001
RGA LF	0.001
Note(s): Minimum search distance based on ASTM E1527-21.	

4.2 Recognized Environmental Conditions

Upon review of environmental database records, no RECs were identified that may be of potential concern to the proposed Project. As stated in Section 4.1, sites within the standard search distance specified by ASTM were reviewed to identify RECs in the initial screening. The sites with previous release, its potential to impact the Project based on their distance and location to the Project, extent of release and its migration, and status of remediation or cleanup were the criteria used to select the sites in the preliminary review. Discussion for sites that were identified as potential RECs in initial screening were evaluated in greater detail to determine the extent of past release at such sites, remedial actions taken, current status of the contamination, and its potential impact to the Project. The summary of discussion, inferred from the review of findings of the existing reports prepared by others for each REC site, used in the decision making for identifying RECs is presented in Appendix K for reference. Environmental database records not discussed in this report or Appendix K were determined not to be RECs based on one or more of the following considerations:

- The locations and depths where soil and/or groundwater would be disturbed during construction of the proposed Project.
- The historical and/or recent groundwater gradient direction at the environmental-database-listed site with respect to the Project alignment.
- The quantity of hazardous materials released at the environmental-database-listed site and the affected media (e.g., soil, groundwater).
- The lateral and vertical extent of the medium impacted by hazardous materials at the environmental-database-listed site.
- The degree to which previous releases at the environmental-database-listed sites have been remediated, if at all.
- The history of documented releases and/or environmental violations for the environmental-database-listed site.
- The relative distance and the existing structures between the environmental-database-listed site and the Project alignment.
- The typical distance of concern for each environmental database.
- The likelihood that hazardous materials released at the environmental-database-listed site would migrate to the areas of the Project where soil and/or groundwater will be disturbed during construction of the proposed improvements (Mace et al., 1997; Buonicore, 2011).
- Whether the ground surface at the environmental-database-listed site was upgradient, downgradient, or cross gradient from the Project alignment.

In some cases, location information supplied by the database provider was insufficient to allow map-coded facility locations. These facilities are listed under the unmappable section within the EDR report. A review of the unmappable orphan facilities indicated that these facilities were either not potential sources of concern to the Project or not within the search distance for the Project.

4.3 Public Agency Review

EDR Radius Map™ Report with GeoCheck® (2022e) was reviewed and some local and state agency online databases to identify any current or previous records of hazardous substance use, storage, and/or unauthorized releases that may have impacted the Project and adjoining properties. RWQCB, City of Santa Ana, Orange County public records and fire department were contacted to review archived records for potential REC sites (Map ID #1 and Map ID#3) that did not have enough information online.

Responses received after the assessment will be reviewed to determine the impact on the conclusions and recommendations presented in this report and the findings will be summarized in an addendum to this report. A copy of record requests and responses received are presented in Appendix F.

4.3.1 California Regional Water Quality Control Board

Based on the review of online GeoTracker data and report resource for environmental cases regulated by Regional Water Quality Control Board (RWQCB), records of active environmental cases listed on the above listed sources in the Project vicinity corresponded to sites that were identified in EDR Radius Map™ Report with GeoCheck® (EDR, 2022e).

4.3.2 California Department of Toxic Substances Control

Based on the review of online EnviroStor investigation data and report resource for cleanup and hazardous waste permitted facilities provided by the DTSC, records of active environmental cases listed on the EnviroStor website in the Project vicinity corresponded to sites that were identified in the EDR Radius Map™ Report with GeoCheck® (EDR, 2022e).

4.3.3 California Department of Conservation, Division of Oil, Gas, and Geothermal Resources

According to the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) Well Finder database, there are no known active Oil and Gas wells within the immediate vicinity of the Project alignment. DOGGR records indicate one plugged Oil and Gas well at the intersection of I-5 and CA-91. Wells are typically plugged by removing the casing and filled with cement. The plugged well will not be disturbed by the Project and vice-versa. Therefore, the plugged well would not be a significant environmental concern to the Project activities.

4.3.4 California Environmental Protection Agency Regulated Site Portal

Based on the California Environmental Protection Agency (CalEPA) regulated site portal online database, records of sites with environmental cases listed on the CalEPA website in the immediate Project vicinity corresponded to sites that were identified in the EDR Radius Map™ Report with GeoCheck® (EDR, 2022e)

5. SITE RECONNAISSANCE

A visual reconnaissance of the Project alignment and adjacent areas was performed on November 18, 2022. Photographs taken during the visits are presented in Appendix G. The weather was sunny and warm with temperatures in the 60s (degrees Fahrenheit) during the site reconnaissance. Heavy, high-speed traffic generally necessitated site reconnaissance to be a drive-by windshield survey. In addition, physical limitations, such as property fences, dense vegetation, and/or steep terrain precluded observing the site conditions in some areas within and adjacent to the Project alignment. Online data sources were reviewed to observe on-site conditions and/or site use where applicable.

5.1 Surface Conditions

The I-5 within the Project limits is among the busiest in southern California. The roadway generally appeared to be in good condition overall with clearly visible road markings. The existing pavement surface included doweled concrete pavement along the mainline. Shoulders are paved with either Portland cement concrete or in combination with asphalt concrete. Portland cement concrete traffic barriers were present along the median separating northbound and southbound traffic. The existing I-5 freeway was constructed with the use of a pavement structural section with a permeable layer (e.g., pavement drainage layers) and edge drain systems to facilitate the existing drainage. No significant spills, distressed vegetation, pits, ponds, lagoons, or solid waste dumps were readily observed within the Project alignment.

5.2 Hazardous Substances

No evidence of hazardous substances was observed within or adjoining the Project alignment during the site reconnaissance other than those discussed in Sections 4 through 7 of this report.

5.3 Underground And Aboveground Storage Tanks

No underground storage tanks or aboveground storage tanks were observed within the Project alignment.

5.4 PCB-Containing Equipment

Polychlorinated biphenyls (PCBs) are manmade chemicals that are resistant to extreme temperature and pressure. They are produced as oily liquids or solids and are clear to yellow color with no smell or taste. PCBs are widely used in electrical equipment, such as transformers. Based on the site access constraints, pole-mounted or pad-mounted transformers that typically contain PCBs were not readily observed along the Project alignment. This report assumes that transformers present in the vicinity of the Project were owned and maintained by the local utility company. Based on the proposed Project activities and the assumption that such transformers will not be relocated, the pole-mounted and pad-mounted transformers are not considered a REC to the Project. Where construction activities will disturb soil adjacent to transformers or substations with evidence of leaking, it is recommended that the soils be screened for PCBs prior to construction.

5.5 Pipelines And Utilities

Because of site access constraints, no attempt was made to specifically locate underground pipelines and utilities within the Project alignment. However, large overhead powerlines were observed to cross Segment 2 of the Project alignment near its intersection with Anaheim Boulevard. As stated in draft project report, no relocation or addition of towers are not anticipated for the existing overhead electrical lines. Some minor relocations of existing utilities are anticipated for Project construction and coordination with the identified utility companies shall be carried out during construction.

5.6 Existing Railroad Right-Of-Way

The Union Pacific Railroad crosses I-5 at the UPRR Underpass (Bridge No. 55-0846, Post Mile 38.50/38.66) in the City of Anaheim, just south of the I-5/West Broadway interchange. No impacts to UPRR facilities are anticipated as part of the Project.

The Southern California Regional Rail Authority/Metrolink crosses I-5 at the Lincoln Avenue Underpass (Bridge No. 55-672, Post Mile 32.06/32.07) in the City of Santa Ana, just north of the I-5/SR 55 interchange. No impacts to Southern California Regional Rail Authority/Metrolink facilities are anticipated as part of the Project.

Railroad operations have historically been known to use various substances for weed control within the railroad ROW, asbestos in brake pads for railcars, transport hazardous materials, and the potential exists for spills and leaks to occur. However, no sampling for these chemicals of concern is required as there is no proposed work within 25 feet of any railroad track.

5.7 Other Observations

Other observations made during site reconnaissance included the following:

- Graffiti was observed on the piers that support the existing bridge structures within the Project ROW (see Appendix G).
- Yellow striping was present along the entire length of the Project alignment (see Appendix G). No evaluation was made to determine whether the striping consisted of thermoplastic materials. Additional discussion regarding the pavement striping is presented in Section 7.2.

6. INTERVIEWS AND USER-PROVIDED INFORMATION

The objective of performing the interviews summarized herein was to obtain information indicating RECs in connection with the property.

6.1 Questionnaires

Environmental questionnaires are usually submitted to the owners of the Project ROW and adjacent ROWs that might be impacted by the proposed improvements; a sample questionnaire is provided in Appendix H.

The sample questionnaire in Appendix H was provided to WSP and subsequently to Caltrans. Caltrans roadway superintendent for I-5, Ms. Anna Hernandez, responded in an email that no issues of any spills or contamination or flooding were identified within the Project limits.

6.2 On-Site Interviews

Because the Project alignment is an existing freeway, on-site interviews with ROW owners could not be performed during the site reconnaissance described in Section 5. Interviews with owners/leaseholders of adjacent properties were not part of the assessment.

6.3 Other Interviews with Current Owners

As no RECs were identified based on the environmental database review, interviews with the owners of neighboring/nearby properties were not considered pertinent.

6.4 User-Provided Information

6.4.1 Environmental Lien/Activity and Use Limitations

This report does not include searches for environmental liens or activity and use limitations (AULs) for the Project.

6.4.2 Previous Reports

At the time of this report, no previous environmental documents prepared by others were provided by the client for review. In particular, major prior improvements to I-5 between 1994 and 2005 may have resulted in investigations and remedial actions which would have mitigated contamination from past releases.

7. NON-ASTM SCOPE CONSIDERATION

7.1 Preliminary Asbestos Evaluation

ACM were not directly observed within the existing Project ROW. However, ACM could potentially be present in the existing bearing pads of the bridge structures crossing the Project and in the near-surface soils within and adjacent to existing railroad ROW (see Section 5.6). If the final construction alternative involves disturbing existing bridge bearing pads or existing railroad ROW, then the structures and bridge bearing pads and near-surface soils should be evaluated for suspect ACM.

7.2 Lead-Based Paint and Aerially Deposited Lead

LBP could potentially be present on the existing bridge structures crossing the Project (see Section 5.7). If the final construction alternative involves disturbing existing painted bridge surfaces, then the bridge should be evaluated for suspect LBP.

Lead and other heavy metals, such as chromium, may be present within yellow thermoplastic paint striping on the pavement. These surfacing materials should be handled in accordance with Caltrans Standard Specifications (Caltrans, 2022a) and the corresponding Standard Special Provisions ([SSPs]; Caltrans, 2022c).

Based on the review of historical topographic maps and aerial photographs (Sections 3.1 and 3.2, respectively), the Project ROW was constructed prior to the prohibition of vehicular leaded fuels. Therefore, soils adjacent to paved areas within the ROW may contain aerially deposited lead (ADL) from vehicle exhaust. LBP and ADL surveys were not part of the scope of this ISA.

7.3 Treated Wood Waste

The Project alignment may contain treated wood waste (TWW) from existing and historical railroad usage and the utility poles in the Project ROW. Upon removal, wood railroad ties, power poles, or guard rail posts (including previously salvaged) in the Project ROW should be managed or disposed of as TWW in accordance with DTSC guidance for Management of Treated Wood Waste (DTSC, 2020).

8. CONCLUSIONS AND RECOMMENDATIONS

A hazardous waste Initial Site Assessment (ISA) was performed in conformance with the scope and limitations of ASTM Practice E1527-21 and the Caltrans PDPM (Caltrans, 2006) and SER (Caltrans, 2021) for the proposed Alternative 4 of the I-5 Managed Lanes Project between Red Hill Avenue and the Orange/ Los Angeles Countyline. Exceptions to or deletions from this practice are described in Section 9 of this report.

As part of the ISA, no RECs that might impact Project development and construction. The assessment was based only on the Project alignment at the time of this report and did not consider potential for movement of the alignment. Note that I-5 was improved over the years between 1994 and 2005, and several environmental investigations and remedial actions may have resulted in investigations and remedial actions which would have mitigated contamination from past releases.

Conclusions and recommendations regarding RECs within and adjacent to the existing Project ROW that were identified in Section 3 through Section 7 of this report are summarized in Table 3.

Table 3 - Conclusions and Recommendations

Map ID1	Source/ Location	Type Of Concern	Chemicals Of Potential Concern	Potentially Affected Media	Report Section(S)	Recommendation
--	Existing bridges	Non-ASTM scope consideration	ACM, LBP	Existing bridge bearing pads, hinge and joint seal materials, and coatings and graffiti	Section 7.1	Prior to disturbance of the existing structures that are within the Project alignment, ACM and LBP surveys of the potentially affected media should be performed during the PS&E phase as part of a Phase II site investigation.
--	Project ROW	Non-ASTM scope consideration	LBP, Chromium	Yellow thermoplastic striping	Sections 5.7 and 7.2	Yellow thermoplastic striping materials should be handled during construction in accordance with Caltrans Standard Specifications (Caltrans, 2022a) and the corresponding SSPs (Caltrans, 2022c).
--	Project ROW	Non-ASTM scope consideration	ADL	Soil	Section 7.2	Unpaved soils adjacent to the existing roadway should be tested for ADL according to Caltrans ADL testing guidelines during the PS&E phase. The ADL study should include Title 22 testing of surface soils to evaluate the potential presence of other metals that may have been transported by storm water runoff. If ADL concentrations are detected in existing soils, such soils will be handled in accordance with the Caltrans Standard Specifications (Caltrans, 2022a) and the corresponding SSPs (Caltrans, 2022b).
--	Project ROW	Non-ASTM scope consideration	PCB-containing equipment	Soil	Section 5.4	Electrical transformers and equipment should be evaluated during the PS&E phase for PCB content or releases if the transformers will be removed or relocated as part of the Project.
--	Project ROW	Non-ASTM scope consideration	TWW	Soil	Section 7.3	Upon removal, existing power poles, or guard rail posts should be managed or disposed offsite during construction of as TWW in accordance with DTSC guidance for Management of TWW (DTSC, 2020).

9. DATA GAPS

A data gap is the inability of the environmental professional to obtain information required by ASTM E1527-21. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to, site reconnaissance (for example, an inability to conduct the site visit) and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.). The following data gaps were identified:

- Some of the intervals between documented sources exceeded 5 years.
- Interviews with owners of the Project and owners/leaseholders of properties adjacent to the Project ROW were not performed.
- Site reconnaissance access limitations (see Section 5).

In consideration of the available information obtained during the preparation of this report in conjunction with professional experience and judgment, no evidence exists to suggest that these data gaps might alter the conclusions of this assessment. In addition, the purpose of this ISA is to provide a planning document in general compliance with ASTM and Caltrans guidelines.

9.1 DEVIATIONS

No deviations from ASTM E1527-21 were noted during this Phase I ISA except for those noted previously in Sections 1.1 and 9 of this report.

10. LIMITATIONS

This report is an instrument of service of DYA and includes limited research, a review of specified and reasonable ascertainable listings, and a site reconnaissance to identify RECs.

This report was prepared in general compliance with the ASTM guidelines for evaluating environmental impacts due to hazardous waste during construction. ASTM E1527-21 was used as a basis of general procedures followed in preparation of this ISA but was not explicitly applied. The purpose of this assessment is limited to identification of the potential impacts of hazardous substances during construction of a transportation alignment.

RECs are defined under ASTM standards as: “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property.” These standards and this report do not address other environmental conditions such as geologic or geotechnical hazards. This ISA was performed in accordance with generally accepted practices of the profession undertaken in similar studies at the same time and in the same geographical area; DYA observed a degree of care and skill generally exercised by those of the profession under similar circumstances and conditions.

The study and this report have been prepared on behalf of, and for the exclusive use of, WSP and the Project owners solely for their use and reliance in the environmental assessment of the Project site. WSP and the Project owners are the only parties to whom DYA has explained the risks involved and that have been involved in the shaping of the scope of services needed to satisfactorily manage those risks, if any, from WSP’s and the Project owners’ points of view. Accordingly, reliance on this report by any other party may involve assumptions whose extent and nature lead to a distorted meaning and impact of the findings and opinions related herein. DYA’s findings and opinions related in this report may not be relied upon by any party except WSP and the Project owners. With the consent of DYA, WSP, and the Project owners, DYA may be available to contract with other parties to develop findings and opinions related specifically to such other parties’ unique risk management concerns related to the Project site. The DYA personnel associated with conducting this ISA have no specialized or actual knowledge regarding the Project corridor.

11. QUALIFICATIONS OF PREPARER

This assessment was performed by Mr. Chaitanya Kukutla, PE under the supervision of Mr. Gary Halbert, PG, CEG and Mr. Niranjan Somadevan, PE, GE. Mr. Kukutla's, Mr. Halbert's, and Mr. Somadevan's resumes are presented in Appendix I.

We declare that, to the best of our professional knowledge and belief, we meet the definition of environmental professional as defined in §312.10 of 40 Code of Federal Regulations (CFRs) §312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property.

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12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

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12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX A PRELIMINARY PROJECT DRAWINGS

12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX B HISTORICAL TOPOGRAPHIC MAPS

12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX C HISTORICAL AERIAL PHOTOGRAPHS

12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX D CERTIFIED SANBORN MAP REPORT



12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX E EDR RADIUS REPORT™ WITH GEOSEARCH®



12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX F PUBLIC RECORDS REQUEST



12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX G SITE RECONNAISSANCE PHOTOGRAPHS

12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX H SAMPLE ENVIRONMENTAL QUESTIONNAIRE



12-Ora-5 – PM 28.9/44.4, 26.9, 27.9, 28.4
07-LA-5 – PM 0.1, 0.3, 0.6, 1.7
12-Ora-55 – PM 7.4, 8.0, 8.7, 8.9, 9.2, 9.7 9.9, 10.2
12-Ora-57 – PM 11.0, 11.3, 11.9, 12.5, 12.7, 12.9, 13.5
12-Ora-91 – PM 0.7, 1.3, 1.8, 2.2, 2.8, 3.4, 0.4, 1.1, 1.4, 1.6, 2.0, 2.6

APPENDIX I RESUMES OF THE PREPARERS

