Schuyler Heim Bridge Replacement and SR-47 Expressway Project

Draft Environmental Impact Statement/ Environmental Impact Report and Section 4(f) Evaluation

Commodore Schuyler Heim Bridge (Br. No. 53-2618) and SR-47 in the Ports of Long Beach and Los Angeles, Los Angeles County, California

07-LA-47-KP 4.4/9.3 (PM 2.7/5.8)
EA: 238500

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project are being, or have been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

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SCH NO. 20021009
FHWA-CA-EIS-2007-07-01D
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Replace the vehicular connection along the north-south corridor between Terminal Island and the mainland with a seismically safe bridge, and provide a high-capacity alternative route to and from Terminal Island to improve safety, traffic movement, and reduce traffic delays

DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT AND SECTION 4(F) EVALUATION FOR THE SCHUYLER HEIM BRIDGE REPLACEMENT AND SR-47 EXPRESSWAY PROJECT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C) and 23 U.S.C 327, and 49 U.S.C. 303

STATE OF CALIFORNIA
Department of Transportation

Cooperating Agency: United States Coast Guard

Responsible Agencies: Port of Los Angeles, Port of Long Beach, City of Los Angeles, City of Long Beach, State Historic Preservation Office, California Department of Fish and Game, California Transportation Commission, Regional Water Quality Control Board, California Coastal Commission, South Coast Air Quality Management District.

08/13/07
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Abstract

The purpose of the project is to provide a seismically safe vehicular connection along the north-south corridor between Terminal Island and the mainland, and provide a high-capacity alternative route for traffic between Terminal Island and the mainland. The project is needed to provide for uninterrupted transport of people, freight, and goods after a major earthquake, and to improve safety and relieve congestion on the local street network. The substantial environmental effects anticipated would be to air quality, noise, and cultural resources.

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Acronyms and Abbreviations

°F	Fahrenheit
μ/L	micrograms per liter
μg	micrograms
μg/kg	micrograms per kilogram
μg/m³	micrograms per cubic meter
μm	micron
ACET	Alameda Corridor Engineering Team
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACTA	Alameda Corridor Transportation Authority
ACTM	Airborne Toxic Control Measure
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
AHERA	Asbestos Hazard Emergency Response Act
AMSL	above mean sea level
APE	area of potential effects
APP	Avian Protection Plan
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	Air Resources Board
ARP	Accidental Release Prevention
ASR	Archaeological Survey Report
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATCM	Asbestos Airborne Toxic Control Measure
ATIS	Advanced Traveler Information System
ATMIS	Advanced Transportation Management and Information Systems
ATSAC	Automated Traffic Surveillance and Control
APLIC	Avian Power Line Interaction Committee

BAT	Best Available Technology
BCPCT	Best Conventional Pollutant Control Technology
BEP	Business Emergency Plan
bgs	below ground surface
BHC	benzene hexachloride
BMP	best management practices
BPTCP	Bay Protection and Toxic Cleanup Program
BTEX	benzene, toluene, ethylene, and xylenes
Btu	British thermal unit(s)
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CalARP	California Accidental Release Prevention
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCA	California Coastal Act
CCTV	closed circuit television
CDFG	California Department of Fish and Game
CDMG	California Department of Mining and Geology
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHMIRS	California Hazardous Material Incident Report System
CIDH	cast-in-drilled-hole
CIP	cast-in-place
CISS	cast-in-steel-shell

CIWMB	California Integrated Waste Management Board
cm	centimeter(s)
cm/s	centimeters per second
CMA	Critical Movement Analysis
CMP	Congestion Management Program
CMS	changeable message sign
CNPS	California Native Plant Society
CO	carbon monoxide
Coast Guard	United States Coast Guard
COC	contaminants of concern
CORRACTS	Corrective Action Sites
CPS	Coastal Pelagic Species
CRHR	California Register of Historic Resources
CTC	California Transportation Commission
cu	cubic meter
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DCA	dichloroethane
DDD	dichlorodiphenyl dichloroethane
DDE	dichlorodiphenyl dichloroethylene
DDT	dichlorodiphenyl trichloroethane
DOC	California Department of Conservation
DOT	Department of Transportation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
ECOUS	Environmental Consequences of Underwater Sound
EDR	Environmental Database Report
EEC	Exclusive Economic Zone
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	United States Environmental Protection Agency

ERL	effects range-low
ERM	effects range-median
ERMQ	effect range median quotient
ERNS	Emergency Response Notification System
FACU	facultative upland plants
FACW	facultative wetland plants
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FMP	Fishery Management Plan
FOE	Findings of Effect
FONSI	Finding of No Significant Impact
ft	foot/feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Plan
g	average acceleration produced by terrestrial gravity
HABS/HAER	Historic American Buildings Survey/Historic American Engineering Record
HAS	hydrologic subarea
HAZWOPER	Hazardous Waste Operations and Emergency Response
HBRR	Highway Bridge Replacement and Rehabilitation
HCM	Highway Capacity Manual
HHW	higher high water
HLW	higher low water
HMS	Hazardous Materials System
HPSR	Historic Properties Survey Report
HSA	hydrologic subarea
I-	Interstate
I-110	Harbor Freeway
I-405	San Diego Freeway

ICTF	intermodal container transfer facility
IHA	Incidental Harassment Authorization
in	inch(es)
INCE	Institute of Noise Control Engineering
IS/EA	initial study/environmental assessment
ISA	Initial Site Assessment
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation System
IWMD	Industrial Waste Management Division
JWPCP	Joint Water Pollution Control Plant
kg	kilogram
km	kilometer(s)
KP	kilometer post
kV	kilovolt(s)
LACM	Natural History Museum of Los Angeles County
LACOFD	Los Angeles County Fire Department
LADWP	Los Angeles Department of Water and Power
LAFC	City of Los Angeles Fire Code
LAFD	Los Angeles City Fire Department
LAHD	Los Angeles Harbor Department
LAPD	Los Angeles Police Department
LARWQCB	California Regional Water Quality Control Board, Los Angeles Region
LAUSD	Los Angeles Unified School District
LBFD	Long Beach Fire Department
LBP	lead-based paint
LBPD	Long Beach Police Department
LBPL	Long Beach Public Library
LBUSD	Long Beach Unified School District
LBWD	Long Beach Water Department
LBSWMP	Long Beach Storm Water Management Program
LCP	Local Coastal Program
LHW	lower high water

LLW	lower low water
LNM	*Local Notice to Mariners* (USCG District weekly publication)
LOMR	Letter of Map Revision
LOS	level of service
LQG	large-quantity generator
LUST	leaking underground storage tank
M	magnitude
m	meter
m^3	cubic meter
MBAS	methylene blue activated substances
MCE	maximum credible earthquake
MD	mid-day
MEB	maximum extent practicable
mg	milligram
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MHHW	mean higher high water
MHLW	mean higher low water
MHWL	mean high water level
mi	mile(s)
MLD	Most Likely Descendent
MLHW	mean lower high water
MLLW	mean lower low water
mm	millimeter(s)
MMPA	Marine Mammal Protection Act
MMBtu	million Btu
MMPA	Marine Mammal Protection Act
MOA	memorandum of agreement
mph	miles per hour
MPO	Metropolitan Planning Organization
MRZ	mineral resource zone
MS4	Municipal Separate Storm Sewer Systems

MSAT	Mobile Source Air Toxics
MSE	mechanically stabilized earth
MT	metric ton
MTA	Metropolitan Transportation Authority
MUN	Municipal water use
MWD	Metropolitan Water District of Southern California
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCHRP	National Cooperative Highway Research Program
NGA	Natural Gas Act of 1938
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NESHAP	National Emission Standard for Hazardous Air Pollutants
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
NWTC	National Wind Technology Center
O_3	ozone
OBL	obligate wetland plants
OCORM	Office of the Coast and Ocean Resource Management
OSHA	Occupational Safety & Health Act
PA	Programmatic Agreement
PAH	polycyclic aromatic hydrocarbons

Pb	lead
PCB	polychlorinated biphenyls
PCE	passenger car equivalent
PCG	Pacific Coast groundfish
pcphpl	passenger cars per hour per lane
PDT	Project Development Team
PEA	Preliminary Endangerment Assessment
PEL	permissible exposure limits
PHL	Pacific Harbor Line
PM	post mile(s)
PM	particulate matter
PM_{10}	particulate matter equal to or less than 10 microns in equivalent diameter
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in equivalent diameter
PMP	Port Master Plan
POLA	Port of Los Angeles
POLB	Port of Long Beach
Port Police	Los Angeles Harbor Department Port Police
ppm	parts per million
PQS	Professionally Qualified Staff
PRC	California Public Resources Code
PR-PSR	Project Report-Project Study report
PS&E	plans, specifications, and estimates
PSI	preliminary site investigation
PSSR	Project Scope Summary Report
PST	Pacific Standard Time
PUC	Public Utilities Commission
PY	person years
RAP	Remedial Action Plan
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RDIFF	River Diffusion Farfield

REC	recognized environmental condition
Regional Board	Regional Water Quality Control Board
RI/FS	Focused Remedial Investigation/Feasibility Study
RL	reporting limit
RMP	Risk Management Plan
ROG	reactive organic gases
RSAR	TASAS Selective Accident Retrieval
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCEC	Southern California Earthquake Center
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLIC	spills, leaks, investigations, and cleanups
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SQG	small-quantity generator
SQG	sediment quality guideline
SR-	State Route
SR-1	Pacific Coast Highway
SR-91	Artesia Freeway
SUSMP	Standard Urban Stormwater Mitigation Plan
SVOC	semivolatile organic compounds
SVP	Society of Vertebrate Paleontology
SWF/LF	Solid Waste Facility/Landfill
SWMP	stormwater management program
SWPPP	Stormwater Pollution Prevention Plan

SWQCB	State Water Quality Control Board
SWRCB	California State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis System
TCM	Transportation Control Measure
tDDT	total DDT
TDF	traffic demand forecast
TDM	travel demand management
TDS	total dissolved solid
TE	Guidance for Transportation
TEA-21	Transportation Equity Act for the 21st Century
TMC	Traffic Management Center
TMDL	total maximum daily load
TMP	traffic management plan
TOC	Traffic Operation Center
TPH	total petroleum hydrocarbon
TPH-d	total petroleum hydrocarbon-diesel
TRPH	total recoverable petroleum hydrocarbons
TSAR	TASAS Selective Accident Retrieval
TSCA	Toxic Substance Control Act
TSM	transportation systems management
TSS	total suspended solids
TTLC	Total threshold limit concentration
UBC	Uniform Building Code
UP	Union Pacific
UPL	obligate upland species
UPRC	Union Pacific Resource Company
UPRR	Union Pacific Railroad
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service

USGS	U.S. Geological Survey
UST	underground storage tank
V/C	volume to capacity
VCP	Voluntary Cleanup Property
VHF-FM	very high frequency-frequency modulation
VMT	vehicle miles traveled
VOC	volatile organic compound
VTIS	Vessel Traffic Information Service
WDR	waste discharge requirement
WMUDS/SWAT	Waste Management Unit Database System
WQC	water quality criteria
WQO	water quality objectives
WWECP	Wet Weather Erosion Control Plan
yd	yard(s)

Summary

S.1 Introduction

This Summary provides an overview of information provided in the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the proposed Schuyler Heim Bridge Replacement and SR-47 Expressway project. This project would occur within the Ports of Long Beach and Los Angeles and the cities of Long Beach and Los Angeles and is planned to be completed in 2011. This Summary provides a condensed version of the technical information discussed in the EIS/EIR and includes references to the complete sections of the document for additional detailed analysis and discussion.

This EIS/EIR describes the purpose and need for the project, the alternatives being considered, and the potential environmental impacts of those alternatives pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Draft EIS/EIR consists of two volumes: Volume I contains the environmental analyses, and Volume II contains the technical appendices. Technical reports prepared in support of the EIS/EIR analyses are referenced in the appropriate section of the document and are available for review.

S.2 Joint NEPA/CEQA Document

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. Caltrans is the lead agency under CEQA. In addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327. Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA.

After comments are received from the public and reviewing agencies, Caltrans may undertake additional environmental and/or engineering studies. A Final EIS/EIR, will be circulated; the Final EIS/EIR will include responses to comments received on the Draft EIS/EIR and will identify the preferred alternative. Following circulation of the Final EIS/EIR, if the decision is made to approve the project, a Notice of Determination will be published for compliance with the California Environmental Quality Act, and a Record of Decision will be published for compliance with the National Environmental Policy Act.

S.3 Project Location

The project area addressed in the Draft EIS/EIR generally lies between Terminal Island on the south and SR-91 (Artesia Freeway) on the north, and between I-710 (Terminal Island

Freeway) on the east and I-110 (Harbor Freeway) on the west. This project area includes the Port of Long Beach, Port of Los Angeles, Wilmington District of the City of Los Angeles, southern part of the City of Carson, and western portion of the City of Long Beach. The southern portion of the project area consists primarily of industrial uses associated with the ports. To the north, the area is a mix of industrial, residential, and commercial uses. The project area is shown in Figure S-1.

S.4 Project Purpose and Need

S.4.1 Project History and Need

S.4.1.1 Schuyler Heim Bridge

The Commodore Schuyler F. Heim Bridge (Schuyler Heim Bridge) crosses the Cerritos Channel in the Port of Long Beach, was commissioned by the United States Navy between 1946 and 1948, and is one of three bridges that connect Terminal Island to the mainland. The bridge was named for Commodore Schuyler F. Heim, commanding officer of the Terminal Island Naval Base throughout World War II. The United States Navy completed construction of the bridge in 1948 and then turned it over to the City of Long Beach, which operated the bridge until 1974. The bridge is a vertical lift structure with a 73-meter (m) (240-foot [ft]) span. It has an 820-ton movable (lift) span that is supported by two cross-braced steel towers suspended by cables, and a pair of 400+-ton counterweights.

Historic records indicate that, by 1951, the Schuyler Heim Bridge showed significant settlement caused by oil extraction in Long Beach Harbor. In 1951, the towers were leaning approximately 3.8 centimeters (cm) (1.5 inches [in]) to the east, and the approach structures had settled as much as 10.2 cm (4.0 in). The combined effects of settlement and leaning created the potential to bind the moveable parts and cause the lift span to fail. Subsequently, the towers were straightened, and additional work was conducted on the approaches, truss bearings, guard rails, pier footings, and lift span guide rollers.

During the 1950s, the City of Long Beach pumped groundwater into depleted oil fields beneath the harbor, which mitigated the bridge's rate of subsidence. However, the harbor continued to sink, requiring bridge repairs. By the end of the decade, the shifting terrain beneath the bridge foundations had caused cracks in the reinforced concrete pillars beneath the bridge, requiring additional repairs. Throughout the 1960s, 1970s, and 1980s, bridge repairs continued for routine maintenance, as well as for damage caused by trucks and marine vessels. In 1987, the Whittier Narrows earthquake (Richter magnitude [M] 5.9) twisted a heavy girder in one of the towers. In 1988, Caltrans initiated a $2 million project to refurbish the bridge to accommodate increased vehicular and marine traffic in response to expansion of the ports.

After the 1994 Northridge earthquake, the Schuyler Heim Bridge was determined to be in need of seismic retrofit improvements. A Project Scope Summary Report (PSSR) was completed in 1998 to program the retrofit project and included the plans, specifications, and engineering estimate (PS&E) for the retrofit. During the PS&E phase, it was determined that replacement of the bridge would be more cost-effective and practical than retrofitting the existing bridge to meet seismic requirements for a major earthquake. Therefore, the retrofit design was halted.

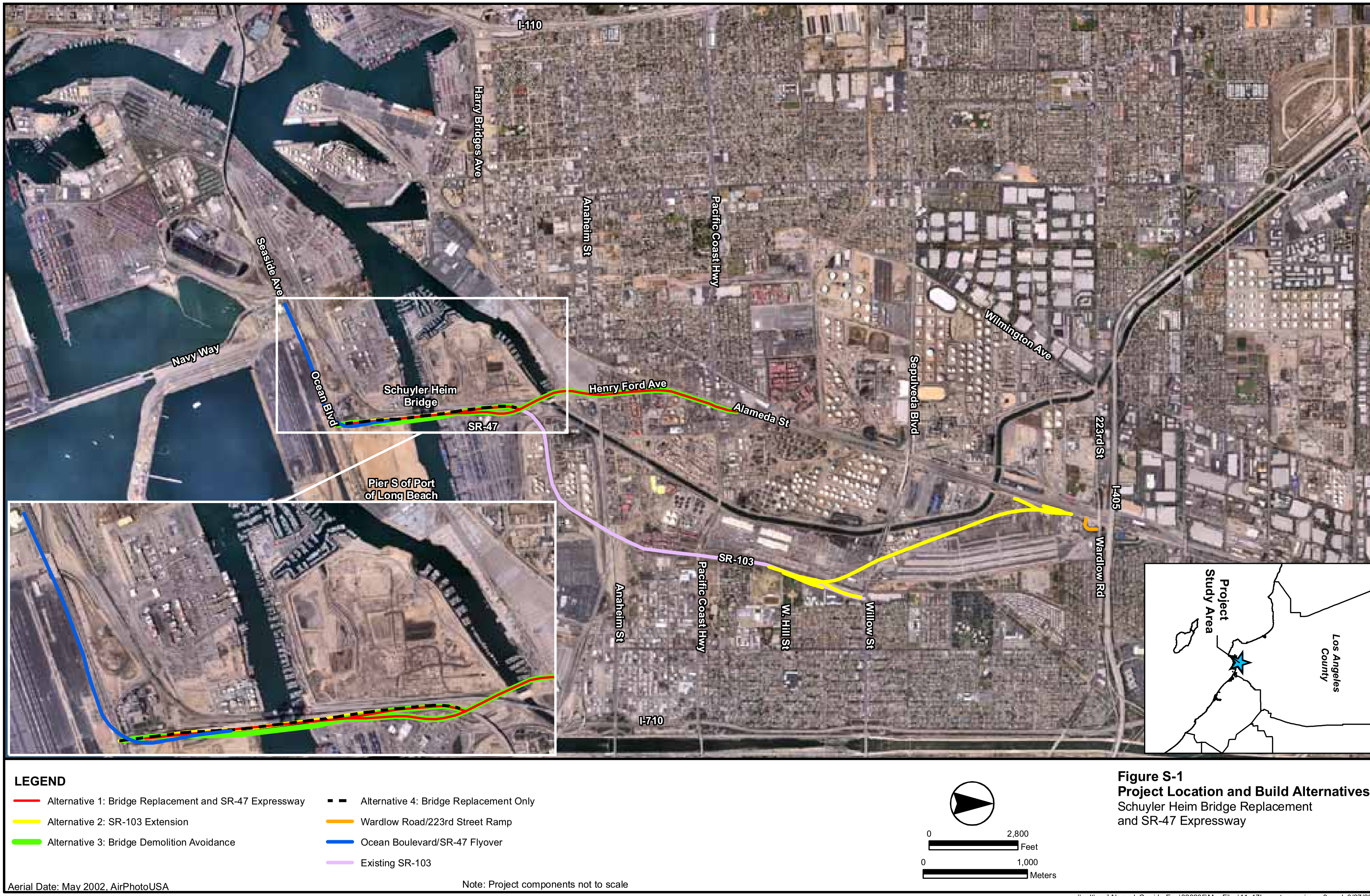

Figure S-1
Project Location and Build Alternatives
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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Subsequently, in consultation with the U.S. Coast Guard, Caltrans developed several fixed-span bridge alternatives. These alternatives met the project purpose of complying with the 1994 state mandate for Caltrans to strengthen its bridges, and met the need to comply with seismic requirements, reduce potential safety hazards to vehicular and marine traffic, and provide a cost-effective solution to the ongoing deterioration of the bridge.

S.4.1.2 Expressway

Independent of considerations related to the Schuyler Heim Bridge, an expressway was envisioned as part of a series of regional transportation improvements at the southern end of the Alameda Corridor to provide improved transportation, circulation, and goods movement to and from the Ports of Long Beach and Los Angeles. The SR-47 Expressway is cited in the Southern California Association of Governments Regional Transportation Plan. It would build upon a network of local streets by constructing a high-capacity expressway connecting the Ocean Boulevard/SR-47 Interchange with Alameda Street at Pacific Coast Highway, thereby providing a missing link in the local transportation system.

The existing SR-47 extends east from the southern terminus of the Harbor Freeway (I-110) in San Pedro, over the Vincent Thomas Bridge, along Seaside Avenue and Ocean Boulevard, then north across the Cerritos Channel on the Schuyler Heim Bridge, continuing north on Henry Ford Avenue, then onto Alameda Street until its terminus at I-10 in downtown Los Angeles.

The SR-103 Expressway is an alternative to the SR-47 Expressway. It also would build upon a network of local streets by constructing a high-capacity expressway that connects existing SR-103, beginning about 0.8 kilometer (km) (0.5 mile [mi]) north of Pacific Coast Highway, to Alameda Street at a point about 0.8 km (0.5 mi) south of the San Diego Freeway (I-405).

Currently, to connect from Terminal Island to Alameda Street, vehicles must travel 1.5 km (0.9 mi) north from Ocean Boulevard, then exit at the Henry Ford Avenue off-ramp and travel north through local streets, signalized intersections, and railroad crossings for about 2.0 km (1.2 mi) before joining Alameda Street just south of Pacific Coast Highway. Alameda Street continues north of Pacific Coast Highway for 4.0 km (2.5 mi) and connects to the I-405. About 5.5 km (3.4 mi) north of I-405, Alameda Street connects to the Artesia Freeway (SR-91).

The existing SR-103 begins north of the Schuyler Heim Bridge at the Terminal Island Freeway, where SR-47 exits at Henry Ford Avenue. SR-103 continues north to Pacific Coast Highway, where it ends. The Terminal Island Freeway continues past the terminus of SR-103 and ends at Willow Street/Sepulveda Boulevard.

S.4.2 Project Purpose

The purpose of the proposed project is to:

- Provide a structurally and seismically safe vehicular connection along the critical north-south corridor between Terminal Island and the mainland that can remain in service following a major earthquake to ensure that ground and vessel transportation are maintained.

- Improve operational and safety design features of the crossing to facilitate the movement of people, freight, and goods, while meeting current design standards to the maximum extent feasible.

The purpose of the proposed project also is to provide a high-capacity alternative route for traffic between Terminal Island and I-405 that would:

- Reduce traffic congestion on local surface streets (between Terminal Island and Pacific Coast Highway), as well as on I-110 and I-710.
- Improve safety by providing a limited-access route between Terminal Island and I-405 that would:
  - Eliminate at-grade railroad crossings and signalized intersections.
  - Connect the Schuyler Heim Bridge with an emergency service route that would facilitate movement to and from the ports following a major earthquake.

This high-capacity link would allow traffic to continue northward along Alameda Street, or SR-103, and provide essential north-south connectivity with the regional freeway system (I-405 and SR-91) for the movement of people and goods to and from the ports.

S.4.3 Project Need

Overall, there is a need to provide for uninterrupted transport of people, freight, and goods between Terminal Island and the mainland after a major earthquake. Currently, structural and operational deficiencies with the Schuyler Heim Bridge and transportation route in the project area that interfere with that need. These deficiencies are summarized below.

Schuyler Heim Bridge:

- Seismically and structurally deficient and functionally obsolete
- Substandard safety design standards. Lane widths, bridge rails, and shoulder widths do not meet Caltrans standards
- Delays to movement of people, freight, and goods caused by raising the bridge to allow marine traffic to pass underneath
- Safety issues related to traffic congestion caused by raising the bridge to allow marine traffic to pass underneath
- Bridge is near the end of its useful and functional life cycle.

Transportation route in the project area:

- Shortage of north-south freeway capacity
- Congestion on local surface streets
- Potential for incidents related to cross-traffic at intersections and railroad crossings.

S.5 Summary Description of the Project Alternatives

This section provides a summary description of the proposed project alternatives. More detailed descriptions are provided in Chapter 2.0 – Project Alternatives.

S.5.1 Alternatives Evaluated in the Draft EIS/EIR

As addressed in the Draft EIS/EIR, the project consists of six alternatives:

- Alternative 1/1A: Bridge Replacement and SR-47 Expressway
- Alternative 2: SR-103 Extension to Alameda Street
- Alternative 3: Bridge Demolition Avoidance
- Alternative 4: Bridge Replacement Only
- Alternative 5: Transportation System Management
- Alternative 6: No Build

Alternatives 1 through 4 are considered the "build" alternatives, as shown in Figure S-1.

S.5.1.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

S.5.1.1.1 Alternative 1

This alternative involves replacement of the existing Schuyler Heim Bridge, construction of a new SR-47 Expressway to provide a high-capacity alternative route along the Alameda Corridor for traffic between Terminal Island and Alameda Street at Pacific Coast Highway, and construction of a flyover that would divert eastbound Ocean Boulevard traffic directly onto northbound SR-47 and across the new bridge. Construction activities for the replacement bridge and SR-47 Expressway are planned to begin in 2009 and be completed in 2011. Construction of the flyover is planned to begin in 2015 and be completed in 2017.

With this alternative, a new fixed-span bridge would be constructed, primarily within the existing bridge right-of-way (ROW) (Caltrans Highway Easement), but toward the east to avoid impacts to the railroad on the Badger Bridge, immediately to the west; the existing Schuyler Heim Bridge (lift bridge) would be demolished. The replacement bridge would be 13 m (43 ft) wider than the existing bridge due to the addition of standard shoulders, which are not present on the existing bridge. The replacement bridge would include three 3.6-m (12-ft) lanes (two through-lanes and one auxiliary lane), with 3-m (10-ft) shoulders in the northbound direction, and four 3.6-m (12-ft) lanes (three through-lanes and one auxiliary lane), with 3-m (10-ft) shoulders in the southbound direction. Bridge construction would include a southbound off-ramp and northbound on-ramp at New Dock Street on Terminal Island, as well as a northbound off-ramp and southbound on-ramp at Henry Ford Avenue on the mainland side of the bridge. With this alternative, the new bridge would be supported by four piers in the channel, with a minimum vertical clearance of 14.3 m (47 ft) over the mean high water level (MHWL). This clearance would be maintained for the width of the navigable channel, which would be 54.9 m (180 ft), the same as under existing conditions.

The new SR-47 Expressway would begin on Terminal Island, at the intersection of SR-47 and Ocean Boulevard, extending north over New Dock Street and onto the new fixed-span bridge. The expressway would extend northward to Alameda Street, south of the intersection with Pacific Coast Highway, a distance of approximately 2.7 km (1.5 mi).

The expressway would grade-separate five at-grade railroad crossings and three signalized intersections along its length. A segment of the expressway would be constructed as a viaduct over Henry Ford Avenue and Alameda Street and return to grade at Alameda Street, just south of Pacific Coast Highway. Under this alternative, connectivity to SR-103 would be maintained.

The Ocean Boulevard/SR-47 Flyover (flyover) would begin on Terminal Island, about 1,200 m (3,900 ft) west of the Ocean Boulevard/SR-47 intersection, extend eastward along the south side of Ocean Boulevard, and then turn north, cross over Ocean Boulevard and onto the new bridge. The west end of the flyover would be at grade, then rise to a maximum elevation of 21 m (69 ft) to join the new bridge. The elevated portions of the flyover would be supported by fourteen single-column bents, one 2-column outrigger bent, with a total of 15 spans. The flyover would have an overall length of 830 m (2,723 ft), ending at the northerly end point (gore point) of the northbound New Dock Street on-ramp onto the bridge. The left lane of the flyover would converge with the SR-47 through lane to the left; the right lane of the flyover would continue as a northbound SR-47 through lane and would have the option to continue to SR-47 or SR-103. The flyover would be located entirely within the City and Port of Long Beach.

S.5.1.1.2 Alternative 1A: Haunch Bridge Design

Alternative 1A is a structural variation of Alternative 1. The main purpose of this alternative is to improve the aesthetics of the replacement bridge over the Cerritos Channel and span a greater horizontal distance across the channel between columns. This is accomplished by increasing the span lengths over the channel and arching the superstructure soffits (the bottom of the bridge structure). Under this alternative, the new bridge would be supported by two piers (four columns) in the Cerritos Channel, compared to four piers (eight columns) under Alternative 1. As with Alternative 1, the minimum vertical clearance between the piers would be 14.3 m (47 ft). This clearance would be maintained for the width of the navigable channel, which would be 54.9 m (180 ft).

Other aspects of this alternative, the SR-47 Expressway and Ocean Boulevard/SR-47 Flyover, would be the same as described for Alternative 1.

S.5.1.2 Alternative 2: SR-103 Extension to Alameda Street

With this alternative, the existing Schuyler Heim Bridge would be replaced by a fixed-span bridge, and the flyover described under Alternative 1 would be constructed.

This alternative also would extend SR-103 to the northwest on a four-lane viaduct to join Alameda Street between Sepulveda Boulevard and I-405. Improvements to SR-103 would begin approximately 3.2 km (2 mi) north of the Schuyler Heim Bridge and extend a distance of approximately 2.6 km (1.6 mi). The viaduct would cross over the Union Pacific Railroad manual yard and San Pedro Branch, through the Southern California Edison (SCE) utility corridor, across the Los Angeles Harbor Department Warehouse 16/17 area, over Sepulveda Boulevard, then parallel the western boundary of the Intermodal Container Transfer Facility (ICTF) to the centerline of Alameda Street. The viaduct would slope to grade south of the Wardlow Road ramps to I-405. Improvements would be made to the existing SR-103 to accommodate the southerly and northerly end connections of the viaduct.

S.5.1.3 Alternative 3: Bridge Demolition Avoidance

This alternative would preserve the existing Schuyler Heim Bridge and construct a new fixed-span bridge on an alignment east of the existing bridge. Under this alternative, the new bridge would have the same lane configuration as the replacement bridge for Alternative 1. Additionally, the SR-47 Expressway and Ocean Boulevard/SR-47 Flyover described under Alternative 1 would be constructed, and connectivity with SR-103 would be maintained.

S.5.1.4 Alternative 4: Bridge Replacement Only

This alternative is provided as a means of constructing a new bridge over the Cerritos Channel and, at the same time, preserving the existing bridge. The Schuyler Heim Bridge has been determined to be a historic property and is eligible for listing in the National Register of Historic Places. With Alternative 3, the existing bridge would be retrofitted and left in place, but would not be used. However, according to the U.S. Coast Guard, when a bridge is no longer used for its permitted purpose of providing land transportation, the bridge shall be removed from the waterway. Therefore, removal of the existing Schuyler Heim Bridge would be included as a condition of the federal permit for the replacement bridge.

This alternative would replace the existing Schuyler Heim Bridge (lift bridge) with a fixed-span bridge, largely along the existing bridge alignment, generally as described under Alternative 1. Also with this alternative, connectivity with the SR-103 would be maintained. The existing Schuyler Heim Bridge would be demolished, as would occur under Alternative 1.

With this alternative, however, no roadway improvements would occur, and the flyover would not be constructed. Additionally, the SR-47 Expressway described in Alternative 1 would not be constructed, and the SR-103 Extension to Alameda Street described in Alternative 2 would not be constructed.

S.5.1.5 Alternative 5: Transportation System Management

This alternative is designed to identify low-cost, easily implementable improvements to the local roadway system as an alternative to constructing more expensive improvements. This Transportation System Management (TSM) alternative focuses on improvements to routes that parallel the proposed SR-47 Expressway, and that serve the same trips. These trips include trucking drayage trips to and from the ICTF, and trips destined to and from the ports via Alameda Street, Henry Ford Avenue, and SR-47. The TSM alternative would include measures to improve capacity and traffic circulation at the Port of Long Beach and Port of Los Angeles through policy changes and use of the latest technologies. With this alternative, capital investment would be minimal compared to Alternatives 1 through 4.

The TSM alternative for this project includes the following key elements:

- **Intelligent Transportation Systems (ITS):** Systems applications in and around the ports area, with special emphasis on truck movements. These include measures to improve traffic circulation through traffic control, incident management, traffic surveillance, and traffic information dissemination with the aid of intelligent transportation system devices and systems.

- **Lower-cost roadway and intersection improvements:** Measures include restriping to provide additional turn lanes and acceleration lanes and traffic signalization improvements, primarily within existing rights-of-way.
- **Minor roadway widening:** There also could be peak-hour parking prohibitions to remove mid-block bottlenecks along selected roadways.

S.5.1.6 Alternative 6: No Build

Under this alternative, there would be no change to the existing Schuyler Heim Bridge or local roadway system. The existing Schuyler Heim Bridge would continue to be seismically inadequate and subject to damage or collapse under strong seismic conditions. Maintenance activities would continue and would include application of protective coatings; lift mechanism repairs; deck resurfacing; and other, similar, maintenance activities. The bridge is expected to continue to deteriorate over time as its useful life is eroded further and as various magnitude earthquakes are experienced. At some point in the future, the bridge may need to be demolished and replaced, solely to avoid safety hazards.

This No Build alternative also would not provide any facilities to deal with the projected increase in vehicular traffic in the ports area.

S.5.2 Alternatives Considered and Withdrawn

Three alternatives were considered and then eliminated from further consideration:

- Retrofit of the existing Schuyler Heim Bridge
- Extension of SR-103 to I-710
- Extension of SR-103 to I-405

S.5.2.1 Retrofit of Existing Schuyler Heim Bridge

The seismic retrofit project for the Schuyler Heim Bridge identified by Caltrans in 1998 involved retrofit of the approach structures and truss portions of the lift bridge, which would maintain the existence of the historic structure. The bridge could continue to be used, pending structural damage, such as from a major earthquake.

This alternative was eliminated. Based on cost comparisons of repairing the Schuyler Heim Bridge, Caltrans confirmed that constructing a new fixed-span bridge was more cost-effective than rehabilitating the existing bridge (Caltrans, 1999a). In addition, Caltrans has determined that the seismic retrofit alternative would not provide an emergency service facility that would be able to withstand a major earthquake and be serviceable immediately following a major earthquake (Caltrans, 1998).In addition, if a retrofit project were redesigned such that the bridge could be put into service immediately following a major earthquake, the foundations and pilings of the existing structure would have to be demolished and reconstructed. This alternative was eliminated from further consideration primarily because of the expense. It was determined that the cost to rehabilitate the bridge would be $213 million, while the cost to replace it with a new lift bridge would be $196 million, and the cost of building a new fixed-span bridge would be $86 million (Caltrans, 1999a).

S.5.2.2 SR-103 Extensions

The two alternatives to extend SR-103 would provide for a north/south expressway by extending the existing SR-103 corridor rather than constructing a facility on the SR-47 alignment. SR-103 is a 2.6-km (1.6-mi) state highway starting at SR-47 near Henry Ford Boulevard, and ending at Pacific Coast Highway. SR-103 is located north of Terminal Island in the cities of Los Angeles and Long Beach. It provides a direct link, via the Schuyler Heim Bridge, from major shipping terminals on Terminal Island to areas directly north, on the mainland.

S.5.2.2.1 Extension of SR-103 to I-710

This alternative would extend SR-103 to the north via a four-lane elevated expressway to join I-710 between I-405 and Del Amo Boulevard. A “half” interchange at I-710 would connect northbound SR-103 to northbound I-710 and southbound I-710 to southbound SR-103. With this alternative, SR-103 would fly over I-405, with no interchange. This alternative would follow the SCE easement.

This alternative presented several positive attributes; it would provide a freeway-to-freeway connection for SR-103 traffic; it would utilize available capacity of SR-103; and it would not cross the Dominguez Channel. However, it was eliminated from further consideration due to its negative features, as follows:

- It would be significantly more costly than the SR-47 Expressway alternatives.
- It would require major right-of-way acquisition.
- There would be extensive utility impacts (SCE high-voltage lines) that could require a longitudinal encroachment agreement with Caltrans.
- It would require major reconstruction of the I-710/Del Amo Boulevard interchange.
- There would be potential traffic impacts to I-710.
- There is the potential for adverse environmental impacts to the Long Beach community, including residential neighborhoods, several public schools, a park, and a church.
- It could require safety enhancements and capacity improvements on SR-103 south of Anaheim Street, as the existing SR-103 main line curve at the Pier A Terminal has a design speed of only 56 km/hour (35 miles per hour [mph]), which would be too slow with this alternative.

S.5.2.2.2 Extension of SR-103 to I-405

This alternative would extend SR-103 to the northwest via a two- or four-lane elevated expressway to join I-405 between Alameda Street and Wilmington Avenue. A “half” interchange at I-405 would connect northbound SR-103 to westbound I-405 and would connect eastbound I-405 to southbound SR-103.

This alternative presented several positive attributes; it would provide a freeway-to-freeway connection for SR-103 traffic; it would utilize available capacity of SR-103; and it would not cross the Dominguez Channel. However, it was eliminated from further consideration due to its negative features, as follows:

- It would be significantly more costly than the SR-47 Expressway alternatives.

- It would require major right-of-way acquisition.
- There would be extensive utility impacts (SCE high-voltage lines).
- It would require major reconstruction of the I-405/Wilmington interchange.
- There would be potential traffic impacts to I-405.
- There is the potential for adverse environmental impacts to the Long Beach community, including residential neighborhoods, several public schools, and a park.
- It could require safety enhancements and capacity improvements on SR-103 south of Anaheim Street, as the existing SR-103 main line curve at the Pier A Terminal has a design speed of only 56 km/hour (35 mph), which would be too slow with this alternative.

S.6 Project Impacts

Potential impacts and avoidance, minimization, and/or mitigation measures for the proposed project are shown in Table S-1, which provides summaries of construction and/or operations impacts for each of the project alternatives. As shown in the table, measures are proposed that would avoid, minimize, or mitigate virtually all of the potential impacts. Exceptions include air quality impacts during construction and operation of Alternatives 1 through 4, and cultural resources impacts under Alternatives 1 through 4.

More extensive discussions of potential project impacts are provided under each environmental resource section in Chapter 3.0 of this Draft EIS/EIR. Based on information provided in Chapter 3.0, no avoidance, minimization, or mitigation measures are proposed for Land Use, Recreation, Coastal Zone; Growth; or Energy. For these three environmental resources, the effects of the project alternatives would not require that any additional measures be implemented.

S.7 Project Funding

For the proposed project, Caltrans has agreed to contribute $250 million from the State Highway Operation and Protection Program (SHOPP) for replacement of the Schuyler Heim Bridge. The Alameda Corridor Expressway portion of the project is intended to be funded primarily by Caltrans and the Alameda Corridor Transportation Authority (ACTA), with contributions from the Port of Long Beach and Port of Los Angeles. ACTA is in the process of evaluating alternatives from various funding sources.

Construction of a new expressway would require acquisition of right-of-way (primarily aerial and subsurface easements) from the Ports of Long Beach and Los Angeles, and from the City of Los Angeles. In most cases, the property would continue to be available for use by the ports and the city, but with some restrictions. The current right-of-way cost estimates for Alternatives 1 through 4 include approximately $19.0 million to $114.4 million for non-ports properties. Within the Ports of Long Beach and Los Angeles, the costs are estimated to be approximately $29 million.

Caltrans would provide quality assurance for the duration of the project. Caltrans and ACTA would provide the required staffing. Estimated staffing requirements have been calculated as 545.52 person years (PY) for the total project, which includes 54.44 PY for Caltrans quality assurance within the Caltrans right-of-way. The Caltrans quality assurance project support cost is estimated at $4 million within the right-of-way.

The total cost estimates vary by alternative, as follows:

- Alternative 1 – $659.1 million
- Alternative 2 – $709.2 million
- Alternative 3 – $733.9 million
- Alternative 4 – $388.5 million
- Alternative 5 – $10.7 million
- Alternative 6 – $0 (no cost)

S.8 Public Involvement

S.8.1 Previous Public Involvement

In 2002, Caltrans and ACTA began formal public scoping and initiation of environmental studies for a previous project that included replacement of the Schuyler Heim Bridge and construction of an elevated SR-47 Expressway between Terminal Island and Alameda Street at Pacific Coast Highway. For the previously proposed project, the formal scoping and public involvement process began when a Notice of Preparation (NOP) to prepare an EIR/EA was sent to the State Clearinghouse on January 28, 2002. Notice letters were sent to federal, state, and local agencies, and notices were published in local newspapers. A scoping meeting for the previous project was held on February 13, 2002.

Subsequently, the FHWA determined that an EIS would be required, and a Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on June 8, 2004, with notices sent to the appropriate local, state, and federal agencies. Then, an NOI to prepare an EIS for the project proposed in this document was published in the *Federal Register* on July 26, 2004, and notices were sent to the appropriate local, state, and federal agencies. In September 2004, a scoping notice to inform the general public of the proposed project was published in the following newspapers: *Los Angeles Times*, *Long Beach Press Telegram*, *Daily Breeze*, *La Opinion*, and *The California Journal* (see Appendix F for copies of these notices).

Scoping letters and briefings were provided to elected officials and staff including, but not limited to, U.S. senators and house members, the California governor's office, State senators and assembly members, and local officials from the County of Los Angeles, City of Los Angeles, City of Long Beach, City of Carson, and City of Compton. In addition, presentations were made to stakeholder groups, including the Wilmington Neighborhood Council, Port of Los Angeles Port Community Advisory Committee, and Wilmington Chamber of Commerce. Scoping letters also were sent to individuals who requested notice of projects in the community.

Two formal scoping meetings/open houses were held at the Wilmington Senior Citizens Center during the afternoon and evening of September 9, 2004. The meetings introduced the project to responsible and cooperating agencies and the public, and solicited comments and concerns pertinent to the project.

Public concerns included noise, air quality, health, and traffic impacts on the residential areas in the City of Carson, construction and operation effects on Leeward Bay Marina, conflicting use of property along Alternative 2 (SR-103), traffic impacts to Pacific Coast Highway, traffic connection to eastbound SR-91, and port growth. Based upon written comment letters received from Latham & Watkins, PCR Services Corporation, and representatives from Watson Land Company, additional public noticing and commenting opportunities were provided to clarify the project alternatives and study area. An additional display ad was advertised in the *California Crusader News*, from February 24, 2005, through March 2, 2005.

Various issues were raised in comments received in response to the NOI or in comments submitted to the project team during the course of the environmental evaluation. These issues are summarized in Section S.12 – Areas of Controversy.

S.8.2 Ongoing Public Involvement

Additional public involvement will occur during the circulation period, when this Draft EIS/EIR is provided to agencies and the public, comments on the document are received, and there is a public hearing on the Draft EIS/EIR. After the public circulation period, all comments will be considered, and the FHWA and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. A Final EIS/EIR then will be prepared for the preferred alternative and will address public comments on the Draft EIS/EIR.

In accordance with CEQA, Caltrans will: certify that the project complies with CEQA; prepare findings for all significant impacts identified; prepare a Statement of Overriding Considerations for impacts that cannot be mitigated below a level of significance; and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. Caltrans will then file a Notice of Determination with the State Clearinghouse that will identify whether or not: the selected project alternative will have significant impacts; mitigation measures were included as conditions of project approval; findings were made; and a Statement of Overriding Considerations was adopted.
In accordance with NEPA, it was determined that an EIS was required to evaluate the proposed project alternatives. Based on the information provided in the EIS/EIR, Caltrans will determine a preferred alternative and issue a Record of Decision (ROD) to notify the public of the selected alternative and the reasons for that decision.

S.9 Project Coordination with Other Agencies

Below is a list of federal, state, and regional agencies and individuals who were consulted during the scoping process, contributed information for inclusion in the text, and/or contributed information for inclusion in the various technical reports prepared in conjunction with this Draft EIS/EIR. Table S-2 provides a list of agency actions, permits, and approvals that would be required for completion of the proposed project.

S.9.1 Federal Agencies

National Marine Fisheries Services
United States Coast Guard

United States Army Corp of Engineers
United States Fish and Wildlife Service
United States Environmental Protection Agency

S.9.2 State Agencies

California Department of Fish and Game
California Department of Conservation, Division of Oil and Gas, District 2
California Regional Water Quality Control Board, Los Angeles, Region 4
California State Parks and Recreation
California Transportation Commission
California Coastal Commission
Department of Toxic Substances Control, Cypress office
State Historic Preservation Office

S.9.3 Regional Agencies

Metropolitan Transportation Authority
Southern California Association of Governments
South Coast Air Quality Management District

S.9.4 Local Agencies

City of Carson
City of Carson, Department of Health
City of Commerce, Department of Health and Services, Public Health Investigation
City of Los Angeles
City of Los Angeles, Department of Building and Safety
City of Los Angeles, Bureau of Sanitation, Industrial Waste Management Division
City of Long Beach
City of Long Beach, Department of Health, Hazardous Materials
City of Long Beach, Department of Health and Human Services
Long Beach Parks, Recreation and Marine
Long Beach Unified School District
Los Angeles City Fire Department

S.9.5 Tribal (Section 106)

S.9.5.1 Native American Consultation

In accordance with Section 106 of the National Historic Preservation Act, a request was made to the Native American Heritage Commission (NAHC) for a review of the *Sacred Lands Inventory* to determine if any known cultural properties are present within or adjacent to the project area of potential effects (APE). The NAHC responded, stating that no Native American cultural resources are known to exist within or adjacent to the project APE and provided a list of Native American groups and individuals for further consultation.

During the period of May through June 2002, the project solicited information and comments regarding cultural resources in the project area from local governments, public and private organizations, and other parties likely to have knowledge of, or concerns about, such resources. No responses were received following consultation.

A second round of consultation with the NAHC for the SR-103 Extension to Alameda Street was conducted in 2004; the NAHC again responded stating that no Native American cultural resources are known to exist within or adjacent to the project APE. On October 19, 2004, groups and individuals were again contacted regarding the SR-103 portion of the project. Again, no responses were received following consultation.

S.9.6 Other Coordination Activities

In addition to the above, there have been ongoing coordination meetings between ACTA, the Alameda Corridor Engineering Team (ACET), the Port of Long Beach, and the Port of Los Angeles during project design and development. These meetings have addressed environmental and engineering issues associated with the proposed project alternatives to assure that the project does not interfere with ongoing operations and planned development at the ports, particularly at Pier A and Pier S. As a result of these meetings, the project alternatives have been designed to accommodate the interests of the ports and the pier operators. The issues addressed include, but are not limited to, at Pier S, advance planning for potential effects to the existing oil wells near Cerritos Channel, avoidance of the remediation cells, and compensation for loss of vehicular and equipment parking space. At Pier A, the SR-47 Expressway has been designed so the support columns avoid the operations buildings and avoid the alignment of a planned tunnel under SR-47. In addition, the design of the project alternatives is consistent with planned development at Pier A and Pier S. Another project element, the Ocean Boulevard/SR-47 Flyover, was developed as a result of these coordination meetings.

Also, the Project Development Team (PDT) conducts monthly coordination meetings to address design issues of all the alternatives in accordance with the needs of the various entities. Agencies in attendance at the PDT meetings include ACET, ACTA, representatives from Caltrans headquarters and Caltrans District 7, City of Carson, Federal Highway Administration, City of Los Angeles Department of Transportation, POLA and POLB.

S.10 Unresolved Issues

Regarding air quality, some members of the public requested a health risk assessment (HRA) be completed for the project alternatives. To address this concern, and in compliance with FHWA and Caltrans policy, a Mobile Source Air Toxics (MSAT) study was conducted.

S.11 Scope and Content of the Draft EIS/EIR

This Draft EIS/EIR examines the potential direct, indirect, and cumulative environmental effects of alternatives for the proposed project in accordance with requirements of NEPA and CEQA. The document describes why the project is being proposed, project alternatives, construction methods, the existing environment that could be affected by the alternatives, anticipated effects from each alternative, measures to avoid, minimize, or mitigate adverse effects, and those effects that cannot be fully mitigated.

The Draft EIS/EIR is organized into nine chapters, plus this Summary and the Appendices, as follows:

Summary
This chapter provides a summary of the project alternatives, potential adverse effects and avoidance, minimization, and/or mitigation measures, the scope and content of the Draft EIS/EIR, document organization, and key principles in preparing the document.

Chapter 1.0 Project Purpose and Need
This chapter describes the purpose and need for the project and the project objectives.

Chapter 2.0 Project Alternatives
Chapter 2.0 describes the project location, project background, alternatives evaluated in this Draft EIS/EIR, and alternatives initially considered but eliminated from further consideration.

Chapter 3.0 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures
This chapter is divided into 16 sections that address a specific environmental resource area. The sections are arranged according to the Human Environment, Physical Environment, and Biological Environment. Each environmental resource section describes the baseline condition as of July 2004, criteria for evaluating environmental effects, assessment methodology, effects of each alternative, and avoidance, minimization, and/or mitigation measures that would reduce or eliminate adverse effects.

Other sections of this chapter address the Relationship Between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity; and Irreversible and Irretrievable Commitments of Resources.

Chapter 4.0 California Environmental Quality Act Evaluation
Chapter 4.0 provides a discussion of significant adverse impacts as determined in compliance with CEQA criteria, mitigation measures that would eliminate or reduce the extent of such impacts, and unavoidable adverse impacts determined in accordance with CEQA criteria.

Chapter 5.0 Cumulative Impacts
This chapter describes the impact of each environmental resource by alternative, in combination with other reasonably foreseeable past, present, and future related projects in accordance with requirements of NEPA and CEQA.

Chapter 6.0 Summary of Comments and Coordination
Chapter 6.0 includes a description of the scoping process and coordination with public agencies and Native American tribes.

Chapter 7.0 List of Preparers
Chapter 7.0 identifies the individuals involved in preparing this Draft EIS/EIR.

Chapter 8.0 Distribution List for the Draft EIS/EIR
This chapter includes federal, state, regional and local agencies, groups, organizations, businesses, individuals, and libraries that will receive copies of the Draft EIS/EIR.

Chapter 9.0 References
Chapter 9.0 identifies the documents and other sources of information utilized in preparing this Draft EIS/EIR. References are arranged according to the section/chapter of the Draft EIS/EIR where they appear.

Appendices

A	CEQA Checklist
B	Elevations
C	Section 4(f) Evaluation
D	Title VI Policy Statement
E	Relocation Impacts (DRIR)
F	Public Notices
G	Project Scope Summary Report (Seismic Retrofit)
H	Avoidance, Minimization, and Mitigation Measures
I	Rights-of-Way

S.12 Areas of Controversy

The following areas of controversy were raised in comments received in response to the NOI or comments submitted to the project team during the course of the environmental evaluation:

- **Marine vessel detours and economic impacts**. The proposed replacement bridge is designed for a fixed vertical clearance of 14.3 m (47 ft). Potential adverse effects could occur with respect to marine vessels traveling in Cerritos Channel that are too tall to clear the 14.3-m (47-ft) vertical limit. Such vessels would be required to detour through the outer harbor, with a consequent economic impact.
- **Historic Schuyler Heim Bridge**. The existing Schuyler Heim Bridge is considered eligible for listing in the National Register of Historic Places and the California Register of Historic Resources. Demolition of the existing bridge or obstruction of views of the existing bridge behind the replacement bridge would constitute a substantial change in the significance of a historical resource.
- **Pier S and Pier A Property Acquisitions**. Property acquisitions required in areas of Pier S and Pier A would alter the planned physical layout and operation of the Pier S and Pier A Terminals by the Port of Long Beach.
- **Health Risk Concerns – Toxic Air Contaminants.** Health risk concerns are related to the increased diesel truck traffic in proximity to the Wilmington community as a result of a new expressway.
- **Community Concerns**. Numerous comments were raised by various community groups in the Wilmington area and City of Carson in opposition to the project. These relate to redirection of truck traffic closer to the Wilmington area, with resulting air emissions, noise, light and glare, and traffic issues, and concern for the effects to the aesthetics of the commercial and residential neighborhood.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
3.1 LAND USE, RECREATION, AND COASTAL ZONE	No avoidance, minimization, and/or mitigation measures are proposed related to Land Use, Recreation, and Coastal Zone.
3.2 GROWTH	No avoidance, minimization, and/or mitigation measures are proposed related to Growth.
3.3 COMMUNITY IMPACTS	
<u>CONSTRUCTION</u> **Alternatives 1, 1A, and 3** Permanent full acquisition of six businesses located on 10 parcels, permanent highway easements of approximately 125 partial takes (aerial/highway easements), and 78 temporary construction easements. Nine boat slips would be acquired at the Leeward Bay Marina. **Alternative 2** Two buildings would be acquired as permanent highway easements, thereby denying them of their existing use for business. There are 61 partial parcel takes (permanent aerial/highway easements) and 44 temporary construction easements. **Alternative 3** There are 24 temporary construction easements takes and 32 partial parcel takes (permanent aerial/highway easements with Alternative 3. **Alternative 4** Approximately 17 partial takes for permanent aerial/highway easements.	**CI-1** Provide relocation assistance or compensation to eligible persons and businesses in accordance with the federal Uniform Relocation Assistance and Property Acquisition Act of 1970, as amended (42 USC Sections 4601-4655) and the California Relocation Act (California Government Code, Section 7260 et. seq.)
<u>OPERATIONS</u>	No avoidance, minimization, or mitigation measures related to Community Impacts are proposed for project operations.
3.4 UTILITIES AND PUBLIC SERVICES	
<u>CONSTRUCTION</u> <u>Alternatives 1, 1A, 2, 3, and 4</u> The build alternatives would affect existing utilities in the project area, requiring relocation and avoidance, with the potential for some service disruption.	**U-1** Provide advance notification to utility users of the potential for service disruption and the anticipated time/date of the disruption.
Both the existing Schuyler Heim Bridge and the new bridge would be closed temporarily for up to 1 month, and the southbound SR-47 exit ramp at New Dock Street would be closed for approximately 4 months. As a result, land-based public and emergency services that rely upon the Schuyler Heim Bridge as their primary emergency route, including Port Police and LBFD, would be required to use alternative emergency response routes (primarily the Vincent Thomas and Gerald Desmond Bridges).	**U-2** Prior to bridge construction, notify watch commanders and station chiefs of all fire, police, and other land- and water-based response stations that service the port area or use the Schuyler Heim Bridge or Cerritos Channel as a travel route to respond to service calls in order to minimize delays to emergency response providers during project construction.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
There would be a temporary closure of Cerritos Channel to marine vessel crossings for approximately 25 days at various times throughout the period of bridge construction.	This action will allow for the identification of alternate routes and the development of contingency response plans, including: • Temporary interim policies that will identify alternative resources within the public service and emergency response organization (i.e., alternative response units located closer to the incident); and • Mutual aid agreements between bordering public service and emergency response organizations (i.e., LAFD and LBFD) that could be dispatched
	U-3 Specify in the contract that construction in the Cerritos Channel must occur in a manner that allows emergency marine vessels to pass or be carried out in such a way that barges with construction equipment will be moved quickly to allow passage of emergency vessels.
	U-4 Determine where construction-related activities have the potential to disrupt response routes and coordinate with Los Angeles and Long Beach police and fire departments, as well as any local emergency medical service units.
	U-5 Utilize a Transportation Management Plan that is agreeable to all emergency service providers and the project design team.
	U-6 During final design, after selection of the preferred alternative, a determination will be made regarding which of the identified utilities will be relocated. Plans for the relocations will be developed in consideration of the project schedule and consultation with the utility providers which include, but are not limited to, LADWP, LBWD, SCE, SCG, GTE/Verizon, AT&T, City of Los Angeles. In addition, pipeline relocations will be planned and implemented in consultation with TOPCO, Exxon Mobil, Gulf Oil, and SCG. In further consultation with utility providers, some obsolete utilities may be removed at the request of the provider.
OPERATIONS	No avoidance, minimization, or mitigation measures related to Utilities and Public Services are proposed for project operations.
3.5 TRAFFIC AND TRANSPORTATION	
CONSTRUCTION **Alternatives 1, 1A, and 2** Project construction is expected to have temporary effects to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S Terminals.	**T-1** Prior to construction, temporary parking spaces will be provided to replace existing parking capacity that will not be available during project construction. Caltrans will coordinate with the Port of Long Beach and Port of Los Angeles to identify replacement parking for the Pier A East and Pier S

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Up to 820 off-street employee parking spaces and 54 marine terminal equipment spaces would be affected.	Terminals. Exact locations will be determined after consultation with responsible parties, including property owners. Considerations of feasibility will include, but not be limited to, vehicle capacity, time of availability, distance from terminal(s), and the need for employee shuttles.
Alternative 3 Project construction is expected to have temporary effects to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S Terminals. Up to 977 off-street employee parking spaces and 167 marine terminal equipment spaces would be affected. **Alternative 4** Project construction is expected to have temporary effects to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S Terminals. Up to 587 off-street employee parking spaces and 54 marine terminal equipment spaces would be affected.	**T-2** The Transportation Management Plan (TMP) will be implemented to enhance vehicular and pedestrian traffic.
OPERATIONS **Alternatives 1, 1A, 2, and 4** Project operation is anticipated to have permanent effects to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal. During project operations, up to 12 parking spaces may be taken from businesses at the southeast corner of Alameda Street and M Street, depending on final column placement. Also, 15 to 25 on-street parking spaces may be impacted along the east side of Henry Ford Avenue between Grant Street and Anaheim Street.	**T-3** Compensation for the permanent loss of an estimated 15 employee parking spaces at the Port of Long Beach Pier S Terminal will be provided. Compensation will be based on an agreement between Caltrans and the Port of Long Beach.
Alternative 5 Under this alternative, there could be permanent effects if on-street parking is removed to provide additional travel lanes.	No avoidance, minimization, and/or mitigation measures are proposed for Alternative 5. As necessary, measures would be developed and included in the Final EIS/EIR if this alternative is chosen for development.
3.6 MARINE VESSEL TRANSPORTATION	No avoidance, minimization, and/or mitigation measures are proposed related to Marine Vessel Transportation.
3.7 VISUAL RESOURCES	
CONSTRUCTION **Alternatives 1, 1A, 2, 3, and 4** Construction of a new bridge, flyover, and/or expressway would result in specific impacts to the visual environment of those portions of the project area in view of the new facility(ies).	**VR-1** The surfaces of columns, roadway barriers, soundwalls, and gore points will receive surface color treatments at specified locations, as determined by a Caltrans Licensed Landscape Architect.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	VR-2 Elements of the design of the proposed bridge and expressways, such as color, line, texture, and style, would be aesthetically pleasing and as unobtrusive as possible. During final design, particular attention would be paid to the vertical columns and soundwalls.
	VR-3 All visual design elements, including landscaping, would be designed and implemented with the concurrence of the Caltrans Licensed Landscape Architect and in compliance with local policies and guidelines.
	VR-4 Trees and vines will be planted along soundwalls and other walls at specified locations, as determined by a Caltrans Licensed Landscape Architect.
	VR-5 Design of the elevated expressway would be compatible (scale and massing) with the existing Schuyler Heim Bridge or future bridge and the Badger Avenue/Henry Ford Railroad bridge.
OPERATIONS	No avoidance, minimization, and/or mitigation measures related to Visual Resources are proposed for project operations.
3.8 CULTURAL RESOURCES	
CONSTRUCTION **Alternatives 1, 1A, 2, 3, and 4** No archaeological resources were identified, and no archaeological sites are known to exist within the APE. If, during construction, unknown cultural materials are found, appropriate avoidance and minimization measures will be taken. **Alternative 3** If the U.S. Coast Guard requires demolition of the Schuyler Heim Bridge following implementation of Alternative 3, CR-1 through CR-4 would be implemented.	**CR-1** **Measures for Unknown Archaeological Resources** If any archaeological properties are discovered during construction, FHWA and SHPO shall be consulted, in accordance with 36 CFR 800.13(b).
	CR-2 Discovery of Human Remains If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Mr. Gary Iverson, District Heritage Resource Coordinator, Caltrans District 7, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed, as applicable.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Alternatives 1, 1A, 2, and 4 Demolition and replacement of the existing Schuyler Heim Bridge would constitute an Adverse Effect on the bridge, under Adverse Effect Criterion 2(i), 36 CFR 800.5(a). In addition, demolition of the Schuyler Heim Bridge would be considered an adverse effect under significance Criterion 2(A), Section 15064.5 of the CEQA Guidelines.	**CR-3** The bridge shall be offered for sale for reuse in an alternate location to interested public agencies and non-profits. A marketing plan shall be prepared for the sale of the bridge including: a notification letter, fact sheet, list of intended recipients, as well as provisions for the salvage of smaller components in the case that there is no interest in re-use of the bridge. Advertisements shall be placed in appropriate newspapers of record. The offer shall run for 6 months. If no acceptable bids are received after 6 months this stipulation shall be deeded to have been met. The above shall be done in accordance with the U.S. Department of Transportation Historic Bridge Program 23USC144(o)(4)(A) and (B).
	CR-4 Informative permanent metal plaques shall be installed at both ends of the new bridge at public locations that provide a brief history of the original bridge, its engineering features and characteristics, the reasons for its demolition, and a statement of the characteristics of the replacement structure.
	CR-5 Pursuant to Section 110(b) of the NHPA, before the Bridge is demolished, the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) shall be contacted to determine what level and kind of recordation is required for the property. All documentation shall be completed and accepted by HABS/HAER before the Bridge is demolished.
	CR-6 Copies of the HABS/HAER report shall be disseminated to the City of Los Angeles Public Library and the City of Long Beach Public Library.
	CR-7 Information from the HABS/HAER report shall be available to the public for 10 years on an appropriate internet website.
	CR-8 A documentary (motion picture or video) shall be produced and shall address the history of the Bridge, its importance and use within the history of the Port of Long Beach and Port of Los Angeles, and demonstrate its operation and function. The motion picture or video will be of broadcast quality, of sufficient length for a standard 30-minute time period and will be made available for local broadcast stations to public access channels in local cable systems and to schools/libraries.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	CR-9 Traveling museum exhibits shall be prepared and shall address the history of the Bridge, its importance and use within the history of the Port of Long Beach and the Port of Los Angeles, and demonstrate its operation and function, appropriate for display in small museums, or for use in schools.
	CR-10 Artifacts removed from the Bridge during preliminary stages of the demolition process shall be offered to local museums, and provide for their delivery to accepting institutions. Examples of such artifacts may include, but not be limited to, control panels, instruments, structural members, railings, signage, plaques or other identifying ornamentation, street lights, navigation lights, etc.
	CR-11 Measures CR-3, CR-5, CR-8, and CR-10, above, shall be completed prior to demolition of the Bridge. All stipulations shall be completed within 1 year of demolition, unless an extension of time is agreed upon.
OPERATIONS	No avoidance, minimization, and/or mitigation measures related to Cultural Resources are proposed for project operations.
3.9 HYDROLOGY, FLOODPLAINS, AND OCEANOGRAPHY	
CONSTRUCTION **Alternatives 1, 1A, 2, 3, and 4** Construction of the new fixed-span bridge would require excavation and other soil disturbance activities and introduce additional impervious surfaces to the project area, which would promote surface runoff of construction pollutants (i.e. trash and petroleum compounds from construction equipment) and erosion of channel banks. The pollutants would be collected by surface runoff and discharged into the Cerritos Channel. Degradation to Cerritos Channel and/or Consolidated Slip/Dominguez Channel water quality could be attributed to construction activities associated with pile placement that would disturb sediment, causing resuspension and dispersal into the water column.	**HY-1** The following are BMPs for protection of water quality of the receiving water during construction: • Tires on construction equipment that leaves a contaminated work site will be washed before the equipment leaves the site. • Within a contaminated work area, construction equipment will be cleaned only as necessary (e.g. moved to a non-contaminated area) to minimize the volume of decontamination wash water and prevent transport of contaminants from work site areas. • Designated locations will be provided for servicing, washing, and refueling equipment, away from temporary channels or swales that would quickly convey runoff to the drainage system and into the Cerritos Channel or Consolidated Slip/Dominguez Channel. • Contaminated material (e.g. oil, lubricants) will be kept at a safe distance, a minimum of 30.5 m (100 ft), from an entry into a receiving water body. Temporary barriers and containers will be used to confine any contaminated materials. Upon completion of construction, all contaminated material on the construction site will be removed and disposed of in accordance with federal, regional, and local regulations.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	• Use of marine construction equipment will not involve fuel transfers onsite. • A temporary spill containment system will be installed and maintained on either side of a water crossing. The contractor will be responsible for the containment plan and the execution of spill containment during the course of construction. The containment plan will be reviewed and approved by a resident engineer. • To prevent potential introduction of any lead-based paint into receiving waters, the contractor(s) will take appropriate measures to eliminate lead-based paint from reaching the receiving waters. If paint removal is necessary during the bridge dismantling process, the contractor will comply with all applicable laws and regulations relative to this process to ensure protection of receiving waters. • At project construction sites, as appropriate, the contractor will: – Provide stabilized entrances and exits – Regularly water the non-paved surfaces – Regularly sweep and vacuum paved surfaces – Install silt fences at the toe of excavation and embankment slopes – Install sand or gravel bag berms along the top of slopes – Install slope protection such as geotextiles, plastic covers, soil binders and erosion control blankets/mats – Install slope interruption devices such as fiber rolls and slope drains – Install permanent erosion control seeding, landscape planting or slope/rock paving – Protect storm drain inlets with inserts or linear interrupters such as gravel bag and/or sand bag berms – Manage stockpiles against wind and water erosion • Monitor and report BMP performance and conditions before and immediately after the completion of work, in accordance with SWPPP specifications.
	HY-2 Construction activities that would produce sediment transport of pollutants through the Cerritos Channel or Consolidated Slip/Dominguez Channel will be minimized through strict adherence to construction BMPs which include, but are not limited to, the following: • Channel bank work will include bank protection (riprap, concrete walls, and sheet piling) to eliminate the possibility of enhanced bank erosion. • Use of cofferdams during blasting or other bank or sediment disturbing construction activities. • Use of turbidity curtains in lieu of silt curtains.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	HY-3 Groundwater encountered during construction will be temporarily stored onsite, tested, transported, treated, and disposed offsite. A dewatering permit will be obtained from the Los Angeles RWQCB. Based on results of the groundwater assessment and recommendations from the RWQCB, one of the following will be utilized for disposal of groundwater from the proposed dewatering operation: • Onsite treatment • Treatment and disposal offsite • Disposal into local sewer system To dispose of groundwater into the City of Los Angeles sewer system, an Industrial Wastewater Discharge Permit is required, which is issued by the City of Los Angeles Department of Public Works, Bureau of Sanitation, Industrial Waste Management Division. To satisfy permit conditions, treatment of discharge water could be required.
OPERATIONS	No avoidance, minimization, and/or mitigation measures related to Hydrology, Floodplains, and Oceanography are proposed for project operations.
3.10 WATER QUALITY AND STORMWATER RUNOFF	
CONSTRUCTION **Alternatives 1, 1A, 2, 3, and 4** Soil erosion from nearby bridge construction areas might allow surface runoff into the channel, resulting in solids transport and elevated levels of phosphates, TSS and TDS. Demolition of the existing Schuyler Heim Bridge could result in paint, rust debris, and particulate matter being deposited into the Cerritos Channel. Certain constituents, including copper, zinc, and a number of the organic compounds (PAHs), would be suspended in concentrations in excess of the WQC for a short time before being diluted. With the CIDH construction method for bridge support structures, holes for the support structures would be passively filled with groundwater, which would be removed prior to filling with slurry and concrete. The removed groundwater would then be disposed of properly.	See **HY-1, HY-2**, and **HY-3**, above.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
OPERATIONS **Alternatives 1, 1A, 2, 3, and 4** Surface runoff effects from replacement bridge on the water quality of the Cerritos Channel are expected to vary depending on: Incidental drippings from vehicles and accidental spills that introduce contaminant material, or waste discharge from the bridge and its approach structures Bridge maintenance activities Potential redirection of stormwater runoff Surface runoff would flow into the Cerritos Channel and may include: Particulates from pavement wear and vehicles Metals such as zinc, lead, iron, copper, cadmium, chromium, nickel, and manganese Bromide (from leaded gasoline exhaust) Diesel fuel Tire wear Auto body rusting Metal plating Break lining wear Greases and lubricating oils from automobiles and trucks Trash discarded from vehicles Pathogenic bacteria (indicators) from soil, litter, bird droppings, and stockyard waste hauled by vehicles on the new bridge	**WQ-1** BMPs for surface runoff include construction of barriers at entry points to receiving waters to prevent large debris from entering the receiving water, and continuous monitoring of the new bridge structures for excessive buildup of debris that could be discharged in a precipitation event.
Alternatives 3, 5, and 6 Under Alternatives 3, 5, and 6, the existing Schuyler Heim Bridge would remain. (Under Alternatives 5 and 6, the bridge would continue to operate.) Low levels of pollutants from runoff from the bridge surface, painting of the steel truss members, and periodic introduction of paint material flaking from the bridge would continue.	**WQ-2** The following BMPs will be continued as related to ongoing maintenance for the existing Schuyler Heim Bridge: • Remove excess grease from moving parts of bridges manually and collect it for disposal. • Degrease prior to painting and hydro-blast to remove old paint with additive-free water, where possible. • Erect shrouds around working areas and suspend nets and tarps below bridges to catch debris from abrasive removal of old paint and over-spray from painting, where wind conditions permit. • Anchor tarps to barges below and enclose the bridge above to confine debris, where the bridge deck is not too far above water level.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	• Use barges and booms to capture fugitive floating paint chips and custom-built enclosures to confine and capture abrasives, old paint chips, and paint. • Use vacuum or suction shrouds on blast heads to capture grit and old paint. • Carry out storing, mixing, and cleaning operations on land. • Keep all materials securely locked up, to avoid vandalism and accidental spills into the watercourse. • Schedule bridge maintenance to avoid egg incubation, juvenile rearing, and downstream migration periods of fish.
3.11 GEOLOGY/SOILS/SEISMICITY/ PALEONTOLOGY/ TOPOGRAPHY/MINERAL RESOURCES	
CONSTRUCTION **Alternatives 1, 1A, 2, 3, and 4** **Geology and Geologic Resources** The project is located in an area of active faulting and historic ground shaking resulting from fault movement. Earthquakes could occur from movement on seven active, historically active, or potentially active faults ranging in distance of 85 km (53 mi) to 0.3 km (0.2 mi) from the project site.	The following avoidance and minimization measures would be incorporated into final project design: **GEO-1** Design criteria, standards, and procedures contained in state and local jurisdiction standards and specifications (e.g., Uniform Building Code) would be applied during final design of the project, including earthquake-resistant standards to reduce potential effects from a major earthquake.
In addition, more than 80 percent of the project site is located in an area where historic occurrences of liquefaction, subsidence, and/or geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacement.	**GEO-2** A geotechnical study would be completed for all areas associated with load-bearing features, and areas with potential for slope failure (e.g., trenches) and soil subsidence, and a geotechnical report would be prepared. The geotechnical report would include project-specific recommendations consistent with standards established by state and local jurisdictions. Geotechnical report recommendations would be incorporated into final project design.
	GEO-3 Monitoring during construction would be performed by a licensed geologist or engineer to verify construction occurs in compliance with features, standards, and practices included in final design to reduce potential effects from earthquake damage; slope and/or foundation instability; erosion, sedimentation, and flooding; land subsidence; and volcanic hazards.
Paleontology Excavation for bridge column footings and, at depths greater then 1.5 m (5 ft) below the current ground surface, any footing for elevated roadways, including on-ramps, off-ramps, and bridge approaches, would have a high potential for encountering fossil remains at previously unrecorded fossil sites and, therefore, could affect paleontologic resources if any such resources were encountered during construction.	**PALEO-1** Implement Paleontological Resource Impact Mitigation Program which includes, but is not limited to, the tasks shown below. Additional detail is provided in the Paleontological Resources EIS/EIR Technical Section (Jones & Stokes, 2005). • Program will be directed by a paleontologist or paleontological consulting firm approved by Caltrans. • Conduct program in compliance with lead agency and professional society guidelines.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	• Develop and obtain museum storage agreement • Coordinate with construction contractor to provide information regarding lead agency requirements for the protection of Paleontological resources. • Conduct paleontological monitoring, as appropriate. • Treat any specimens collected in accordance with museum repository requirements. • Transfer any collected fossils to museum repository. • Maintain daily monitoring logs. • Prepare final report.
OPERATIONS	No avoidance, minimization, and/or mitigation measures related to Geology/Soils/Seismicity/ Paleontology/ Topography/Mineral Resources are proposed for project operations.
3.12 HAZARDOUS WASTE/HAZARDOUS MATERIALS	
CONSTRUCTION **Alternatives 1, 1A, and 4** Construction activities could encounter hazardous materials (and thereby have the potential for release of such materials) as a result of excavating subsurface soil, disturbing groundwater, or removing aboveground structures.	**HAZ-1** Conduct a soil investigation prior to any soil excavation for the build alternatives (1 through 4). The investigation would assess the potential presence of hazardous contaminants and determine disposal options if necessary for the contaminated soil. The soil investigation could consist of an ADL investigation and investigation for other contaminants of concern due to effects from adjoining properties.
	HAZ-2 Evaluate soil and groundwater information for the adjoining Sunshine Truck Stop, LA Refining Company, Texaco Refining, TCL, Dow Chemical, and former Long Beach Naval Shipyard property to assess potential effects. If the review indicates evidence of contamination or a lack of sufficient data, a soil and groundwater investigation will be conducted, and further measures will be implemented, as necessary.
Alternatives 1, 1A, 2, and 4 Demolition of the existing bridge, which has the potential to contain regulated and/or potentially hazardous materials, including lead-based paint and asbestos, could result in the release of asbestos into the surrounding environment, where it could then enter the Cerritos Channel and adversely affect surface water quality.	**HAZ-3** Inform demolition contractors of the potential presence of LBP in structures subject to demolition, and applicable Occupational Safety and Health Administration (OSHA) and other regulatory measures shall be adhered to in the demolition of such structures. If contamination is encountered during the construction process, implement appropriate health and safety measures to protect workers and the general public. Such measures may include engineering controls, requiring appropriate personal protective equipment, worker monitoring, and site-specific health and safety plans.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	HAZ-4 A licensed professional will conduct a predemolition survey of the Schuyler Heim Bridge ACM and LBP. The purpose of the survey would be to determine the presence of regulated and/or potentially hazardous construction materials on the bridge. Any demolition activities that would remove or disturb these materials would implement measures in accordance with applicable regulations. As required by law, the abatement contractor shall be a licensed professional.
	HAZ-5 Conduct asbestos removal in conformance with Rule 1403 of the South Coast Air Quality Management District (AQMD) and EPA's National Emissions Standards for Hazardous Air Pollutants regulation.
	HAZ-6 Paint from the dismantled bridge sections would be chemically removed at a suitable offsite location in an upland area. This will be done to avoid the introduction of lead-based paint into the receiving waters. If paint removal is necessary during the dismantling process, the contractor would comply with all applicable laws and regulations relative to this process to ensure protection of receiving waters.
Alternative 2 Portions of the alignment of the SR-103 Extension overlie two former landfills. One of these, the Alameda Street Landfill, is proposed to be included in the National Priority List (NPL). If soil excavation at this landfill occurs during construction of the SR-103 Extension, hazardous waste could be encountered.	**HAZ-7** Groundwater data for Alternative 2 currently are not available. However, considering the history and nature of activities conducted at some of the sites within the Alternative 2 right-of-way, it is recommended that a groundwater evaluation be conducted, both to assess disposal alternatives for groundwater encountered during construction, and to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permitting process. If groundwater is found to be contaminated, it would be treated in place and/or transported for treatment and/or disposal at an appropriate facility, in accordance with applicable regulations.
	HAZ-8 If soil excavation is necessary in the vicinity of the two former landfills along the Alternative 2 alignment, a soil investigation will be conducted. If soil is found to be contaminated, it would be treated in place and/or excavated and transported for treatment and/or disposal at an appropriate facility, in accordance with applicable regulations. One of the former landfills, the Alameda Street Landfill, is proposed to be included in the National Priority List (NPL). Therefore, coordination with the Department of Toxic Substances Control (DTSC) is recommended while evaluating the viability of Alternative 2. See **HAZ-1**, **HAZ-3**, **HAZ-4**, **HAZ-5**, and **HAZ-6**, above.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Alternative 3 Construction activities could encounter hazardous materials (and thereby have the potential for release of such materials) as a result of excavating subsurface soil, disturbing groundwater, or removing aboveground structures.	See **HAZ-1** and **HAZ-2**, above.
<u>**OPERATIONS**</u> **Alternatives 3, 5, and 6** The Schuyler Heim Bridge would be retrofitted (Alternative 3, only) and remain in place and would require ongoing maintenance.	See **WQ-2**, above (Section 3.10, Water Quality and Stormwater Runoff).
3.13 AIR QUALITY	
<u>**CONSTRUCTION**</u> **Alternatives 1, 1A, 2, 3, and 4** The direct sources of construction emissions would be from construction equipment exhaust or fugitive dust. Direct emissions of CO, NO_X, ROG, SO_X, and PM_{10} are predicted to exceed daily significance thresholds during construction.	<u>Measures for PM_{10} / $PM_{2.5}$</u> **AQ-1** Apply nontoxic soil stabilizers to all inactive construction areas (previously graded areas inactive for 10 days).
Impacts to sensitive receptors near construction areas would be inversely proportional to distance and would decrease with distance from the source. Construction laydown areas would be located as far from sensitive receptors as the project would allow.	**AQ-2** Replace ground cover in disturbed areas as quickly as possible.
The indirect source of construction emissions would be from marine vessels having to detour during construction. Emissions from marine vessels would exceed the SCAQMD NO_X threshold.	**AQ-3** Reduce traffic speed on all unpaved roads to 15 mph or less.
Total Total emissions (direct plus indirect) of CO, NO_X, ROG, SO_X, and PM_{10} are predicted to exceed daily significance thresholds during project construction.	<u>Measures for CO, ROG, and NO_x</u> **AQ-4** Develop and implement a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees.
	AQ-5 Implement a shuttle service for construction workers to and from retail services and food establishments during lunch hours.
	AQ-6 Prohibit truck idling in excess of 2 minutes.
	AQ-7 Suspend use of all construction equipment operations during second-stage smog alerts.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	AQ-8 Use electricity, if feasible, from power poles rather than temporary diesel- or gasoline-powered generators. **AQ-9** Heavy Duty Truck Buyback Program The purpose of the buyback program would be to accelerate the modernizing of the heavy duty engine fleet operating in the South Coast Air Basin. By removing the older engines in the fleet and requiring replacement with newer, cleaner vehicles, a net reduction of NOx emissions (and other combustion pollutants) would occur. This reduction would help offset marine vessel detour emissions. The protocols to be used would be consistent with the Carl Moyer Program, which is already being administered by the SCAQMD. However, this program is not available to projects such as Schuyler Heim Bridge Replacement and could not be used to actually implement this project's buy-back program. The Gateway Cities Diesel Fleet Modernization Program would be an example of a buyback program with similar reduction goals. Also, the POLA/POLB Clean Air Action Plan has a heavy duty truck buy back component. While participating in already existing programs might be preferable (and possible), it would not be necessary in order to accomplish heavy duty truck buy back. The heavy duty truck buy back could be done independently, though it would have to adhere to already accepted protocols (SCAQMD). A heavy duty truck buyback program would consist of three steps 1) identify target vehicles based on year of make; 2) provide incentives for operators to participate 3) establish a means to ensure that replacements meet the net improvement forecasted. The construction phase of this project is where the greatest impact of increased emission levels occurs. Therefore, the buyback program would be designed to mitigate the NOx emissions during that time. Based on recent buyback programs, the program for the proposed project would cost from $25,000 to $50,000 /ton of NOx reduced. This cost can vary significantly and will continue to increase as time passes. The number of tons mitigated would be based on marine vessel detour NOx emissions during construction. The rerouting of shipping vessels during project construction would amount to 132.8 lbs NOx per day, which is equivalent to 24.2 tons NOx per year. The indirect marine vessel emissions would be mitigated to a level that is below the SCAQMD significance threshold for construction emissions. It is estimated that each truck replacement would reduce an average of 0.55 tons per year of NOx and 0.12 tons per year of PM. This is based on emission factors representative of current buyback programs such as the Gateway Cities Diesel Fleet Modernization Program. These emission reductions would continue for 3 to 5 years, depending on the year of the truck updated. This timeframe would exceed the duration of the project construction phase.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
OPERATIONS **Alternatives 1, 1A, 2, 3, and 4** Indirect emissions would result from marine vessel detours around Terminal Island during operation of the new bridge. Daily emissions of NO_X would exceed the SCAQMD threshold. Operation of the new bridge would result in a net increase in emissions greater than the SCAQMD thresholds for NO_X.	No avoidance, minimization, and/or mitigation measures are proposed for project operations.
3.14 NOISE	
CONSTRUCTION **Alternatives 1, 1A, and 3** Both the Anchorage Way Marinas and Leeward Bay Marina would be subject to substantial noise effects from pile driving construction activities. Pile driving activities for the Cerritos Channel are expected to last approximately 2 weeks (10 days) for each of the two stages of falsework pile driving. Falsework pile driving for the Consolidated Slip is expected to last less than 2 weeks (10 days).	**N-1** Construction noise monitoring and control plans consistent with local noise ordinances will be prepared by a qualified acoustical engineer who is a current member of the Institute of Noise Control Engineering (INCE), and has 5 years of experience performing construction noise analyses. If mitigation is warranted, potential measures, such as screening, noise blankets, etc., would be evaluated for their effectiveness, and appropriate measures would be implemented.
Alternatives 2 and 4 The Anchorage Way Marinas only would be subject to substantial noise effects from pile driving construction activities. Pile driving activities for the Cerritos Channel are expected to last approximately 2 weeks (10 days) for each of the two stages of falsework pile driving.	**N-2** During project construction, pile driving will occur during daylight hours only.
	N-3 Residents identified as being impacted by noise from pile driving in Cerritos Channel or Consolidated Slip may obtain hotel vouchers for a local hotel so they can temporarily move. This mitigation measure would apply only during the time that pile driving is being conducted in the Cerritos Channel or Consolidated Slip. Some residents may, however, choose to stay and tolerate the noise. No other mitigation or compensation measure would be provided to residents.
OPERATIONS **Alternatives 1, 1A, 3** Leeward Bay Marina The peak-hour traffic noise levels would increase by between 1 and 10 dBA over existing conditions. Without abatement, the predicted loudest hourly noise levels would range from 61 to 67 dBA Leq(h). This alternative would result in noise levels at some locations that would approach the applicable Noise Abatement Criteria (NAC) for residential areas.	**N-4** Leeward Bay Marina Caltrans and FHWA will incorporate noise abatement in the form of a barrier along the SR-47 Expressway, with an approximate length of 239 m (785 ft) and an average height of 2.44 m (8 ft). The barrier will abate future traffic noise at 65 benefited noise-sensitive receivers. Preliminary reasonableness calculations indicate the estimated barrier cost would be approximately $23,400 per benefited residence, which is within the allowance per residence of $50,000 to $54,000.
Wilmington Neighborhood The peak-hour traffic noise levels would increase from 5 to 13 dBA over existing conditions.	**N-5** Wilmington Neighborhood For the Wilmington neighborhood, a barrier along the SR-47 Expressway and another on ground

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Without abatement, the predicted loudest hourly noise levels would range from 61 to 69 dBA Leq(h). This alternative would result in noise levels at some locations that would exceed the applicable NAC for residential areas.	level along Alameda Street, with an approximate combined length of 1,405 m (4,610 ft) and height of 3.66 m (12 ft) to 5.49 m (18 ft) would be constructed to abate future traffic noise at 56 benefited noise sensitive receivers. Preliminary reasonableness calculations indicate that the estimated barrier cost would be approximately $37,500 per benefited residence, which is within the allowance per residence of $48,000.
Alternative 2 Long Beach Neighborhood/SR-103 Extension The loudest hourly traffic noise level would either decrease by 1 to 4 dBA, increase by 1 to 2 dBA, or equal existing conditions. Without abatement, the predicted peak-hour noise levels at this location would range from 62 to 72 dBA Leq(h) and would exceed the applicable NAC at many locations within this residential receiver area.	**N-6** Long Beach Neighborhood/SR-103 Extension Caltrans and FHWA will incorporate noise abatement in the form of two barriers along SR-103 with an approximate combined length of 835 m (2,740 ft) to abate traffic noise levels. The two barriers would be 3.66 m (12 ft) high, although the barrier section along the northbound off-ramp would be 4.57 m (15 ft) high. The barriers would reduce noise levels in the receiver areas to below the NAC and would reduce noise levels for 27 equivalent frontage units. Preliminary reasonableness calculations indicate that the barriers would cost approximately $37,100 per benefited unit, which is below the allowance per residence of $44,000 to $52,000. The locations of the noise barriers are based on preliminary engineering plans and, as such, are considered to be approximate. The exact locations of these barriers would be determined during final design based on safety, engineering, and feasibility.
Alternatives 4 Anchorage Way Marinas The loudest hourly noise levels would decrease by 1 to 5 dBA. As a result, the loudest hourly noise levels would approach or meet the applicable NAC.	Under Alternative 4, no avoidance, minimization, and/or mitigation measures are proposed for project operations.
Alternatives 5 and 6 Anchorage Way Marinas The loudest hourly noise levels would increase by 4 dBA due to an increase in traffic volume. This would not be a substantial increase, but all receiver locations would exceed the applicable NAC. Wilmington Neighborhood The loudest hourly noise levels would increase by 7 to 9 dBA due to an increase in traffic volume. This would not be a substantial increase, but several areas would approach, equal, or exceed the applicable NAC. Long Beach Neighborhood/SR-103 Extension The loudest hourly noise level would either equal the existing condition or increase by 1 or 2 dBA due to an increase in traffic volume. This is not a substantial increase, but a number of areas would either approach or exceed the applicable NAC.	Under Alternatives 5 and 6, no avoidance, minimization, and/or mitigation measures are proposed for project operations.
3.15 ENERGY	No avoidance, minimization, and/or mitigation measures related to Energy are proposed.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
3.16 BIOLOGICAL RESOURCES	
<u>CONSTRUCTION</u> **Alternatives 1, 1A, 2, and 4** Wetlands east of the Schuyler Heim Bridge and along SR-103 could be affected by construction activities.	**B-1 Wetland Avoidance** To avoid the wetlands present to the east of the Schuyler Heim Bridge along the low tidal terrace on Cerritos Channel, and along SR-103 near Gabriel Street, construction staging, traffic, and vehicle access would be excluded from these areas to the extent feasible. Caution fencing would be installed to protect the small wetlands, and construction activities would be modified to avoid the areas. This measure also will be implemented, as necessary, to avoid adverse effects to jurisdictional waters.
Alternatives 1, 1A, 2, 3, and 4 Resuspension of fine-grained bottom sediments would occur during the replacement, including demolition (and retrofit under Alternative 3) of the Schuyler Heim Bridge in the Cerritos Channel, placement of bridge footings in the Consolidated Slip/Dominguez Channel, and other construction activities at either site. The harbor sediments in the area of the bridges are primarily silt and finer-sized fractions and, if resuspended, are expected to stay in suspension for days, resulting in exceedances of water quality standards that may last at least a few days. This relatively limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to birds or mammals. The Schuyler Heim Bridge is assumed to contain lead compounds, which could cause a significant adverse effect to the channel water quality during paint removal activities or demolition.	**B-2 Protecting Aquatic Communities (including Essential Fish Habitat, Coastal Pelagic Species, Groundfish)** Sediment resuspension would be minimized by adherence to construction measures such as cofferdams and turbidity curtains, which would contain resuspended sediment onsite until it settles. For some underwater construction activities (such as blasting to remove portions of the Schuyler Heim Bridge, pile driving for new bridge), these would be implemented. These measures also would reduce the noise/vibration effects of blasting and pile-driving on fish larvae. Measures that would be implemented during construction (including retrofit [Alternative 3 only], demolition, and/or new bridge installation) to minimize sediment resuspension effects include: • Channel bank work would include bank protection (riprap, concrete walls) to eliminate the possibility of enhanced bank erosion. • Cofferdams and blasting mats would be used during blasting operations. • Cofferdam, silt curtains, and/or turbidity curtains would be used during pile-driving • Turbidity curtains that are constructed of a permeable material allowing water to flow through the membrane while trapping suspended sediment would be used during underwater construction. To reduce effects to channel water quality from lead compounds in paint during removal or during bridge demolition, the following measures in some combination would be implemented: • Erect shrouds around working areas and suspending nets and tarps below bridges to catch debris from abrasive removal of old paint, where wind conditions permit. • Anchor tarps to barges below and enclose the bridge above to confine debris, where the bridge deck is not too far above water level. • Use barges and booms to capture fugitive floating paint chips and custom-built enclosures to confine and capture the abrasives, old paint chips, and paint.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	• Use vacuum or suction shrouds on blast heads to capture grit and old paint. • Perform lead-based paint removal offsite following demolition of steel members.
Construction could result in the removal of southern tarplant and other special-status species, if present on the project site.	**B-3 Protecting Special-Status Plant Species** Preconstruction surveys for southern tarplant would be conducted prior to construction. Surveys would be conducted during the blooming period for this plant, between June and October. If identified on site: • The feasibility of avoiding areas that support the species would be evaluated and, if feasible, the area would be avoided during construction. • If avoidance is infeasible, then mitigation would be required (see Mitigation Measure B-13).
The loss of active roosts of bat species (pallid bat; long-legged myotis; long-eared myotis; Yuma myotis; western mastiff bat; pocketed free-tailed bat; and big free-tailed bat) as a result of bridge removal would represent an adverse effect.	**B-4 Protecting Special-Status Bat Species** Avoidance and minimization measures apply to the following species: pallid bat; long-legged myotis; long-eared myotis; Yuma myotis; western mastiff bat; pocketed free-tailed bat; big free-tailed bat. To avoid or minimize effects to these species, the following measures would be employed relative to bridge or highway deconstruction or, under Alternative 3, seismic retrofit: • Four quarterly bat surveys would be conducted in the 12 months prior to start of construction to determine the presence or absence of the species, as determined appropriate by a qualified biologist. Surveys may include, but are not limited to the following: – Exit surveys of potential roost sites conducted by survey biologists stationed around the bridge or highway with binoculars and echolocation meters at nightfall – Surveys of all accessible potential roost sites on the bridge conducted by biologists permitted by CDFG for bat survey and handling • In the event any of the above special-status bat species are identified during field surveys, the following would be conducted: – Exclusion of active roost sites by appropriate barriers, installed during the nonbreeding season from September to March – Taking appropriate steps to exclude roosts when vacant during nighttime foraging periods when identified during construction – Delay of construction where maternity roosts are encountered, where feasible, until after the young have weaned and are in flight • Education of construction workers to identify potential roost sites, to avoid activity when identified, and to advise biological monitors when roosts are encountered.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Some noise and construction activity may affect bird nests within 456 m (1,500 ft) of the project site.	**B-5 Protecting Bird Nests and Eggs** Preconstruction surveys to identify potential nest sites for birds will be conducted within all construction areas on the bridge prior to the nesting season. Potential nest sites will be passively excluded with bird spikes, plywood, or other means, as necessary. An onsite biological monitor will be present during construction activities to ensure that nests are not established within the construction zone, and to implement passive exclusion as necessary.
Some noise and construction activity may affect least tern nesting colonies within 456 m (1,500 ft) of the project site. The breeding activities of California least tern, if present, also could be disrupted.	**B-6 Protecting California Least Tern** Prior to construction, potential breeding habitat for least tern in the vicinity of the build alternatives (Alternatives 1 through 4) would be surveyed for least tern breeding colonies during the March 1 to September 1 bird nesting season. If the species is breeding within 457 m (1,500 ft) of proposed construction areas, measures would be developed in consultation with the USFWS.
Removal and replacement of the Schuyler Heim Bridge with a concrete fixed bridge would result in the loss of a known nest site for a breeding pair of peregrine falcons.	**B-7 Protecting American Peregrine Falcon** • Historical nesting sites on the Schuyler Heim Bridge would be made unsuitable prior to the nesting season (January 15 to July 30) to avoid direct effects to individuals or an active nest site during construction. This may include positioning exclusion materials, such as plywood, on these nest sites prior to the nesting season to render the sites unsuitable. • Site monitoring during the construction period would be conducted to observe the pair's movements and document its activities. This may assist in identifying nesting attempts by the pair on adjacent structures or within the construction zone. If this occurs, and the nest site is at risk or could be at risk during the nesting season, the site can be excluded. This includes risk from egg loss which may occur on a less than optimal nest site. If the nesting attempt site is not anticipated to be at direct risk from construction disturbance during the upcoming nesting season, then the pair will be allowed to nest, and nesting success will be monitored. • Efforts will be made to coordinate the construction schedule of the Schuyler Heim Bridge with the construction schedule of the future Gerald Desmond Bridge replacement project. If these two schedules do not overlap, then the Gerald Desmond Bridge may provide a nesting location for one peregrine pair to breed at the Schuyler Heim/Desmond bridge complex, which has generally been the case in past years. Coordination meetings with the Gerald Desmond Bridge project team are ongoing.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Some noise may occur during construction that could affect areas within 152 m (500 ft) of the project site; this may disrupt breeding activities for burrowing owl, if present.	**B-8 Protecting Burrowing Owl** To avoid effects on burrowing owls, preconstruction surveys of potential breeding sites would be conducted onsite within 152 m (500 ft) of construction activities. Construction activities would be delayed, if feasible, within 152 m (500 ft) of nest sites until after the breeding season for this species (February to July). If breeding birds are present, then mitigation would be implemented (see Mitigation Measure B-14).
Construction trucks and heavy equipment may introduce or transport seeds from non-native terrestrial vegetation, resulting in colonization of existing or newly created vacant spaces with exotic vegetation.	**B-9 Protecting Against Invasive Species** Caltrans and/or its contractors will implement the following measures: • Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations. Clean construction equipment at designated wash stations before entering the construction area. • Landscaping and erosion control included in the project would not use species listed as noxious weeds. • Seed all disturbed areas with certified weed-free native mixes. Use only certified weed-free straw or rice mulch in uplands only. • Conduct a follow-up inventory of the construction area during the first spring following the completion of construction to verify that construction activities have not resulted in the introduction of new noxious weed infestations. • If new noxious weed infestations are located during the follow-up inventory, the appropriate resource agency will be contacted to determine the appropriate species-specific treatment methods.
<u>**OPERATIONS**</u> **Alternatives 1, 1A, 2, and 4** Birds could be injured by coming into contact with transmission lines or energized parts of the transmission lines/towers.	**B-10 Protecting Avian Species at Transmission Towers** To protect against operational impacts to birds moving about or utilizing new transmission towers, construction design standards for avian protection will be followed, including use of visual line enhancers and adequate spacing between energized parts. No lighting will be associated with new transmission towers. Design standards for avian protection will be developed from the Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and USFWS *Avian Protection Plan Guidelines* (APLIC and USFWS, 2005), APLIC's *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (APLIC, 1996), or APLIC's *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (APLIC, 1994).
Alternatives 1, 1A, 2, 3, and 4 Noise and construction activity may affect least tern breeding activities and/or nesting colonies within 456 m (1,500 ft) of the project site.	**B-11 Mitigating for Breeding Colonies of Least Tern** This measure may include the following, pending consultation with USFWS: • Breeding habitat would be disrupted during the non-nesting season when terns are absent from the site. The disruption may include placement of barriers to discourage nesting.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
	• Breeding habitat to compensate for loss would be identified and established, possibly in coordination with existing tern mitigation programs implemented by Los Angeles Harbor at other locations, such as at Pier T.
The project would result in the removal of one known peregrine falcon nesting location on the Schuyler Heim Bridge, in a territory that typically supports one pair but contains two alternate nesting locations.	**B-12 Mitigating Loss of Peregrine Falcon Nest** This measure may include the following, as appropriate, pending informal consultation with CDFG: • Create a new nest site by placing a nesting box (and potential additional support material) on a tower of the Badger Avenue Bridge or other elevated structure, as determined by a qualified biologist. Because the Badger Avenue Bridge is located immediately adjacent to the Schuyler Heim Bridge, and is approximately the same height, there is the potential that it could provide a suitable vantage point and nesting location to peregrine falcons. The peregrine pair has never nested on this bridge in the past but this may be due to an absence of suitable nesting platforms and substrate. Further evaluation of any design changes or nesting ledge installations by a qualified peregrine expert would be conducted. • Offsite mitigation. The goal of the offsite mitigation would be to augment existing peregrine populations. This could be accomplished by purchasing approximately 10 nestling peregrines from a captive breeding facility and have those young released (hacked) in an area of California where, when they disperse, they will possibly create a new nesting pair. • The local peregrine falcon population (approximately five pairs) would be monitored for 2 years. The pair located on the Schuyler Heim Bridge would be monitored to determine if they nest on the Badger Bridge, or if they integrate into other territories by filling a vacancy in another pair, or by usurping existing individuals in a pair. If offsite mitigation is conducted, hacked peregrine falcons would be monitored to determine their fate and if a new nesting pair is established. An experienced peregrine falcon biologist would conduct monitoring of the hacked peregrine falcons.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Construction could result in the removal of southern tarplant and other special-status species, if present on the project site.	**B-13 Mitigating Loss of Special Status Plant Species** If special-status plant species cannot be avoided during project construction, then seed and/or propagules of the species would be collected and replanted at an alternative location. These activities will be conducted in coordination with the resource agencies. – Mitigation measures would be refined in coordination with the resource agencies and standard practices for this species. Measures may include the following: Areas determined to have appropriate hydrology and soil chemistry (salinity) shall be reseeded with seed collected from populations of southern tarplant. Southern tarplant is restricted to saline, vernally mesic areas, often along the margins of estuaries or areas of high salinity. – For one year prior to construction as feasible, southern tarplant seed shall be collected by personnel experienced in collection of native seeds. Seed collection shall be conducted during successive years from September through December. One-half of the first year's collected seed shall be hand-broadcast at the reintroduction site with the remaining one-half stored in appropriate conditions for introduction the following year. Seed collected during the second season shall be stored for potential later use in the event that success standards are not met following the seeding during years one and two. – Because southern tarplant is an annual species, population numbers are expected to naturally fluctuate from year to year depending upon environmental conditions. Reseeded areas shall be monitored for three years following the initial seeding. Establishment shall be considered successful if plant densities during any of the three years of monitoring are comparable to densities of the impacted populations based on sampling quadrants. If established populations do not achieve comparable densities of impacted populations, additional reintroduction sites shall be identified and stored seed, obtained during the collection period, shall be introduced into additional sites over a two-year period (as in the initial reintroduction program described above).
Some noise may occur during construction that could affect areas within 152 m (500 ft) of the project site; this may disrupt breeding activities for burrowing owl, if present.	**B-14 Mitigating for Burrowing Owl** Burrowing owl individuals present within the construction area would be flushed from active burrows during the non-nesting season (August to January) and burrows excluded. These activities would be conducted in a manner consistent with the *Burrowing Owl Survey Protocol and Mitigation Guidelines*, prepared by The California Burrowing Owl Consortium in 1997. Exclusions would require maintenance and monitoring to assure that individuals do not return.

Table S-1
Potential Project Effects and Avoidance, Minimization, and/or Mitigation Measures

Environmental Resource/Impacts	Avoidance, Minimization, and Mitigation Measures*
Alternative 3 A small (about 1/4-acre) wetland is present within the footprint of Alternative 3, along the south bank of Cerritos Channel, just east of the existing Schuyler Heim Bridge. This wetland is likely to be removed under Alternative 3, as the proposed bridge alignment is directly in line with the wetland location.	**B-15 Mitigating Loss of Wetland** Under Section 404 of the Clean Water Act, a permit would be required from USACE prior to impacting waters of the U.S., including wetlands: • This may be achieved through the Nationwide Permit system, or an Individual Permit. • Compliance to permit conditions would be required. • The permit is likely to require implementation of mitigation to offset effects to waters of the U.S., including wetlands. This may include creation of offsite wetlands, or payment of fees into existing mitigation banks.
<u>OPERATIONS</u>	No avoidance, minimization, and/or mitigation measures related to Biological Resources are proposed for project operations.

Table S-2
Agency Actions, Permits, and Approvals Needed

Agency	Role	Action	Comment
Federal			
Federal Highway Administration	Responsible Agency	Project funding; Compliance with Executive Order 1190 re: protection of wetlands; Compliance with Uniform Relocations and Assistance Act	
National Marine Fisheries Service	Responsible Agency	Consultation re: Essential Fish Habitat; Incidental Harassment Authorization (IHA)	IHA may be required for project construction effects on harbor seal and California sea lion.
U.S. Army Corps of Engineers	Responsible Agency	Section 404 Permit (Clean Water Act); Section 10 Permit (Rivers and Harbors Appropriations Act)	
U.S. Coast Guard	Cooperating Agency	Bridge Permit (Section 9, Rivers and Harbors Appropriations Act)	
U.S. Fish and Wildlife Service	Responsible Agency	Endangered species permitting	
State			
California Coastal Commission	Responsible Agency	Coastal Development Permit	Required only if the local Coastal Development Permits are appealed.
California Department of Fish and Game	Responsible Agency	Streambed Alteration Agreement (Section 1600, Fish and Game Code); Endangered Species Permitting (as applicable)	Applicable endangered species: Peregrine falcon; bats
California Department of Transportation	Lead Agency	EIS/EIR Approval	
California Transportation Commission	Responsible Agency	Approval authority for funding and route adoption	
State Historic Preservation Officer	Responsible Agency	Consultation; Approval per Section 106 (National Historic Preservation Act)	

Table S-2
Agency Actions, Permits, and Approvals Needed

Agency	Role	Action	Comment
Regional			
Regional Water Quality Control Board	Responsible Agency	Section 401 Water Quality Certification (Clean Water Act); Section 402 National Pollutant Discharge Elimination System [NPDES] Permit (Clean Water Act); Report of Waste Discharge	
South Coast Air Quality Management District	Responsible Agency	Clean Air Act compliance.	
Local			
Alameda Corridor Transportation Authority	Project Applicant	Project funding	
California Department of Transportation	Responsible for permitting within its jurisdiction	Encroachment permits	
City of Long Beach	Responsible for permitting within its jurisdiction	Discretionary approvals	
City of Los Angeles	Responsible for permitting within its jurisdiction	Discretionary approvals; Encroachment permits	
City of Los Angeles, Bureau of Engineering	Responsible for permitting within its jurisdiction	Coastal Development Permit	
City of Los Angeles, Fire Department	Responsible for permitting within its jurisdiction	Permits for storage and use of flammable hazardous materials (explosives)	
County of Los Angeles, Department of Public Works, Flood Control District	Responsible for permitting within its jurisdiction	Encroachment permits	Specific to work in the Dominguez Channel
Port of Long Beach	Responsible Agency	Harbor Development Permit; Coastal Development Permit	
Port of Los Angeles	Responsible Agency	Application for Development Project; Coastal Development Permit	

Chapter 1.0 Project Purpose and Need

1.1 Introduction

The Ports of Long Beach and Los Angeles form the largest port complex in the United States, based on container cargo volume, with the greatest cargo volume coming from international trade. The majority of this cargo must traverse over one of the three bridges that connect Terminal Island to the mainland on its way to or from the ports. The three bridges are the Commodore Schuyler F. Heim Bridge (Schuyler Heim Bridge), which runs north and south and connects the island to the Los Angeles community of Wilmington; the Gerald Desmond Bridge within the Port of Long Beach (POLB) on the east side of Terminal Island; and the Vincent Thomas Bridge within the Port of Los Angeles (POLA) on the west side of Terminal Island.

The existing Schuyler Heim Bridge is a steel, vertical-lift bridge that spans the Cerritos Channel. It is a popular route for vehicular traffic because the bridge's sustained longitudinal grades are relatively short and low. The bridge has become a vital transportation link between the POLA/POLB and the mainland.

In order to maintain this link and to facilitate the continued movement of goods (cargo) to and from the ports, it is proposed to provide a seismically safe vehicular connection along the critical north-south corridor between Terminal Island and the mainland (bridge). This connection currently is provided by the Schuyler Heim Bridge. A limited access, high-capacity alternative route (expressway) for traffic between Terminal Island and Interstate (I-) 405 is also proposed to meet traffic needs for the corridor.

The project study area addressed in this Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) lies between I-710 on the east, I-110 on the west, State Route (SR)-91 on the north, and Ocean Boulevard on the south (see Figure 1-1). As shown, the Schuyler Heim Bridge is located within the City and Port of Long Beach. The proposed expressway would be located in the City and Port of Los Angeles (Alternatives 1 and 3) or in the Cities of Los Angeles, Long Beach, and Carson, and the Ports of Los Angeles and Long Beach (Alternative 2).

The proposed Schuyler Heim Bridge Replacement and SR-47 Expressway Project is subject to the transportation conformity requirement, as well as National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) evaluation. The originally proposed Schuyler Heim Bridge Replacement and SR-47 Expressway (Project ID: LA0D45) were included in the approved Southern California Association of Governments (SCAG) 2006 Regional Transportation Improvement Program (RTIP) and the 2004 Regional Transportation Plan (RTP), as amended in 2006. An amendment to include the addition of the flyover and auxiliary lanes for the bridge was submitted to the Los Angeles County Metropolitan Transportation Authority (MTA) and SCAG. The changes will be included in the 2006 RTIP as amended by July/August 2008. In addition, the changes in the project scope will be identified in the 2008 RTP that is expected to be adopted by the SCAG Regional Council in March 2008.

1.2 Purpose and Need for the Project

1.2.1 Project Purpose

The purpose of the proposed project is to:

- Provide a structurally and seismically safe vehicular connection along the critical north-south corridor between Terminal Island and the mainland that can remain in service following a major earthquake to ensure that ground and vessel transportation are maintained
- Improve operational and safety design features of the crossing to facilitate the movement of people, freight, and goods, while meeting current design standards to the maximum extent feasible

The purpose of the proposed project is also to provide a high-capacity alternative route for traffic between Terminal Island and I-405 that would:

- Reduce traffic congestion on local surface streets (between Terminal Island and Pacific Coast Highway), as well as on I-110 and I-710
- Improve safety by providing a limited-access route between Terminal Island and I-405 that would:
  - Eliminate at-grade railroad crossings and signalized intersections
  - Connect the Schuyler Heim Bridge with an emergency service route that would facilitate movement to and from the ports following a major earthquake

This high-capacity link would allow traffic to continue northward along Alameda Street, or SR-103, and provide essential north-south connectivity with the regional freeway system (I-405 and SR-91) for the movement of people and goods to and from the ports.

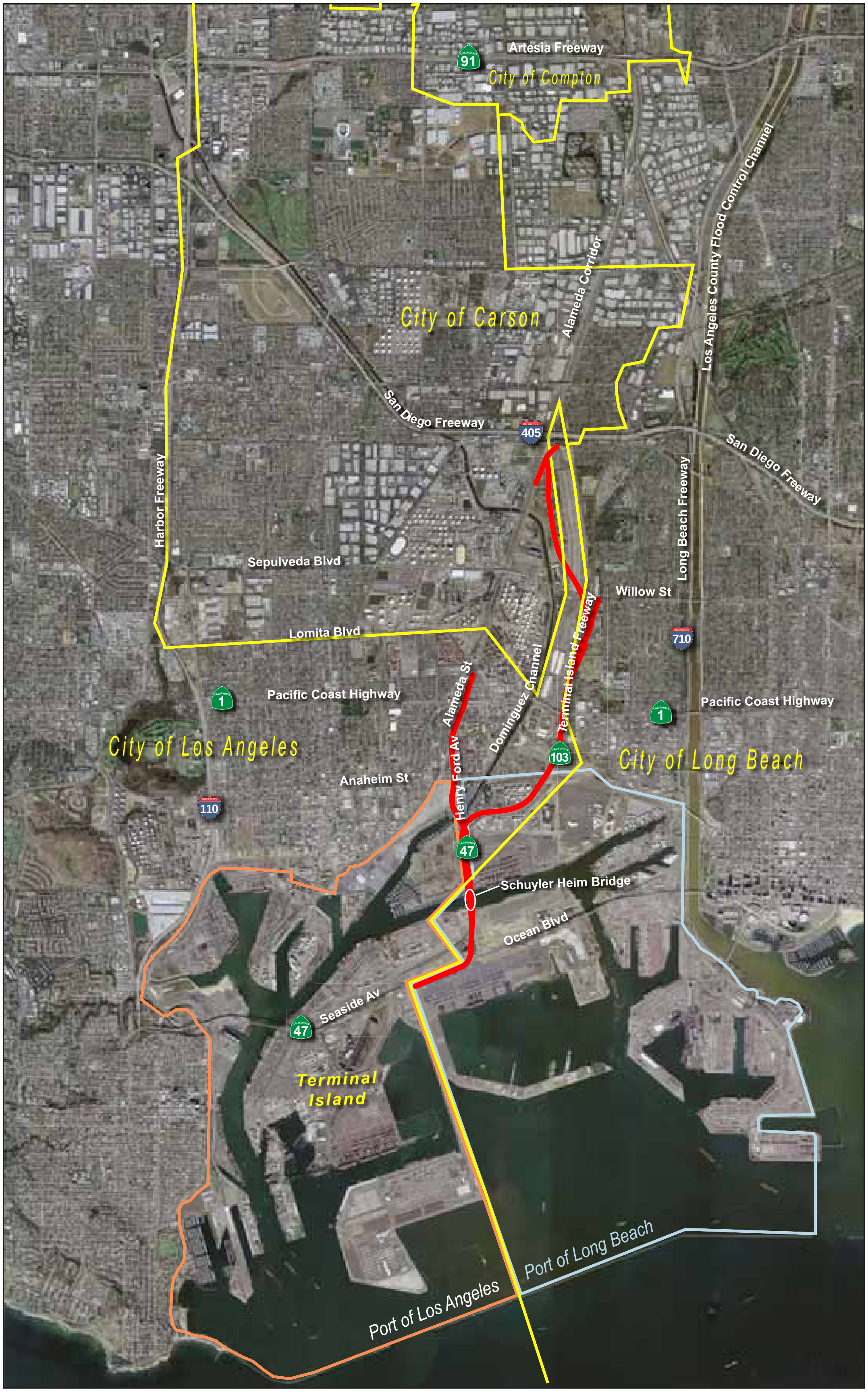
1.2.2 Need for the Project

1.2.2.1 Schuyler Heim Bridge

1.2.2.1.1 Seismic and Structural Deficiency

1.2.2.1.1.1 Seismic Deficiency

The Schuyler Heim Bridge is located within the Los Angeles Basin, which is an area of high seismic activity. The Northridge (1994, Magnitude [M] 6.7), Whittier Narrows (1987, M 5.8), San Fernando/Sylmar (1971, M 6.6) and Long Beach (1933, M 6.3) earthquakes are some of the larger earthquakes that have occurred in the region in recent memory. In addition, numerous fault lines occur in the area and have the potential to release earthquakes, some of which could affect the Schuyler Heim Bridge. Among these is the Palos Verdes Fault, which is located approximately 2.7 kilometers (km) (1.7 miles [mi]) from the bridge and is believed to be capable of an M 7.0 earthquake.



LEGEND:

- City Boundary
- Proposed Project Alignment
- Port of Los Angeles Boundary
- Port of Long Beach Boundary

No Scale

Source: U.S.G.S. Aerial Map Service, Los Angeles Harbor Department, 2004

Figure 1-1
Study Area
Schuyler Heim Bridge Replacement and SR-47 Expressway

After the 1994 Northridge quake, Caltrans determined that the Schuyler Heim Bridge was in need of a seismic retrofit (it was designed to meet 1946 standards). Subsequently, Caltrans identified the Schuyler Heim Bridge as one of three seismic retrofit projects requiring replacement of existing major bridge structures (Caltrans, 2005).

The timber piles supporting the approach structures at a number of bents were lacking adequate axial capacity to support the weight of the structure in the presence of earthquake-induced forces. Column footings lack adequate reinforcement to resist the demands from column moments. The bolts connecting the rocker bearings to the bent caps are likely to shear off, causing the bent caps to fall off their supports. Drop-spans with expansion joints are used to accommodate thermal expansion in the superstructure. The drop-spans are supported on hanger plates, which are vulnerable to lateral earthquake forces. These hanger plates are likely to fail in an earthquake and cause collapse of the drop-spans.

The truss structures and lift span (three spans over the Cerritos channel) were found to have several deficient members. The bottom lateral members, as well as the bearings of the truss spans, are likely to fail. For the lift span, failure was likely in the in the tower legs, transverse and longitudinal x-bracings, and tower anchorages to the piers.

In addition, FHWA and Caltrans have documented that the existing Schuyler Heim Bridge does not conform to current seismic criteria (Caltrans, 2002). Using the Caltrans 1996 Seismic Hazard Map, peak bedrock acceleration at the site is estimated to be 0.6 g[1]. However, it has been determined that, due to the ongoing deterioration of the bridge, it would only require a seismic event with a bedrock acceleration of 0.3 g to cause collapse of the main bridge spans; an event with 0.1 g acceleration would result in collapse of the approach spans. Without seismic safety improvements, it is likely that damage to the bridge would be so severe that it could not be reopened to traffic after a seismic event that resulted in peak bedrock acceleration.

This seismic deficiency presents a major concern for the bridge. The bridge provides a critical connection between Terminal Island and the mainland and is crucial to providing emergency access to and from the island following a major earthquake. Such access would be needed to:

- Provide for emergency relief access to and from the island
- Maintain a connection for the critical movement of people, freight, and goods

The seismic deficiencies described above indicate that the bridge is not currently able to provide such access.

1.2.2.1.1.2 Structural Deficiency

The June 2003 Caltrans *Structure Inventory and Appraisal Report* classified the bridge as structurally obsolete and determined that the bridge had a consistently dropping sufficiency rating, which was 40.9 at the time of the 2003 report. Bridges with sufficiency ratings lower than 80 are considered "structurally deficient" and "functionally obsolete." Bridges with

[1] Bedrock acceleration is the horizontal movement of the earth (the solid rock below the soil surface) caused by an earthquake. Its magnitude is measured in terms of (g), the acceleration due to gravity, which represents the force with which the earth moves (e.g., 0.1 g is the acceleration equal to 10 percent of the force of gravity).

ratings less than 50 qualify for federal aid replacement under the Highway Bridge Replacement and Rehabilitation (HBRR) program.

When a bridge is structurally deficient, it means that the bridge is in relatively poor condition or has insufficient load-carrying capacity, due either to deficiencies in the original design or as a result of deterioration. When a bridge is functionally obsolete, it means that it is narrow, has inadequate under-clearances, has insufficient load-carrying capacity, is poorly aligned with the roadway, and/or can no longer adequately service modern traffic.

For the Schuyler Heim Bridge, the low sufficiency rating is the result of:

- The poor condition of the paint on the superstructure and lift-span portion of the bridge
- The need for frequent replacement of the open-grid decking on the lift span
- The low safety factor and poor condition of the lift cables for the lift span
- Section loss in the lift-span tower interior members
- The poor condition of the concrete deck of the approach spans
- The poor condition of the approach columns and foundations
- The substandard lane widths, bridge rails, and shoulder widths

1.2.2.1.2 Operational and Safety Design Issues

1.2.2.1.2.1 Operational and Safety Design Standards

As mentioned above, the existing bridge is considered to be functionally obsolete. It has substandard lane widths (generally 3.3 m [10.8 ft]), bridge rails, and shoulder widths (generally 1.5 m [3.8 ft], although in some places there is no shoulder). Because the bridge is utilized by a large number of heavy trucks, there is a need to provide a structure with standard lane widths that can better accommodate larger vehicles. In addition, there is a need to provide a standard shoulder in each direction so that disabled vehicles (due to accident or mechanical failure) can more easily be removed from the travel lanes.

Another safety concern results from the fact that traffic approaching the bridge must stop when the bridge is raised to allow boats to pass underneath. This creates the potential for accidents and results in a need to improve safety for vehicles as they approach the bridge. The proposed replacement will be a fixed-span bridge that will eliminate the raising and lowering condition that impedes vehicular traffic.

1.2.2.1.2.2 Delays to the Movement of People, Freight, and Goods

Currently, truck and other vehicular traffic utilizing the Schuyler Heim Bridge are subject to delays when tall marine vessels request passage and the vertical-lift span is raised to accommodate their movement under the bridge. At such times, traffic backups occur on both the bridge and at the on-ramps on either side of the Cerritos Channel (at New Dock Street and Henry Ford Avenue). There is a need to minimize or eliminate such delays and backups associated with the existing bridge crossing in order to facilitate the efficient movement of people, freight, and goods to and from Terminal Island.

1.2.2.1.2.3 Bridge Life Cycle and Maintenance/Repair

The Schuyler Heim Bridge was built in 1948 and was designed and constructed based on the existing and projected needs at that time. Since then, however, Terminal Island and the surrounding area have developed considerably; and, port-related traffic is expected to increase substantially over the next several years. This additional traffic will inflict additional wear and tear on a structure that is at the end of its useful life span and requires frequent maintenance to keep functioning. These repairs sometimes necessitate the full or partial closure of the bridge, which can hinder the flow of traffic. There is a need for a reliable, low-maintenance structure that can withstand the heavy use resulting from port-related traffic and remain operational in future years.

Because of the deficiencies cited above, it can be seen that:

- There is the potential for a loss of service connection between Terminal Island and the mainland – The existing Schuyler Heim Bridge does not meet current seismic standards and would likely not be able to provide emergency service or other ground transportation access to and from the island immediately following a major earthquake. A major earthquake is likely to result in considerable damage to or partial failure of the existing bridge and require closure of the bridge for extensive repairs or emergency reconstruction.
- The bridge has a substandard design – The existing bridge does not meet current Caltrans roadway operational and safety design standards.
- There are delays to the movement of people, freight, and goods – The existing bridge is not efficient in transporting high quantities of people, freight, and goods due to disruptions when the vertical span is lifted for marine traffic in the Cerritos Channel.
- The bridge is near the end of its life span – The existing bridge has essentially exhausted its useful and functional life span.

1.2.2.2 High-Capacity Route

1.2.2.2.1 Transportation Demand/Insufficient Capacity

1.2.2.2.1.1 Insufficient Freeway Capacity

The existing transportation system within and adjacent to the ports is becoming increasingly constrained with cargo traffic and other vehicular traffic. A POLA/POLB study forecast that the amount of cargo entering the two ports would nearly double between 2010 and 2020. During the same time period, the amount of port-related truck traffic also is expected to double. This large, and rapid, increase in truck volume has the potential to seriously compromise essential north-south connectivity between the ports and the regional freeway system, thereby slowing and/or otherwise limiting the movement of people, freight, and goods.

In response to the projected increase in cargo, the Ports of Los Angeles and Long Beach, Caltrans, the MTA, and the cities of Los Angeles and Long Beach are currently developing several transportation improvement projects to help alleviate freeway system congestion. Among these is this proposed north-south expressway between Terminal Island and I-405, which would complement a new bridge; the bridge would be a portion of the expressway, with no bottleneck for traffic flow.

1.2.2.2.1.2 Local Surface Street Congestion

The 2007 Traffic Study (MMA, 2007) assessed current and future traffic in the project area. The study encompassed 20 intersections in a study area bounded by Ocean Boulevard to the south, Anaheim Street to the north, I-710 to the east, and I-110 to the west. The intersection level of service (LOS) analysis for the freeway system (ramp merge/diverge areas and weaving sections) indicated that, during the 2030 base year, 10 of the 20 intersections evaluated would operate at LOS E (poor) or LOS F (failure) during one or more peak hours.

These 10 intersections are listed below:

- SR-47/New Dock Street on-ramp (unsignalized)
- SR-47/Henry Ford Avenue ramps (unsignalized existing and signalized in future)
- Henry Ford Avenue/Anaheim Street
- Alameda Street/Anaheim Avenue
- Alameda Street/PCH connector ramp north of PCH
- PCH/Alameda Street connector ramp east of Alameda Street
- Alameda Street/Sepulveda Boulevard connector ramp north of Sepulveda Boulevard
- Sepulveda Boulevard/Alameda Street connector ramp east of Alameda Street
- Alameda Street/223rd Street connector ramp south of 223rd
- 223rd Street/Alameda Street connector ramp east of Alameda Street

The delay criteria that determines LOS at intersections are shown in Table 1-1.

Table 1-1
LOS Categories

LOS	Avg. Delay/Vehicle (Sec)	Traffic Conditions
A	≤ 10	Little or no delay/congestion
B	> 10 – 20	Slight congestion/delay
C	> 20 – 35	Moderate delay/congestion
D	> 35 – 55	Significant delay/congestion
E	> 55 – 80	Extreme congestion/delay
F	> 80	Intersection failure/gridlock

Source: MMA, 2007.

Part of the problem leading to surface street congestion is that there is poor connectivity between Terminal Island and Alameda Street, most of which was recently widened over most portions to six lanes (three in each direction) and which provides an alternate, non-freeway route to I-405, SR-91, and to the regional freeway system. Currently, to connect from Terminal Island to Alameda Street, vehicles must travel 1.5 km (0.9 mi) on SR-47 north from Ocean Boulevard. They must then exit at the Anaheim Street off-ramp to Henry Ford Avenue and travel north through local streets, crossing three signalized intersections and five railroad crossings, for about 2 km (1.2 mi) before joining Alameda Street just south of Pacific Coast Highway. The use of surface streets and interference from the signalized intersections and railroad crossings lead to traffic congestion and delays.

1.2.2.2.1.3 Safety at Intersections and Railroad Crossings

Based on the ongoing growth of the ports of Long Beach and Los Angeles and associated increases in rail and vehicular traffic, the local street and at-grade rail crossings will experience increased traffic. This will increase the likelihood for grade-crossing incidents at the following crossings within the project area: Union Pacific Railroad San Pedro Branch

(Manual Subdivision)/Henry Ford Avenue and Pier A Way; ACTA 3/Henry Ford Avenue; West Basin Lead Track/Henry Ford Avenue; Wilmington Wye (two tracks)/Alameda Street, and Industry Track/Southbound SR-47 New Dock Street off-ramp. Because railroads consider grade crossing safety primarily a highway issue (Angels on Track Foundation, 2006), it becomes the responsibility of the roadway jurisdiction to provide for safe railroad crossings.

Studies have shown that a motorist is 30 times as likely to die in a collision with a train as in all other types of motor vehicle accidents (West Virginia Department of Transportation, 2006). Studies have also shown that there is a substantial increase in safety in locations where railways and roadways are grade-separated (Busch and Funderburg, 2003; Cintra Zachry, 2006). Hence, there is a need to reduce the potential for conflicts/incidents between vehicles and trains to improve the safety of this part of the transportation network. A secondary benefit to such an improvement would be to reduce the ensuing congestion and related incidents that occur after a train-vehicle accident.

1.2.2.2.2 Inability to Provide for Uninterrupted Transport of People, Freight, and Goods Following a Major Earthquake

As stated above, vehicles must now travel on surface streets, pass through signalized intersections and over railroad tracks while traveling between the Schuyler Heim Bridge and Alameda Street. In the event of a major earthquake, it is likely that this path would be littered with debris and blocked from use for an extended period of time.

This would present a problem in terms of providing emergency access to and from Terminal Island, as well as in providing for the continued movement of people, freight and goods, all of which would be essential during any emergency recovery effort.

As stated in Section 1.2.2.1, the Schuyler Heim Bridge is a critical link and must be able to provide emergency access between Terminal Island and the mainland following a major earthquake. However, this structure will only provide part of the facility needed to aid in post-earthquake recovery. What is also needed is a companion highway that can remain standing but can also bypass the closed surface streets and allow for connectivity with the regional freeway system and points farther north. Such a roadway would need to be built to a seismic design standard comparable to that of the bridge so that, when combined with the bridge structure, a complete, serviceable connection to the island would remain intact.

The need for such a highway structure becomes more apparent when considering that, of the three bridges that connect Terminal Island to the mainland, the Schuyler Heim Bridge may be the only usable bridge immediately following a major earthquake. In addition to the bridge, a facility that can provide access to I-710 and I-110, along with the rest of the regional freeway system, could be used in the rapid transport of emergency response vehicles, people, freight, and goods to and from Terminal Island.

Chapter 2.0 Project Alternatives

This chapter provides a description of the project alternatives evaluated in this Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), as well as alternatives that were considered and are no longer under consideration. The proposed project alternatives were developed by a multi-disciplinary team to achieve the project purpose and need, and to avoid or minimize environmental impacts. The purpose of the project is to provide a limited-access, high capacity and seismically safe vehicular connection along the critical north-south corridor between Terminal Island and the mainland that will facilitate the movement of people, freight, and goods and reduce congestion on local roadways.

The project (proposed action) is located in Los Angeles County along State Route (SR-) 47 and SR-103 from Terminal Island on the south to SR-91 (Artesia Freeway) on the north. Together, the project alternatives cover a distance of approximately 4.9 kilometers (km) (3.1 miles [mi]), from SR-47 kilometer post (KP) 4.4 (post mile [PM] 2.7) to SR-47 KP 9.3 (PM 5.8) and from SR-47 KP 4.4 (PM 2.7) to SR-103 KP 6.5 (PM 4.0). Within the limits of the proposed project, SR-47 is an expressway with three through-lanes in the northbound and southbound directions. The lanes have widths ranging from 3.4 meters (m) (11 feet [ft]) to 3.6 m (12 ft). The existing median widths vary from 1.21 m (4 ft) to 1.9 m (6.2 ft), with a center concrete barrier that transitions into a raised median to protect the steel truss bridge posts through the length of the Schuyler Heim Bridge. While the SR-47 entrance and exit ramps have varying nonstandard outside shoulders of 1.0 m (3.2 ft) to 1.5 m (4.9 ft), SR-47 itself has no inside or outside shoulders.

Within the project area, SR-103 is a conventional 4-lane undivided highway with two through-lanes in each direction. The northbound lanes have nonstandard lane widths that range from 3.1 m (10 ft) to 3.3 m (10.8 ft). The southbound lanes range from 3.2 m (10.4 ft) to 3.3 m (10.8 ft) wide. The existing median varies from 1.2 m (3.7 ft) to 0.6 m (1.8 ft) side, with a center concrete barrier. The existing SR-103 does not have any inside or outside shoulders within this segment.

The Schuyler Heim Bridge is a lift bridge with three nonstandard through-lanes in the southbound direction and two nonstandard through-lanes in the northbound direction. The lanes are less than 3.6 m (11.8 ft) wide. The bridge roadway has no shoulders.

Six project alternatives are evaluated in this Draft EIS/EIR: four build alternatives; one transportation system management (TSM) alternative; and a no build alternative. There are two major components to the build alternatives: replacement of the existing Schuyler Heim Bridge, and construction of a new expressway. Also, three of the alternatives (1 [and 1A], 2, and 3) include a flyover from eastbound Ocean Boulevard to northbound SR-47. The development process for these project components has occurred separately, as described in Section 2.1.

Depending on the selected alternative, a variety of permits and approvals would be required to complete the project. A list of potential permits and approvals is provided in Table 2-1. Additional information is contained in the individual environmental resource sections in Chapter 3.0.

Table 2-1
Permits and Approvals

Agency	Permit/Approval
Federal	
U.S. Army Corps of Engineers	Section 404 Permit (Clean Water Act) Section 10 Permit (Rivers and Harbors Act)
U.S. Coast Guard	Bridge Permit (Section 9, Rivers and Harbors Act)
State	
California Transportation Commission	State Route Adoption (Alternatives 1, 1A, 3)
California Department of Fish and Game	Streambed Alteration Agreement (Section 1600, Fish and Game Code) Endangered Species Permitting
California Coastal Commission	Coastal Development Permit
California Public Utilities Commission	Development Permit
Regional Water Quality Control Board	401 Water Quality Certification National Pollutant Discharge Elimination System (NPDES) Permit Report of Waste Discharge Notice of Construction
South Coast Air Quality Management District	Permit to Construct
State Historic Preservation Officer	Section 106 Approval (National Historic Preservation Act)
Local	
City of Long Beach	Encroachment Permits Discretionary Approvals
City of Los Angeles	Application-for-Development Permit Encroachment Permits Grading Permit Discretionary Approvals
City of Los Angeles, Bureau of Engineering	Coastal Development Permit
City of Los Angeles Fire Department	Permit to Store Hazardous Materials Explosives Permits
County of Los Angeles	Encroachment Permits (Dominguez Channel)
Port of Long Beach	Harbor Development Permit Coastal Development Permit Application-for-Development Permit
Port of Los Angeles	Application-for-Development Permit Coastal Development Permit Engineering Permit

2.1 Alternatives Development Process

2.1.1 Bridge Alternatives

As part of its program to survey and strengthen bridges under its authority, Caltrans has determined that the Schuyler Heim Bridge is in need of seismic retrofit improvements. A Project Scope Summary Report (PSSR) was completed in July 1998 (Caltrans, 1998a) to provide screening-level alternatives and cost analyses, and to program the recommended project. In the PSSR, five alternatives were considered:

- Seismic retrofit of the existing Schuyler Heim Bridge
- Fixed-span bridge parallel to and offset from the existing alignment
- Fixed-span bridge following the general existing alignment
- Vertical-lift, movable bridge parallel to and offset from the existing alignment
- Vertical-lift, movable bridge generally following the existing alignment

The fixed-span-bridge options were dropped from further consideration due to vertical clearance and right-of-way constraints and concerns that were initially raised by the United States Coast Guard (Coast Guard), Port of Los Angeles, and Port of Long Beach. The parallel vertical-lift bridge alternative was dropped from further consideration because it required significant right-of-way acquisitions, and because it would require a temporary fixed-span bridge for detours, interim retrofit of approach spans, and acquisition of additional rights-of-way at prohibitive cost. Consequently, the PSSR recommended a seismic retrofit project, and plans, specifications, and estimates (PS&E) were begun for the retrofit design.

During the PS&E phase, Caltrans performed a more detailed cost comparison of retrofit/rehabilitation and replacement (Caltrans, 2002), and estimated the present worth of the project alternatives over a 75-year life cycle. The evaluation considered both rehabilitation of the existing lift bridge and replacement with a fixed-span bridge or lift bridge.

The cost evaluation showed that the seismic rehabilitation plus future replacement and vertical-lift-bridge replacement alternatives would be more than twice the cost of the fixed-span-bridge replacement alternative. As a result, the rehabilitation and vertical-lift-bridge replacement alternatives were dropped from further consideration, and a fixed-span-bridge alternative was reconsidered.

To provide bridge alternatives that meet current seismic criteria, are cost effective, and avoid demolition of the existing Schuyler Heim Bridge, a second fixed-span-bridge replacement alternative was added. This alternative would provide a fixed-span bridge east of the existing lift bridge. With this alignment, it would be possible for the existing Schuyler Heim Bridge to remain standing rather than be demolished, as would occur with the initial fixed-span-bridge replacement alternative.

The two fixed-span-bridge alternatives were:

- Bridge Alternative 1: Fixed-span-bridge replacement on the alignment of the existing Schuyler Heim Bridge

- Bridge Alternative 2: Fixed-span-bridge replacement on an alignment east of the existing Schuyler Heim Bridge

Several options for various heights and widths for these alternatives were considered. At the time of the Notice of Preparation (NOP) that was issued in 2002, there were two vertical-clearance options and three navigable-channel-width options for each of the fixed-span-bridge alternatives, as follows:

2.1.1.1 Vertical Clearance Options

- Vertical Clearance Option A: The vertical clearance of the fixed-span bridge would be 11.6 m (38 ft) over the mean high water level (MHWL) of 1.43 m (4.7 ft). This would maintain the same clearance as when the existing lift bridge is in the lowered position.
- Vertical Clearance Option B: The vertical clearance of the fixed-span bridge would be 14.3 m (47 ft) over the MHWL level. This profile would accommodate a 13.7-m (45-ft) fireboat.

2.1.1.2 Channel Width Options

- Channel Width Option A: The width of the navigable channel would be 54.9 m (180 ft), the same as the width of the existing navigable channel.
- Channel Width Option B: The width of the navigable channel would be decreased to between 42.7 m and 44.2 m (140 ft and 145 ft).
- Channel Width Option C: The width of the navigable channel would be decreased to between 24.4 m and 25.9 m (80 ft and 85 ft).

After the NOP was circulated, several changes were made to the options for bridge height and channel width. The Coast Guard expressed concerns with marine vessel access beneath a fixed-span bridge at 11.6 m (38 ft) above MHWL, and with a navigable channel width of 24.4 to 25.9 m (80 to 85 ft). In addition, the Coast Guard expressed a desire to examine a higher clearance bridge over Cerritos Channel to further lessen interference with marine vessel travel. Consequently, vertical-clearance Option B (14.3 m [47 ft]) and channel width Option A (54.9 m [180 ft]) were identified as the preferred vertical and horizontal dimensions.

Based on this analysis, one bridge configuration was agreed upon. The bridge configuration would feature a new fixed-span bridge adjacent to the east of the existing Schuyler Heim Bridge.

2.1.2 Expressway Alternatives

2.1.2.1 Proposed SR-47 Expressway Alignment

The SR-47 Expressway is envisioned as part of regional transportation improvements at the southern end of the Alameda Corridor, in the vicinity of the Ports of Los Angeles and Long Beach. The expressway is intended to provide improved transportation, circulation, and goods movement to and from the ports by utilizing recent improvements to Alameda Street. The Henry Ford Avenue Interchange and Grade Separation Project, along with the Ports Area Demonstration Projects, have created a five-lane street connecting SR-47 to

Alameda Street and beyond to Pacific Coast Highway (SR-1), SR-91, and I-405. The proposed expressway would build on this existing network of local streets by constructing a high-capacity, uninterrupted expressway linking this transportation network.

The proposed SR-47 Expressway would be an elevated 2.7-km (1.7-mi) four-lane expressway that would connect the Schuyler Heim Bridge to Alameda Street, south of the intersection with Pacific Coast Highway. The expressway alignment would be located along existing SR-47, from Ocean Boulevard on the south, across the Schuyler Heim Bridge (also designated SR-47) to a tie-in with SR-103 (which begins just south of the Consolidated Slip/Dominguez Channel), then along a new alignment north of Henry Ford Avenue to its terminus at Alameda Street, just south of Pacific Coast Highway. The facility would be designed to Caltrans expressway geometric standards, with limited access, and a posted speed limit of 80 km (50 mi) per hour.

Access to and exit from the expressway on the southern end would be available via Terminal Island from either Ocean Boulevard or New Dock Street, just north of Ocean Boulevard. At the northern end of the expressway, connections would occur directly from Alameda Street. There would be no other points of access or exit along the 2.7-km (1.7-mi) expressway.

The expressway would provide grade separation from five existing at-grade rail crossings, including the Union Pacific Railroad San Pedro Branch, ACTA 3, West Basin Lead, and Wilmington Wye (two crossings). Henry Ford Avenue would continue as an at-grade road, consisting of two lanes of traffic in each direction beneath the elevated expressway, thereby continuing existing local access to facilities and businesses along Henry Ford Avenue.

The expressway would be elevated above surface streets, bypassing the existing signalized intersection at Henry Ford Avenue and Anaheim Street, the planned signalized intersection at Henry Ford Avenue and Denni Street, and the nonsignalized intersections along Henry Ford Avenue at I Street, Opp Street, and Grant Street. The expressway would be carried on a concrete structure ranging from 1.9 to 3.0 m (6 to 10 ft) in thickness. The structure would be supported by concrete bents and by columns approximately 2.1 to 2.7 m (6.9 to 8.9 ft) in diameter and spaced approximately 47 to 75 m (154 to 246 ft) apart.

The elevated expressway would return to grade approximately 250 m (820 ft) south of Pacific Coast Highway. This segment would be located on mechanically stabilized earth (MSE), with concrete retaining walls on either side. Surface street improvements would be made in the vicinity of the expressway touchdown ramp.

North of Pacific Coast Highway, a new connection from southbound Alameda Street to Pacific Coast Highway would be constructed. This new connection will eliminate the southbound left turn at O Street and improve operation of the Alameda Street/O Street intersection.

2.1.2.2 Other Alignments Considered

Three expressway alignment variations (alignments 1, 2, and 3) were considered. These were evaluated in the *Project Feasibility Study: Alameda Corridor Truck Expressway (SR-47)* (Alameda Corridor Engineering Team [ACET], 2002). Alignments 1 and 2 are variations of the SR-103/SR-47 interchange north of the Cerritos Channel, and alignment 3 follows the route between Pacific Coast Highway and the SR-103/SR-47 interchange.

With alignment 1, the SR-47 viaduct would split (northbound and southbound) just west of the Hanjin Enterprises main terminal building. The northbound connector to SR-103 would merge with the SR-103 viaduct just north of the Cerritos Channel. The southbound connector to SR-47 would rise over SR-103 toward the west, and then meet the SR-103 viaduct north of the Cerritos Channel.

With alignment 2, the SR-47 viaduct would not split. Instead, SR-103 would split. Northbound SR-103 would veer east, circle under the SR-47 viaduct, then meet southbound SR-103 west of the Hanjin Enterprises main terminal building.

Alignment 3 would extend from the SR-103/SR-47 interchange in a northbound direction to Pacific Coast Highway. The exact alignment at the SR-103/SR-47 interchange would vary, based on the alignment (1 or 2) chosen.

The chosen alignment that was carried forward for analysis is a combination of alignment 1 and alignment 2 for the SR-103/SR-47 interchange, plus alignment 3 for the area between the interchange and Pacific Coast Highway. This hybrid alignment incorporates design features which reduced design exceptions, provided enhanced safety (weaving and line-of-sight), avoided conflicts with utilities, and minimized right-of-way acquisitions.

2.1.3 Ocean Boulevard/SR-47 Flyover

The Traffic Study evaluated the effects of the proposed project on roadways and intersections in the project area (MMA, 2005) and recommended mitigation for the Ocean Boulevard/SR-47 intersection in the form of a direct ramp (flyover) from eastbound Ocean Boulevard to northbound SR-47. The Traffic Study noted that, with construction of the SR-47 Expressway (proposed under project Alternatives 1 and 3), the Ocean Boulevard/SR-47 intersection would be level of service (LOS) F during all peak hours. With construction of the SR-103 Extension (proposed under project Alternative 2), the intersection would be LOS F during the morning (AM) peak hour, and LOS E during the mid-day (MD) and evening (PM) peak hours.

Based on the current Traffic Study (MMA, 2007), in the year 2030, without the project, the Ocean Boulevard/SR-47 intersection will be LOS E during AM and MD peak-hour traffic, and LOS D during PM peak-hour traffic. Therefore, even without the project, the Traffic Study noted, the flyover, which is part of the proposed project, would mitigate future LOS E conditions at the intersection. Further, current projections of 2030 traffic without the project may, in fact, underestimate traffic volumes, as year 2030 container volumes at the ports may increase to greater levels than reflected in current projections.

Based on the above considerations, it was determined that the flyover at the Ocean Boulevard/ SR-47 intersection would be a required element of the proposed project.

2.2 Proposed Project Alternatives

All of the proposed project alternatives would occur within the project study area shown in Figure 1-1. The project area addressed in this Draft EIS/EIR generally lies between Terminal

Island on the south and SR-91 on the north, and between I-710 (Long Beach Freeway) on the east and I-110 (Harbor Freeway) on the west. This project area includes the Port of Long Beach, Port of Los Angeles, Wilmington District of the City of Los Angeles, southern part of the City of Carson, and the western portion of the City of Long Beach. The southern portion of the project area consists primarily of industrial uses associated with the ports. To the north, the area is a mix of industrial, residential, and commercial land uses.

Within the project area, SR-47 and SR-103 sometimes share the same alignment (Figure 2-1). SR-47 traverses Terminal Island on Seaside Avenue and Ocean Boulevard, and then heads northerly across the Schuyler Heim Bridge. SR-47 continues northward along Henry Ford Avenue and intersects Alameda Street, just north of Denni Street. SR-47 continues along Alameda Street to SR-91 and continues northward, outside of the project area.

The SR-103 alignment also traverses Terminal Island on Seaside Avenue and Ocean Boulevard, and then heads northerly across the Schuyler Heim Bridge and along Henry Ford Avenue. Approximately 244 m (800 ft) north of Cerritos Channel, SR-103 (known locally as the Terminal Island Freeway) diverts toward the east, then extends northerly, ending at Sepulveda Boulevard/Willow Street.

The following project alternatives analyzed in this Draft EIS/EIR were taken from the Caltrans *Project Report-Project Study Report* (PR-PSR) (Caltrans, 2007). Other alternatives, which were considered and then withdrawn, are found in Section 2.3.

- Alternative 1: Bridge Replacement and SR-47 Expressway
- Alternative 2: SR-103 Extension to Alameda Street
- Alternative 3: Bridge Demolition Avoidance
- Alternative 4: Bridge Replacement Only
- Alternative 5: Transportation System Management
- Alternative 6: No Build

For the purposes of this EIS/EIR, Alternatives 1 through 4 are considered the "build alternatives" and are shown in Figure 2-1. Also, for the purpose of this Draft EIS/EIR, the proposed project consists of the six alternatives shown above.

Alternatives 1 through 5 would require acquisition of various easements and rights-of-way, depending on the selected alternative. Aerial and highway easements would be acquired for elevated portions of the SR-47 Expressway, SR-103 Extension, and Ocean Boulevard/SR-47 Flyover (Alternatives 1, 2, and 3); surface easements would be obtained at the locations of the bents or other surface improvements. Where the alignments would be at grade, highway easements would be obtained, as necessary. Temporary construction easements also would be obtained. For Alternatives 1, 1A, and 3, a State Route Adoption would be required for the segment of the SR-47 Expressway that would be constructed between the northerly terminus of the existing SR-47 and Pacific Coast Highway. Right-of-way drawings are provided in Appendix I.

In the following discussions, the term "shafts" refers to the underground foundation that supports the roadway structure, through "bent" or "pier columns." Bents are found over land, while piers are located in water. For the project, shafts would be either cast-in-drilled-hole (CIDH) or cast-in-steel-shell (CISS) structures (Figure 2-2), depending on the specific soils conditions.

Most of the shafts would be of CIDH construction, as CIDH shafts can carry vertical and lateral loads through the deep, liquefiable soil layers of the project area. Also, the CIDH shafts do not require footings and, therefore, minimize right-of-way takes and utility relocations and, overall, less environmental effects compared to the CISS shafts. The CISS shafts, which require footings, would be constructed where soil conditions require additional support, such as the replacement bridge over the Cerritos Channel.

Construction of the SR-47 Expressway or SR-103 Extension would proceed in the same manner for Alternatives 1, 2, or 3, so one general expressway construction sequence is described in Section 2.2.1.2 (No expressway construction would be required for Alternatives 4, 5, or 6.). Depending on the selected alternative, an overall construction period of approximately 2 to 3 years has been estimated for the bridge and expressway components of the project, beginning in 2009. This schedule assumes the use of multiple crews working over the course of a two-shift workday, typically for a 5-day workweek. This schedule also assumes that interfering utilities will have been removed prior to construction. The construction schedule for replacement of the Schuyler Heim Bridge is described as a 10-phase process, and for the expressway as an 8-phase process (Figure 2-3).

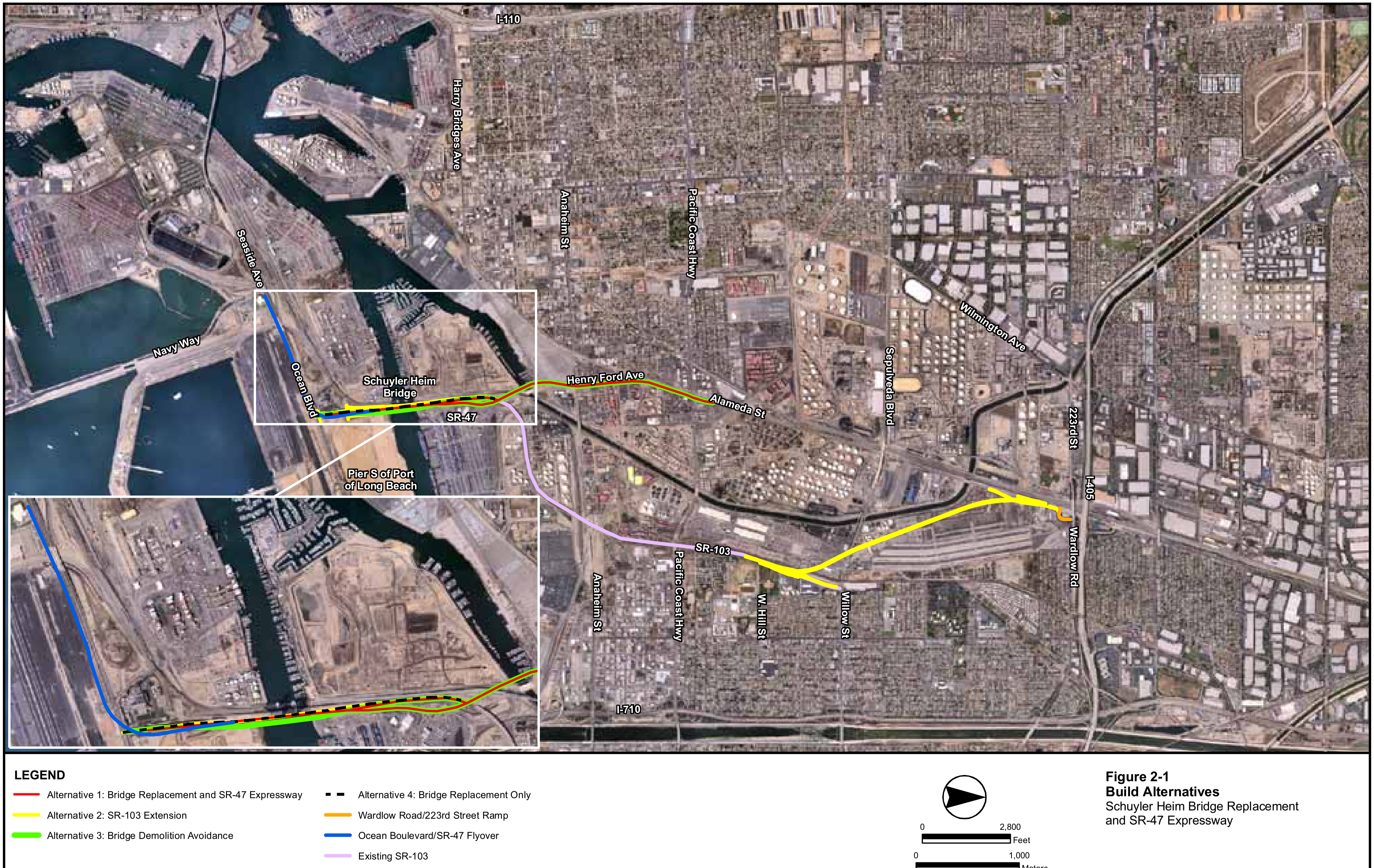
Construction of the flyover would proceed in the same manner for Alternatives 1, 2, or 3. Therefore, one general construction sequence is described in Section 2.2.1.2. (No flyover construction would be required for Alternatives 4, 5, or 6.) An overall construction period of approximately 1 year is anticipated for the flyover, beginning in 2015. The estimated construction schedule is shown in Figure 2-3.

The following sections provide the numbers of days, weeks, and months required for the various construction activities. All of these time periods are considered estimates, as the actual time required for a given activity may be longer or shorter than estimated, based on a variety of factors that include, but are not limited to, weather, production schedules, and delivery of materials.

2.2.1 Alternative 1: Bridge Replacement and SR-47 Expressway

2.2.1.1 Description

Alternative 1 would combine the Schuyler Heim Bridge replacement project and the Alameda Corridor Expressway project to create a grade-separated expressway that would be a high-capacity alternate route between Terminal Island and Alameda Street/Pacific Coast Highway (Figures 2-4a through 2-4e). This alternative involves replacement of the Schuyler Heim Bridge; construction of a limited-access expressway that begins at Ocean Boulevard, crosses the bridge, and extends northward for a distance of approximately 2.7 km (1.7 mi); and construction of the proposed 1,550-m (5,084-ft) flyover. The flyover would divert eastbound Ocean Boulevard traffic directly onto northbound SR-47, which would provide direct access to the replacement bridge over the Cerritos Channel and enable traffic on this route to avoid the congested Ocean Boulevard/SR-47 intersection. The SR-47 Expressway would be designed to specific Caltrans geometric standards for expressways, with limited access and a posted speed limit of 80 km (50 mi) per hour. Representative elevations are shown in Appendix B.1. The completed expressway would relieve traffic congestion to and from Terminal Island, become part of SR-47, and be owned, operated, and maintained by Caltrans. Alternative 1 extends from SR-47 KP 4.4 to 9.3 (PM 2.7 to 5.8).

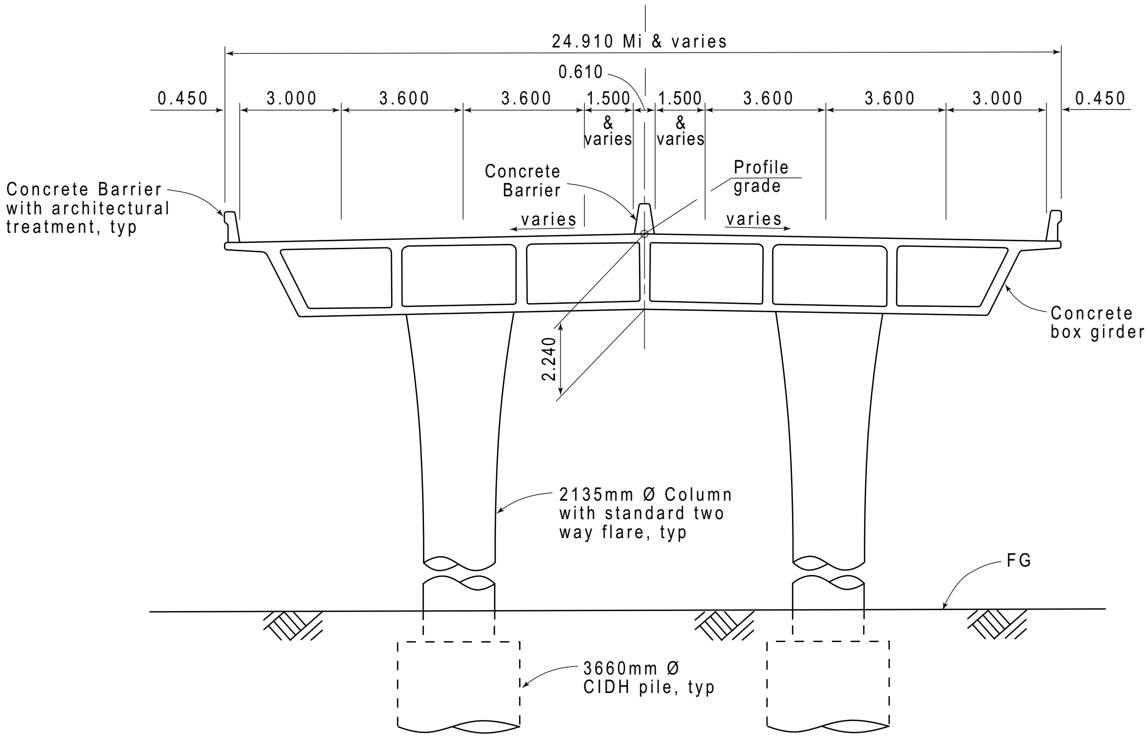


Aerial Date: May 2002

Note: Project components not to scale

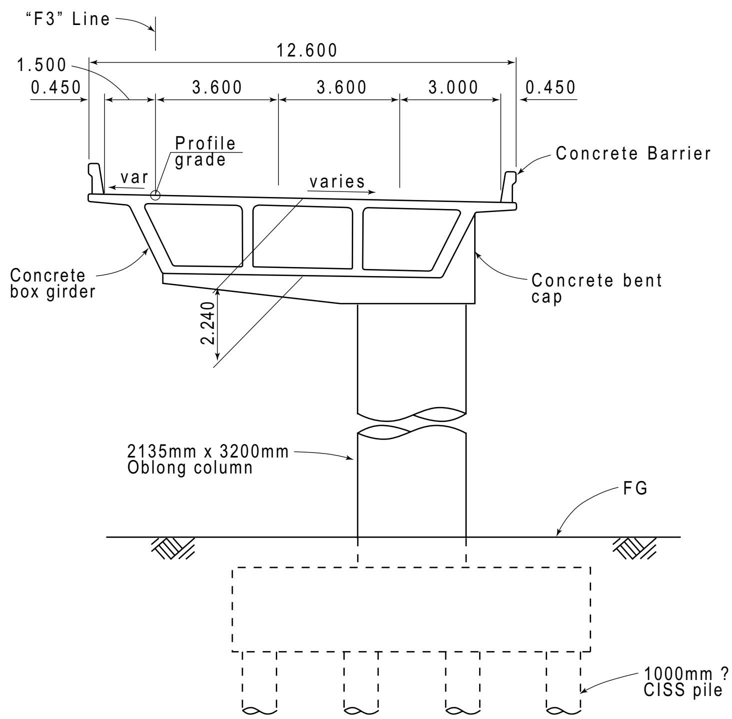
Figure 2-1
Build Alternatives
Schuyler Heim Bridge Replacement
and SR-47 Expressway

\\galt\proj\AlamedaCorridorEng\320265\MapFiles\11x17L_acet_overview_v1.mxd 6/27/2007



Note: Dimensions in meters unless noted otherwise.

TYPICAL CIDH SECTION

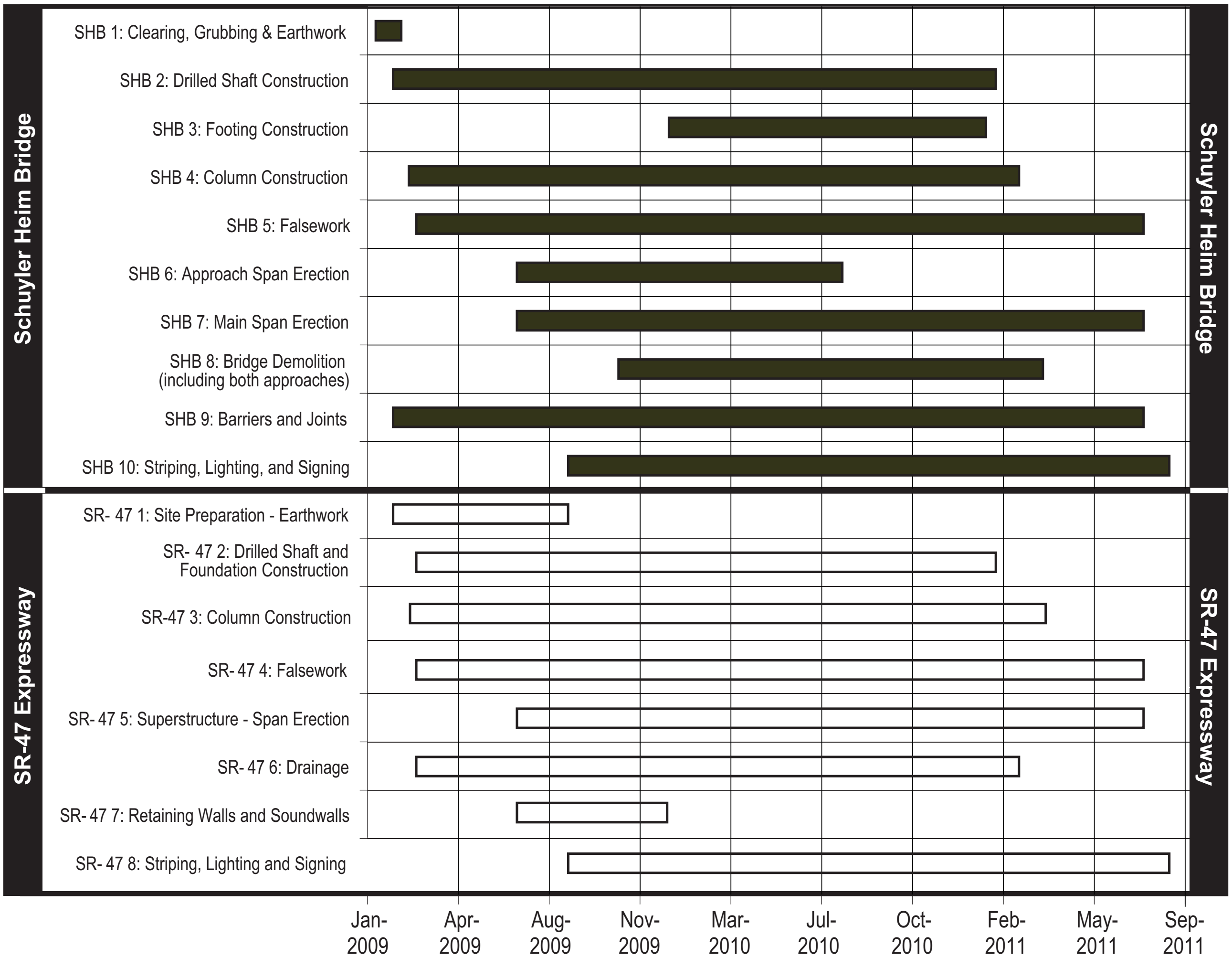


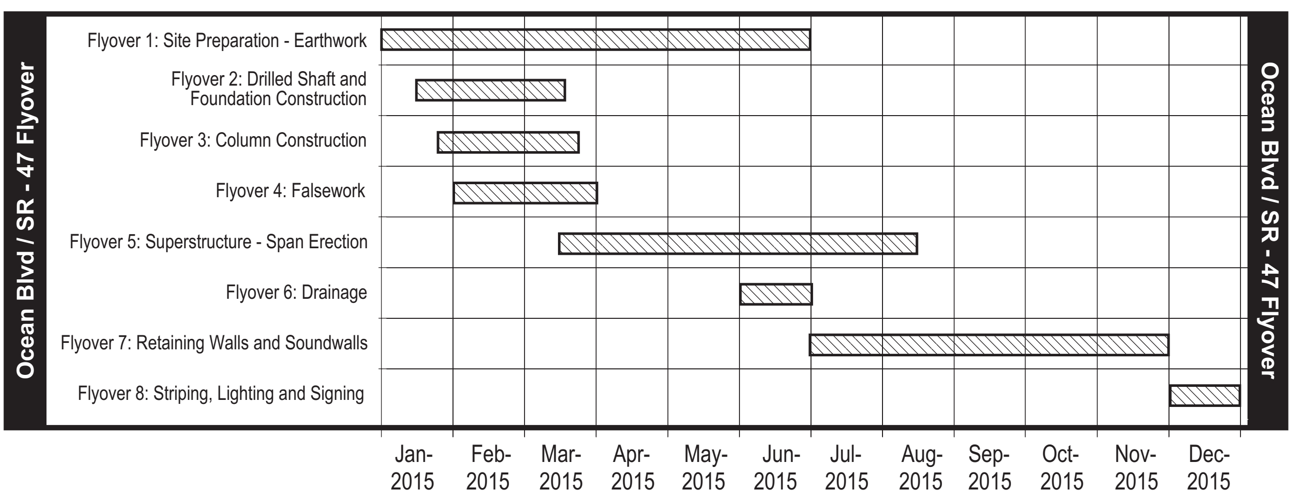
Note: Dimensions in meters unless noted otherwise.

TYPICAL CISS SECTION

Figure 2-2
Typical CIDH and CISS Construction
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: Alameda Corridor Authority, May 2005

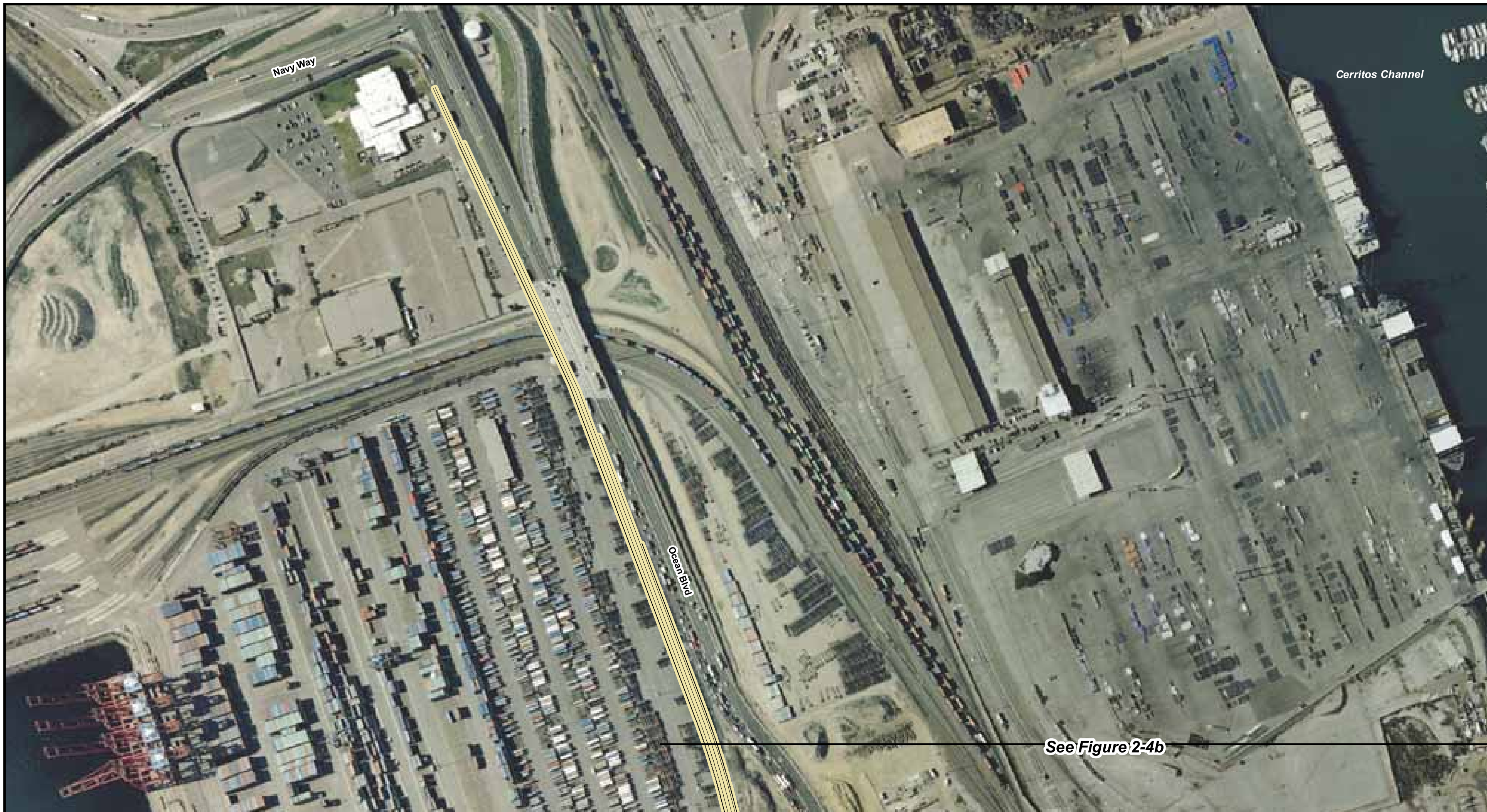




Notes:

1. Retrofit of the existing bridge could occur at any time prior to SHB 8: Bridge Demolition.
2. The schedule shown for the SR-47 Expressway also would apply to construction of the SR-103 Extension.

Figure 2-3
Project Construction Schedule
Schuyler Heim Bridge Replacement and SR-47 Expressway



LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

0 100 M
0 400 Ft

Figure 2-4a
Alternative 1:Bridge Replacement and SR-47 Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway

\\galt\proj\AlamedaCorridorEng\320265\MapFiles\acet_pad_PLTS_v5.mxd 6/27/2007

LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

0 100 M

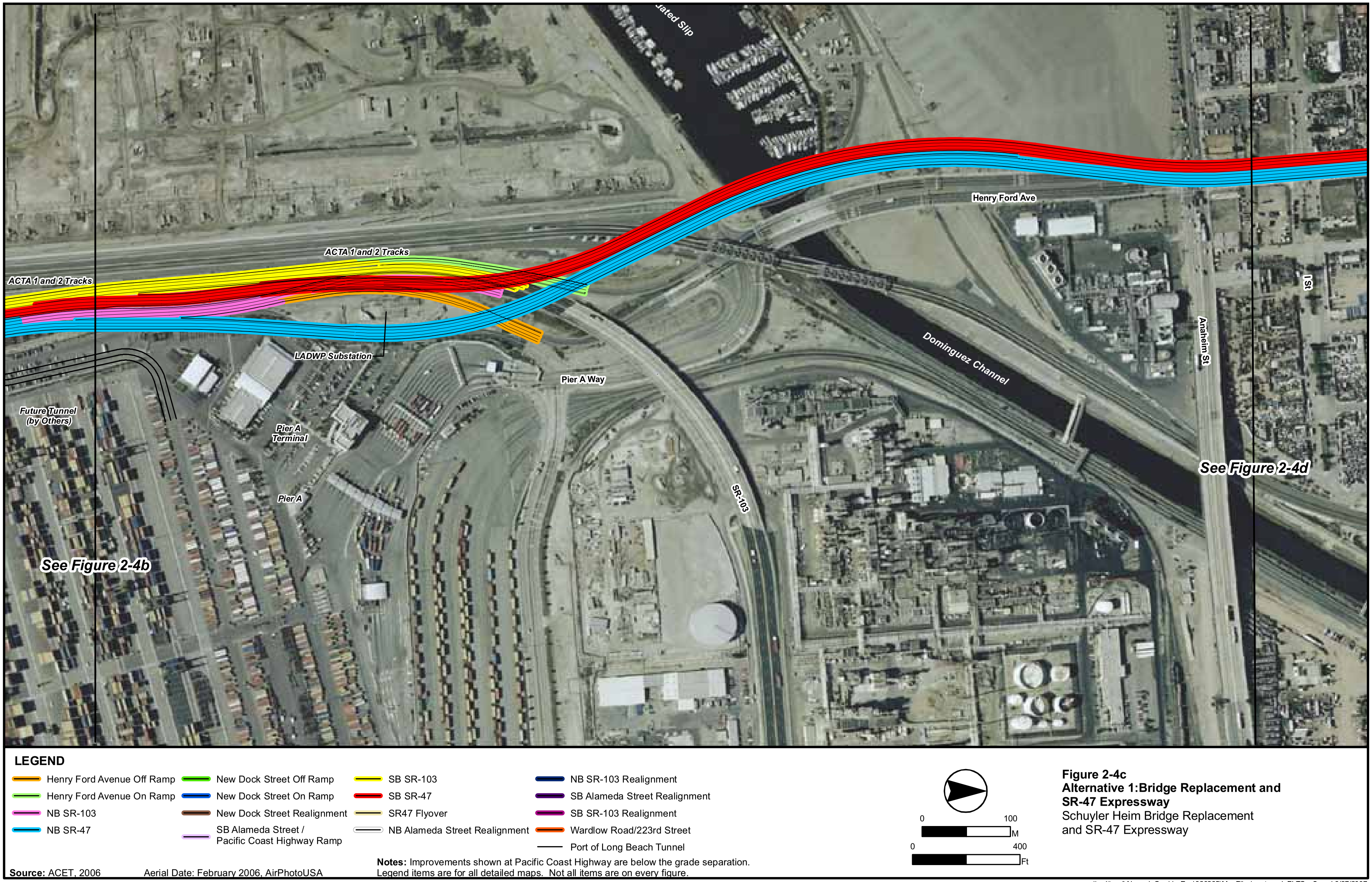
0 400 Ft

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Figure 2-4b
Alternative 1:Bridge Replacement and SR-47 Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway

\\galt\proj\AlamedaCorridorEng\320265\MapFiles\acet_pad_PLTS_v5.mxd 6/27/2007



Source: ACET, 2006

Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-4c
Alternative 1:Bridge Replacement and SR-47 Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway

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LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

0 100 M
0 400 Ft

Source: ACET, 2006

Aerial Date: February 2006, AirPhotoUSA

Figure 2-4d
Alternative 1:Bridge Replacement and SR-47 Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway

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Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-4e
Alternative 1:Bridge Replacement and SR-47 Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway

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2.2.1.1.1 Bridge Replacement

Alternative 1 would replace the existing Schuyler Heim Bridge with a fixed-span bridge along and east of the existing bridge alignment. The proposed fixed-span bridge would be 13 m (43 ft) wider than the existing lift bridge due to the addition of standard shoulders, which are not present on the existing bridge. In the northbound direction, the replacement bridge would include three 3.6-m (12-ft) traffic lanes (two through-lanes and one auxiliary lane), and 3.0-m (10-ft) shoulders. In the southbound direction, the replacement bridge would include three 3.6-m (12-ft) traffic lanes, one 3.6-m (12-ft) auxiliary lane, and 3.0-m (10-ft) shoulders. The proposed alignment for the new fixed-span bridge is located primarily within and to the east of the existing bridge right-of-way.

The footprint of the proposed fixed-span bridge is located toward the east of the existing bridge footprint to avoid impacts to the railroad located on Badger Bridge, located immediately west of the existing Schuyler Heim Bridge (Figure 2-4b), and to accommodate construction sequencing and maintain traffic flows during construction. Existing and proposed northbound bridge cross sections are shown in Figure 2-5.

The vertical clearance of the proposed fixed-span bridge would be 14.3 m (47 ft) over the Cerritos Channel MHWL of 14.3 m (47 ft). This profile would accommodate a 13.7-m (45-ft) fireboat. The width of the navigable channel (distance between bridge-support columns and fenders) would be 54.9 m (180 ft), the same as under existing conditions.

The bridge replacement would include a southbound off-ramp and northbound on-ramp at New Dock Street on Terminal Island, as well as a northbound off-ramp and southbound on-ramp at Henry Ford Avenue on the mainland (north) side of the bridge. The New Dock Street southbound off-ramp would be elevated to clear the existing industry tracks that join the Badger Bridge rail alignment from east of SR-47. The new alignment of the off-ramp would eliminate one of the two at-grade rail crossings at SR-47/New Dock Street. New Dock Street would be realigned to accommodate the realigned on-ramp and off-ramp.

2.2.1.1.2 SR-47 Expressway

Under Alternative 1, the new SR-47 Expressway (Figures 2-4a through 2-4e) would begin on Terminal Island, at the intersection of SR-47 and Ocean Boulevard. It would extend north over New Dock Street and onto the new fixed-span bridge. Just north of the New Dock Street on-ramp and off-ramp, the expressway and bridge would have seven lanes of traffic (three northbound lanes and four southbound lanes). The expressway would extend over the bridge and across the Cerritos Channel to an elevation of 14 m (46 ft) above the existing north levee of the channel (elevations are measured to the bottom of the support structure).

Just north of the Cerritos Channel, the expressway would split. Two inside northbound lanes (one through-lane and one optional through- and diverge-lane) and two outside southbound lanes would transition onto two separate two-lane structures for direct connections to and from the existing SR-103. Two outside northbound lanes (one through-lane and one optional through- and diverge-lane) and two inside southbound lanes would transition onto two separate two-lane structures for direct connections to and from the new SR-47 alignment.

At this point, the expressway would be approximately 17 m (56 ft) above grade (expressway elevations are shown in Appendix B.1). The four-lane elevated expressway would continue to rise and make a transition to the north and west, crossing over Pier A Plaza (at 21 m [69 ft] above grade), over SR-103 (at 18 m [59 ft] above grade), over the Alameda Corridor main line railroad tracks (at 18 m [59 ft] above the tracks), over the Consolidated Slip/ Dominguez Channel (at 16 m [52 ft] above the levee), and over Henry Ford Avenue. At a point approximately 0.85 km (0.5 mi) north of the Cerritos Channel, and approximately 0.3 km (984 ft) south of the Consolidated Slip/Dominguez Channel, the two SR-47 connectors would join to form one four-lane elevated expressway (Figure 2-4c). The elevated expressway crossing over the Consolidated Slip/Dominguez Channel would be supported by two columns placed in the channel; one column would be in the south bank of the Consolidated Slip, and the other would be in the water (outside the flow lines) near the north bank of the Consolidated Slip, within the Leeward Bay Marina.

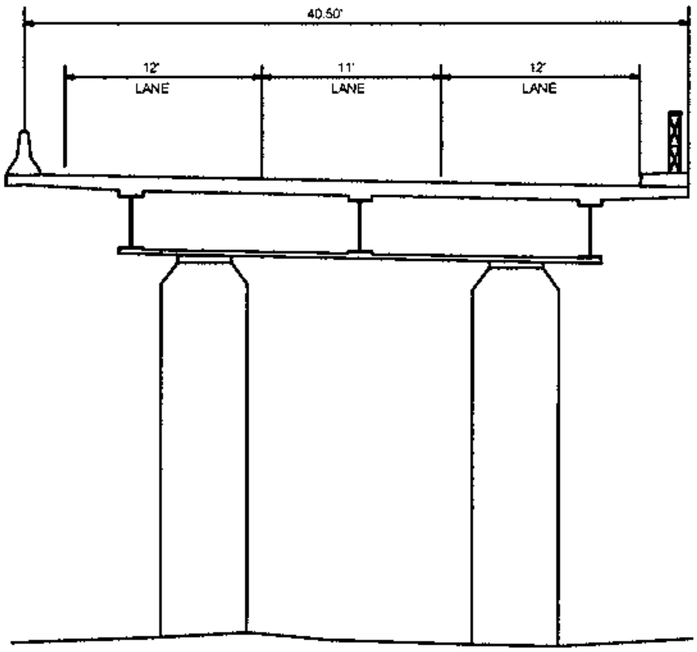
After crossing the Consolidated Slip/Dominguez Channel, the elevated SR-47 Expressway would transition northward, crossing over Anaheim Street and along the alignment of Henry Ford Avenue. At Anaheim Street, the expressway would be located directly over Henry Ford Avenue, at a height of approximately 12 m (39 ft) above grade. The elevated expressway would continue north above Henry Ford Avenue, crossing over I Street, O Street, Grant Street, and Denni Street, at heights ranging from 6 m to 8 m (19 ft to 26 ft) above grade. The streets below the elevated structure would remain open for local access.

After crossing over the southern leg of the Wilmington Wye Railroad and Young Street, the elevated expressway alignment would transition from Henry Ford Avenue to Alameda Street. The expressway then would return to grade, joining Alameda Street about one block south of Pacific Coast Highway, supported by a retaining wall and MSE abutment from north of Robidoux Street to about one block south of Pacific Coast Highway. Once at grade, the expressway would merge with the existing six travel lanes on Alameda Street.

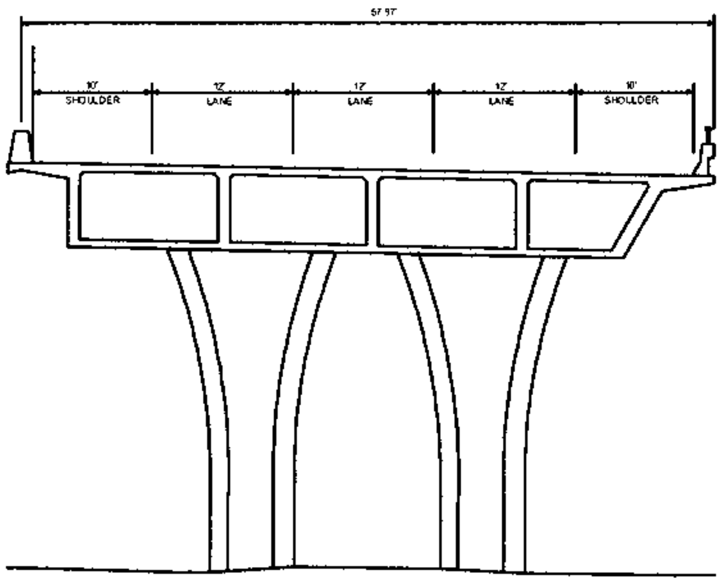
The Pacific Coast Highway connector at O Street is part of the newly completed Pacific Coast Highway Grade Separation Project. Alternative 1 includes minor improvements at the Alameda Street/O Street intersection located two blocks north of Pacific Coast Highway; new rights-of-way would be required for the proposed improvements. A new connector from southbound Alameda Street to the Pacific Coast Highway overcrossing would be constructed to provide access to Pacific Coast Highway. The new connector would eliminate the southbound left turn at the Alameda Street/O Street intersection and improve traffic operation at the intersection. The project would terminate on Alameda Street, north of Pacific Coast Highway, approximately 40 m (131 ft) north of O Street, and south of the rail overcrossing.

Alternative 1 would include surface-street lane improvements such as widening lane re-striping, new curbs, and signal timing, on Alameda Street between Grant Street and Pacific Coast Highway, and on Young Street between Alameda Street and approximately 20 m (65 ft) east of the elevated expressway. A new connector street would be constructed between Alameda Street and Denni and Grant Streets. Intersection signalization would be improved along the entire corridor.

Cross-Section Views of Northbound Lanes



State Route 47 at Existing Schuyler Heim Bridge



State Route 47 at Proposed Schuyler Heim Bridge

Not to Scale

Figure 2-5
Schuyler Heim Bridge: Existing and Proposed Cross Sections – Northbound

Schuyler Heim Bridge Replacement and SR-47 Expressway

Also, northbound Alameda Street will be modified to provide dual right-turn lanes to the 223rd Street/Wardlow Road connector ramp, and southbound Alameda Street will be modified to provide dual left-turn lanes to the connector ramp. In addition, the connector ramp will be modified to add an optional left- or right-turn lane onto 223rd Street/Wardlow Road (Figure 2-4e). These changes will be made by restriping the ramp and Alameda Street and resignalization of the intersection.

2.2.1.1.3 Flyover

The Ocean Boulevard/SR-47 Flyover (flyover), as shown in Figure 2-6, will be a two-lane, elevated structure to divert traffic bound for northbound SR-47 directly onto the new bridge from eastbound Ocean Boulevard. Each land would be 3.6 m (11.8 ft) wide, with a 1.5-m shoulder on the north and west (inside curve) of the structure and a 3-m (10-ft) shoulder on the south and east (outside curve) of the structure. The purpose of the flyover is to enable this traffic to avoid the existing signalized Ocean Boulevard/SR-47 intersection. Under Alternative 1, the flyover would begin on Terminal Island, about 1,200 m (3,900 ft) west of the Ocean Boulevard/SR-47 intersection, extend eastward along the south side of Ocean Boulevard, and then turn north, cross over Ocean Boulevard, and extend onto the new bridge.

The west end of the flyover would be at grade, then rise to a maximum elevation of 21 m (69 ft) to cross over Ocean Boulevard, then descend to an elevation of 12.9 m (42.4 ft) to join the new bridge (see Figure 2-6). The elevated portions of the flyover would be supported by 14 single-column bents and 1 two-column outrigger bent. Each column is approximately 2.4 m (8 ft) in diameter. The structure will consist of 15 spans, with lengths that range between 42 m (154 ft) and 64 m (210 ft). The flyover would have an overall length of 830 m (2,723 ft), ending at the northerly end point (gore point) of the northbound New Dock Street on-ramp onto the new bridge. The left lane of the flyover would converge with the SR-47 through lane to the left; the right lane of the flyover would continue as a northbound SR-47 through lane and would continue to SR-47. The flyover would be located entirely within the City and Port of Long Beach.

2.2.1.2 Construction Activities

Construction of Alternative 1 is expected to take approximately 2 to 3 years and involve the following major types of activities: demolition, grading/excavation, foundation and bridge abutment/column construction, bridge construction, and expressway construction. Two construction methodologies were considered: cast-in-place (CIP) and segmental. With the conventional CIP methodology, construction would occur within a temporary structure, or “falsework” that is built and then removed once construction has been completed.

The segmental construction method is often used: 1) for bridges with span lengths greater than 91 m (300 ft); and 2) on sites where there are constraints on falsework placement (such as over the Cerritos Channel). This method involves construction of cantilevered segments from each end of the bridge. The cantilevered segments are extended toward each other until they meet in the middle and are connected.

The general construction sequence for the bridge, using the segmental method, would be as follows:

- Construct foundations and columns for the landward ends of the two cantilevered segments.
- Construct two piers, using CIP in the area outside the shipping channel.
- Use cranes to place form travelers on the two piers.
- Launch first traveler and construct first segment on one of the piers. Then launch second traveler and construct a segment on the other pier. Repeat this process until all segments are cast and are nearly touching.
- Cast closure joint.
- Complete superstructure portions with CIP and connect the cantilevered segments at both ends of the new bridge.

With use of the segmental method for constructing the main span of the new bridge, vertical clearance during project construction would be reduced to 12 m (39 ft) or less, resulting in channel restrictions for two periods of 90 days each (once during construction of the east side of the new bridge, and once during construction of the west side of the new bridge). The channel would be closed completely for a period of 5 days to remove the mid-span truss of the old bridge. With the exception of these periods of restriction and closure, the channel would be open for navigation during bridge construction.

With the CIP method of construction, there would be full closure of the channel for a period of 25 days, intermittent closures for a total 40 days, and channel restrictions for a total of 240 days. With the CIP method of construction, the channel would be open during 180 days of the construction period.

For reasons of cost, the CIP method is proposed for all expressway construction and for most or all bridge construction; the CIP method is approximately 50 percent less expensive than the segmental method. However, segmental construction could be used for portions of the bridge over the Cerritos Channel. The remainder of the bridge would be constructed using the conventional CIP method.

Construction of the Schuyler Heim Bridge replacement would occur prior to, or concurrently with, construction of the SR-47 Expressway. For purposes of this Draft EIS/EIR, and to present a worst-case construction scenario, it is assumed that construction of the bridge and expressway would occur simultaneously. This would result in greater noise and air quality impacts, more land needed for construction (such as for laydown areas, vehicle storage), and more complex traffic management requirements than would sequential construction of the new bridge and expressway.

Construction of the bridge, expressway, and flyover proposed under Alternative 1 is described below. The construction schedule is shown in Figure 2-3.

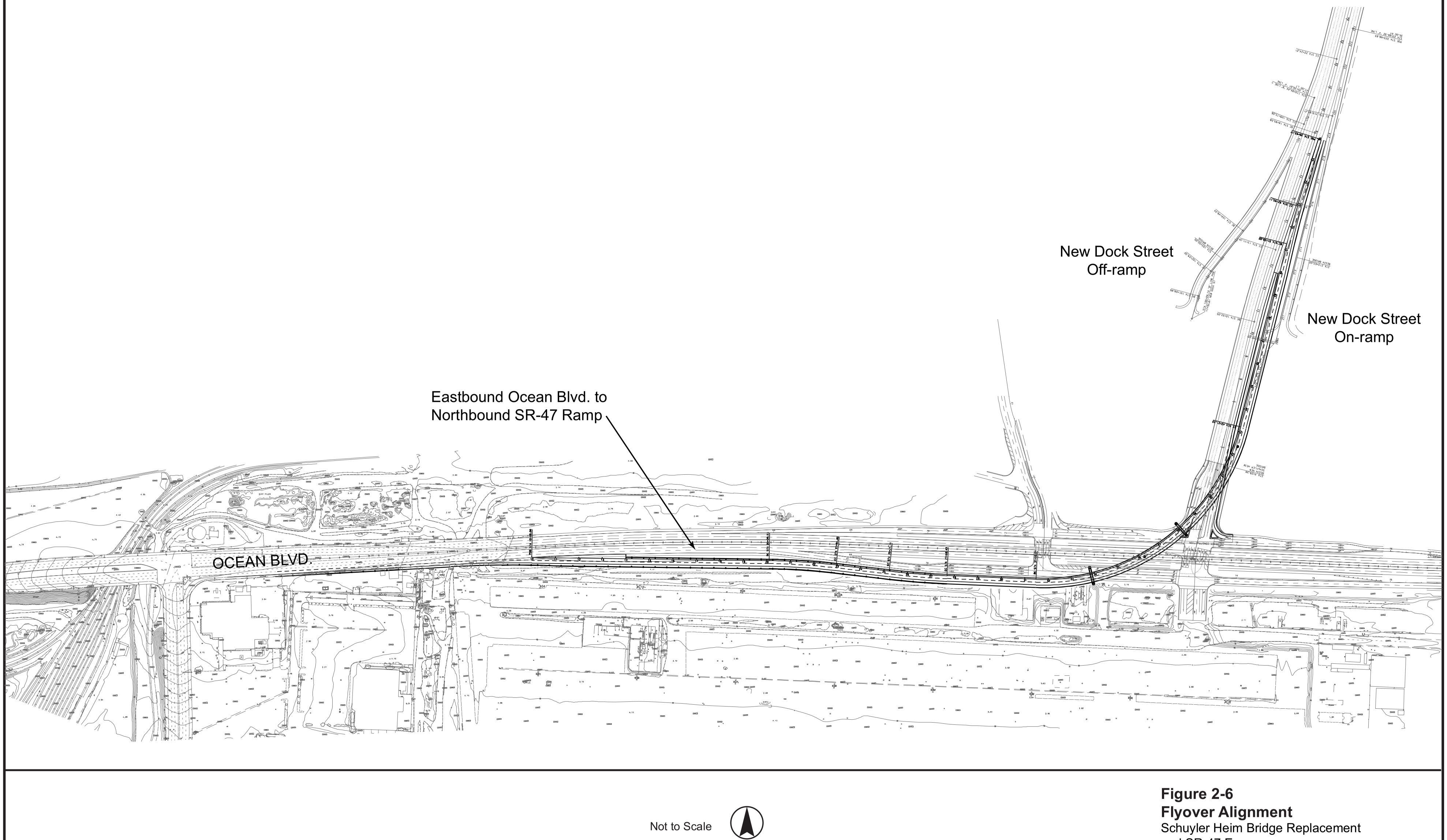


Figure 2-6
Flyover Alignment
Schuyler Heim Bridge Replacement
and SR-47 Expressway

2.2.1.2.1 Bridge Construction

Alternative 1 would require demolition of the existing Schuyler Heim Bridge in two phases, with construction of the new fixed-span bridge also phased to minimize the requirement for bridge closure (estimated to be approximately one month). The first, easterly, portion of the new fixed-span bridge would be constructed just east of the current bridge and then would be opened to traffic. Then the easterly portion of the Schuyler Heim Bridge would be demolished, the second, westerly, portion of the new bridge would be constructed, and the remainder of the Schuyler Heim Bridge would be demolished.

The eastern side of the new fixed-span bridge would be constructed east of the existing lift bridge. The south end of the new bridge would provide for tie-in to Ocean Boulevard or the Ocean Boulevard/SR-47 Flyover. On the north, the new bridge would tie into the northern approach to the existing bridge. The connection to Ocean Boulevard and the northern tie-in are expected to take approximately 2 weeks, during which time the existing bridge would be closed to traffic. Following completion of the tie-ins, traffic on the existing bridge would be diverted to the eastern side of the new bridge, and the existing bridge would be closed.

The eastern side of the existing bridge then would be demolished. Following this, the western side of the new bridge would be constructed adjacent to the newly installed eastern side, and the remainder of the existing bridge would be demolished. The tie-in at Ocean Boulevard would require the new bridge to be closed for approximately 1 to 2 weeks. The new bridge then would be open to traffic. Total closure of the Cerritos Channel crossing during construction is expected to be approximately 4 weeks.

Construction of the portion of the new bridge that is directly over the Cerritos Channel will require access from the north and south sides of the channel. Staging areas and materials storage will occur nearby, including at Pier A West. Material delivery and crane work would be accomplished from multiple barges. Barge work would be used to construct the CIDH concrete columns to support the new bridge and erect falsework for the spans between the columns. Some temporary driven steel pipe columns, 600 millimeter (mm) (23.6 in) in diameter, would be installed at 6 m (19.6 ft) center-to-center spacing to support construction of the falsework. A structural steel superstructure with heavy timber decking would be constructed between the columns. During erection of the falsework, boat traffic would not be able to pass underneath.

During the anticipated 2- to 3-year construction period, marine traffic in Cerritos Channel would be limited, as temporary navigation openings would be a maximum 22.9 m (75 ft) wide and 13.1 m (43 ft) high. In addition, the channel could be closed for periods up to 30 days. During periods when the channel would be open, traffic could pass through the temporary openings.

Bridge construction would occur in phases. The construction scenario outlined below represents one approach. The construction schedule balances speed of construction with maintaining traffic on the bridge through a portion of the construction period and minimizes bridge closure during construction. As shown in Figure 2-3, these activities overlap during the construction process.

1. Site Preparation/Earthwork

Construction security fencing would be installed; rough grading would follow. Grading would focus on the north and south banks of the Cerritos Channel within the right-of-way for the new bridge. The banks of the channel then would be stabilized with permanent or temporary retaining walls, as necessary. It is expected that cut and fill would be balanced for this activity. This phase is estimated to require approximately 1 month to complete.

2. Drilled Shafts

This phase would involve drilling for the estimated four pairs of column foundations that would be needed to support the bridge in the Cerritos Channel. Each column foundation would be supported by 9 to 16 CISS piles and foundations, or one CIDH pile. Excavated material would be removed and used for fill, or disposed of in an approved landfill. Any material found to be contaminated would be analyzed to identify the type and level of contamination, then transported for disposal in an approved landfill.

At each foundation site, the excavated foundation would be fitted with reinforcing steel, and concrete would be poured to form the foundation and pile cap. The column foundations, with pile caps, then would be ready for the vertical columns to be installed. This phase would require an estimated 24 months to complete.

3. Footings

Some CISS piles would require additional footing construction to adequately support the column. This phase would require an estimated 13 months to complete.

4. Column Installation

Column installation would begin at the same time or after the drilled shaft work is completed. The columns would be spaced approximately 47 m to 75 m (154 ft to 246 ft) apart to support the fixed-span bridge. Each column would be approximately 2.1 m to 2.7 m (7 to 9 ft) in diameter.

At each column location, a steel reinforcing cage would be assembled, and forms would be installed around the cages. Concrete would be brought to the site in ready-mix trucks and poured into the forms. After a suitable curing period, the forms would be stripped. This phase would require an estimated 11 months to complete.

5. Falsework

Shortly after beginning column installation, wooden falsework would be constructed at each pair of columns to support completion of the overhead portions of the bridge. Falsework would consist of heavy timbers used to support the overhead installation reinforcing steel, and subsequent pouring of bent supports to connect each pair of columns. As an alternative, the bent supports may be precast concrete that would be brought to the site on flatbed trucks transferred to barges, and lifted onto the columns by cranes. During this phase, warning signs and night lighting would be utilized, as necessary, to alert marine traffic of the presence of construction structures. This phase would require an estimated 17 months to complete.

6. Approach Span Erection

When the falsework for the approach span is completed, installation would begin by constructing the bridge support structure (bents tying the four columns together) with steel and reinforced concrete. Overhead forms would be placed; then concrete would be poured and cured. The forms would be stripped as the final step. This phase would require an estimated 13 months to complete.

7. Main Span Erection

With a substantial portion of the falsework in place, installation of the main-span superstructure would begin. This would consist of the bents connecting the pairs of columns, and subsequently the bridge support structure, which would consist of structural steel and reinforced concrete. Just as in other poured-in-place installations, overhead forms would be installed around each section of the superstructure, concrete would be poured and cured, and forms would be stripped. This phase would result in the completion of the structural section of the main span. This phase would require an estimated 25 months to complete.

8. Bridge Demolition

For this phase, the existing bridge superstructure and piers would be removed. The pile caps would remain, except for a small portion of the existing main-span footing, which would be removed to allow placement of several CISS piles in the channel. If the bridge is not sold for reuse in an alternate location, the removed steel-girder-bridge superstructure would be recycled at a mill in the Port of Long Beach. Because lead paint is likely to be encountered on the old superstructure, special measures would be employed during demolition to prevent lead contamination. A lead-based paint and asbestos survey would be conducted. If lead and/or asbestos were encountered at levels higher than the mandated thresholds, these materials would be removed from the steel for disposal prior to recycling. This demolition phase would require an estimated 17 months to complete.

9. Barriers and Joints

Once the approach and main-span decks have been completed, construction of the deck barriers and joints would begin. The deck barriers would consist of forms and reinforced concrete to provide vehicle protection along both the outside portions of the structure and the center divider. Joints would consist of forms and reinforced concrete to tie together each segment of the bridge and expressway structure, and allow for expansion and contraction of the road surface. This phase would require an estimated 18 months to complete.

10. Striping, Lighting, and Signing

This phase would provide the finish elements of the bridge. The surface would be striped for the prescribed number of traffic lanes, and lighting fixtures and signage would be installed. After this step, the bridge would be open for service. This phase would require an estimated 12 months to complete.

2.2.1.2.2 SR-47 Expressway Construction

Prior to construction, it would be necessary to acquire public and private properties. Properties needed for the expressway would be purchased and cleared of above-grade improvements. As necessary, at all construction sites along the expressway, either local traffic would be detoured, or the nearby street system would be striped to allow sufficient room for the movement of construction vehicles and equipment.

Construction stages for the SR-47 Expressway are described below.

1. Site Preparation/Earthwork

Construction security fencing would be installed and rough grading would follow. Grading would focus on the northern end of the alignment, where the elevated expressway would return to grade on an MSE embankment supported on either side by concrete retaining walls (Figure 2-7). Earthwork is anticipated to include movement of approximately 58,106 cubic meters (76,000 cubic yards) of earth, with approximately 9,175 cubic meters (12,000 cubic yards) being imported material. The borrow site for imported material will be determined by the construction contractor. The borrow material will be required to be "clean." This phase would require an estimated 9 months to complete.

2. Drilled Shafts and Foundations

Foundation work would begin approximately 4 months after initiating earthwork. This phase would involve approximately 31,347 cubic meters (41,000 cubic yards) of excavation for the estimated 60 pairs of column foundations that would be needed to support the elevated expressway. Each column foundation would be supported by 9 to 16 CISS piles. Excavated material that is not useable on the construction site would be used as fill elsewhere or transported for disposal in an approved landfill. Any material found to be contaminated would be analyzed to identify the type and level of contamination, and then transported for disposal in an approved landfill.

At each foundation site, the excavated foundation would be fitted with reinforcing steel, and concrete would be poured to form the foundation and pile cap. The column foundations, with pile caps, then would be ready for installation of the vertical columns. This phase would require an estimated 23 months to complete.

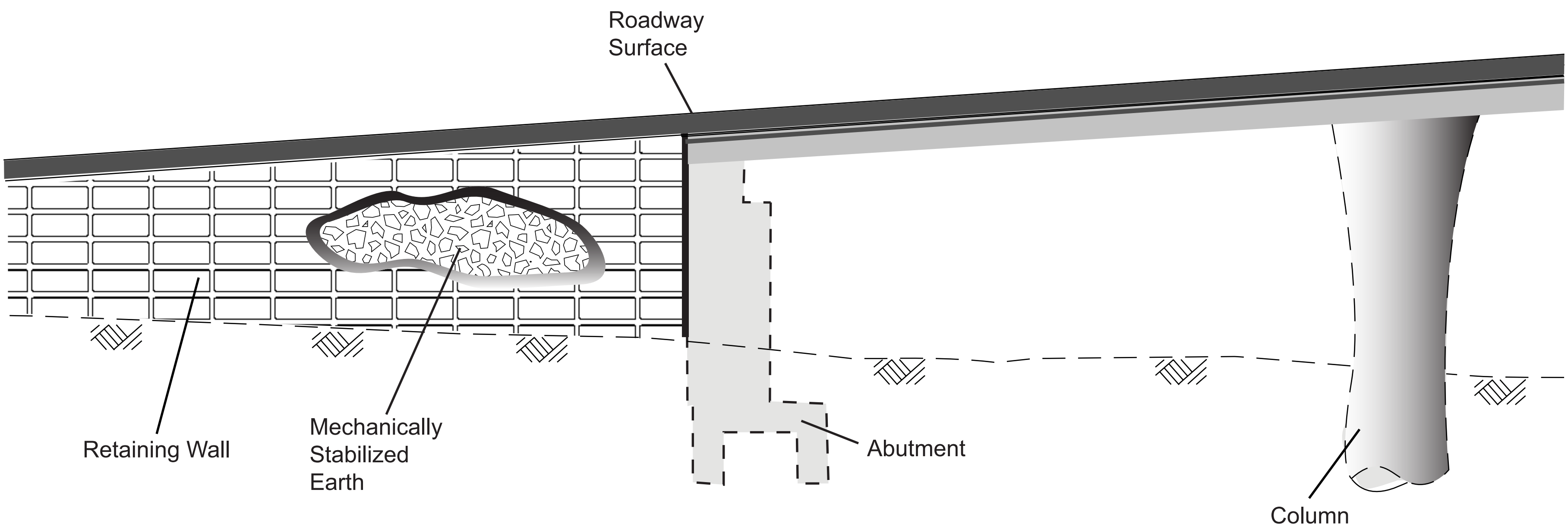
3. Column Installation

Column installation would begin shortly after the foundation work begins, with work progressing along the corridor in one or two work units, as required by the schedule. The estimated 60 pairs of columns would be spaced approximately 47 m to 75 m (154 to 246 ft) apart to support the elevated expressway. Each column would be approximately 2.1 m to 2.7 m (7 to 9 ft) in diameter.

At each column location, a steel reinforcing cage would be assembled, and forms would be installed around the cages. Concrete would be brought to the site in ready-mix trucks and poured into the forms. After a suitable curing period, the forms would be stripped. This phase would require an estimated 23 months to complete.

4. Falsework

Shortly after beginning column installation, wooden falsework would be constructed at each pair of columns to support completion of the overhead portions of the elevated expressway. Falsework would consist of heavy timbers used to support the overhead installation reinforcing steel, and subsequent pouring of bent supports to connect each pair of columns. As an alternative, the bent sections may be precast concrete that would be brought to the site on flatbed trucks and lifted onto the columns by cranes. During this phase, warning signs and night lighting would be utilized, as necessary, to alert oncoming motorists of the presence of construction structures. This phase would require an estimated 17 months to complete.



ground level

Not to scale

Figure 2-7
Typical MSE Wall
Schuyler Heim Bridge Replacement
and SR-47 Expressway

5. Superstructure

With a substantial portion of the falsework in place, installation of the overhead expressway superstructure would begin. The superstructure would consist of the bents connecting the pairs of columns, and subsequently the expressway support structure, which would consist of structural steel and reinforced concrete. Just as in other poured-in-place installations, overhead forms would be installed around each section of the superstructure, concrete would be poured and cured, and forms would be stripped. This phase would result in the completion of the structural section of the elevated expressway, approaches, and ramps. This phase would require an estimated 25 months to complete.

6. Drainage

This phase would begin about midway through the superstructure phase, whereby drainage facilities would be installed in the overhead elevated expressway and appurtenant structures. These would consist of storm drain main pipes, manholes, horizontal and vertical pipes, connectors, pump stations, catch basins, and special structures. This phase would require an estimated 24 months to complete.

7. Retaining Walls and Soundwalls

This phase would involve installation of the MSE retaining walls and sound-attenuation walls required at the north end of the proposed expressway where the elevated expressway returns to grade, south of Pacific Coast Highway. For the retaining walls, reinforcing steel first would be set in place; then forms would be installed and concrete poured. After a suitable curing period, the forms would be stripped.

For the soundwalls, foundations would be installed, and then the soundwalls would be constructed, typically by placing concrete block in lifts to achieve the desired height, as prescribed by the noise abatement measures. This phase would require an estimated 6 months to complete.

8. Striping/Lighting/Signing

This phase would provide the finish elements of the expressway. The surface would be striped for the prescribed number of traffic lanes, and lighting fixtures and signage would be installed. After this step, the expressway would be open for service. This phase would require an estimated 24 months to complete.

2.2.1.2.3 Flyover Construction

Construction of the Ocean Boulevard/SR-47 Flyover would be conducted independently of other Alternative 1 construction activities (bridge replacement and expressway) and is expected to be phased over a period of 1 year.

Prior to beginning construction, public and/or private properties would be acquired and above-grade improvements would be cleared, as necessary, for permanent and temporary surface and aerial easements within the flyover right-of-way. In addition, local traffic would be detoured, or the adjacent street system would be striped to allow sufficient room for the movement and operation of construction vehicles and equipment.

Construction of the flyover would be as described below.

1. Site Preparation/Earthwork

For this phase, construction security fencing would be installed; rough grading would follow. Grading would begin along the western end of the alignment, where the flyover would begin, and progress easterly. Earthwork is anticipated to include movement of approximately 11,980 cubic meters (15,660 cubic yards) of earth, with approximately 11,670 cubic meters (15,260 cubic yards) being imported material. This phase would require an estimated 6 months to complete.

2. Drilled Shafts and Foundations

Foundation work would begin approximately 2 weeks after initiating earthwork. This phase would involve approximately 311 cubic meters (400 cubic yards) of excavation for the estimated 11 column foundations that would be needed to support the elevated portion of the flyover. Each column foundation would be supported by a CIDH pile. Excavated material that is not useable on the construction site would be used as fill elsewhere or would be transported for disposal in an approved landfill. Any material found to be contaminated would be analyzed to identify the type and level of contamination and then transported for disposal in an approved landfill.

At each foundation site, the excavated foundation would be fitted with reinforcing steel, and concrete would be poured to form the foundation and pile cap. The column foundations, with pile caps, then would be ready for the vertical columns to be installed. This phase would require an estimated 2 months to complete.

3. Column Installation

Column installation would begin shortly after the column's foundation work begins, with work progressing eastward along the flyover alignment in one or two work units, as required by the schedule. The estimated 11 columns would be spaced approximately 60 m to 80 m (197 to 262 ft) apart to support the elevated portion of the flyover structure. Each column would be approximately 2,135 m to 3,660 m (7 to 12 ft) in diameter.

At each column location, a steel reinforcing cage would be assembled, and forms would be installed around the cages. Concrete would be brought to the site in ready-mix trucks and poured into the forms. After a suitable curing period, the forms would be stripped. This phase would require an estimated 2 months to complete.

4. Falsework

Shortly after beginning column installation, wooden falsework would be constructed at each pair of columns to support completion of the overhead portions of the flyover. Falsework would consist of heavy timbers used to support the overhead installation reinforcing steel, and subsequent pouring of bent supports to connect each pair of columns. As an alternative, the bent sections may be precast concrete that would be brought to the site on flatbed trucks and lifted onto the columns by cranes. During this phase, warning signs and night lighting would be utilized, as necessary, to alert oncoming motorists of the presence of construction structures and activities. This phase would require an estimated 2 months to complete.

5. Superstructure

With a substantial portion of the falsework in place, installation of the overhead superstructure would begin. The superstructure would consist of bents connecting the pairs of columns, and subsequently the flyover support structure, which would consist of structural steel and reinforced concrete. Just as in other poured-in-place installations, overhead forms would be installed around each section of the superstructure, concrete would be poured and cured, and forms would be stripped. This would result in the completion of the structural section of the flyover and approach onto the bridge. This phase would require an estimated 5 months to complete.

6. Drainage

This phase would begin about midway through the superstructure phase, whereby drainage would be installed in the overhead flyover and appurtenant structures. Drainage structures would consist of storm drain main pipes, manholes, horizontal and vertical pipes, connectors, catch basins, and special drainage structures. This phase would require an estimated 1 month to complete.

7. Retaining Walls

This phase would involve installation of MSE retaining walls for a distance of 600 m (1,970 ft) from the approximate center of the flyover, where it rises from grade to cross over Ocean Boulevard. For the retaining walls, reinforcing steel first would be set in place; then forms would be installed and concrete poured. After a suitable curing period, the forms would be stripped. This phase would require an estimated 5 months to complete.

8. Striping/Lighting/Signing

This phase would provide the finish elements of the flyover. The road surface would be striped for the prescribed one or two traffic lanes, and lighting fixtures and signage would be installed. The flyover then would be open to traffic. This phase would require an estimated 1 month to complete.

2.2.1.3 Alternative 1A: Bridge Haunch Design

Alternative 1A provides a structural variation of the replacement bridge described under Alternative 1 and would cost approximately 11 percent less than the traditional bridge described under Alternative 1. The alternative bridge design and elevations are shown in Appendix B.2. Alternative 1A is proposed to improve the aesthetics of the replacement bridge over the Cerritos Channel. As under Alternative 1, this alternative includes construction of the SR-47 Expressway and the Ocean Boulevard/SR-47 Flyover. Other aspects of this alternative, including the bridge, expressway, and flyover construction schedules, would be the same as Alternative 1. As with Alternative 1, Alternative 1A extends from KP 4.4 to 9.3 (PM 2.7 to 5.8).

The Alternative 1A bridge haunch design is accomplished by increasing the span lengths over the channel and using parabolic superstructure soffits within these spans. The locations of superstructure hinges and structural frame lengths would be adjusted to better fit this alternative.

As a result of the increased span lengths, Alternative 1A has four columns (two pairs) in the Cerritos Channel (13 and 14), compared to eight columns (four pairs) in Alternative 1 (14, 15, 16 and 17). Further, columns 12 and 13 in Alternative 1A are closer to the channel edges than the columns in Alternative 1.

With this alternative, vertical clearance of the new bridge would be 14.3 m (47 ft) over the MHWL, the same as for Alternative 1. While the navigable channel width (clear distance between bridge support columns) is 102 m (334.6 ft), the vertical clearance of 14.3 m (47 ft) would be maintained only over a width of 54.9 m (180 ft). It is proposed that the fender system be placed at the same location as specified in Alternative 1; this would limit the width of the navigation channel to 54.9 m (180 ft), the same as the width of the existing navigation channel. A portion of the existing bridge columns may be utilized as part of the fender support system.

The proposed columns at bents 13 and 14 of Alternative 1A require 3-m (10-ft) diameter columns with 3.7-m (12-ft) diameter CISS shafts. At other locations, the proposed column diameter is 2.1 m (7 ft), and the supporting shafts are 2.7 m (9 ft) in diameter. The depth of the frame over the Cerritos Channel (Frame 4) varies from a minimum of 2.6 m (8.5 ft) at mid-span, to a maximum of 5.0 m (16.5 ft) at the face of the columns.

2.2.2 Alternative 2: SR-103 Extension to Alameda Street

2.2.2.1 Description

Under Alternative 2, the Schuyler Heim Bridge would be replaced, and the flyover would be constructed as in Alternative 1. With this alternative, SR-103 would be extended as a four-lane elevated expressway, beginning approximately 0.8 km (0.5 mi) north of Pacific Coast Highway and extending to Alameda Street, just south of 223rd Street/Wardlow Road (Figures 2-8, and 2-9a through 2-9f). The SR-103 Extension would be designed to specific Caltrans geometric standards for expressways, with limited access and a posted speed limit of 80 km (50 mi) per hour. Representative elevations for Alternative 2 are shown in Appendix B.3. Alternative 2 would extend from SR-47 KP 4.4 to SR-47 KP 7.3 (PM 2.7 to 4.5) and SR-103 KP 3.2 to SR-103 KP 6.5 (PM 2.0 to 4.0).

2.2.2.1.1 Bridge Replacement

Under Alternative 2, the bridge replacement would include a southbound off-ramp and northbound on-ramp at New Dock Street on Terminal Island. In addition, the bridge approaches would be modified to maintain connectivity to SR-47 and SR-103 north and south of the bridge.

Other elements regarding replacement of the Schuyler Heim Bridge would be the same as under Alternative 1.

2.2.2.1.2 SR-103 Extension

Improvements to SR-103 would begin approximately 3.2 km (2 mi) north of the Cerritos Channel, near the intersection of West Hill Street and SR-103. At a location approximately 0.4 km (0.25 mi) further north, SR-103 would be extended to the northwest on an elevated expressway to join Alameda Street just south of 223rd Street/Wardlow Road, a distance of approximately 2.6 km (1.6 mi). The elevated expressway would begin approximately at West Hill Street and extend to a location east of Alameda Street and south of the Wardlow Road on-ramp (Figure 2-8). The elevated expressway would rise from the existing at-grade SR-103 to approximately 18 m (60 ft) above grade, then make a transition to the north and west, crossing over the Union Pacific Railroad (UPRR) manual yard and San Pedro Branch, through the Southern California Edison (SCE) utility corridor, across the Los Angeles Harbor Department Warehouse 16/17 area, and over Sepulveda Boulevard. The elevated expressway then would parallel the western boundary of the intermodal container transfer facility (ICTF), moving northwest to transition to Alameda Street. The elevated expressway would transition to grade approximately 243.8 m (800 ft) south of the Wardlow Road on-ramp to I-405.

Legend

- Ocean Boulevard/SR-47 Flyover
- Expressway Alignment
- Existing SR-103
- Wardlow Road/223rd Street Ramp

0 2,800 Feet

0 1,000 Meters

Aerial Date: February 2006, AirPhotoUSA

Note: Project components not to scale

Figure 2-8
Alternative 2: Overview of SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement and SR-47 Expressway

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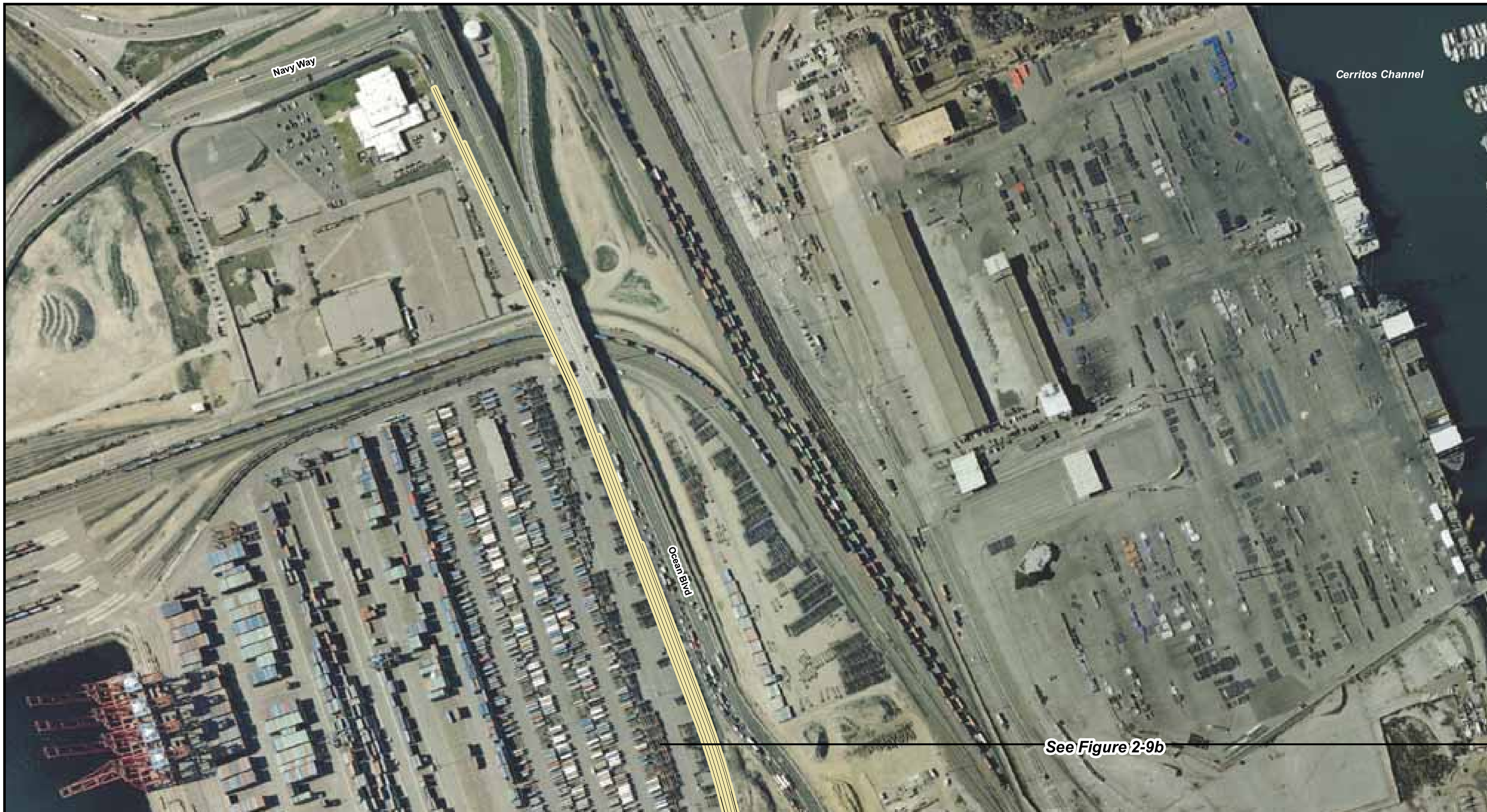

LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

0 100 M
0 400 Ft

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-9a
Alternative 2: SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

Source: ACET, 2006

Aerial Date: February 2006, AirPhotoUSA

Figure 2-9b
Alternative 2: SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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Figure 2-9c
Alternative 2: SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

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LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

0 100 M

0 400 Ft

Figure 2-9d
Alternative 2: SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: ACET, 2006

Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

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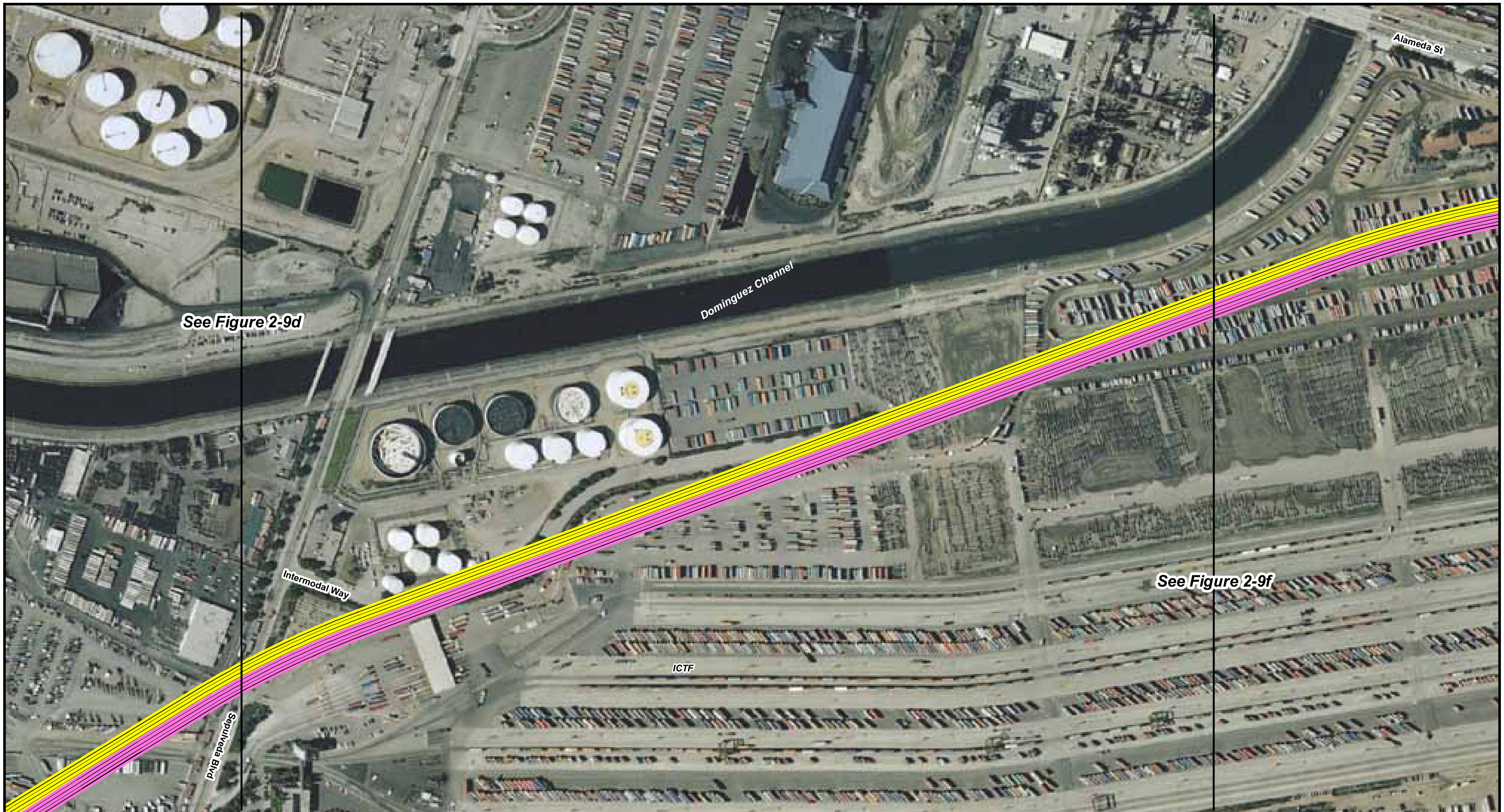

LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-9e
Alternative 2: SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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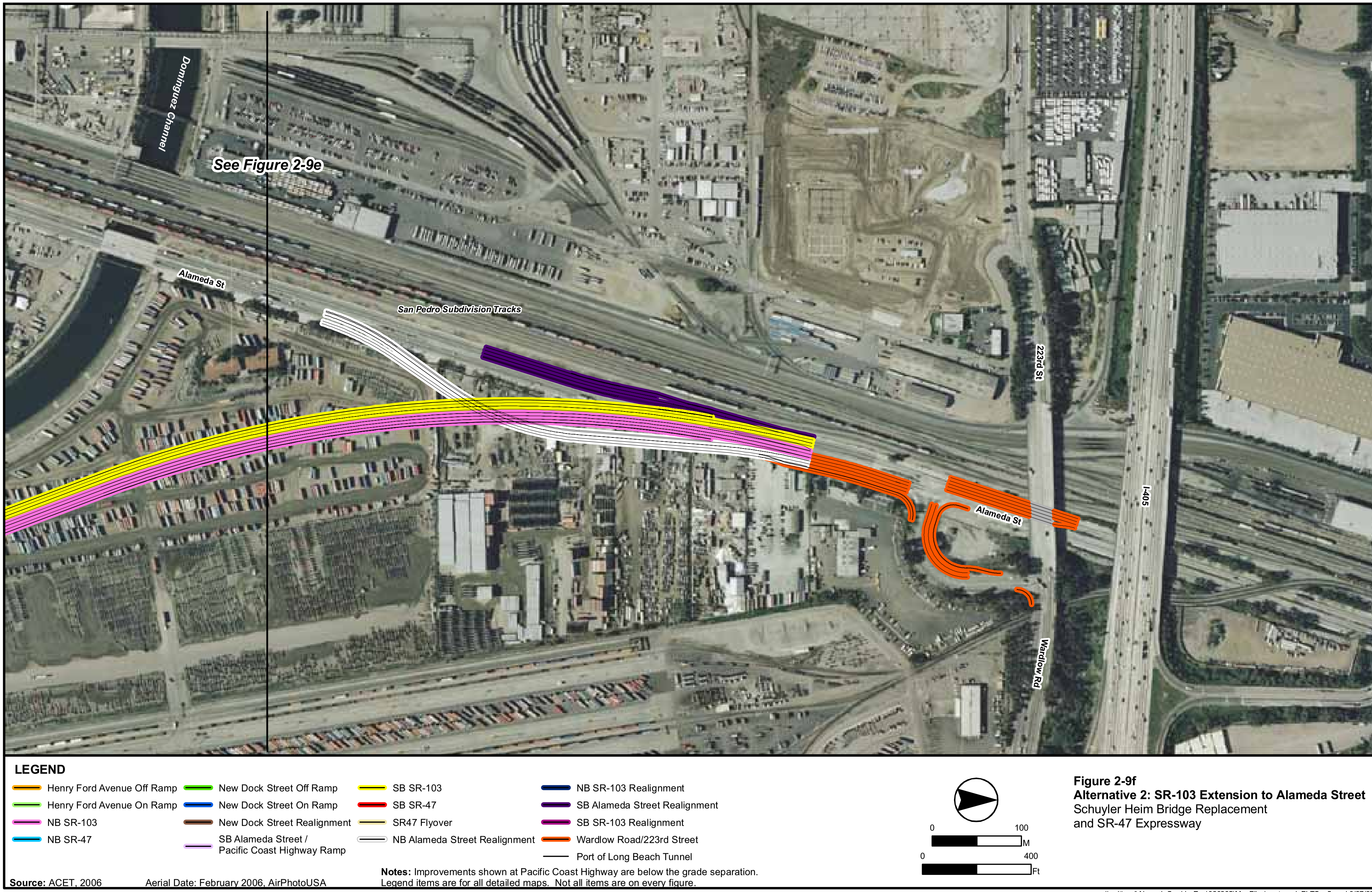

Figure 2-9f
Alternative 2: SR-103 Extension to Alameda Street
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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Also, northbound Alameda Street will be modified to provide dual right-turn lanes to the 223rd Street/Wardlow Road connector ramp, and southbound Alameda Street will be modified to provide dual left-turn lanes to the connector ramp. In addition, the connector ramp will be modified to provide: dual right-turn lanes from the connector ramp onto northbound Alameda Street; dual left-turn lanes from the connector ramp onto southbound Alameda Street; and an optional left- or right-turn lane onto 223rd Street/Wardlow Road (Figure 2-9f). These changes will be made by restriping the ramp and Alameda Street and resignalization of the intersection.

Widening and operational improvements would be made to the existing SR-103 to accommodate the southerly end connections of the proposed alignment and to Alameda Street to accommodate the northerly end connections south of Wardlow Road.

2.2.2.1.3 Flyover

The flyover would be constructed as described for Alternative 1. However, for this alternative, the right lane of the flyover would join SR-47 on the bridge, then it would continue to SR-103.

2.2.2.2 Construction Activities

2.2.2.2.1 Bridge Construction

Under Alternative 2, construction of the Schuyler Heim Bridge would be the same as described for Alternative 1.

2.2.2.2.2 SR-103 Extension Construction

Under Alternative 2, construction sequencing for the SR-103 Extension would be the same as for the SR-47 Expressway under Alternative 1. However, there would be a difference in the amount of material needed for earthwork. For Alternative 2, earthwork is anticipated to include movement of approximately 116,212 cubic meters (152,000 cubic yards) of earth, with approximately 18,349 cubic meters (24,000 cubic yards) being imported material.

This would be needed for the MSE support structures where the SR-103 Extension would transition from grade to elevated expressway at the south end of the alignment and from elevated expressway to grade at the north end of the alignment.

2.2.2.2.3 Flyover Construction

Under Alternative 2, construction of the flyover would be the same as described for Alternative 1.

2.2.3 Alternative 3: Bridge Demolition Avoidance

This alternative is provided as a means of constructing a new bridge over the Cerritos Channel and, at the same time, preserving the existing bridge. The Schuyler Heim Bridge has been determined to be a historic property and is eligible for listing in the National Register of Historic Places (NRHP). With Alternative 3, the existing bridge would be retrofitted and left in place, but would not be used. However, according to the U.S. Coast Guard, when a bridge is no longer used for its permitted purpose of providing land transportation, the bridge shall be removed from the waterway. Therefore, removal of the existing Schuyler Heim Bridge would be included as a condition of the federal permit for the replacement bridge. Nonetheless, this alternative is presented as a means of preserving a historic resource. Alternative 3 would extend from SR-47 KP 4.4 to 9.3 (PM 2.7 to 5.8).

2.2.3.1 Description

Under Alternative 3, a new bridge would be constructed east of, and without disturbance to, the existing Schuyler Heim Bridge, which would remain in place. The flyover and the SR-47 Expressway would be constructed as described under Alternative 1 (see Figures 2-10a through 2-10e).

2.2.3.1.1 Bridge Replacement

Under this alternative, a new fixed-span bridge would be constructed as described under Alternative 1, but it would have a more easterly alignment in order to avoid the existing lift bridge. The new bridge would have the same lane configuration as the bridge described under Alternative 1. This alternative would include a southbound off-ramp and northbound on-ramp at New Dock Street on Terminal Island, as well as a northbound off-ramp and southbound on-ramp at Henry Ford Avenue on the mainland side of the bridge. The elevations for this alternative are shown in Appendix B.4.

The existing Schuyler Heim Bridge would no longer be used for transportation purposes once the new bridge is operational.

For Alternative 3, the retrofit would be consistent with the retrofit project described in the 1998 Initial Study/Environmental Assessment (IS/EA) (Caltrans 1998b), including measures to mitigate impacts to historic resources. The lift span of the retrofitted Schuyler Heim Bridge would be locked in an up position (14.3 m [47 ft] or higher), and the bridge would not be used for vehicular traffic. Approaches to the existing Schuyler Heim Bridge would be demolished, blockaded, or otherwise made inaccessible to vehicular traffic.

This alternative would enable the existing Schuyler Heim Bridge, which is eligible for listing on the NRHP, to remain in place.

2.2.3.1.2 SR-47 Expressway

Other than the changes noted above, elements of the SR-47 Expressway would be the same as under Alternative 1.

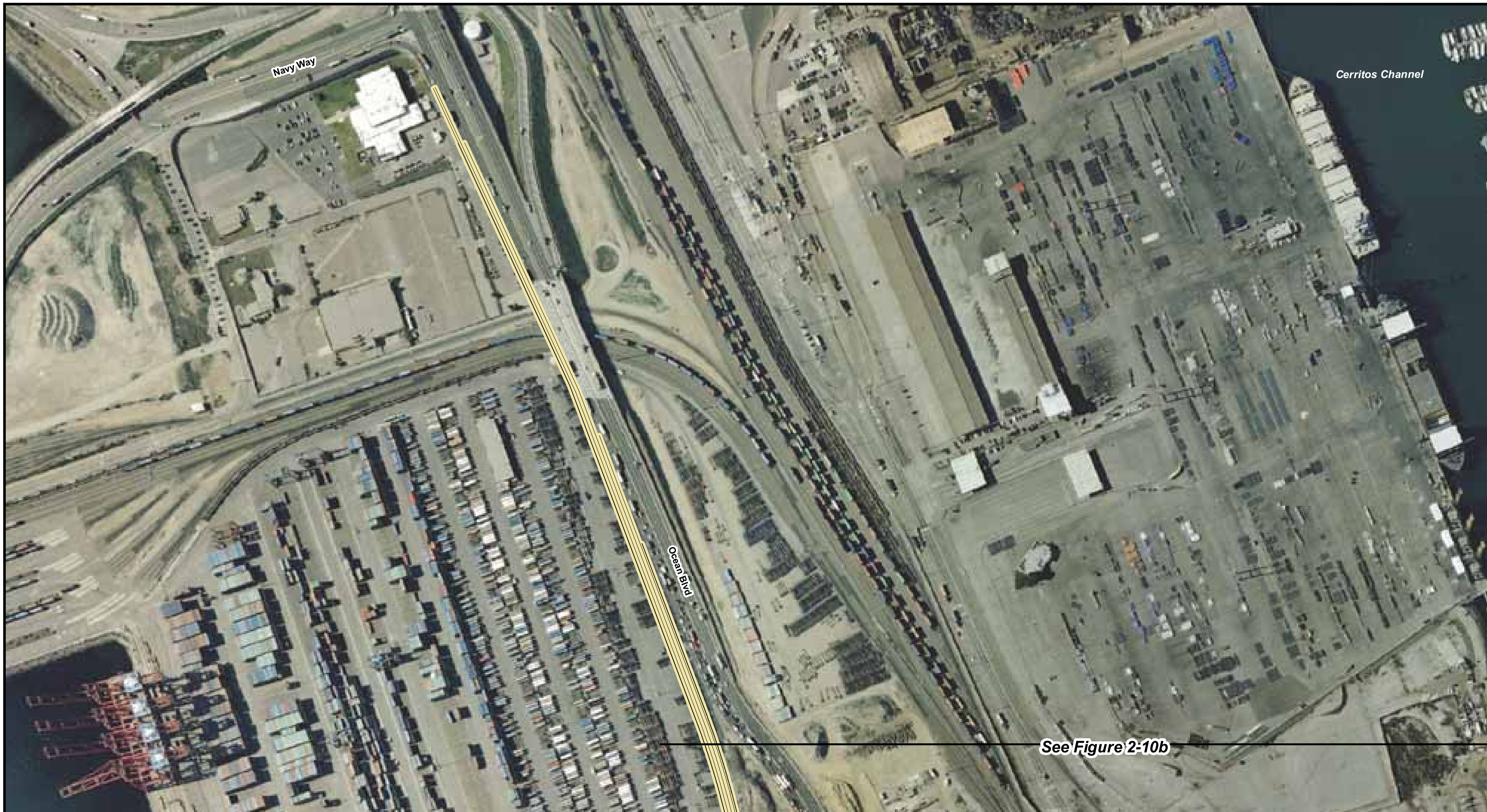
2.2.3.1.3 Flyover

Under Alternative 3, the flyover would be the same as described for Alternative 1.

2.2.3.2 Construction Activities

2.2.3.2.1 Bridge Construction

Under Alternative 3, there would be no demolition of the existing Schuyler Heim Bridge. With this exception, construction activities for the new fixed-span bridge would be the same as described for Alternative 1.



LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

0 100 M

0 400 Ft

Figure 2-10a
Alternative 3: Bridge Demolition Avoidance
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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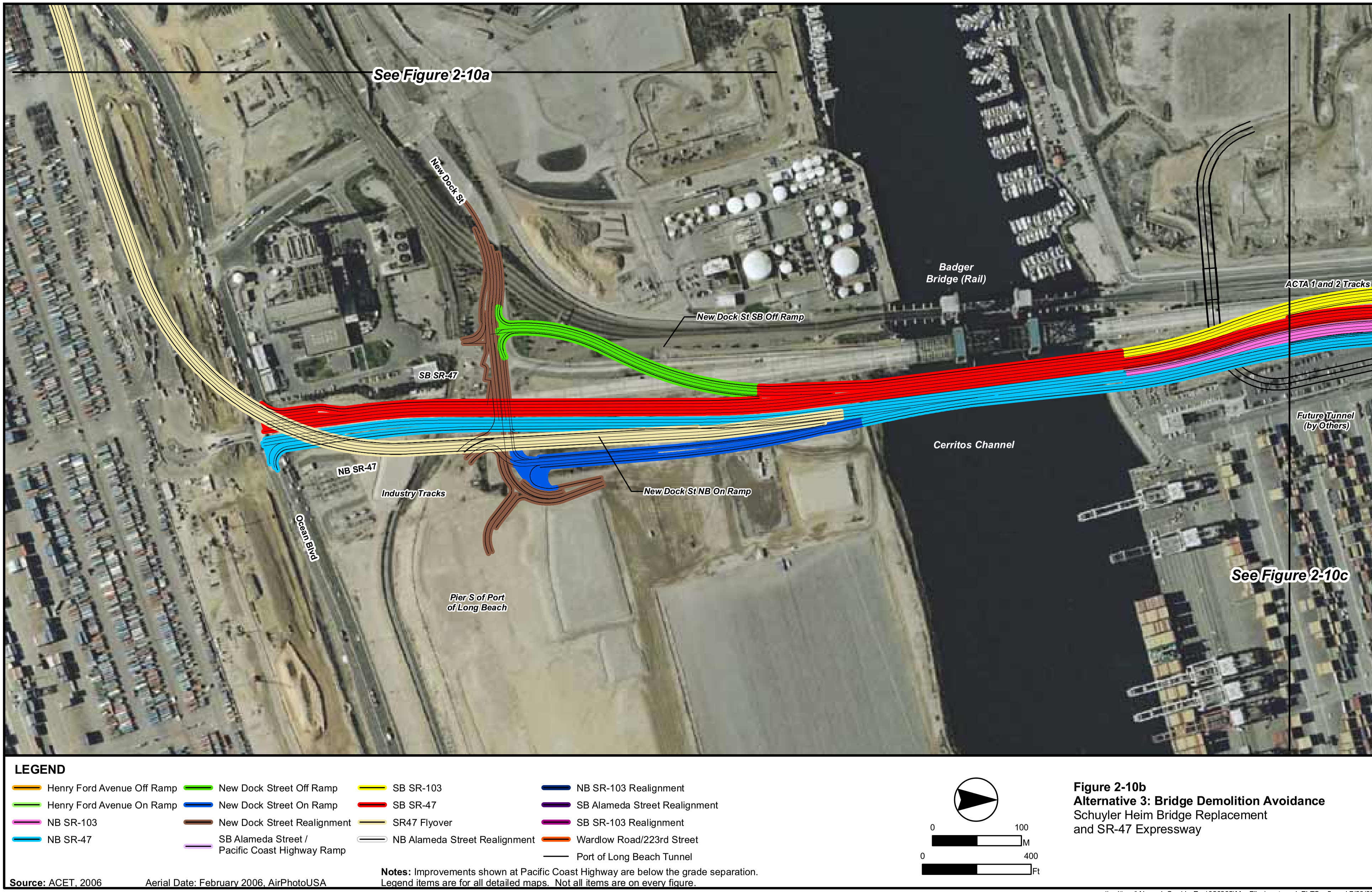

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

Source: ACET, 2006

Aerial Date: February 2006, AirPhotoUSA

Figure 2-10b
Alternative 3: Bridge Demolition Avoidance
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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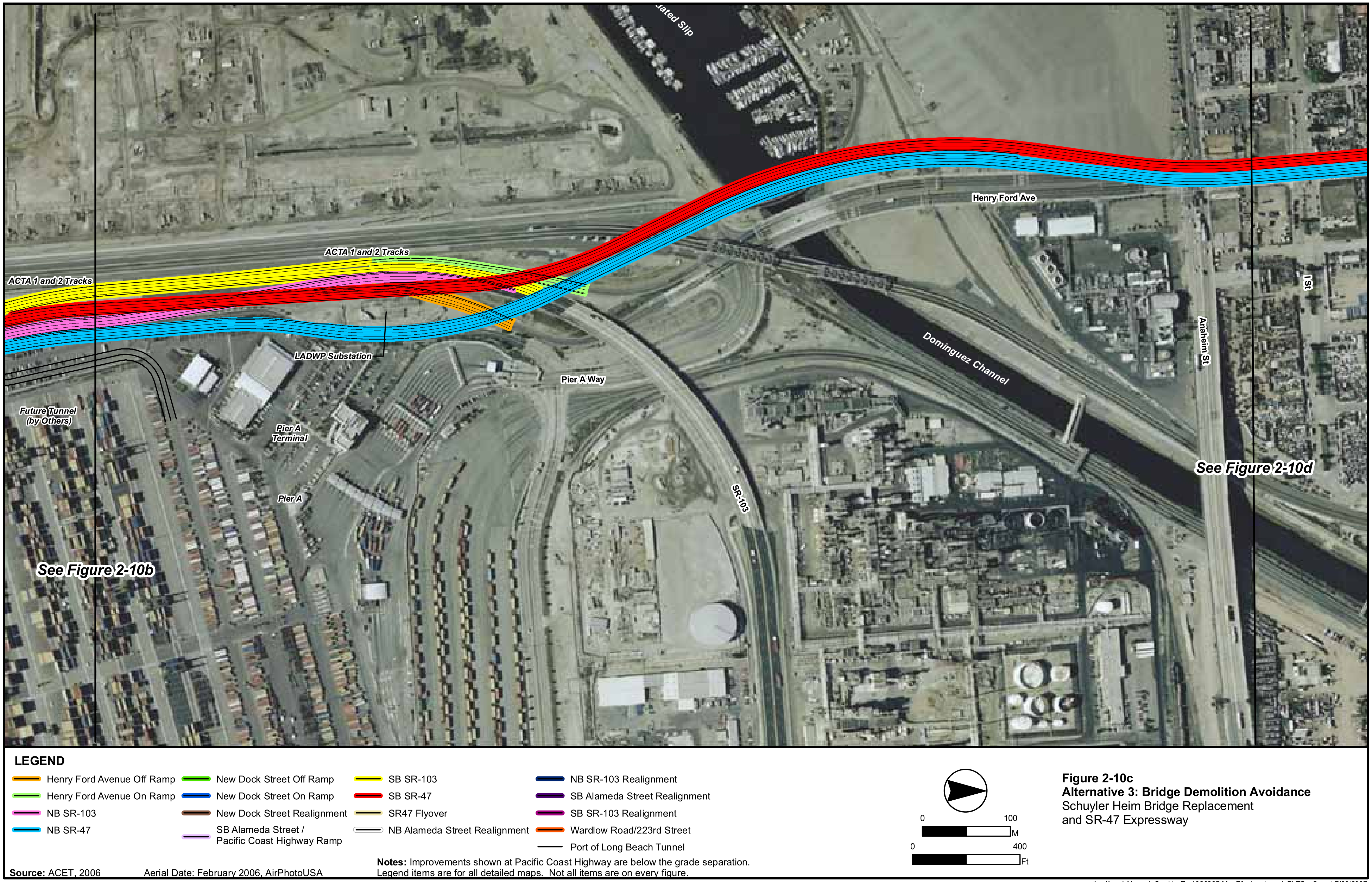

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-10c
Alternative 3: Bridge Demolition Avoidance
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

0 100 M

0 400 Ft

Figure 2-10d
Alternative 3: Bridge Demolition Avoidance
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation.
Legend items are for all detailed maps. Not all items are on every figure.

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Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-10e
Alternative 3: Bridge Demolition Avoidance
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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2.2.3.2.2 SR-47 Expressway Construction

Under Alternative 3, activities associated with construction of the SR-47 Expressway would be the same as described for Alternative 1.

2.2.3.2.3 Flyover Construction

Under Alternative 3, construction of the flyover would be the same as described for Alternative 1.

2.2.4 Alternative 4: Bridge Replacement Only

2.2.4.1 Description

This alternative would involve replacement of the Schuyler Heim Bridge with a fixed-span bridge, as described under Alternative 1. This alternative would include modification to the northerly and southerly approaches to the bridge to maintain connectivity to SR-103 and Ocean Boulevard (Figures 2-11a and 2-11b). Other elements related to replacement of the Schuyler Heim Bridge would be the same as under Alternative 1. However, with Alternative 4, there would be no grade-separation at the existing at-grade rail crossing south of the bridge. Also, New Dock Street would not be realigned, as would occur under Alternative 1, and the Ocean Boulevard/SR-47 Flyover would not be constructed. Alternative 4 would extend from SR-47 KP 5.6 to 7.3 (PM 3.5 to 4.5).

2.2.4.2 Construction Activities

Under Alternative 4, construction activities for the Schuyler Heim Bridge replacement would be the same as described for Alternative 1.

2.2.5 Alternative 5: Transportation System Management

2.2.5.1 Description

The Transportation System Management (TSM) alternative identifies easily implementable improvements to transportation in the project area as an alternative to improvements that would be more costly. For the proposed project, the TSM alternative focuses on improvements to traffic routes that parallel the proposed SR-47 Expressway, and that serve the same trips, including truck trips to and from the ICTF, and trips to and from the Ports of Long Beach and Los Angeles via Alameda Street, Henry Ford Avenue, and SR-47.

Trip reductions via travel demand management (TDM) techniques also would be employed as part of this TSM alternative. If feasible, TDM measures would reduce travel demand in the corridor and potentially lessen the need for further improvements. For this project, the TSM alternative would include measures to improve capacity and traffic circulation at the Ports of Long Beach and Los Angeles through policy changes and use of the latest technologies.

LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

0 100 M
0 400 Ft

Figure 2-11a
Alternative 4: Bridge Replacement Only
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

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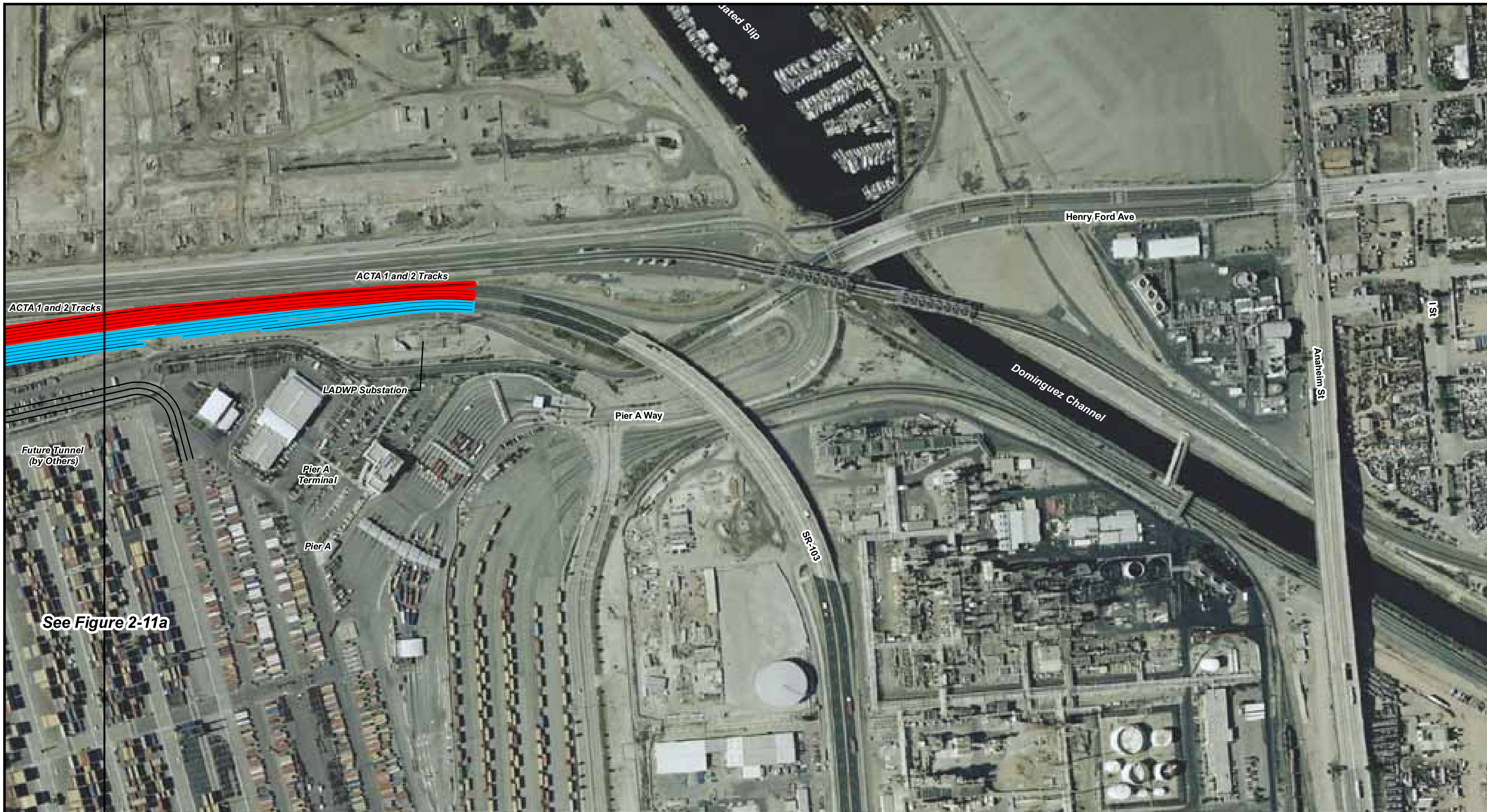

LEGEND

- Henry Ford Avenue Off Ramp
- Henry Ford Avenue On Ramp
- NB SR-103
- NB SR-47
- New Dock Street Off Ramp
- New Dock Street On Ramp
- New Dock Street Realignment
- SB Alameda Street / Pacific Coast Highway Ramp
- SB SR-103
- SB SR-47
- SR47 Flyover
- NB Alameda Street Realignment
- NB SR-103 Realignment
- SB Alameda Street Realignment
- SB SR-103 Realignment
- Wardlow Road/223rd Street
- Port of Long Beach Tunnel

0 100 M

0 400 Ft

Source: ACET, 2006 Aerial Date: February 2006, AirPhotoUSA

Notes: Improvements shown at Pacific Coast Highway are below the grade separation. Legend items are for all detailed maps. Not all items are on every figure.

Figure 2-11b
Alternative 4: Bridge Replacement Only
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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The following key elements are included:

- **Intelligent Transportation Systems (ITS)** applications in and around the ports, with special emphasis on truck movements
- **Intersection improvements,** such as restriping to provide additional turn lanes and acceleration lanes, where needed, and traffic signalization improvements
- **Minor roadway widening and/or peak-hour parking prohibitions** to remove midblock bottlenecks along selected roadways
- **Travel Demand Management**

With Alternative 5, the existing Schuyler Heim Bridge would continue to deteriorate over time as its useful life is eroded further and as various magnitude earthquakes occur in the project area. At some point in the future, it could be necessary for the bridge to be demolished and replaced, solely to avoid safety hazards.

2.2.5.1.1 Intelligent Transportation Systems

The ITS element of the TSM alternative includes Advanced Transportation Management and Information Systems (ATMIS) and Advanced Traveler Information Systems (ATIS). The proposed ITS improvements would be designed to improve traffic circulation through traffic control, incident management, traffic surveillance, and dissemination of traffic information.

For this project, the ITS improvements would include an advanced detection system for trains approaching rail crossings between the Henry Ford Avenue/SR-47 interchange and Anaheim Street so that train blockages of those tracks would be detected in advance of and during the blockage. That information would be used to direct vehicular traffic to routes without blockages, such as SR-47/SR-103, I-710, I-110, Sepulveda Boulevard, Pacific Coast Highway, and Anaheim Street.

The focus of the ATMIS element is the application of proven ITS technologies within and near the project area. Truckers, dispatchers, terminal operators, traffic engineers, system operators, and others would be provided with traffic surveillance at critical points to better assist travel, minimize rail blockage delays, manage incidents, and efficiently divert truck traffic to various entrance and exit points.

ATMIS would control ITS field elements and would monitor traffic signals and rail traffic. The system would have links to the City of Long Beach Traffic Management Center (TMC), the Caltrans Traffic Operation Center (TOC), and to future envisioned TMCs in the South Bay area. The ATMIS also would have an indirect link to the City of Los Angeles Automated Traffic Surveillance and Control (ATSAC) center via another Port of Long Beach project and, as noted above, an advance warning system for at-grade rail crossings.

Specific elements are described below:

- *Closed Circuit Television (CCTV) Surveillance*: CCTV systems would be deployed at strategic locations so the operation at each location could be visually monitored. Once surveillance of the specified locations is in place, the engineer would be able to identify incidents and/or congested locations and redirect traffic using other elements, such as changeable message signs (CMS).

- *Changeable Message Signs (*CMS): These are capable of transmitting valuable traffic information to motorists via large, field-installed display boards to inform drivers of approaching conditions. The CMS would be placed in advance of major interchanges and intersections, and at other points where driver routing decisions could be affected by the presence of timely information. CMS would be placed so that vehicles could divert from the Henry Ford Avenue/Alameda Street route when train blockages occur at the ACTA and Union Pacific (UP) tracks. The CMS also would be placed at or adjacent to terminal gate exits to forewarn truck drivers of incidents on area freeways, as well as to provide rail-crossing information. Incident information would be automatically retrieved from Caltrans, and appropriate messages then would be displayed on the CMS.
- *Link to Long Beach Transportation Management Center (TMC), Caltrans TOC, future South Bay TMC, and Los Angeles Department of Transportation ATSAC*: These links would exchange traffic signal operation and traffic information with the ports' ATIS and provide opportunity to monitor traffic in the project area.
- *Advanced Traveler Information System*: This system would provide information in-vehicle and at kiosks and other locations to assist truckers and other motorists within and near the ports. This information could include route congestion data, rail blockage data, and other traveler information.

2.2.5.1.2 Roadway and Intersection Improvements

The TSM alternative includes minor physical improvements at intersections and along roadways, primarily within existing rights-of-way.

Due to recent port access demonstration program improvements, many of the local intersections have been improved in the past few years. Intersections that remain to be improved include: SR-103 where it terminates at Sepulveda Boulevard, and intersections along Henry Ford Avenue north of SR-47, along Anaheim Street between SR-103 and Alameda Street, and along Pacific Coast Highway between SR-47 and Alameda Street.

Alameda Street itself has been significantly improved via widening and grade separations. One further improvement would be to stripe Alameda Street to the full six lanes for through traffic. This would eliminate on-street parking and provide two additional lanes for travel.

2.2.5.2 Construction Activities

Due to the relatively small-scale nature of the TSM activities described above, construction associated with this alternative would be minor. Depending upon the specific element(s) implemented, there would be some grading, trenching, and excavation. There also could be installation of asphalt surfaces and concrete for curbs and foundations.

It is anticipated that these activities would be scheduled to occur during off-peak traffic hours.

2.2.6 Alternative 6: The No Build Alternative

Under the No Build alternative, replacement of the Schuyler Heim Bridge, construction of the flyover, and construction of either the SR-47 Expressway or SR-103 Extension would not occur. No additional improvements would be constructed beyond what is currently programmed for Henry Ford Avenue and Alameda Street. The existing multiple railroad grade crossings would remain in place, as would the existing signalized intersections along Henry Ford Avenue.

The Schuyler Heim Bridge would continue to be seismically inadequate and subject to damage or collapse under strong seismic conditions. Maintenance activities would continue and would include application of protective coatings, lift mechanism repairs, deck resurfacing, and similar maintenance activities. The existing bridge is expected to continue to deteriorate over time as its useful life is eroded further and as various magnitude earthquakes occur in the area. At some point in the future, it could be necessary for the bridge to be demolished and replaced solely to avoid safety hazards.

2.3 Alternatives Considered and Withdrawn

In addition to the alternatives described above, three other alternatives were considered for evaluation. However, these were eliminated from further consideration based on feasibility and environmental considerations. These alternatives were:

- Retrofit of the existing Schuyler Heim Bridge
- Extension of SR-103 to I-710
- Extension of SR-103 to I-405

Retrofit of the Schuyler Heim Bridge would maintain the existence of the historic structure. The bridge could continue to be used, pending structural damage, such as from a major earthquake.

The two SR-103 alternatives would provide for a north/south expressway by extending the existing SR-103 corridor rather than constructing a facility on the SR-47 alignment. SR-103 is a 2.6-km (1.6-mi) state highway that starts at SR-47 near Henry Ford Boulevard and ends at Pacific Coast Highway. SR-103 is located north of Terminal Island in the cities of Los Angeles and Long Beach. It provides a direct link, via the Schuyler Heim Bridge, from major shipping terminals on Terminal Island to areas directly north, on the mainland. Therefore, it would be a logical candidate as an alternative corridor to the proposed expressway.

North of Pacific Coast Highway, in the City of Long Beach, SR-103 continues as a surface street to a "T" intersection with Sepulveda Boulevard and Willow Street. At the Sepulveda/Willow intersection, all traffic must turn either left or right, and truck restrictions exist on Willow Street east of SR-103. A major intermodal terminal, the ICTF, is located immediately northwest of the SR-103/Sepulveda/Willow intersection. Between Pacific Coast Highway and Sepulveda/Willow, the Union Pacific Railroad San Pedro Branch and an SCE power line easement are located immediately west of SR-103.

Various alternatives to extend SR-103 beyond its current terminus have been studied in the past. The Southern California Association of Governments (SCAG) prepared a study, *Potential Terminal Island Freeway – San Diego Freeway Connector* (1999), to examine the technical feasibility of a new connector and determine if it would reduce congestion and enhance vehicular mobility. The study evaluated a 4.3-km (2.7-mi), grade-separated elevated expressway between SR-103 and I-405. The proposed connector would cross the existing SCE easement and railroad lines on the west side of SR-103 and run between the ICTF and the Dominguez Channel. The expressway would join I-405 between Alameda Street and Wilmington Avenue. The study assumed a half-interchange with I-405 to provide direct access from northbound SR-103 to northbound I-405 and from southbound I-405 to southbound SR-103. The study estimated the capital cost of the project to be between $122 million and $180 million. The study found the connector to be feasible but questioned its need and benefit following completion of the Alameda Street improvements. The study also listed capital costs and utility relocation as major issues requiring further study.

During the public scoping meeting for the previous Schuyler Heim Bridge Replacement and SR-47 Expressway Project, the comment was made that SR-103 could be extended to join Alameda Street. This would constitute an alternative to constructing the expressway as described in the project at that time. During development of the SR-47 Expressway feasibility study, SCAG conducted a review of possible SR-103 Extension alternatives. The SR-103 alignments that were considered and then eliminated from further consideration are shown in Figure 2-12 and described in Sections 2.3.2 and 2.3.3.

2.3.1 Retrofit of Existing Schuyler Heim Bridge

The seismic retrofit and rehabilitation project for the Schuyler Heim Bridge that Caltrans identified in 1998 involved retrofit of the approach structures and truss portions of the lift bridge (columns and foundations, truss lifting towers, and counterweights). The defined retrofit work was as follows:

- Install longitudinal restrainers
- Retrofit tower bracing
- Retrofit tower portal
- Retrofit tower transverse strut
- Retrofit approach truss bearing
- Reconstruct lift-span truss bearings
- Retrofit counterweight frame
- Retrofit truss bottom lateral bracing
- Retrofit footings on Columns 27 and 28, and Abutments 26 and 29
- Remove existing fenders
- Install new fenders
- Remove sheet pile bulkhead
- Construct new column retaining walls at Abutments 26 and 29
- Install 1.21-m (48-in) CIDH concrete pilings at Abutments 26 and 29

Mitigation measures applicable to this alternative were identified in the 1998 IS/EA for the seismic retrofit project (Caltrans, 1998b). The mitigation measures addressed potential impacts related to peregrine falcons, hazardous materials, and historic resources.

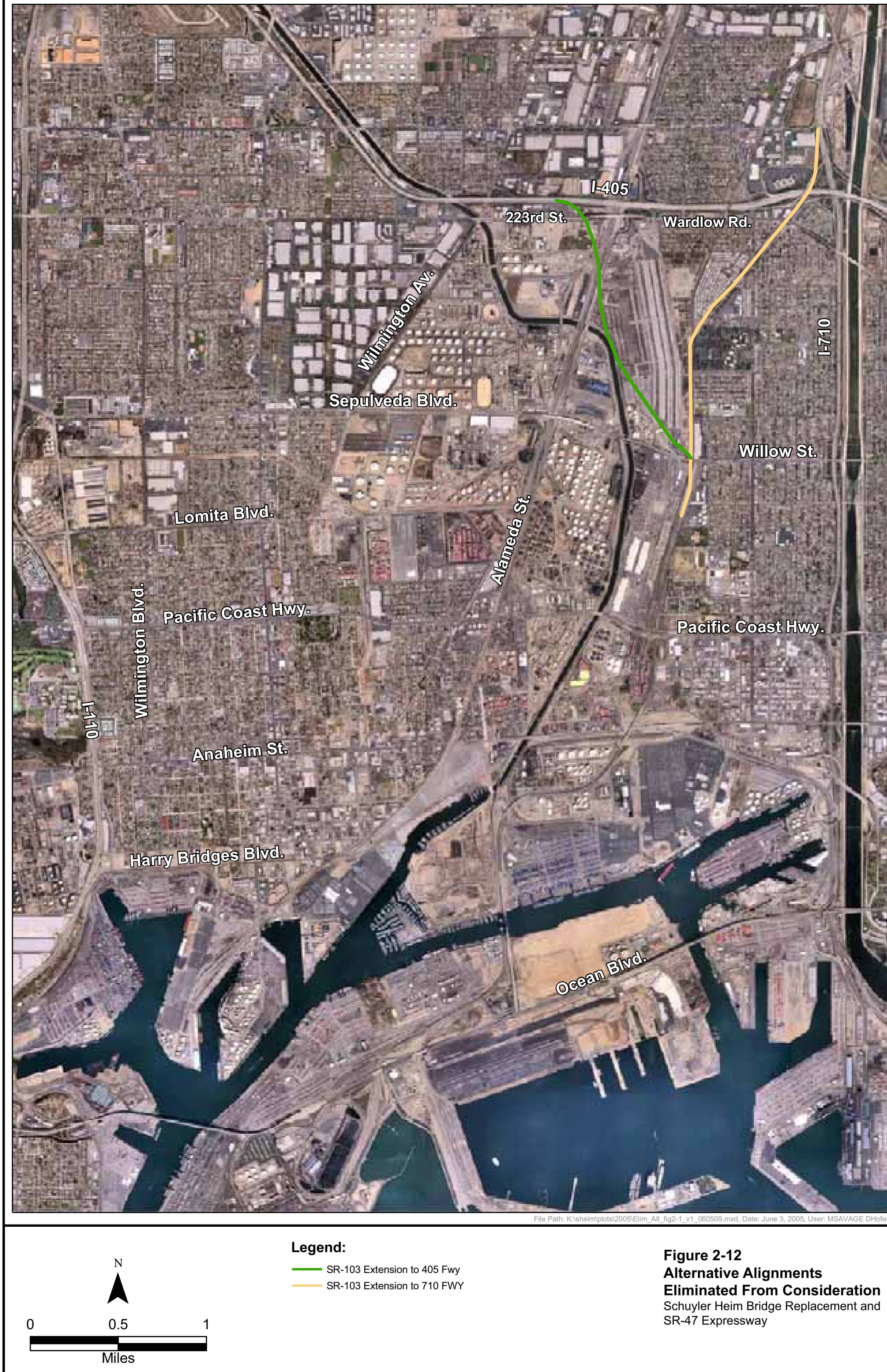

Figure 2-12
Alternative Alignments Eliminated From Consideration
Schuyler Heim Bridge Replacement and SR-47 Expressway

This Schuyler Heim Bridge retrofit alternative was eliminated. Based on cost comparisons of repairing the Schuyler Heim Bridge, Caltrans confirmed that constructing a new fixed bridge was more cost-effective than rehabilitating the existing bridge (Caltrans, 1999). In addition, Caltrans determined that the seismic retrofit alternative would not provide an emergency service facility that would be able to withstand a major earthquake and be serviceable immediately following a major earthquake.[1] In addition, if a retrofit project were redesigned such that the bridge could be put into service immediately following a major earthquake, the foundations and pilings of the existing structure would have to be demolished and reconstructed. Because of the expense of this alternative, and its adverse effect on the historic integrity of the existing lift bridge, it was eliminated from further consideration.

2.3.2 Extension of SR-103 to I-710

This alternative would extend SR-103 to the north via a four-lane elevated expressway to join I-710 between I-405 and Del Amo Boulevard. A "half" interchange at I-710 would connect northbound SR-103 to northbound I-710, and southbound I-710 to southbound SR-103. With this alternative, SR-103 would fly over I-405, with no interchange. This alternative would follow the SCE easement. With this alternative, SR-103 would be widened to three lanes in each direction, beginning south of Anaheim Street, and extending northward to the beginning of the new elevated expressway. Other safety and operational improvements would be constructed on SR-103 between Anaheim Street and the Schuyler Heim Bridge.

This alternative presented several positive attributes; it would provide a freeway-to-freeway connection for SR-103 traffic; it would utilize available capacity of SR-103; and it would not cross the Dominguez Channel. However, it was eliminated from further consideration due to its negative features, as follows:

- It would require major right-of-way acquisition.
- There would be significant utility impacts (SCE high-voltage lines) that could require a longitudinal encroachment agreement with Caltrans.
- It would require major reconstruction of the I-710/Del Amo Boulevard interchange.
- There would be potential traffic impacts to I-710.
- There is the potential for adverse environmental impacts to the Long Beach community, including residential neighborhoods, several public schools, a park, and a church.
- It could require safety enhancements and capacity improvements on SR-103 south of Anaheim Street, as the existing SR-103 main line curve at the Pier A Terminal has a design speed of only 56 km/hour (35 miles per hour [mph]).
- It would be significantly more costly than the SR-47 Expressway alternatives.

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[1] George Orsolini of Caltrans, the designer of the original seismic retrofit project (1998), in a conversation with Patty McCauley (Caltrans Liaison Engineer in the Office of Special Funded Projects, which provides oversight for structural work) stated that the original seismic retrofit design was a "no collapse" design, but that because the existing structure is in such poor condition, meeting the "important" designation (immediate service following a major earthquake) is not achievable with regard to seismic design criteria.

2.3.3 Extension of SR-103 to I-405

This alternative would extend SR-103 to the northwest via a two- or four-lane elevated expressway to join I-405 between Alameda Street and Wilmington Avenue. A “half” interchange at I-405 would connect northbound SR-103 to westbound I-405 and would connect eastbound I-405 to southbound SR-103. With this alternative, SR-103 would be widened to three lanes in each direction, beginning south of Anaheim Street, and extending northward to the beginning of the new elevated expressway. Other safety and operational improvements would be constructed on SR-103 between Anaheim Street and the Schuyler Heim Bridge.

This alternative presented several positive attributes; it would provide a freeway-to-freeway connection for SR-103 traffic; it would utilize available capacity of SR-103; and it would not cross the Dominguez Channel. However, it was eliminated from further consideration due to its negative features, as follows:

- It would require major right-of-way acquisition.
- There would be significant utility impacts (SCE high-voltage lines).
- It would require major reconstruction of the I-405/Wilmington interchange.
- There would be potential traffic impacts to I-405.
- There is the potential for adverse environmental impacts to the Long Beach community, including residential neighborhoods, several public schools, and a park.
- It could require safety enhancements and capacity improvements on SR-103 south of Anaheim Street, as the existing SR-103 main line curve at the Pier A Terminal has a design speed of only 56 km/hour (35 mph).
- It would be significantly more costly than the SR-47 Expressway alternatives.

Chapter 3.0 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

In accordance with the National Environmental Policy Act (NEPA) and CEQ Regulations (40 CFR, Section 1500, et seq.),the primary purpose of an Environmental Impact Statement (EIS) is to serve as an action-forcing device to insure that the policies and goals defined in NEPA are infused into the ongoing programs and actions of the federal government. The NEPA analysis shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment (Section 1502.1 Purpose).

In order to effectively evaluate the alternatives as described above, the Council on Environmental Quality (CEQ) regulations also require the EIS to succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration; the descriptions shall be no longer than necessary to understand the effects of the alternatives (40 CFR, Section 1502.15).

The sections that follow provide detailed discussions of the potential environmental impacts of the six project alternatives (which include the No Build alternative), in compliance with the requirements of NEPA. Each alternative is evaluated in terms of the affected environment and impacts of project construction and operation. Measures to avoid, minimize, and/or mitigate effects of the project are identified for each alternative, as appropriate. In addition, effects that cannot be avoided, minimized, or mitigated also are identified.

An evaluation of the proposed project alternatives in accordance with California Environmental Quality Act (CEQA) criteria is provided in Chapter 4.0. It is noted, however, that Caltrans has not adopted its own thresholds of significance pursuant to CEQA. As a statewide agency covering diverse geographic areas, Caltrans has, as a matter of policy, left the determination of significance to district project development team members. The findings provided in Chapter 4.0 are based on information provided in this chapter (3.0) of the EIS/Environmental Impact Report (EIR). In compliance with Caltrans requirements, Chapter 4.0 addresses only impacts that are considered significant under CEQA. Discussion of the effects of all six project alternatives in accordance with Appendix G of the CEQA Guidelines is provided in Chapter 4.0 and in Appendix A – CEQA Checklist.

The evaluation criteria used for analysis of the proposed project alternatives are not universally adopted by Caltrans. However, the specific evaluation criteria are used to assist in determining the effects of these particular project alternatives within the area where the project is located - the Ports of Los Angeles and Long Beach and adjacent southerly Los Angeles County.

As part of the scoping and environmental analysis conducted for the project alternatives, the following environmental resource areas were considered, and it was determined that no farmlands or wild and scenic rivers are in the project area, and that there is no potential for the project alternatives to affect such resources. Consequently, there is no further discussion in this Draft EIS/Environmental Impact Report (EIR) regarding:

- Farmlands
  The project alternatives are located in an area that is highly developed with heavy industrial, commercial, and transportation uses associated with the nearby Ports of Los Angeles and Long Beach, as well as some residential neighborhoods. There are no areas suitable for agricultural activities. Therefore, there is no potential for the proposed project to affect farmlands; the subject is not addressed further in this Draft EIS/EIR.

- Wild and Scenic Rivers
  The project alternatives are located in an area that is highly developed with heavy industrial, commercial, and transportation uses associated with the nearby Ports of Los Angeles and Long Beach, as well as some residential neighborhoods. The project alternatives are not in the vicinity of and have no potential to affect any river designated as a component of, or proposed for inclusion in, the state or federal wild and scenic rivers system. Therefore, the subject is not addressed further in this Draft EIS/EIR.

Much of the information provided in Chapter 3 is derived from the following technical studies, as referenced in the environmental resources discussions:

- *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Community Impact Assessment* (Caltrans, May 2007)

- *Traffic Study: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Meyer, Mohaddes Associates, April 2007)

- *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Long Long-Term Economic Impacts to Marine Vessel Operation in Cerritos Channel* (Caltrans, December 2006)

- *Visual Impact Assessment: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, February 2007)

- *Historic Property Survey Report* (Myra L. Frank & Associates, 2002)

- *Final Supplemental Historic Property Survey Report (HPSR) for the SR-103 Extension Alternative: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Myra L. Frank & Associates/Jones & Stokes, 2005)

- *Supplemental Historic Property Survey Report and Archaeological Survey Report for the SR-47 Flyover- Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, March 2007)

- *Water Quality Impacts Technical Study* (Caltrans, January 2007).

- Technical Memorandum – Schuyler Heim Bridge (Bridge No. 53-2618) Geotechnical Review of Existing Data (Caltrans, 2001).

- *Final Initial Site Assessment for the Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, 2005)
- *Supplemental ISA* (Caltrans, May 2007)
- *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Section 4(f) Evaluation* (Caltrans, February 2007)
- *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Air Quality Impacts Technical Study* (Caltrans, May 2007)
- *Noise Technical Report for the Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, May 2007)
- Energy Technical Memorandum - Schuyler Heim Bridge Replacement and SR-47 Expressway Project - Energy Consumption (Caltrans, February 2007)
- *Natural Environment Study: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, May 2007)

These documents are available for review at the California Department of Transportation, District 7, 100 South Main Street, Los Angeles, California 90012.

3.1 Land Use, Recreation, and Coastal Zone

The information in this section is derived largely from the *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Community Impact Assessment* (Caltrans, 2007), which is hereby incorporated by reference.

3.1.1 Regulatory Setting

3.1.1.1 SCAG Regional Comprehensive Plan and Guide

The Regional Comprehensive Plan and Guide was developed by the Southern California Association of Governments (SCAG) in partnership with 13 subregions and was adopted in March 1996. A bottom-up planning process was used to incorporate local concerns into regional planning. The plan is designed to serve as a regional framework for local and regional decision-making with respect to anticipated growth over the next 20 years. The SCAG forecasts there will be 22.9 million people living in the Southern California region by 2030. The fastest growth is anticipated in the outlying areas, specifically north Los Angeles County and the Inland Empire. The plan sets forth strategies for meeting federal and state requirements with respect to transportation, growth management, air quality, housing, hazardous waste management, and water quality management.

The plan aims to achieve growth management through encouraging local land use actions, which in turn lead to the development of an urban form that will minimize development costs, save natural resources, and enhance the quality of life. The plan recommends projects that meet the following goals: increased mixed land uses, more efficient use of existing infrastructure, reduced environmental effects, more transit use, higher densities in strategic mass transit and urban centers, and more affordable housing.

3.1.1.2 City of Los Angeles General Plan

The City of Los Angeles General Plan is a comprehensive, long-range plan for city development and is the fundamental policy document of the City of Los Angeles. It responds to state and federal mandates to plan for the future and defines the framework by which the City's physical and economic resources are to be managed and utilized over time. Broad issues, goals, objectives, and policies are guided by the citywide General Plan framework. In addition, the plan defines citywide policies that will be implemented through subsequent amendments of the City's community plans, zoning ordinances, and other pertinent programs. There are seven elements in the General Plan.

The Land Use Element designates the general distribution, intensity, and development policies regarding residential, commercial, industrial, open space, and institutional uses. The Wilmington-Harbor City Community Plan intersects the project area. This community plan is discussed below in Section 3.1.1.2.1. The Land Use Element is divided into 35 local area plans (Community Plans), plus the Port of Los Angeles (POLA) Port Master Plan, and the Los Angeles Airport Plan (LAHD, 2005). The northerly portion of the project area would be within the Wilmington-Harbor City Community Plan, primarily within or adjacent to existing transportation corridors or on land that currently is used for industrial purposes. Because the majority of the alternative alignments would be located adjacent to or within existing road rights-of-way, no conflicts with planned uses are anticipated.

The City of Los Angeles General Plan also outlines goals and policies relative to parks and recreation facilities for new development within the City. The goals regarding recreation and parks are outlined in Infrastructure and Public Services – Chapter 9 of the General Plan (see Table 3.1-1).

3.1.1.2.1 Wilmington-Harbor City Community Plan

The Wilmington-Harbor City Community Plan was adopted on July 14, 1999 and establishes goals, objectives, policies, and programs applicable to the community. The Wilmington-Harbor City Community Plan area is bounded by Lomita Boulevard, the City of Long Beach, the Port of Los Angeles, Gaffey Street, and Normandie Avenue.

Because of its proximity to the Port of Los Angeles, a significant portion of the southeast community plan area is designated for industrial and light industrial uses. The industrial sector is a major contributor to the local economy. The plan encourages both new industrial growth, as well as development of improved circulation systems to accommodate the growth. It also contains policies governing direct access of cargo trucks to freeways, discouraging nonresidential traffic on residential streets, and upgrading the circulation system.

The project alternatives are located south of and within the western portion of Wilmington-Harbor City. The plan recommends integrating future development of the port with the Wilmington community, including changes to transportation and circulation systems, and port land acquisitions. The plan also recommends interagency coordination in the planning and implementation of port projects to facilitate efficiency in port operations, and to serve the interests of adjacent communities (LAHD, 2005).

3.1.1.2.2 East Wilmington Targeted Neighborhood Initiative

The East Wilmington Targeted Neighborhood Initiative was established in 1997 in connection with the Housing and Community Development Consolidated Plan. The goal of the program is to increase stakeholder participation in the allocation of Community Development Block Grants, which go toward improving the quality of life in targeted neighborhoods. The jurisdictional area for this initiative is bounded by Pacific Coast Highway to the north, Alameda Street to the east, Anaheim Street to the south, and Eubank Avenue to the west.

3.1.1.2.3 Los Angeles Harbor Industrial Center Redevelopment Plan

The Redevelopment Plan for the Los Angeles Harbor Industrial Center was adopted on July 18, 1974, by the Los Angeles City Council. The redevelopment area encompasses 232 acres and is exclusively industrial. It is bounded by Alameda Street to the east, Harry Bridges Boulevard to the south, Broad Street to the west, and Anaheim Street to the north. The redevelopment plan was designed to spur development of a labor-intensive industrial center in a previously blighted area. To accomplish this, the Redevelopment Agency recommended improvements to the existing street system, which it characterized as inadequate and overcrowded.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
Wilmington-Harbor City Community Plan (City of Los Angeles General Plan)		
Policy 3-1.2 Define and separate new and/or expanded industrial uses from other uses by freeways, flood control channels, highways and other physical barriers.	Yes	Project would provide a barrier between industrial uses east of Alameda Street and residential uses west of Alameda Street in East Wilmington community.
Policy 3-1.5 Cargo container storage facilities shall have direct access from major or secondary highways or through industrial areas with no access to such facilities through residential areas.	Yes	Project would facilitate improved access to and from cargo container storage facilities by means of grade-separated truck expressway, rather than local surface streets.
Policy 16-1.1 Discourage nonresidential traffic flow for streets designated to serve residential areas only by use of traffic control measures.	Yes	Project would provide a grade-separated truck expressway for non-residential traffic flow.
Policy 18-3.2 Upgrade the circulation system both internal and external to POLB to promote efficient transportation routes to employment, waterborne commerce, and commercial and recreational areas, and to divert Port-related traffic away from adjacent residential and commercial areas.	Yes	Project would assist regional efforts to reduce congestion and improve mobility in the port area.
City of Carson General Plan – Land Use Element		
Policy LU-7.2 Locate truck intensive uses in areas where the location and circulation pattern will provide minimal effects on residential and commercial uses.	Yes	Project would be located in an industrial/transportation corridor; would reduce surface street truck traffic, diverting it away from residential and commercial uses.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
Policy LU-10.1 Continue to work with regional and state agencies to ensure adequate transportation facilities along the Corridor to serve the adjacent areas.	Yes	Project would enhance the existing transportation network, connecting to the Alameda Corridor.
City of Carson General Plan – Transportation Element		
Policy TI-1.2 Devise strategies to protect residential neighborhoods from truck traffic.	Yes	Project would provide a truck expressway, diverting truck traffic from surface streets in residential areas.
Policy TI-1.3 Ensure that the City's designated truck routes provide efficient access to and from the I-405, I-110 and Route-91 Freeways, as well as the Alameda Corridor.	Yes	Project would enhance connectivity to freeways (and the Alameda Corridor.
Policy TI-1.5 Require that all new construction or reconstruction of streets or corridors that are designated, as truck routes, accommodate projected truck volumes and weights.	Yes	Project intends to accommodate projected truck volumes, and would be designed to accommodate projected truck weights.
SCAG Regional Comprehensive Plan and Guide – Growth Management Chapter (GMC), Air Quality Chapter (AQC)		
GMC Policy 3.03 The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the growth policies of the region.	Yes	Project is currently programmed in the 2004 RTIP, and included in the 2004 RTP.
GMC Policy 3.10 Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.	Yes	Project sponsor anticipates cooperation from local and regional agencies in project development and permitting.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
GMC Policy 3.18 Encourage planned development in locations least likely to cause environmental impact.	Yes	Project would be constructed in the urbanized, primarily industrial Port area.
GMC Policy 3.20 Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered species.	Yes	Project would protect and/or relocate vital resources affected by the project.
GMC Policy 3.21 Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.	Yes	Project would document the historic Schuyler Heim Bridge in accordance with requirements of NEPA and CEQA prior to altering or demolishing the bridge. Any archaeological resources that may be unearthed also would be properly documented and/or preserved.
GMC Policy 3.22 Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.	Yes	Project would be constructed in accordance with all applicable safety and design standards.
GMC Policy 3.23 Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.	Yes	Environmental document has identified mitigation measures where necessary to address adverse effects of the project.
AQC Policy 5.11 Through the environmental document review process, ensure that all levels of government consider air quality, land use, transportation, and economic relationships to ensure consistency and minimize conflicts.	Yes	Environmental document has addressed consistency of project with applicable plans and policies.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
Los Angeles County Congestion Management Program		
To link land use, transportation, and air quality decisions.	Yes	Project would facilitate transport of goods and personnel to and from POLA and POLB.
City of Los Angeles General Plan –Infrastructure and Public Services (Recreation and Parks)		
OBJECTIVE 9.22 Monitor and forecast demand for existing and projected recreation and park facilities and programs.	Yes	Project would not increase demand for recreation and park facilities and programs.
Policy 9.22.1 Monitor and report appropriate park and recreation statistics and compare with population projections and demand to identify the existing and future recreation and parks needs of the City.	Yes	Project would not affect population projections. Project is proposed as a measure to respond to ongoing and projected growth in the area.
OBJECTIVE 9.24 Phase recreational programming and park development with growth.	Yes	Project would not induce growth. Project is proposed as a measure to respond to ongoing and projected growth in the area.
Policy 9.24.1 Phase the development of new programs and facilities to accommodate projected growth.	Yes	Project would not induce growth. Project is proposed as a measure to respond to ongoing and projected growth in the area.
Policy 9.24.2 Develop Capital Improvement Programs that take into account the City's forecasted growth patterns and current deficiencies.	Yes	Project would not induce growth. Project is proposed as a measure to respond to ongoing and projected growth in the area.
OBJECTIVE 9.25 Utilize park space in emergency situations.	Yes	Project would maintain access to or use of existing park space.
Policy 9.25.1 Continue to actively participate in emergency planning.	Yes	Project would improve circulation on local streets and, therefore, could result in improved emergency plans.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
Policy 9.25.2 Continue to utilize parks and recreation facilities as shelters in times of emergency.	Yes	Project would maintain access to and use of existing parks and recreation facilities.
City of Long Beach General Plan – Transportation Element		
Action Program 4: Port Access The City should continue to support and assist the Port to include the traffic improvement projects within the Port in the State Transportation Improvement Plan. In order to reduce the percentage of truck traffic on the Long Beach Freeway, especially during the peak hours, the City should work with the Port to pursue a 24-hour Port operation or to consider restricting truck access to the 710 Freeway during peak hours.	Yes	Project is to improve traffic conditions between Terminal Island and major traffic arterials on the mainland to the north. Project intends to accommodate projected truck volumes.
Primary Transit Corridor Policy 2 Revise the truck route system which preserves the integrity of neighborhoods while assuring the efficient movement of goods.	Yes	Project would accommodate existing and proposed truck volumes while diverting truck traffic from residential surfaces streets.
Primary Transit Corridor Policy 5 Encourage development along regional corridors and major arterials and at activity centers that complements capacity improvements and/or encourages demand management activities.	Yes	Project would improve traffic conditions between Terminal Island and major traffic arterials on the mainland to the north.
City of Long Beach General Plan – Land Use Element		
Goals and Objectives– Functional Transportation Long Beach will maintain or improve the current ability to move people and goods to and from development centers while preserving and protecting residential neighborhoods.	Yes	Project would improve traffic conditions between Terminal Island and major traffic arterials on the mainland to the north.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
City of Long Beach General Plan – Recreation Element		
Goal 4.7 Fully maintain public recreation resources.	Yes	Project would not affect maintenance requirements of public recreation resources.
Goal 4.8 Fully utilize all recreational resources, including those at public schools.	Yes	Project would be located to avoid interference with recreational resources.
Goal 4.9 Provide access to recreation resources for all individuals in the community.	Yes	Project would maintain existing access to recreation resources.
Policy 4.2 Protect public parkland from intrusive, non-recreational uses.	Yes	Project would facilitate movement through the project area and decrease opportunities to stop at parks in the project area.
Policy 4.6 With the help of the community, plan and maintain park facilities at a level acceptable to the constituencies they serve.	Yes	Project would facilitate movement through the project area and decrease opportunities to stop at parks in the project area.
Policy 4.10 Require all new developments to provide usable open space tailored to the recreation demands they would otherwise place on public resources.	Yes	Project would not affect existing demand for recreation resources.
Port of Long Beach: Port Master Plan		
Land Use Goal 3 Improve internal circulation involving roadways and rail.	Yes	Project would improve circulation within the port and would improve traffic conditions between Terminal Island and major traffic arterials on the mainland to the north.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
Land Use Goal 3, Objective d) Provide additional rail and highway access to Terminal Island.	Yes	Project would improve connectivity and traffic conditions between Terminal Island and major traffic arterials on the mainland to the north.
Transportation Element, Goal 1 Provide for efficient circulation of vehicular and rail traffic within the Port (with minimum disruption to port activities).	Yes	Project would improve connectivity and traffic conditions between Terminal Island and major traffic arterials on the mainland to the north, and would accommodate existing and proposed truck volumes.
Transportation Element, Goal 3 Ensure port improvements are consistent with the regional transportation network.	Yes	Project would improve connectivity and traffic conditions between Terminal Island and major traffic arterials on the mainland to the north, and would accommodate existing and proposed truck volumes.
District 3: Northwest Harbor Planning District, Goal 1 Purchase all non-port owned property to increase primary port land.	Yes	Project would improve connectivity and traffic conditions between the mainland and lands within District 3 to facilitate port activities.
District 4: Terminal Island Planning District, Goal 3 Improve rail and highway access to Terminal Island	Yes	Project would improve connectivity and traffic conditions between the mainland and lands within District 3 to facilitate port activities.
Port of Los Angeles Master Plan		
Section V, A. General Objectives 1 As the Port of Los Angeles and its facilities are a primary economic and coastal resource of the state…the port is responsible for modernizing and constructing necessary facilities to accommodate…the demands of…commerce and other traditional water dependent and related facilities in order to preclude the necessity for developing new ports elsewhere in the state for such accommodations.-	Yes	Project would modernize (i.e., the bridge) and construct facilities (i.e., the expressway) to facilitate commerce and meet existing and projected demands.

Table 3.1-1
Project Consistency with Local and Regional Plans/Policies

Plan/Policy	Project Consistent with Plan/Policy?	Remarks
Section V, A. General Objectives 7 Internal road, rail and access systems and connecting links with external road, rail and access systems shall be located and designed to provide necessary, convenient and safe access to and from land and water areas consistent with the existing or long-term preferred uses as set forth in [the] Port Master Plan, and shall be consistent with the City of Los Angeles' general transportation plan and local Coastal Program for areas adjacent to the boundaries of the port.	Yes	Project would provide safe and convenient coastal access to and from existing uses. It would not conflict with applicable plans.
Section V, B. Safety Objectives 1 The latest safety standards appropriate to the intended facility use based on appropriate risk analyses shall be used in the location, design, construction, and operation of all development projects in water areas and on land areas under the port's jurisdiction.	Yes	Project intends to modernize or replace the existing Schuyler Heim Bridge, thereby improving seismic safety of the structure. The project would be constructed in accordance with all applicable safety and design standards.
Section V, B. Safety Objectives 2 When a facility project is proposed which will involve the …transfer… of cargoes categorized by law as hazardous, an analysis of risk problems which may arise within the facility itself and which may affect adjacent facilities or areas shall be made and the results shall be used in locating designing, constructing and regulating the subsequent operation of the proposed facility project.	Yes	Trucks that currently transport hazardous materials across the existing Schuyler Heim Bridge would use the new or improved bridge and proposed expressway. A hazardous materials risk analysis shall be prepared for the operation of the project (proposed improvements and/or new structures) to ensure safe transport of all hazardous materials, as well as safety of surrounding uses.

3.1.1.2.4 Port of Los Angeles Plan

The Port of Los Angeles (POLA) Plan is part of the General Plan of the City of Los Angeles. The POLA Plan provides a 20-year guide to the continued development and operation of the port. It is designed to be consistent with the POLA Master Plan discussed in Section 3.1.1.9.1. The long-range preferred water and land uses for POLA include nonhazardous liquid and nonhazardous dry bulk cargo, general cargo, commercial fishing operations, and port-related commercial and industrial uses. However, these preferred goals are subject to the following criteria: changes in economic conditions that affect the types of commodities traded in waterborne commerce; the economic life of existing facilities handling or storing hazardous cargo; and precautions deemed necessary to maintain national security (LAHD, 2005).

3.1.1.3 City of Carson General Plan

The City of Carson adopted its updated General Plan on October 11, 2004. The plan recognizes the improvements planned for rail and truck traffic along the Alameda Corridor and sees this as an opportunity to capitalize on its land holdings and redevelop underutilized and vacant properties to meet demand for new industrial space. The Land Use Element of the plan states that truck-intensive uses should be located in areas where the location and circulation pattern will provide minimal effects on residential and commercial uses. The area south of I-405 and east of Wilmington Avenue is designated for heavy manufacturing.

3.1.1.4 City of Long Beach General Plan

The City of Long Beach adopted its General Plan in 1989 and includes the Long Beach Harbor area within Land Use District No. 12. This district is comprised of existing freeways, the Long Beach Harbor, and the Long Beach Airport. The General Plan assumes that the water and land use designations within the harbor area are formulated separately and adopted by due process as the Specific Plan of the Long Beach Harbor (also known as the Port Master Plan, as amended). The General Plan provides for delegation of responsibilities for planning within the boundaries of the Port of Long Beach (POLB) to the Board of Harbor Commissioners (POLB, 2005).

The City's Advance Planning Division of the Department of Planning and Building has been working on an update to the Land Use and Mobility (Transportation) Elements of the City's General Plan. In the Land Use and Mobility Elements Update of the General Plan: Tech Background Report, published in 2004, it is acknowledged that numerous planned improvements, including roadway improvements, are intended to be built in and around the Port area. Also, an increase in truck traffic is anticipated as the volume of containers handled at the ports is projected to increase four-fold between 2002 and 2025. The City supports transportation infrastructure improvements that improve the regional road transportation network.

Details of recreational facilities, goals, and policies are outlined in Chapter 4 – Open Space for Outdoor Recreation and Recreation Facilities of the City of Long Beach General Plan (see Table 3.1-1).

3.1.1.5 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) was enacted in 1972 to "preserve, protect, develop and, where possible, to restore or enhance, the resources of the nation's coastal zone for this and succeeding generations" and to "encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone" (16 USC 1452, section 303 [1] [2]) (POLB, 2005).

The CZMA is the primary federal law enacted to preserve and protect coastal resources. The CZMA sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law. The California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA; they include the protection and expansion of public access and recreation, the protection, enhancement and restoration of environmentally sensitive areas, protection of agricultural lands, the protection of scenic beauty, and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

Just as the federal CZMA delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments (15 coastal counties and 58 cities) to enact their own local coastal programs (LCPs). The LCPs determine the short- and long-term use of coastal resources in their jurisdiction consistent with the California Coastal Act goals. A federal consistency determination also may be needed.

The CZMA provides grants to states that develop and implement a federally approved Coastal Zone management plan. It also allows states with approved plans the right to review federal actions to ensure that they are consistent with those plans.

Section 307 (c)(3)(A) of the CZMA states that

> "*any applicant for a required federal license or permit to conduct an activity, in or outside the coastal zone, affecting any land or water use or natural resource of the coastal zone of that state shall provide a certification that the proposed activity complies with the enforceable policies of the state's approved program and that such activity will be conducted in a manner consistent with the program.*"

In order to participate in the coastal zone management program, a state is required to prepare a program management plan for approval by the National Oceanic and Atmospheric Administration, Office of the Coast and Ocean Resource Management (OCORM). After the OCORM approves a program management plan and its enforceable program policies, the state program gains "federal consistency." This means that any federal action (e.g., a project requiring federally issued licenses or permits) that takes place within a state's coastal zone must be found to be consistent with state coastal policies before the federal action can take place (POLB, 2005).

The project alternatives addressed in this Draft EIS/EIR are subject to federal Coastal Zone Consistency Review, as they are within the California coastal zone, which extends from 3 miles at sea to an inland boundary that varies from a few blocks in urban areas to several miles in less developed areas. California has a federally approved Coastal Management Program, which includes the California Coastal Act. The program was approved by the OCORM in 1977 and gave the California Coastal Commission the authority to conduct federal consistency reviews for projects in California's coastal zone with the exception of San Francisco Bay, which has its own coastal management program (POLB, 2005).

3.1.1.6 California Coastal Act

The California Coastal Act (CCA) of 1976 is California's Coastal Zone management program. The CCA grants authority to the California Coastal Commission to regulate development and related resource-depleting activities within a defined Coastal Zone boundary. In developed areas, the Coastal Zone begins at the mean high tide line and extends 914 m (1,000 yards [yd]) inland. Any actions within the Coastal Zone require a formal consistency determination from the California Coastal Commission (i.e., statement that an action would or would not violate or contradict the policies of the CCA). In addition, most structures or activities that modify land use or water use in the Coastal Zone require a coastal development permit.

The CCA includes specific policies that address various issues, such as terrestrial and marine habitat protection, landform alteration, industrial uses, water quality, and ports. The policies of the CCA represent the statutory standards applied to planning and regulatory decisions made by the California Coastal Commission and local governments. Chapter 8 of the CCA recognizes the California ports as primary economic and coastal resources and as essential elements of the national maritime industry.

The CCA requires a port that has jurisdiction over land or water within the Coastal Zone to prepare a Port Master Plan (PMP), consisting of a land and water use plan and other implementing actions. The PMP is intended to protect coastal resources and to set guidelines for future development. The California Coastal Commission reviews each PMP to determine whether it conforms to CCA standards. Until the California Coastal Commission certifies a PMP, it exerts permit control over all new development within that part of the Coastal Zone. After certification, the regulatory authority of the California Coastal Commission is delegated to the port. The California Coastal Commission, however, retains permanent jurisdiction over the immediate shoreline (i.e., tidelands, submerged lands, and public trust lands). The POLB and POLA have Coastal Commission-certified master plans that address environmental, recreational, economic, and cargo-related concerns of the ports and surrounding regions (POLB, 2005)

In addition, as specified in Section 30715 in the CCA, the approval of certain development activities by the port governing body may be appealed to the California Coastal Commission. Roads or highways, including bridges, are included in the "appealable" category. Whenever an appealable development project is undertaken, the California Coastal Commission is informed and advised by the port governing body. Prior to the commencement of such a project, the California Coastal Commission and interested government agencies, persons, and organizations are notified and informed by the port governing body of the consistency of the project with the PMP and the provisions of the

CCA. When the port governing body approves such a project, the approval becomes effective after the 10th working day after notification of its approval, unless an appeal is filed with the California Coastal Commission within that time, in which case the project is held in abeyance pending a California Coastal Commission decision on the appeal (California Coastal Commission, 2002).

Chapter 3 of the CCA lists the six coastal resources planning and management policies that are used to evaluate a proposed project's consistency with the CCA:

- Maximize access to California's coast
- Protect water-oriented recreational activities
- Maintain, enhance, and restore California's marine environment
- Protect sensitive habitats and agricultural uses
- Minimize environmental and aesthetic impacts of new development
- Locate coastal-dependent industrial facilities within existing sites whenever possible (POLB, 2005).

The project alternatives are consistent with the CCA.

3.1.1.7 California Tidelands Trust

Pursuant to statute and the Public Trust Doctrine, the California State Lands Commission administers tidal and submerged lands for the people of the state (California State Lands Commission, 2001). Within the confines of the common law public trust doctrine, the legislature is the ultimate administrator of the tidelands trust and ultimate arbiter of permissible uses of trust lands. Tidelands may be granted in trust to local entities for uses consistent with the statutory trust grant. Public trust lands in the project area have been granted in trust by the legislature, to the City of Long Beach and City of Los Angeles, pursuant to Chapter 565, Statutes of 1911, as amended. The POLA and POLB jurisdictional properties are held in trust by the cities and administered by the Los Angeles and Long Beach Harbor Departments to promote and develop maritime-related commerce, navigation, and fisheries (LAHD, 2005).

The proposed project alternatives would be consistent with the Tidelands Trust Agreement.

3.1.1.8 Local Coastal Programs

Under the CCA, each local government lying in whole or in part within the Coastal Zone is required to prepare a local coastal program for that portion of the Coastal Zone within its jurisdiction. Local coastal programs are essentially land use plans and policies of the local government within sensitive coastal resources areas which, when taken together, meet the requirements of, and implement the provisions and policies of, the CCA at the local level.

A port master plan serves as the Local Coastal Program in port areas. The portions of the project area that are within the Port of Los Angeles or the Port of Long Beach are within the jurisdiction of the Los Angeles Port Master Plan and the Long Beach Port Master Plan.

3.1.1.9 Port Master Plans

Port master plans effectively serve as the local coastal program in port areas. The southern portion of the project area lies within the jurisdiction of the Los Angeles Port Master Plan and the Long Beach Port Master Plan.

3.1.1.9.1 Port of Los Angeles Master Plan

The Port of Los Angeles Master Plan, which was certified by the California Coastal Commission and became effective in April 1980, constitutes the Local Coastal Program for the portion of the harbor under the jurisdiction of the City of Los Angeles. The plan does not specifically address the proposed project, but is generally supportive of transportation improvements to and from the Port of Los Angeles.

The proposed project alternatives are consistent with Policy 15 of the plan, which states,

> *"When an existing facility in the Port requires alteration or modifications to maintain its level of service or improve the safety of the facility or its operations, such changes shall be made regardless of the fact that the particular facility is not necessarily designated to remain in its current location on a long-term basis."*

3.1.1.9.2 Port of Long Beach: Port Master Plan

The Port of Long Beach Port Master Plan was certified in 1978, updated in 1983, and has since been amended six times. The plan provides a planning tool to guide future port development in compliance with the goals of the California Coastal Act. The plan addresses public access, visual quality and recreation/tourist uses; navigation; environmental quality; transportation/circulation; intermodal rail facility; and oil production and operation. The plan has been certified by the California Coastal Commission as being in conformance with the policies of Chapter 3 – Coastal Resources Planning Management Policies and Chapter 8 – Ports (POLB, 1999).

The POLB Master Plan was prepared by the Port to ensure that long-range planning reflects updated cargo forecast information, as well as current transportation and rail studies. The plan explains that planned projects include: (1) construction of a new Pier S marine terminal on redeveloped oil field property; and (2) redevelopment and expansion of the existing Pier A marine terminal through redevelopment of oil field property (Pier A West) and relocation of adjacent tenants. Information provided by the POLB indicates that a new tunnel is planned that would cross beneath SR-47 to allow vehicular access between Pier A and Pier A West.

The Port Master Plan zoning designation for the project site is "Port-related Industrial – IP." The existing Schuyler Heim Bridge and segment of SR-47 within the land use study area for the project addressed in this Draft EIS/EIR are consistent with this zoning designation. The project is in the POLB Harbor Planning Districts 3 and 4. District 3 is called the Northwest Harbor and is north of District 4. District 4 is the Terminal Island District.

The POLB is divided into 10 planning districts, which are geographical areas established to serve functional purposes by consolidating similar land and water uses, maximizing efficient use of facilities, and separating hazardous cargo from other areas of the port. The goals for each district serve as guidelines for long-term development. To be consistent with the POLB Master Plan, a project must conform to the goals of the district within which it is located (POLB, 1999).

3.1.1.9.2.1 District 3 – Northwest Harbor Planning District

The Northwest Harbor Planning District is bounded on the north by the Los Angeles/Long Beach city boundary, on the south by the Cerritos Channel, and on the east by Carrack Avenue. The portion of SR-47 within District 3 is public right-of-way. An anticipated project (POLB, 1999) is the Ocean Boulevard connector-Port access demonstration project, which states that Ocean Boulevard is an east/west four- and six-lane divided roadway connecting POLB with downtown Long Beach (POLB, 1999). The project addressed in this EIS/EIR would improve traffic flow northward from Ocean Boulevard and, therefore, is consistent with the POLB designation.

3.1.1.9.2.2 District 4 – Terminal Island Planning District

The Terminal Island Planning District is bounded on the north by the Cerritos Channel, on the east by the Back Channel, and on the south and west by the Navy Mole/Nimitz Road pier. District 4 consists primarily of property originally owned by the U.S. Navy, to be obtained by the POLB for primary port facilities, hazardous cargo facilities, port-related facilities, and navigation uses (POLB, 1999).

3.1.1.10 Dual Permit Zone

Proponents of development projects within the jurisdiction of the Port of Long Beach are required to apply for a Harbor Development Permit from the Board of Harbor Commissioners. Similarly, the Board of Harbor Commissioners at the Port of Los Angeles requires that project proponents apply for a Coastal Development Permit and an Engineering Permit for developments within the Port of Los Angeles. The City of Los Angeles typically issues Coastal Development Permits for projects within its jurisdiction. If a project is located in a dual jurisdiction area, the California Coastal Commission also may issue a Coastal Development Permit. For port-owned property located outside of the port, coastal development authority is shared by the city (Los Angeles or Long Beach) and the Coastal Commission, depending on where the property is located. The property will be under either single or dual jurisdiction.

3.1.1.11 Congestion Management Program

The Congestion Management Program (CMP) is a state-mandated program intended as the analytical basis for transportation decisions made through the State Transportation Improvement Program process. The CMP became effective when Proposition 111, the Gas Tax Initiative, was approved by California voters in 1990. The CMP was adopted by the Los Angeles Metropolitan Transportation Authority (MTA) and is updated every 2 years. The CMP was developed to link land use, transportation, and air quality decisions; develop a partnership among transportation decisionmakers on devising appropriate transportation solutions that include all modes of travel; and propose transportation projects that are eligible to compete for state gas tax funds (LAHD, 2005).

3.1.2 Affected Environment

The alternatives evaluated in this Draft EIS/EIR include four build alternatives, one Transportation System Management (TSM) alternative, and a No Build alternative. These alternatives would generally extend from the Port of Long Beach (at Ocean Avenue) along SR-47 to Pacific Coast Highway, and from SR-103 north of Pacific Coast Highway northward to Sepulveda Boulevard near Interstate 405. The project area includes three municipal jurisdictions: the City of Long Beach (which includes the Port of Long Beach), the City of Los Angeles (including the Port of Los Angeles [POLA]), and the City of Carson. Figure 3.1-1 shows the project alternatives in relation to the city boundaries of Carson, Long Beach, and Los Angeles.

A land use study area for the project alternatives has been defined to include two units. The southern unit is associated with the Schuyler Heim Bridge replacement/rehabilitation alternatives (Alternatives 1, 1A, 2, 3, and 4) and SR-47 Expressway (Alternatives 1, 1A, 3, and 4). This unit includes the eastern half of the Wilmington Community in the City of Los Angeles, a small section of the City of Long Beach, and the northern section of the Port of Los Angeles and Port of Long Beach. The northern unit encompasses the SR-103 Extension associated with Alternative 2, and crosses from west Long Beach, through a narrow area of the City of Los Angeles, to southeast Carson. This unit is bounded by Alameda Boulevard, Sepulveda Boulevard, Webster Avenue, and Willard Street. In total, the study area is intended to encompass the vicinity where any potential effects of project construction and operation would be reasonably foreseeable. Alternatives 5 (TSM) and 6 (No Build) also are within these areas.

3.1.2.1 Existing Land Use

The southern unit of the study area is intensely developed with heavy industrial, commercial, and transportation uses associated with the nearby POLA and POLB. Typical industrial and commercial enterprises include auto/truck parts and repair; marine vessel repair; recycling and salvage yards; and marine cargo container storage. These include Piers A, S, and T of the Port of Long Beach. A residential neighborhood is located to the west of the study area, south of Pacific Coast Highway and west of Alameda Street. Most residences in this area are single-family. Various live-aboard boats are apparent in the marinas located in the Dominguez and Cerritos Channels. The northern unit of the project study area (the site of the SR-103 Extension) is located amidst heavy industrial and utility areas, bordered to the east by single-family residential areas, educational and public facilities, offices and warehousing uses (Figures 3.1-2a and 3.1-2b).

3.1.2.2 Existing Recreational Facilities

Parks and recreational areas were identified within the 1.2-km (1-mi) study area. They are operated and maintained by the City of Los Angeles (Department of Recreation and Parks) and the City of Long Beach (Department of Parks, Recreation, and Marine) and are shown in Figure 3-1.3 and listed in Table 3.1-2. As discussed in the Section 4(f) evaluation, two public schools where playgrounds/athletic fields are used for public recreation (Hudson Elementary School, Cabrillo High School) have been identified within about 0.4 km (0.25 mi) of the project alternatives (see Appendix C). Within the City of Los Angeles, the Department of Recreation and Parks maintains more than 15,600 acres of parkland with 387 neighborhood and regional parks, seven lakes, 176 recreation centers, 372 children's play areas, 13 golf courses, 387 tennis courts, 8 dog parks, 58 swimming pools, and 7 skate parks. The department also provides after-school programs and day care for children, teen clubs, basketball, volleyball, and softball and flag football games and leagues. At ocean and beach areas outside Los Angeles Harbor, there are other opportunities, such as marine recreation (e.g., boating and waterside entertainment).

The City of Long Beach Parks, Recreation, and Marine operates 92 parks with 25 community centers; 2 major tennis centers; 5 golf courses; the largest municipally operated marina system in the nation, with 3,800 boat slips; and 11 miles of beaches. More than 3,100 acres within the City's 50 square miles are devoted to recreation.

The park and recreation areas listed in Table 3.1-2 include facilities that support activities such as softball, basketball, volleyball, handball, table games, swimming, handicrafts, lawn games, picnicking, and small-children's activity/play areas. At ocean and beach areas near Los Angeles and Long Beach Harbors that are outside the study area, there are other opportunities, such as marine recreation (e.g., boating and waterside entertainment) and historic sites.

Table 3.1-2
Parks and Recreation Facilities

Facility Type	Name	Address	Distance from Project Alignments (kilometers/miles)
Parks	Hudson Park	2335 Webster Avenue Long Beach, CA	Adjacent
Parks	Admiral Kidd Park	2125 Santa Fe Avenue Long Beach, CA	0.61/0.38
Parks	Silverado Park	1545 West 31st Street Long Beach, CA	1.33/0.83
Parks	Banning Park	1331 Eubank Avenue Los Angeles, CA	1.38/0.86
Parks	East Wilmington Park	Watson Avenue and East O Street Los Angeles, CA	0.67/0.42
Parks	East Wilmington Greenbelt	Coil Avenue and Binn Avenue Los Angeles, CA	0.40/0.25
Playground/ Athletic Fields	Cabrillo High School	2001 Santa Fe Avenue Long Beach, CA	0.40/0.25

Sources: City of Los Angeles (1998), City of Long Beach (2002), Thomas Guide 2001.

Recreational facilities near the Ports of Long Beach and Los Angeles include several marinas, an aquarium, the *Queen Mary Cruise Ship*, museums, sportfishing berths, swimming, beaches, marine wildlife viewing facilities, and cruise ship launches (Port of Los Angeles, 2002; Port of Long Beach, 2002). With the exception of a privately owned marina located west of the Schuyler Heim and Badger Avenue bridges, these port-related recreational facilities are located at distances ranging from 6.4 km to 11 km (4 to 7 mi) from the Schuyler Heim Bridge. The marina is directly west of the bridges and moors various types of pleasure craft, including sailboats, small motor craft, and cabin cruisers. Some of the vessels at this marina are used by their owners as their primary residence.

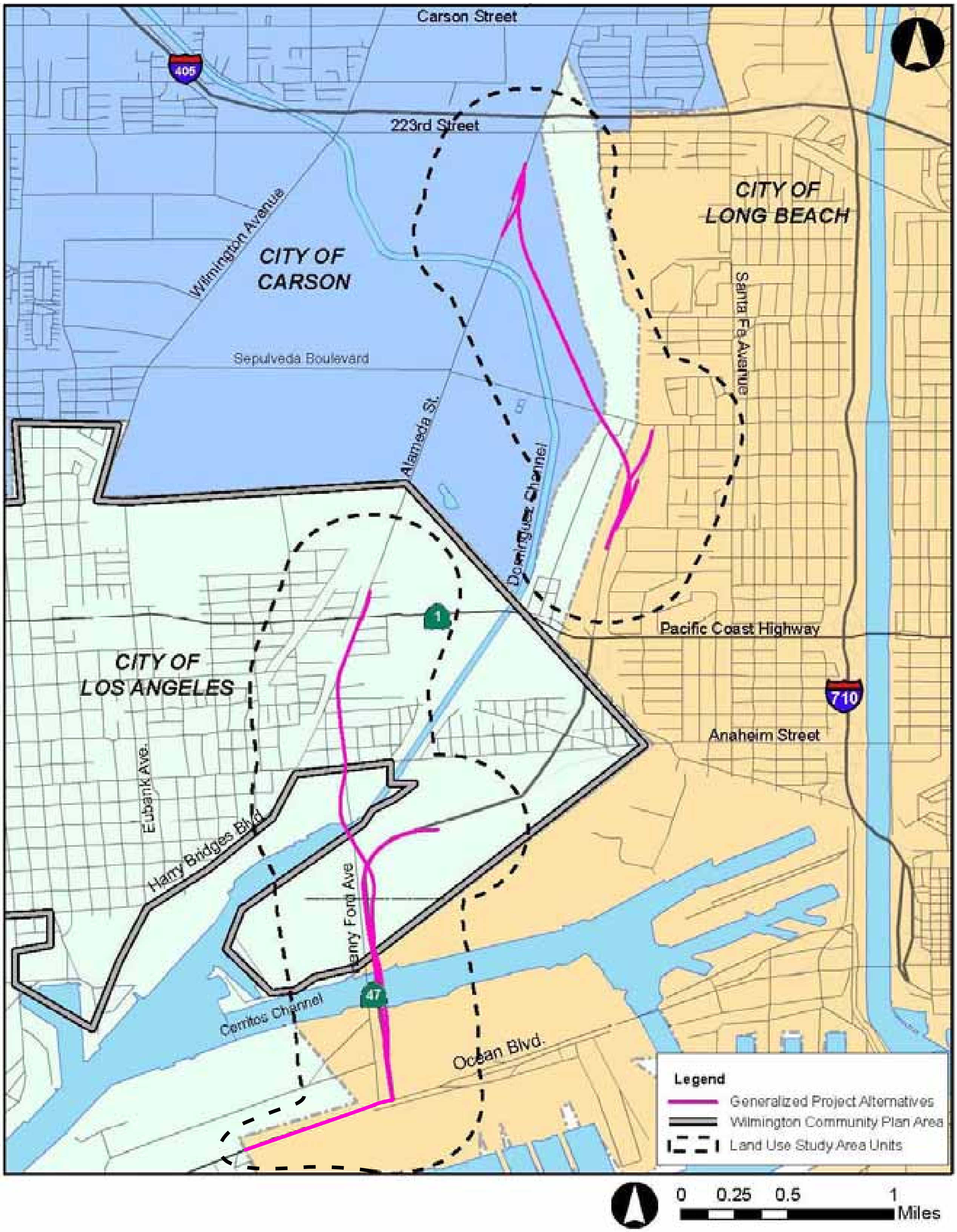


Figure 3.1-1
Planning Areas and Land Use Study Area Units
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: U.S. Census TIGER Data, 2000; City of Los Angeles General Plan, 2006.

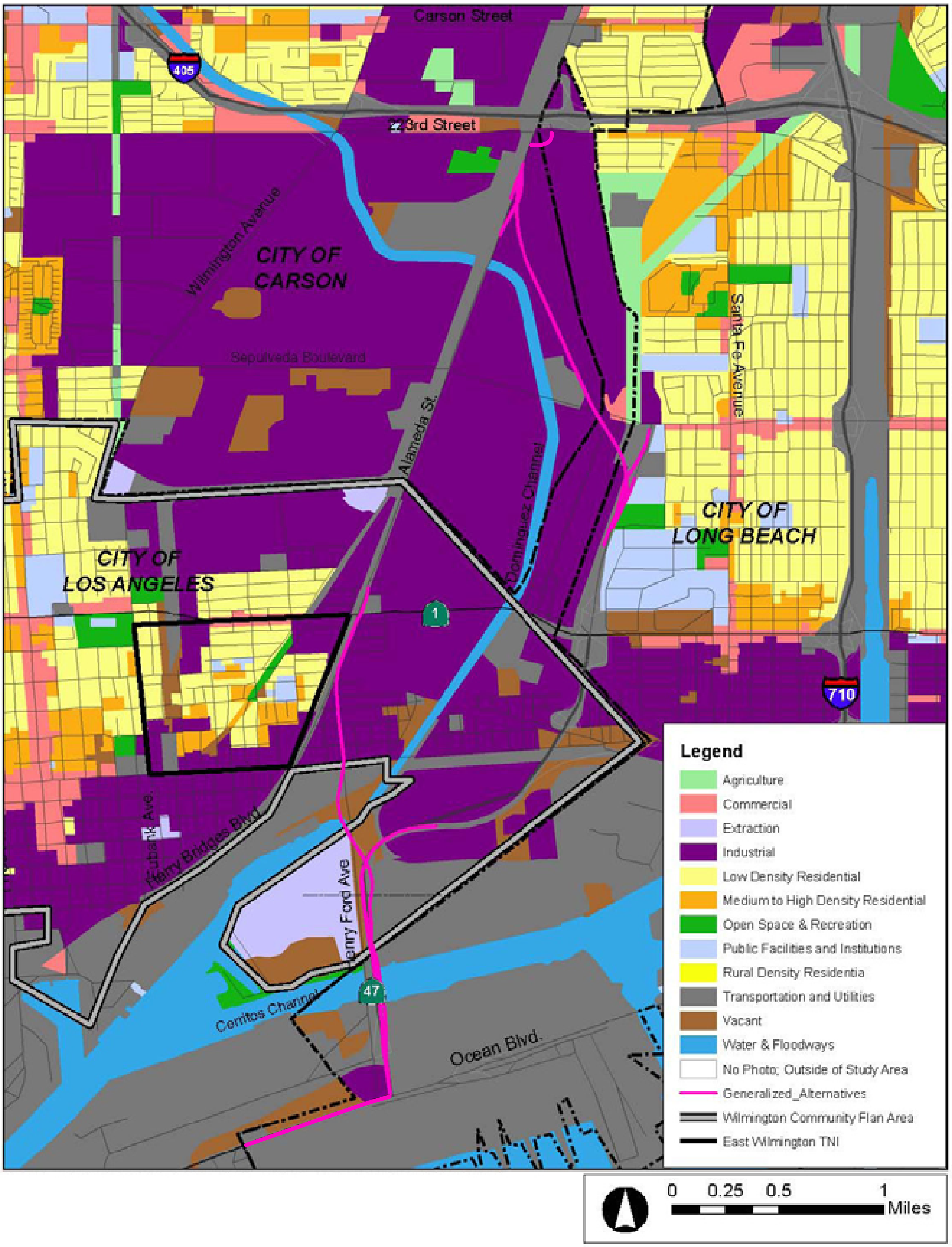


Figure 3.1-2a
Existing Land Use
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: U.S. Census TIGER Data, 2000; City of Los Angeles General Plan, 2006.

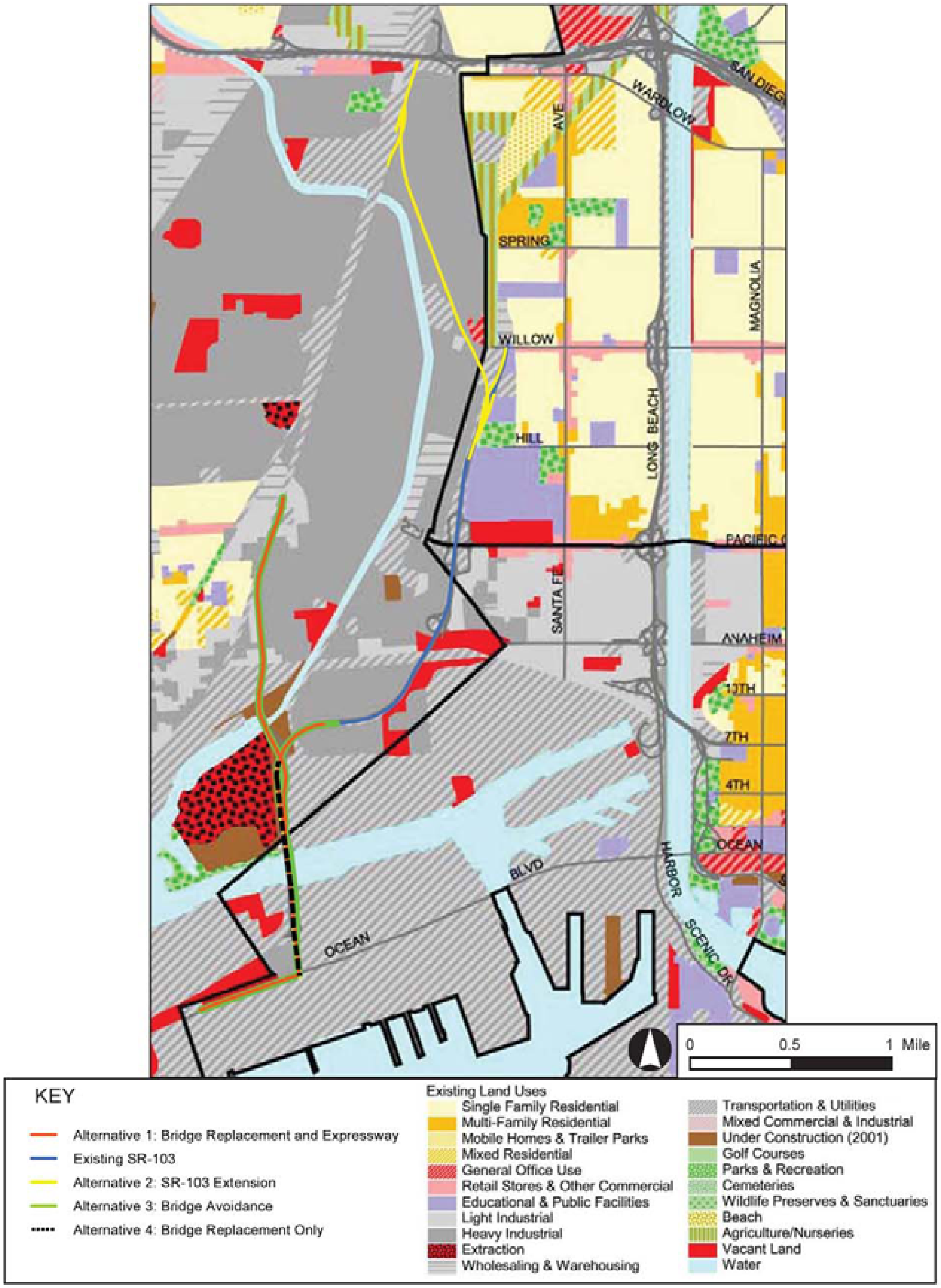


Figure 3.1-2b
Existing Land Use
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: City of Long Beach General Plan, *Figure 3-2-1 Existing Land Uses*, February 2004; DMJM Harris, 2005; Jones & Stokes, 2005.

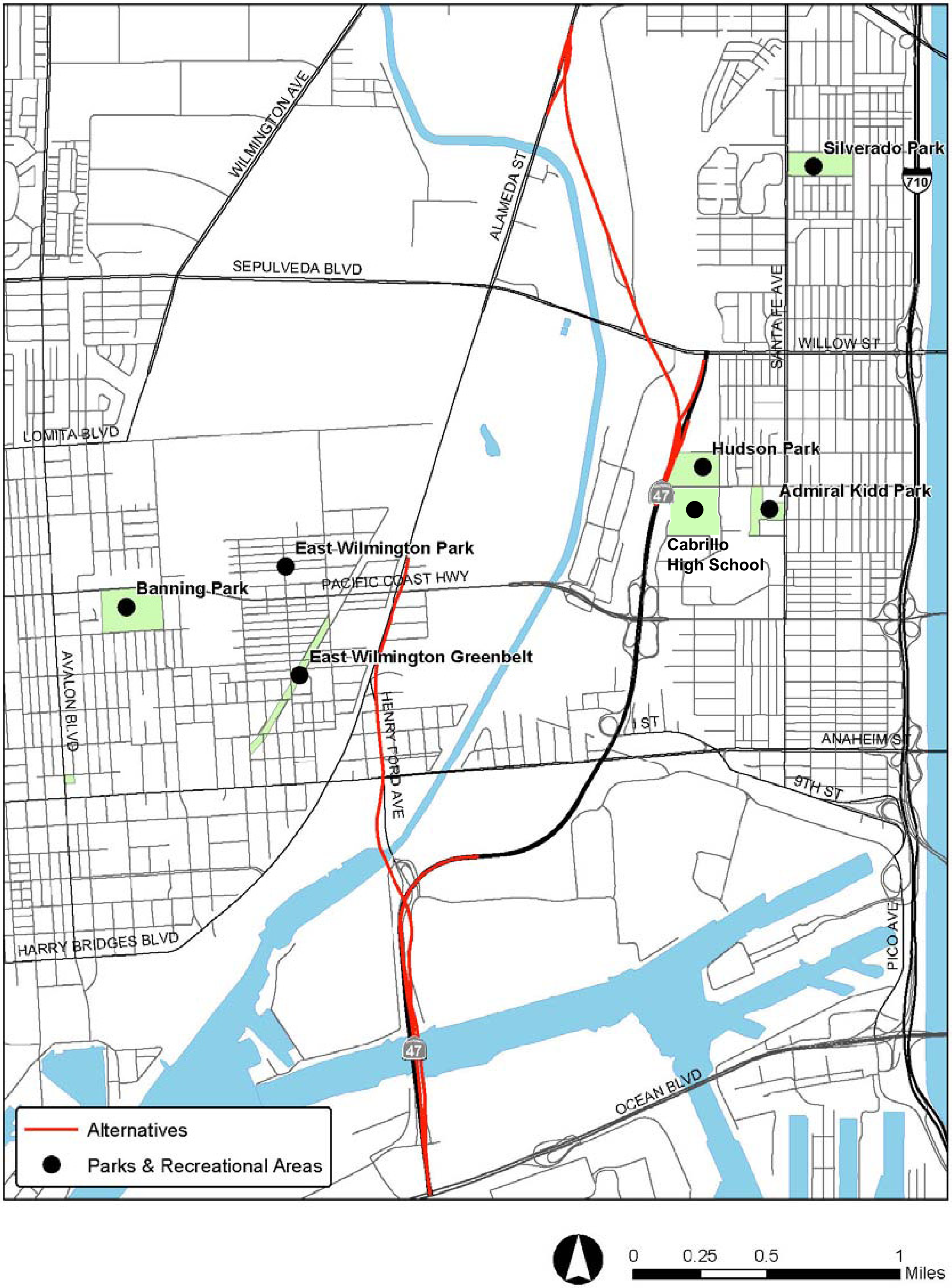


Figure 3.1-3
Parks and Recreation Facilities
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: Jones & Stokes, 2005.

The following parks and recreational facilities are owned, maintained and operated by the City of Los Angeles, Department of Recreation and Parks, and are located west of the SR-47 Expressway:

- The East Wilmington Greenbelt is comprised of approximately 5 acres of lawn and landscaping, fences, and baseball backstops. Planned for the site is a new 10,000-square-foot community center consisting of 2 volleyball courts, a basketball court, an office, lobby, restrooms, and 11 parking spaces.
- The East Wilmington Pocket Park occupies about 1 acre of landscaped green space.
- Banning Park contains the historic Banning Residence, a stagecoach barn, rose garden, and landscaped open space on a 20-acre site. The Banning Residence is recognized as a national, state, and local landmark and is open to the public for tours. The park provides important vagrant/migrant bird habitat and is an important passerine migrant bird stopover point within Los Angeles County. Banning Park also houses an outdoor pool, recreation center, and child care center.

The following parks and recreational facilities are owned, maintained and operated by Long Beach Parks, Recreation, and Marine and the Long Beach Unified School District, in the City of Long Beach and are located east of the SR-103 Extension.

- Hudson Park is a 13-acre park with two baseball fields, one soccer field, picnic area, play equipment, and community gardens project. Hudson Park is a popular park for adult sports leagues.
- The Hudson Elementary School includes playground and athletic fields on the west side of the school.
- Admiral Kidd Park is a 9-acre facility with a basketball court, baseball field, playground, soccer field, softball field, picnic area, and youth recreation programs.
- Silverado Park is an 11-acre park with baseball fields, basketball court, community center, gym, picnic areas, playground, pool, softball field, tennis courts, and volleyball, as well as programs for tiny tots, child care, youth recreation, teens, and seniors.

There are no wildlife or waterfowl refuges in the project vicinity.

3.1.2.3 Coastal Zone Access and Resources

A portion of the project area lies within the boundary of the Coastal Zone. The Coastal Zone designation in the vicinity of the project area extends approximately 914 meters (m) (1,000 yd) inland from the mean high-tide line of the sea. Figure 3.1-4 shows the official Coastal Zone boundary in the vicinity of the project. Access to the coast adjacent to the Schuyler Heim Bridge is relatively limited because the area is fully developed and industrialized, and under the jurisdiction of the Port of Long Beach or the Port of Los Angeles. However, the public can gain access to the coast via the marina just west of the bridge by foot, vehicle, bicycle, or watercraft using a network of roads, pathways, and the Cerritos Channel (watercraft only). In addition, the public can gain access to coastal waters from Terminal Island piers after crossing the Schuyler Heim Bridge.

The Coastal Zone environment in the project area is built-out and has few land areas that can support natural resources. Biological resources that are located in the Coastal Zone in the project area include limited native and non-native terrestrial plant species and wildlife species. Although special-status plant species were not identified onsite, several special-status bird species were observed. These include the American peregrine falcon, California brown pelican, and the double-crested cormorant. Additional species have the potential to occur at the Schuyler Heim Bridge project site. California sea lions also have been observed in the Cerritos Channel at the project site. Section 3.16 – Biological Resources provides additional information about native and non-native biological resources that occur in the Coastal Zone and project area.

3.1.3 Environmental Consequences

3.1.3.1 Evaluation Criteria

For the purposes of the analyses in this Draft EIS/EIR, each project alternative was evaluated to determine if it would:

- Result in new land uses that are substantially incompatible with land uses and development in the vicinity
- Materially conflict with any applicable adopted land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect
- Physically divide an established community.
- Permanently impair access to and from a park, recreational area, or wildlife/waterfowl refuge through the placement of barriers or other impediments to the local circulation pattern
- Increase demand for new or expanded parks, recreational areas, or wildlife/waterfowl refuges
- Have indirect construction effects on the surrounding parks, recreational areas, or wildlife/waterfowl refuges that would be substantially greater in magnitude and/or longer in duration than is typical of similar construction projects in similar communities.
- Interfere with or be inconsistent with existing coastal access
- Harm Coastal Zone resources
- Be inconsistent with the Port of Long Beach or Port of Los Angeles Master Plan.

3.1.3.2 Methodology

Applicable local and regional plans were reviewed to determine project consistency with such plans. Land use and zoning maps were also reviewed to determine whether the project would be compatible with existing and planned land uses, and development patterns.

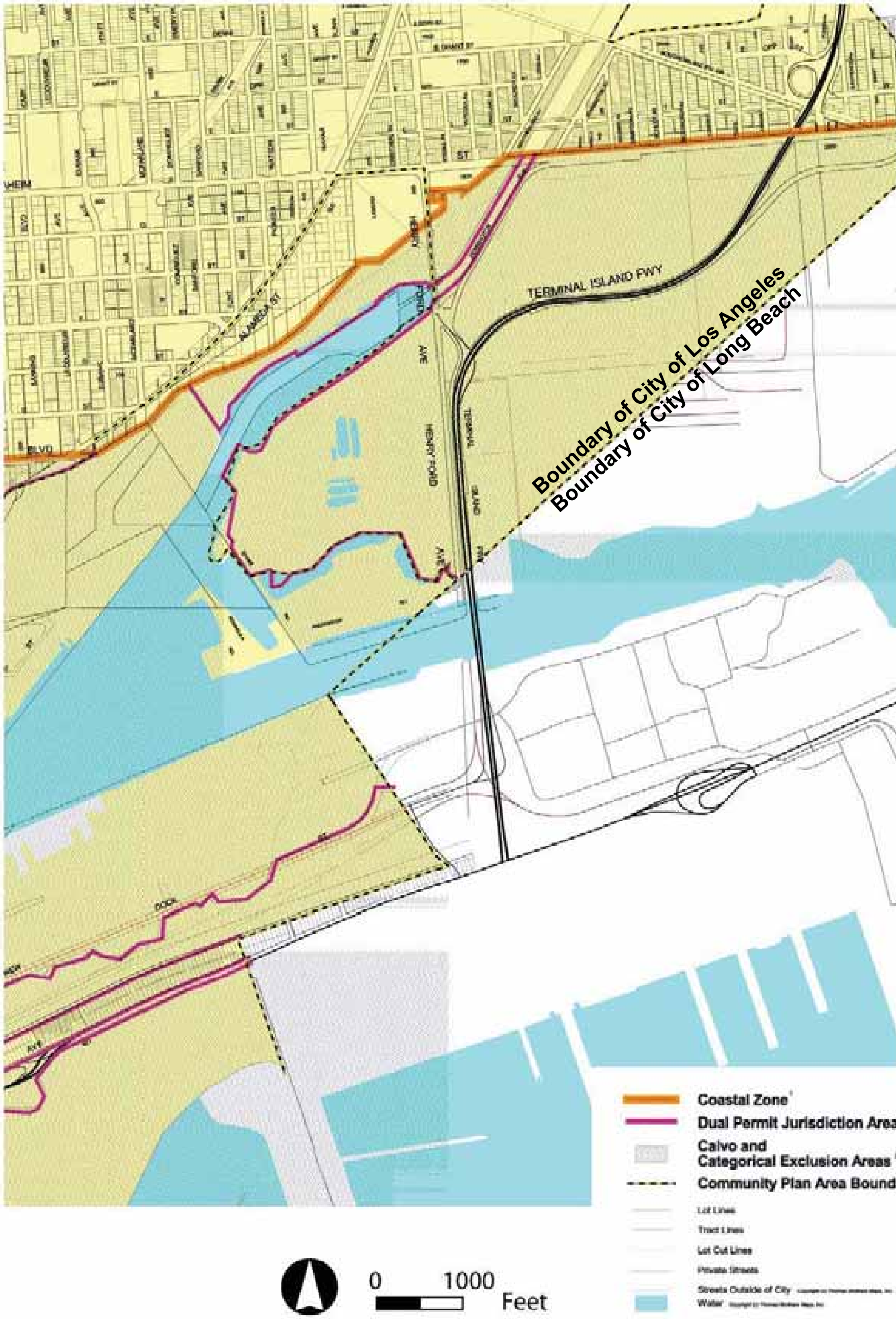


Figure 3.1-4
Coastal Zone Boundary
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Dual Permit Jurisdiction data was not available for City of Long Beach.
Source: City of Los Angeles, 2000.

3.1.3.3 Evaluation of Alternatives

This section evaluates the effects associated with the project alternatives on existing and proposed land uses, including recreation, development patterns, and plans and objectives. Each of the alternatives is discussed in detail. Table 3.1-1 shows the applicable land use goals, policies, and programs, and the project consistency with these plans.

3.1.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.1.3.3.1.1 Alternative 1 Construction Effects

Compatibility with Existing Land Use and Recreation

The alignment proposed under Alternative 1 would be located primarily within the existing right-of-way. As mentioned above, construction activities would include construction of the replacement bridge and approaches (exits, entrances), and construction of the 2.7-kilometer (km) (1.5-mile [mi]) SR-47 Expressway, including street improvements, demolition of the existing Schuyler Heim Bridge and, lastly, construction of the Ocean Boulevard/SR-47 Flyover (flyover). Excavation, grading, pile-driving, and other activities related to construction of roadway and bridge structures would be required. These types of construction activities would result in some temporary, localized, site-specific disruptions to land uses in the area, primarily related to construction traffic from trucks and equipment, possible partial or full street closures, access disruptions to facilities and parking, increased noise and vibration, and increased air pollutant emissions.

Most of the alignment proposed under this alternative would be constructed within an existing industrial area, along an existing transportation corridor. Nearby sensitive land uses such as residences and businesses would be most susceptible to the temporary construction effects. However, these effects, with the exception of construction noise, would be short-term and or intermittent and limited to daytime hours, and are thus not considered to be adverse effects.

No park or recreation facilities would be used for construction staging or material laydown. The parks and recreation facilities that are nearest the SR-47 Expressway and that could be affected by construction are Hudson Park, which is adjacent to SR-47, and the East Wilmington Greenbelt, which is 0.8-km (0.5-mi) east of the proposed right-of-way for the SR-103 Extension. Although access to and utilization of the facilities in Hudson Park will be maintained throughout the construction period, the quality of use of the facilities closest to the construction zone could be periodically or temporarily reduced. The distance of the East Wilmington Greenbelt from the proposed alignment (0.8 km [0.5 mi]) would make temporary effects unlikely to affect enjoyment of the park. The other parks in the area are sufficiently distant from construction areas as to not be affected by construction-related air and noise.

Alternative 1 would not result in new or incompatible land uses. The alignment would pass through existing rights of way and industrial areas and would not bisect any residential neighborhoods. The nearest residential areas are located west of Alameda Street and north of Anaheim Street, which are west of the northernmost end of the proposed alignment.

Alternative 1 construction activities would be temporary in duration and would be conducted in accordance with typical measures to minimize effects such as noise and traffic during the construction period. Therefore, no adverse effects to land use are expected.

Potential construction effects related to land use are further addressed in Sections 3.4 – Utilities and Public Services, 3.5 – Traffic and Transportation, 3.13 – Air Quality, and 3.14– Noise.

Consistency with Plans and Policies

Alternative 1 is generally consistent with local land use plans, policies, and guidelines. Construction activities associated with Alternative 1 would not materially conflict with any such plans, policies, or guidelines. Table 3.1-1 compares the project with objectives and policies of local plans.

Coastal Zone Access and Resources

Construction of Alternative 1 would temporarily disrupt public access to Terminal Island, but would not prevent access to areas immediately surrounding the Schuyler Heim Bridge. Because two other bridges in the vicinity (Vincent Thomas and Gerald Desmond bridges) allow access to Terminal Island, and because the area surrounding the Schuyler Heim Bridge has various port-related industrial uses with restricted public access, public coastal access effects and Coastal Zone resource effects during construction would be minimal. Consequently, construction of Alternative 1 is not expected to result in adverse access effects in the Coastal Zone.

There is a potential for Alternative 1 to affect aquatic communities in the Coastal Zone during construction activities such as pile driving and installation of cofferdams, as well as during demolition of the Schuyler Heim Bridge. These potential effects are addressed in detail in Section 3.16 – Biological Resources.

3.1.3.3.1.2 Alternative 1A Construction Effects

Compatibility with Existing Land Use

Alternative 1A, a haunch bridge design, is a structural variation of Alternative 1. The main purpose of this alternative is to improve the aesthetics of the replacement structure over the Cerritos Channel. The structural differences of this alternative would not result in effects to land use different than those discussed for Alternative 1. Thus, Alternative 1A would not result in new or incompatible land uses.

Consistency with Plans and Policies

The proposed Alternative 1A would not materially conflict with any plans or policies. Please refer to the discussion above under Alternative 1 and Table 3.1-1.

Coastal Zone Access and Resources

Construction effects to Coastal Zone access and resources under Alternative 1A would be the same as those described under Alternative 1.

3.1.3.3.1.3 Operations Effects

Compatibility with Existing Land Use and Recreation

Operations of Alternative 1 would not result in permanent land use conflicts.

Alternative 1 would not require acquisition of any nearby park or recreation facilities. Consequently, no direct effect to the surrounding parks and recreational facilities is expected.

Existing access points and circulation routes to and from nearby parks and recreation areas would all remain the same after Alternative 1 is operational. To the extent that truck traffic is diverted onto the SR-47 Expressway and away from surface roadways such as Henry Ford Avenue and Alameda Street, local traffic congestion and safety could be expected to improve, with some indirect beneficial effects on access to the parks and recreational areas.

Alternative 1 would not increase population and employment in the project area. Therefore, it would not contribute to increased demand for new or expanded parks, recreational areas, or wildlife/waterfowl refuges. Additionally, Alternative 1 is intended to accommodate the anticipated growth in port-related traffic. Insofar as this could indirectly result in additional jobs during construction and operation, some of which may go to local residents, there may be some incremental demand for new and expanded park/recreation services and facilities. Since local agencies are assumed to have already considered this potential growth in their capital facilities planning, there would be no adverse effects related to the negligible indirect effect of the proposed project.

Consistency with Plans and Policies

Alternatives 1 and 1A are consistent with land use plans and policies applicable to the study area. Although the project is not specifically identified in many of the plans or policies, all of them identify general transportation and circulation issues in the area, particularly with respect to port-related transportation. In every case, these documents cite safe and efficient movement of traffic to and from the ports as a critical issue. To the extent that Alternative 1 is intended to address that issue by improving access to and from the ports, it is consistent with local plans and policies.

A balance between improved circulation and community quality of life is also a common theme to most of the local plans and policies, especially the Wilmington Community Plan. This plan emphasizes the need to improve the transportation system serving the ports and divert port-related traffic away from adjacent residential areas. Alternative 1 accomplishes this by grade-separating heavy truck traffic, thereby reducing the likelihood of truck traffic cutting through residential surface streets. Alternative 1 would not directly conflict with applicable plans and policies, and thus would not result in an adverse effect.

Table 3.1-1 presents a summary of the applicable land use plans and policies, and project compatibility with such plans.

Coastal Zone Access and Resources

Alternative 1 would replace the existing Schuyler Heim Bridge with a fixed-span bridge that would allow a similar level of coastal access as existing and anticipated future conditions. The replacement bridge under Alternative 1 would have a fixed height of 14.3 m (47 ft) above the high water level and a 54.9-m (180-ft) navigable channel clearance width. Because the height of the bridge replacement would be reduced, some large commercial vessels and some recreational vessels (those taller than 14.3 m [47 ft] would not be able to pass beneath the new bridge. These vessels may have to be re-routed to gain access to certain coastal locations within the ports area.

3.1.3.3.1.4 Alternative 1A Operations Effects

Alternative 1A is a structural variation of Alternative 1. The main purpose of this alternative is to improve the aesthetics of the replacement structure over the Cerritos Channel.

Permanent effects to land use and the Coastal Zone would be the same as those described for Alternative 1.

3.1.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.1.3.3.2.1 Construction Effects

Compatibility with Existing Land Use and Recreation

Alternative 2 would be generally consistent with the commercial, industrial, and port-related land uses in the immediate vicinity of the corridor. The closest sensitive land uses to the proposed alignment would be existing residential land uses and public educational uses located east of SR-103 and north of Pacific Coast Highway within the City of Long Beach. These sensitive residential and educational land uses could be temporarily affected by construction activities, and would be generally incompatible with Alternative 2. However, the proposed SR-103 Extension does not and would not bisect these land uses; it would form the western boundary of the residential area, separating it from industrial and freight uses located further west. The majority of the residential areas within the City of Carson are located north of I-405 beyond the project alignment. Hudson Park, a 13-acre park operated by the City of Long Beach, is located just south of Willow Street, immediately east of SR-103. Use of the park would remain unaffected by the physical location of Alternative 2. Other effects related to noise, light, and air quality due to increased truck traffic are investigated in Sections 3.7 – Visual Resources/Aesthetics, 3.13 – Air Quality, and 3.14 – Noise.

Consistency with Plans and Policies

Alternative 2 is generally consistent with local land use plans, policies, and guidelines. Construction activities associated with Alternative 2 would not materially conflict with any such plans, policies, or guidelines (see Table 3.1-1).

Coastal Zone Access and Resources

The SR-103 Extension proposed under Alternative 2 would be located outside the designated Coastal Zone boundary. The Schuyler Heim Bridge replacement portion and Ocean Boulevard/SR-47 Flyover would adopt the same design as Alternative 1. Thus, construction-related effects to the Coastal Zone in this area would be the same as those discussed under Alternative 1, and are not expected to be adverse.

3.1.3.3.2.2 Operations Effects

Compatibility with Existing Land Use and Recreation

Alternative 2 would not result in new land uses, nor would it conflict with existing land uses in the project vicinity. The proposed bridge replacement and flyover are intended to serve and be compatible with the port and industrial land use in the immediate vicinity and would be located entirely within areas designated by applicable land use plans as Heavy Industrial, Transportation, and Extraction (Long Beach General Plan, Los Angeles General Plan, Wilmington-Harbor City Community Plan). These types of uses typically are not impaired by the proximity of an expressway and, in many cases, benefit from and are already well integrated with, transportation facilities in the area. There are no sensitive land uses in the immediate vicinity of the bridge/SR-47/flyover portion of this alternative.

As discussed previously, the proposed SR-103 Extension would be adjacent to a residential area, but would not bisect this sensitive land use. Hudson Park (operated by the City of Long Beach) and Hudson Elementary School are located south of Willow Street, adjacent to the existing SR-103. Presently, SR-103 forms the western boundary of the residential area, separating it from industrial and freight uses located further west. The proposed alignment would curve northwest, away from sensitive land uses, through an industrial corridor and connect to Alameda Street, north of Sepulveda Boulevard. Alternative 2 would not directly conflict with existing land uses in the project area.

Some benefits may accrue to residential land uses because heavy transportation operations to and from the ports would be directed onto the expressway rather than local roadways. Truck traffic would be less likely to cut through residential side streets.

It is expected that Alternative 2 would be compatible with the existing pattern of land use and development in the study area.

Other impacts affecting sensitive land uses, such as air emissions, noise, light and glare, and traffic associated with the project in Sections 3.7 – Visual Resources/Aesthetics, 3.13 – Air Quality, and 3.14 – Noise.

Consistency with Plans and Policies

Alternative 2 would be consistent with the land use plans and policies applicable to the study area. Although the project is not specifically identified in any of the plans or policies, most identify general transportation and circulation issues, particularly with respect to port-related transportation. In many instances, these documents cite the safe and efficient movement of traffic to and from the ports as a critical issue. To the extent that Alternative 2 is intended to address that issue by improving access to and from the ports, it is clearly consistent with the local plans and policies.

A balance between improved circulation and community quality of life is a common theme to most of the local plans and policies, especially in the Wilmington-Harbor City Community Plan. This plan emphasizes the need to improve the transportation system serving the ports and divert port-related traffic away from adjacent residential areas. Alternative 2 accomplishes this by grade-separating traffic, thereby reducing the likelihood of traffic cutting through residential surface streets.

Table 3.1-1 summarizes the relationship between the project and the regional and local plans that have policy provisions relevant to the project.

Coastal Zone Access and Resources

The SR-103 Extension proposed under Alternative 2 would be located outside the designated Coastal Zone boundary. The Schuyler Heim Bridge replacement and flyover would adopt the same design as Alternative 1. Thus, permanent effects to the Coastal Zone in this area would be the same as those discussed under Alternative 1, and are not expected to be adverse.

3.1.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.1.3.3.3.1 Construction Effects

Compatibility with Existing Land Use and Recreation

Alternative 3 would affect the same land use areas as Alternative 1. Construction effects to land use would be the same as those under Alternative 1 and would not result in any effects to land use.

Consistency with Plans and Policies

Alternative 3 would affect the same planning areas as Alternative 1 and would thus result in the same effects. Alternative 3 is generally consistent with existing local and regional plans for this area, and would not materially conflict with any plans or policies (see Table 3.1-1).

Coastal Zone Access and Resources

Construction activities for Alternative 3 would take place within the Coastal Zone, and would have similar effects to coastal access and resources as those discussed under Alternative 1, with the exception of those effects related to removal of the Schuyler Heim Bridge (i.e., the loss of invertebrate communities attached to existing bridge pilings and foundations in the Cerritos Channel and effects to feeding fish). Under Alternative 3, the existing Schuyler Heim Bridge would remain in place, while a new bridge would be constructed immediately to the east; thus, effects to aquatic life within the channel would be as discussed under Alternative 1. Because construction effects would be short term, and measures to reduce those effects would be employed, effects to the Coastal Zone are considered to be minimal.

3.1.3.3.3.2 Operations Effects

Compatibility with Existing Land Use and Recreation

Alternative 3 would not conflict with existing land uses in the project area. See discussion under Alternative 1.

Consistency with Plans and Policies

The operation of Alternative 3 would be consistent with applicable local and regional plans and policies. See discussion under Alternative 1 and Table 3.1-1.

Coastal Zone Access and Resources

Under Alternative 3, permanent effects to the Coastal Zone in this area would be the same as those discussed under Alternative 1 and are not expected to be adverse. The Schuyler Heim Bridge would remain in place but would not be operational. All traffic would be diverted onto the new bridge.

3.1.3.3.4 Alternative 4: Bridge Replacement Only

3.1.3.3.4.1 Construction Effects

Compatibility with Existing Land Use and Recreation

Alternative 4 would affect the same land use areas as Alternative 1, south of Anaheim Street. Construction effects to land use would be the same as those described under Alternative 1 for the bridge replacement and would not result in any effects to land use.

Consistency with Plans and Policies

Alternative 4 would affect the same planning areas as Alternative 1 for the bridge replacement, and would thus result in the same effects for those areas. This alternative is generally consistent with the existing local and regional plans, and would not materially conflict with any plans or policies.

Coastal Zone Access and Resources

The construction-related effects to the Coastal Zone in this area would be the same as those discussed under Alternative 1 for the bridge replacement and are not expected to be adverse.

3.1.3.3.4.2 Operations Effects

Compatibility with Existing Land Use and Recreation

Alternative 4 would not conflict with existing land uses in the project area and would be consistent with the industrial and port-related land uses in the vicinity of SR-47 and the Schuyler Heim Bridge. Industrial uses typically are not impaired by the proximity of a bridge and, in many cases, benefit from such proximity. Existing port uses are already well integrated with the transportation facilities in the area.

Consistency with Plans and Policies

The operation of Alternative 4 would be consistent with applicable local and regional plans and policies. Permanent effects related to consistency with plans and policies for Alternative 4 would be the same as those for Alternative 1 replacement of the Schuyler Heim Bridge.

Coastal Zone Access and Resources

Operations effects to Coastal Zone access and resources under Alternative 4 would be the same as those described under Alternative 1 related to replacement of the Schuyler Heim Bridge.

3.1.3.3.5 Alternative 5: Transportation System Management

3.1.3.3.5.1 Construction Effects

Compatibility with Existing Land Use and Recreation

The TSM Alternative would be compatible with existing land uses. This alternative would involve the employment of various transportation managements systems, the construction and placement of which would be minor. Existing land uses would not be affected or disrupted by the construction or placement of the elements proposed under this alternative. Thus, no adverse effects would result.

Consistency with Plans and Policies

Construction of the proposed TSM Alternative would be consistent with applicable plans and policies and, thus, would not result in adverse environmental effects.

Coastal Zone Access and Resources

Construction of proposed improvements would be small in scale and would not directly disturb previously undisturbed land outside existing right of way. Further, improvements under Alternative 5 are not likely to be constructed within the Coastal Zone, due to the absence of publicly-used streets within the Coastal Zone (industrial port area) in this area. Thus, no adverse effects to Coastal Zone access or resources would result from construction of Alternative 5.

3.1.3.3.5.2 Operations Effects

Compatibility with Existing Land Use and Recreation

Implementation of the TSM elements is designed to improve transportation and relieve congestion and, therefore, would not conflict with or adversely affect existing land uses.

Consistency with Plans and Policies

Implementation of the proposed improvements under Alternative 5 would serve to improve traffic circulation and safety in the project area and would be consistent with applicable plans and policies.

Coastal Zone Access and Resources

Alternative 5 is not likely to be located within the Coastal Zone and, therefore, would not result in any permanent effects to Coastal Zone access and/or resources.

3.1.3.3.6 Alternative 6: No Build

Construction Effects

No construction would take place under this alternative.

3.1.3.3.6.1 Operations Effects

No permanent effects to land use or to Coastal Zone access and resources would occur.

Consistency with Plans and Policies

Under the No Build alternative, replacement of the Schuyler Heim Bridge would not occur, nor would the flyover, SR-47 Expressway, or SR-103 Extension be constructed. Although the No Build alternative would not conflict with applicable plans and policies, it also would not serve to accomplish the goals and objectives set forth in such plans and policies.

3.1.3.3.7 CEQA Consequences

Based on the above analysis, none of the project alternatives would divide any established community or conflict with existing land use plans, policies, or regulations. Also, none of the project alternatives would affect recreation facilities or their use. Also, as addressed in Section 3.16 – Biological Resources, potential impacts to a habitat conservation plan or natural community conservation plan would be less than significant. Therefore, based on the information provided in the above analyses, when considered in the context of CEQA criteria, land use impacts would be less than significant.

Potential impacts of the proposed project alternatives related to Land Use and Planning and to Recreation are addressed in the context of CEQA criteria in Chapter 4.0 – CEQA Evaluation, and in Appendix A – CEQA Checklist (IX, Land Use and Planning; XIV, Recreation).

3.1.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures related to Land Use, Recreation, and Coastal Zone would be required under any of the project alternatives.

3.2 Growth

The material provided in this section is derived primarily from the *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Community Impact Assessment* (Caltrans, 2007).

3.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…."

3.2.1.1 40 Code of Federal Regulations (CFR) Part 1508 Terminology and Index, 1508.8 (Effects)

The CEQ regulations do not specifically define growth-inducing effects, but include them as a potential indirect effect. Effects include:

> *(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.*

3.2.1.2 FHWA Technical Advisory (TA) T6640.8a V

This section of the TA, the Environmental Impact Statement (EIS) Format and Content: G. Environmental Consequences 1, Land Use Impacts addresses growth as follows:

> *This discussion should identify the current development trends and the State and/or local government plans and policies on land use and growth in the area which will be impacted by the proposed project where possible, the distinction between planned and unplanned growth should be identified.*

3.2.1.3 Caltrans Environmental Handbook, Volume 4 "Community Impact Assessment" (CIA) June, 1997

This handbook defines growth inducement as "…the relationship between the proposed transportation project and growth within an area."

Growth-inducing effects can occur if the project either facilitates planned growth or induces unplanned growth. Growth inducement can take several forms. A project can remove barriers, provide access or eliminate other constraints which encourage growth that has been approved and anticipated through the General Plan process or under adopted growth projections. This planned growth would be reflected in land use plans that have been developed and approved with the underlying assumption that an adequate supporting transportation network would be constructed. Infrastructure improvements that support this planned growth can be described as accommodating or facilitating growth. In addition, a project can remove barriers, provide new access or otherwise encourage growth which is not assumed as planned growth in the General Plans or adopted growth projections for the affected local jurisdictions. This could include areas which are currently designated for open space, agricultural or other similar non-urban land uses which, because of the improved access provided by the project, would experience pressure to develop urban uses or develop at a higher level of intensity than originally anticipated.

Within the context of these definitions and consistent with the Caltrans CIA guidelines, a conclusion must be made regarding the potential growth-inducing effects of each alternative. Caltrans has determined that generally one of the following conclusions will apply (Caltrans, 1997):

> *Project will not affect growth: This conclusion can be made when no growth is expected or when the project would yield no advantages that would have effects on developers' decisions.*
>
> *Cannot determine the effect on growth: This conclusion can be appropriate when any conclusion about the likely course of growth would be speculative.*
>
> *Hasten or slow growth, intensify growth, or shift growth from elsewhere in the region: One of these conclusions can be made when developers and the local planning agency/agencies are expected to modify their course or timing of development because of the project. The terms "support growth," "contribute to growth," "facilitate growth" or "respond to growth" are less precise ways of making this conclusion.*
>
> *Induce growth: This conclusion can be made when a larger amount of development would be expected to occur (area wide) during or after the project's construction than otherwise would have been expected in the foreseeable future.*

3.2.2 Affected Environment

3.2.2.1 Regional Area Demographics

3.2.2.1.1 Existing Population

The total population in the County of Los Angeles as reported in the 2000 U.S. Census was 9,519,338 persons (study area census tracts are shown in Figure 3.2-1). Of the total population, the largest group was persons of Hispanic/Latino origin at 44.6 percent; white persons made up the next largest group at 31.1 percent. The remaining 24.3 percent, in order by descending proportions, were Asian, black, multi-racial, Native American, Native Hawaiian/Pacific Islander, and other.

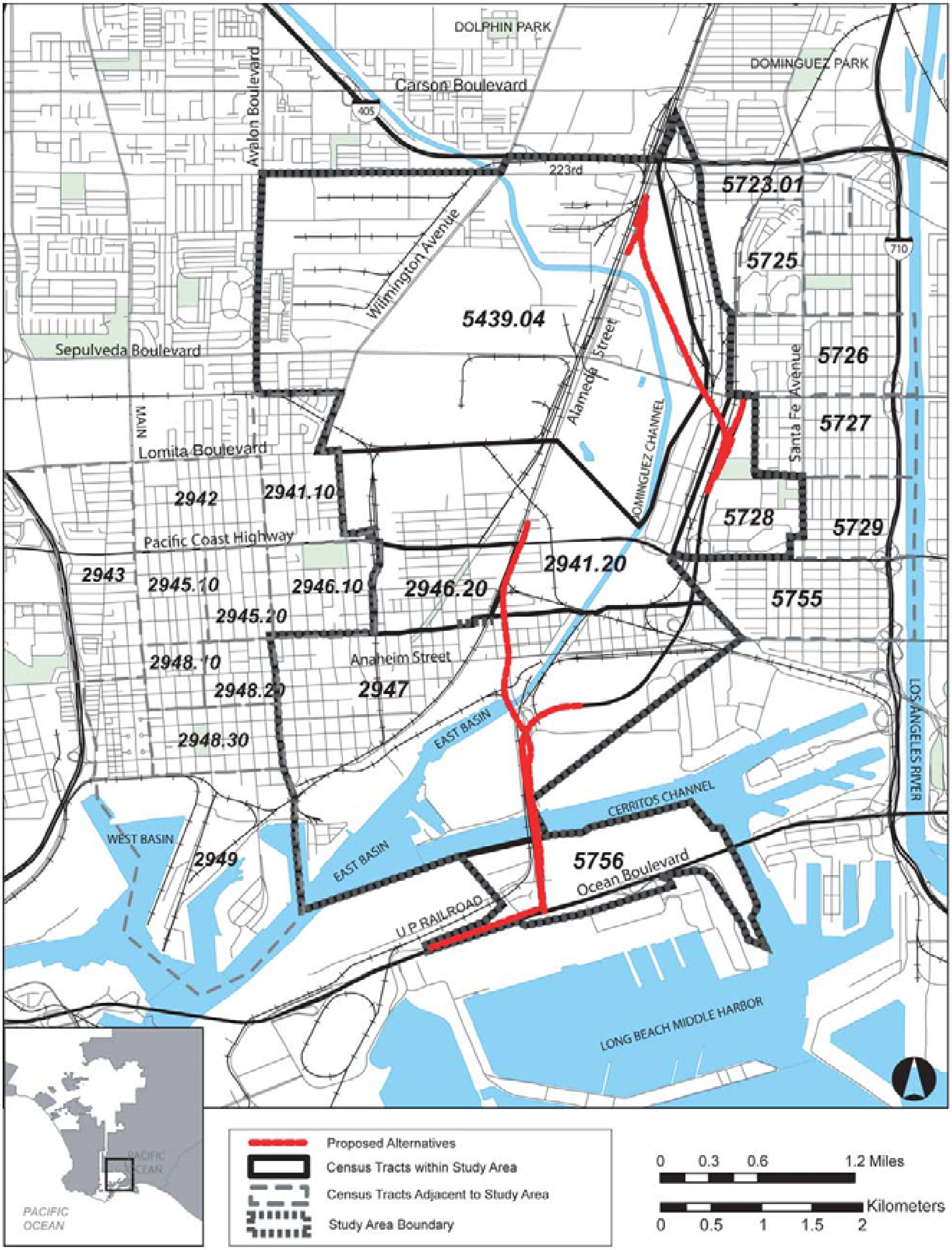


Figure 3.2-1
Population and Housing Study Area
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: GDT, Inc., 2003; Jones & Stokes, 2004.

The City of Los Angeles had 3,694,820 persons in 2000, with the largest group being persons of Hispanic/Latino origin at 46.5 percent. Non-Hispanic white persons were the next largest group at 29.7 percent of the total population. The remaining 23.8 percent, in order by descending proportions, were black, Asian, multi-racial, Native American, Native Hawaiian/Pacific Islander, and other.

The City of Long Beach had 461,522 persons in 2000, with the largest group being persons of Hispanic/Latino origin at 35.8 percent. Non-Hispanic white persons were the next largest group at 33.1 percent of the total population. The remaining 31.1 percent, in order by descending proportions, were black, Asian, multi-racial, Native American, Native Hawaiian/Pacific Islander, and other.

The City of Carson had 89,730 persons in 2000, with the largest group being persons of Hispanic/Latino origin at 34.9 percent. Non-Hispanic black persons were the next largest group at 25.7 percent of the total population. The remaining 39.4 percent, in order by descending proportions, were black, Asian, other races, multi-racial, Native Hawaiian/ Pacific Islander, and Native American (see Table 3.2-1).

Of the 9,519,338 persons residing within the County of Los Angeles, 29.5 percent were under 18 years of age in 2000, while 5.51 percent were 65 years of age and over. The 3,694,820 persons residing in City of Los Angeles had a similar distribution for persons under 18 years of age and 65 years of age and over, at 28 percent and 5.45 percent, respectively. Within the City of Long Beach, 30 percent of the total population of 461,522 were under the age of 18, and 4.88 percent were over the age of 65 in 2000. Within the City of Carson, 28.4 percent of the total population of 89, 730 were under the age of 18, and 10.7 percent were over the age of 65 in 2000 (see Table 3.2-2).

3.2.2.1.2 Housing

According to the 2000 U.S. Census, the total number of housing units in the County of Los Angeles was 3,270,909. Of the total housing units, 95.8 percent were occupied, and 4.2 percent were vacant. Of the total occupied housing units, 47.9 percent were owner-occupied, and 52.1 percent were rented.

The City of Los Angeles had a total of 1,337,706 housing units in 2000. Of the total, 95.3 percent of the housing units were occupied, and 4.7 percent were vacant. Owner-occupied housing units made up 38.6 percent of the total, and 61.4 percent were renter occupied.

The City of Long Beach had a total of 171,659 housing units in 2000. Of the total, 95 percent of the housing units were occupied, and 2.8 percent were vacant. Owner-occupied housing units made up 41 percent of the total, and 59 percent were renter occupied.

The City of Carson had a total of 25,337 housing units in 2000. Of the total, 97.2 percent of the housing units were occupied, and 2.7 percent were vacant. Owner-occupied housing units made up 77.9 percent of the total, and 22.1 percent were renter occupied.

3.2.2.2 Local Area Demographics

3.2.2.2.1 Existing Population

The total population of the census tracts comprising the project study area was 14,465 in 2000. Of the total population in the study area, persons of Hispanic/Latino origin accounted for 81.94 percent; Non-Hispanic white persons totaled 3.89 percent. The proportion of persons of Hispanic/Latino origin was substantially larger than the City of Los Angeles (46.53 percent) and County of Los Angeles (44.56 percent), City of Long Beach (35.77 percent) and City of Carson (34.9 percent) (see Table 3.2-1).

The study area population under 18 years of age in 2000 was 30 percent of the total, while approximately 12 percent were 65 years of age and older. According to the 2000 Census, the study area had a higher percentage of people under 18 years of age than the County of Los Angeles (29.5 percent), City of Los Angeles (28.1 percent), City of Long Beach (30.8 percent), and the City of Carson (28.4 percent). The percentage of population 65 and over in the study area was higher than the County of Los Angeles (5.5 percent), City of Los Angeles (5.5 percent), City of Long Beach (4.9 percent), and the City of Carson (10.66 percent) (see Table 3.2-2).

3.2.2.2.2 Housing

According to the 2000 U.S. Census, the total number of housing units in the study area in 2000 was 3,658. Of the total housing units, 94.2 percent were occupied and 5.8 percent were vacant. Of the total occupied housing, 45.12 percent were owner-occupied and 54.88 percent were rented, the percentage of owner-occupied housing units in the study area was lower than County of Los Angeles (47.9 percent) and city of Carson (77.9 percent), but higher than Cities of Los Angeles (38.6 percent) and Long Beach (41.1 percent). The study area had a lower percentage of renter occupied housing units as compared to City of Los Angeles (61.4 percent), and City of Long Beach (58.9 percent), but higher than City of Carson (22.1 percent) and County of Los Angeles (52.1 percent) (see Table 3.2-3 and Table 3.2-4).

3.2.2.3 Forecasted Population and Housing

According to the Southern California Association of Governments (SCAG) 2004 Regional Transportation Plan (adopted April 2004), the population of the County of Los Angeles in 2030 is forecasted to be 12,221,799, an increase of about 28 percent. SCAG projects that the population of the City of Los Angeles in 2030 will increase by about 17 percent to 4,309,625 persons.

The number of households in the County of Los Angeles is forecasted to be 4,120,270 in 2030, or about 31 percent greater than in 2000. The number of households in 2030 for the City of Los Angeles is forecasted to be 1, 637,475, an increase of about 28 percent (see Table 3.2-5).

Table 3.2-1
Existing Regional and Local Population Characteristics – Race/Ethnicity (2000)

Area	Total	White	%	Black	%	Native American	%	Asian	%	Native Hawaiian/ Pacific Islander	%	Other Race	%	Two or more races	%	Hispanic or Latino	%
County of Los Angeles	9,519,338	2,959,614	31.09	901,472	9.47	25,609	0.27	1,124,569	11.81	23,265	0.24	19,935	0.21	222,661	2.34	4,242,213	44.57
City of Los Angeles	3,694,820	1,099,188	29.75	401,986	10.88	8,897	0.24	364,850	9.87	4,484	0.12	9,065	0.25	87,277	2.36	1,719,073	46.53
City of Long Beach	461,522	152,899	33.13	66,836	14.48	1,772	0.38	54,937	11.90	5,392	1.17	1,013	0.22	13,581	2.94	165,092	35.78
City of Carson	89,730	10,767	12.00	22,485	25.06	180	0.20	19,711	21.97	2,589	2.89	171	0.19	2,495	2.78	31,332	34.92
Study Area*	***14,465***	***562***	***3.89***	***1,105***	***7.64***	***26***	***0.18***	***647***	***4.47***	***107***	***0.74***	***9***	***0.06***	***156***	***1.08***	***11,853***	***81.94***
Census Tract 5439.04	4,426	177	4.00	540	12.20	4	0.09	456	10.30	69	1.56	3	0.07	80	1.81	3,097	69.97
Block Group 4	3	0	0	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	100.00
Census Tract 5728	263	32	12.17	66	25.10	4	1.52	69	26.24	0	0.00	2	0.76	14	5.31	76	28.90
Block Group 3	1	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Census Tract 2941.2	2,529	40	1.58	245	9.69	3	0.12	47	1.86	1	0.04	4	0.16	15	0.59	2174	85.96
Block Group 1	637	5	0.78	46	7.22	0	0.00	12	1.88	0	0.0	0	0.0	1	0.16	573	89.95
Block Group 2	1,204	12	1.00	92	7.64	1	0.08	7	0.58	0	0.0	4	0.33	5	0.42	1,083	89.95
Block Group 3	688	23	3.34	107	15.55	2	0.29	28	4.07	1	0.15	0	0.0	9	1.31	518	75.29
Census Tract 2946.2	3,931	82	2.09	38	0.97	8	0.20	38	0.97	6	0.15	0	0.0	8	0.20	3751	95.42
Block Group 1	1,600	29	1.81	8	0.50	6	0.38	15	0.94	6	0.38	0	0.0	4	0.25	1,532	95.75
Block Group 2	1,581	30	1.90	26	1.64	2	0.13	16	1.01	0	0.0	0	0.0	3	0.19	1,504	95.13
Block Group 3	750	23	3.07	4	0.53	0	0.0	7	0.93	0	0.0	0	0.0	1	0.13	715	95.33
Census Tract 2947	3,270	224	6.85	205	6.27	6	0.18	36	1.10	27	0.83	0	0.0	38	1.16	2734	83.61
Block Group 3	95	45	47.37	10	10.53	0	0.0	1	1.05	3	3.16	0	0.0	7	7.37	29	30.53
Block Group 4	1,894	151	7.97	177	9.35	3	0.16	25	1.32	14	0.74	0	0.0	26	1.37	1,498	79.09
Block Group 5	523	2	0.38	4	0.76	1	0.19	5	0.96	7	1.34	0	0.0	2	0.38	502	95.98
Block Group 6	727	18	2.48	3	0.41	2	0.28	5	0.69	3	0.41	0	0.0	3	0.41	693	95.32
Census Tract 5756	46	7	15.22	11	23.91	1	2.17	1	2.17	4	8.7	0	0	1	2.17	21	45.95
Block Group 2	2	1	50	0	0	0	0	1	50	0	0	0	0	0	0	0	0
Block Group 3	33	0	0	11	33.33	0	0	0	0	4	12.12	0	0	1	3.03	17	51.52

Table 3.2-1
Existing Regional and Local Population Characteristics – Race/Ethnicity (2000)

Area	Total	White	%	Black	%	Native American	%	Asian	%	Native Hawaiian/ Pacific Islander	%	Other Race	%	Two or more races	%	Hispanic or Latino	%
Nearby Areas																	
Census Tract 5723.01	3,653	248	6.79	459	12.57	19	0.52	760	20.80	208	5.69	13	0.36	103	2.82	1,843	50.45
Census Tract 5725	3,700	797	21.54	1,362	36.81	12	0.32	228	6.16	145	3.92	5	0.14	113	3.05	1,038	28.05
Census Tract 5726	5,130	289	5.63	713	13.90	18	0.35	1,763	34.37	180	3.51	5	0.10	144	2.81	2,018	39.34
Census Tract 5727	5,495	255	4.64	688	12.52	10	0.18	2,610	47.50	88	1.60	7	0.13	207	3.77	1,630	29.66
Census Tract 5729	5,113	145	2.84	649	12.69	31	0.61	794	15.53	81	1.58	14	0.27	100	1.96	3,299	64.52
Census Tract 5755	252	55	21.83	19	7.54	3	1.19	7	2.78	2	0.79	4	1.59	2	0.79	160	63.49
Census Tract 2933.01	2,977	1,004	33.73	204	6.85	6	0.20	1,113	37.39	9	0.30	9	0.30	89	2.99	543	18.24
Census Tract 2933.02	4,302	1,491	34.66	317	7.37	7	0.16	555	12.90	64	1.49	10	0.23	105	2.44	1,753	40.75
Census Tract 2933.04	4,207	780	18.54	385	9.15	22	0.52	398	9.46	40	0.95	2	0.05	63	1.50	2,517	59.83
Census Tract 2933.05	4,660	1,658	35.58	391	8.39	17	0.36	348	7.47	25	0.54	10	0.21	81	1.74	2,130	45.71
Census Tract 2942	4,425	526	11.89	61	1.39	32	0.72	118	2.67	41	0.93	0	0.0	88	1.99	3,559	80.43
Census Tract 2943	7,059	781	11.06	183	2.59	21	0.30	340	4.82	92	1.30	15	0.21	97	1.37	5,530	78.34
Census Tract 2941.10	4,060	369	9.09	77	1.90	19	0.47	150	3.69	60	1.48	0	0.0	49	1.21	3,336	82.17
Census Tract 2944.10	3,854	616	15.98	1,008	26.15	8	0.21	379	9.83	42	1.09	4	0.10	83	2.15	1,714	44.47
Census Tract 2944.20	3,270	385	11.77	338	10.39	14	0.43	182	5.57	43	1.31	7	0.21	52	1.59	2,249	68.78
Census Tract 2945.10	4,266	186	4.36	73	1.71	7	0.16	62	1.45	32	0.75	0	0.0	19	0.45	3,887	91.12
Census Tract 2945.20	3,609	225	6.23	67	1.86	10	0.28	62	1.72	18	0.50	2	0.06	25	0.69	3,200	88.67
Census Tract 2946.10	3,875	262	6.76	62	1.60	5	0.13	76	1.96	24	0.62	5	0.13	48	1.24	3,393	87.56
Census Tract 2948.10	4,039	92	2.28	77	1.91	6	0.15	45	1.11	33	0.82	2	0.05	31	0.77	3,753	92.92
Census Tract 2948.20	3,555	117	3.29	9	0.25	3	0.08	46	1.29	13	0.37	0	0.0	22	0.62	3,345	94.09
Census Tract 2948.30	3,274	128	3.91	106	3.24	14	0.43	49	1.50	26	0.79	26	0.79	40	1.22	2,885	88.12
Census Tract 2949	3,262	142	4.35	170	5.21	5	0.15	57	1.75	33	1.01	3	0.09	27	0.83	2,825	86.60
Census Tract 2951.01	5,188	3,417	65.96	205	3.95	29	0.56	289	5.57	26	0.50	4	0.08	138	2.66	1,080	20.82

*Study Area consists of the block groups within the three census tracts adjacent to the project alignment (see Figure 3.2-1).
Sources: U.S. Census Bureau, Census of Population and Housing, Summary File 1 (2000); Caltrans (2007).

Table 3.2-2
Existing Regional and Local Population Characteristics – Age (2000)

Area	Total Population	Age			
		Under 18	%	65 and over	%
County of Los Angeles	9,519,338	2,803,888	29.45	524,199	5.51
City of Los Angeles	3,694,820	1,035,088	28.01	201,365	5.45
City of Long Beach	461,522	142,152	30.80	22,522	4.88
City of Carson	89,730	25,485	28.40	9561	10.66
Study Area	***14,465***	***4,343***	***30.02***	***1,673***	***11.57***
Census Tract 5439.04	4,426	1,612	36.42	249	5.63
Block Group 4	3	1	33.33	0	0.00
Census Tract 5728	263	78	29.66	13	4.94
Block Group 3	1	0	0.00	0	0.00
Census Tract 2941.2	2,529	938	37.09	112	4.43
Block Group 1	637	230	36.11	32	5.02
Block Group 2	1,204	467	38.79	45	3.74
Block Group 3	688	241	35.03	35	5.09
Census Tract 2946.2	3,931	1,407	35.79	1,150	29.25
Block Group 1	1,600	588	36.75	117	7.31
Block Group 2	1,581	565	35.74	130	8.22
Block Group 3	750	254	33.87	47	6.27
Census Tract 2947	3,270	294	8.99	147	4.50
Block Group 3	95	12	12.63	11	11.58
Block Group 4	1,894	682	36.01	75	3.96
Block Group 5	523	187	35.76	28	5.35
Block Group 6	727	265	36.45	33	4.54
Census Tract 5657	46	14	30.43	2	4.36
Block Group 2	2	0	0	0	0
Block Group 3	33	14	42.42	2	6.06
Nearby Areas					
Census Tract 5723.01	3,653	1,292	35.37	254	6.95
Census Tract 5725	3,700	1,326	35.84	817	22.08
Census Tract 5726	5,130	1,601	31.21	538	10.49
Census Tract 5727	5,495	1,582	28.79	651	11.85
Census Tract 5729	5,113	1,934	37.83	349	6.83
Census Tract 5755	252	68	26.98	5	1.98
Census Tract 2933.01	2,977	581	19.52	382	12.83
Census Tract 2933.02	4,302	1,279	29.73	368	8.55
Census Tract 2933.04	4,207	1,341	31.88	211	5.02
Census Tract 2933.05	4,660	1,390	29.83	383	8.22

Table 3.2-2
Existing Regional and Local Population Characteristics – Age (2000)

Area	Total Population	Age			
		Under 18	%	65 and over	%
Census Tract 2942	4,425	1,449	32.75	391	8.84
Census Tract 2943	7,059	2,299	32.57	572	8.10
Census Tract 2941.10	4,060	1,324	32.61	341	8.40
Census Tract 2944.10	3,854	1,327	34.43	262	6.80
Census Tract 2944.20	3,270	1,050	32.11	195	5.96
Census Tract 2945.10	4,266	1,664	39.01	151	3.54
Census Tract 2945.20	3,609	1,378	38.18	163	4.52
Census Tract 2946.10	3,875	1,339	34.55	303	7.82
Census Tract 2948.10	4,039	1,528	37.83	132	3.22
Census Tract 2948.20	3,555	1,386	38.99	124	3.49
Census Tract 2948.30	3,274	1,262	38.55	191	5.83
Census Tract 2949	3,262	1,368	41.94	163	5.00
Census Tract 2951.01	5,188	1,088	20.97	778	15.00

*Study Area consists of the block groups within the five Census Tracts adjacent to the project alignment (see Figure 3.2.1).

Sources: U.S. Census Bureau, Census of Population and Housing, Summary File 1 (2000); Caltrans (2007).

Table 3.2-3
Existing Regional and Local Housing Characteristics – Occupancy (2000)

Area	Total Units	Occupied Units	%	Vacant Units	%	Persons Per Household
County of Los Angeles	3,270,909	3,133,774	95.81	137,135	4.19	2.98
City of Los Angeles	1,337,668	1,275,358	95.34	62,310	4.66	2.83
City of Long Beach	171,659	163,107	95.02	8,552	4.98	2.77
City of Carson	25,337	24,648	97.28	689	2.72	3.59
Study Area*	***3,658***	***3,446***	***94.20***	***212***	***5.80***	***3.70***
Census Tract 5439.04	995	952	95.68	43	4.32	4.65
Block Group 4	1	1	100.00	0	0.00	3.06
Census Tract 5728	29	29	100.00	0	0.00	2.83
Block Group 3	1	1	100.00	0	0.00	1.00
Census Tract 2941.2	574	542	94.43	32	5.57	4.67
Block Group 1	149	139	93.29	10	6.71	4.58
Block Group 2	248	242	97.58	6	2.42	4.98
Block Group 3	177	161	90.96	16	9.04	4.27
Census Tract 2946.2	1,007	968	96.13	39	3.87	4.05
Block Group 1	392	371	94.64	21	5.36	4.29

Table 3.2-3
Existing Regional and Local Housing Characteristics – Occupancy (2000)

Area	Total Units	Occupied Units	%	Vacant Units	%	Persons Per Household
Block Group 2	404	394	97.52	10	2.48	4.01
Block Group 3	211	203	96.21	8	3.79	3.69
Census Tract 2947	1,034	941	91.01	93	8.99	3.39
Block Group 3	51	44	86.27	7	13.73	2.16
Block Group 4	604	552	91.39	52	8.61	3.32
Block Group 5	156	145	92.95	11	7.05	3.61
Block Group 6	219	196	89.50	23	10.50	3.71
Census Tract 5657	19	14	73.68	5	35.71	2.65
Block Group 2	1	1	100.00	0	0.00	1.00
Block Group 3	16	11	68.75	5	45.45	3.00
Nearby Areas						
Census Tract 5723.01	973	929	95.48	44	4.52	3.93
Census Tract 5725	1,328	1,256	94.58	72	5.42	2.75
Census Tract 5726	1,265	1,228	97.08	37	2.92	4.18
Census Tract 5727	1,345	1,306	97.10	39	2.90	4.12
Census Tract 5729	1,316	1,233	93.69	83	6.31	4.14
Census Tract 5755	58	53	91.38	5	8.62	4.19
Census Tract 2933.01	1,059	1,043	98.49	16	1.51	2.79
Census Tract 2933.02	1,414	1,378	97.45	36	2.55	3.10
Census Tract 2933.04	1,385	1,343	96.97	42	3.03	3.13
Census Tract 2933.05	1,731	1,660	95.90	71	4.10	2.81
Census Tract 2942	1,282	1,240	96.72	42	3.28	3.57
Census Tract 2943	1,970	1,912	97.06	58	2.94	3.66
Census Tract 2941.10	1,066	1,045	98.03	21	1.97	3.89
Census Tract 2944.10	1,425	1,369	96.07	56	3.93	2.80
Census Tract 2944.20	1,119	1,047	93.57	72	6.43	3.12
Census Tract 2945.10	1,068	1,027	96.16	41	3.84	4.15
Census Tract 2945.20	879	862	98.07	17	1.93	4.18
Census Tract 2946.10	1,096	1,069	97.54	27	2.46	3.62
Census Tract 2948.10	992	961	96.88	31	3.13	4.20
Census Tract 2948.20	870	847	97.36	23	2.64	4.19
Census Tract 2948.30	922	837	90.78	85	9.22	3.86
Census Tract 2949	839	815	97.14	24	2.86	3.99
Census Tract 2951.01	2,560	2,031	79.34	529	20.66	2.55

*Study Area consists of the block groups within the five census tracts adjacent to the project alignment (see Figure 3.2-1).

Sources: U.S. Census Bureau, Census of Population and Housing, Summary File 1 (2000); Caltrans (2007).

Table 3.2-4
Existing Regional and Local Housing Characteristics – Tenure (2000)

Area	Total Units	Occupied Units	Owner Occupied Units	%	Renter Occupied Units	%
County of Los Angeles	3,270,909	3,133,774	1,499,694	47.86	1,634,080	52.14
City of Los Angeles	1,337,668	1,275,358	491,836	38.56	783,522	61.44
City of Long Beach	171,659	163,107	66,971	41.06	96,136	58.94
City of Carson	25,337	24,648	19,205	77.92	5,443	22.08
Study Area*	***3,658***	***3,446***	***1,555***	***45.12***	***1,891***	***54.88***
Census Tract 5439.04	995	952	659	69.22	293	30.78
Block Group 4	1	1	0	0.00	1	100.00
Census Tract 5728	29	29	3	10.34	26	89.66
Block Group 3	1	1	1	100.00	0	0.00
Census Tract 2941.2	574	542	278	51.29	264	48.71
Block Group 1	149	139	62	44.60	77	55.40
Block Group 2	248	242	142	58.68	100	41.32
Block Group 3	177	161	74	45.96	87	54.04
Census Tract 2946.2	1007	968	474	48.92	494	51.03
Block Group 1	392	371	181	48.79	190	51.21
Block Group 2	404	394	177	44.92	217	55.08
Block Group 3	211	203	116	57.14	87	42.86
Census Tract 2947	1,034	941	141	14.98	800	85.02
Block Group 3	51	44	21	47.73	23	52.27
Block Group 4	604	552	41	7.43	511	92.57
Block Group 5	156	145	29	20.00	116	80.00
Block Group 6	219	196	49	25.00	147	75.00
Census Tract 5657	19	14	0	0.00	14	100.00
Block Group 2	1	1	0	0.00	1	100.00
Block Group 3	16	11	0	0.00	11	100.00
Nearby Areas						
Census Tract 5723.01	973	929	472	50.81	457	49.19
Census Tract 5725	1,328	1,256	353	28.11	903	71.89
Census Tract 5726	1,265	1,228	897	73.05	331	26.95
Census Tract 5727	1,345	1,306	852	65.24	454	34.76
Census Tract 5729	1,316	1,233	509	41.28	724	58.72
Census Tract 5755	58	53	4	7.55	49	92.45
Census Tract 2933.01	1,059	1,043	765	73.35	278	26.65
Census Tract 2933.02	1,414	1,378	825	59.87	553	40.13
Census Tract 2933.04	1,385	1,343	357	26.58	986	73.42
Census Tract 2933.05	1,731	1,660	814	49.04	846	50.96

Table 3.2-4
Existing Regional and Local Housing Characteristics – Tenure (2000)

Area	Total Units	Occupied Units	Owner Occupied Units	%	Renter Occupied Units	%
Census Tract 2942	1,282	1,240	747	60.29	493	39.76
Census Tract 2943	1,970	1,912	1,029	53.82	883	46.18
Census Tract 2941.10	1,066	1,045	637	60.96	408	39.04
Census Tract 2944.10	1,425	1,369	501	36.60	868	63.40
Census Tract 2944.20	1,119	1,047	268	25.60	779	74.40
Census Tract 2945.10	1,068	1,027	362	35.25	665	64.75
Census Tract 2945.20	879	862	270	31.32	592	68.68
Census Tract 2946.10	1,096	1,069	362	33.86	707	66.14
Census Tract 2948.10	992	961	131	13.63	830	86.37
Census Tract 2948.20	870	847	103	12.16	744	87.84
Census Tract 2948.30	922	837	242	28.91	595	71.09
Census Tract 2949	839	815	203	24.91	612	75.09
Census Tract 2951.01	2,560	2,031	1,628	80.18	403	19.84

*Study Area consists of the block groups within the five Census Tracts adjacent to the project alignment (see Figure 3.2-1).

Sources: U.S. Census Bureau, Census of Population and Housing, Summary File 1 (2000); Caltrans (2007).

Table 3.2-5
Existing and Projected Population and Households – 2000 To 2030

Area	Population 2000	Projected Population 2030	% Population Change	Households 2000	Projected Households 2030	% Households Change
County of Los Angeles	9,580,028	12,221,799	27.58	3,133,774	4,120,270	31.48
City of Los Angeles	3,711,969	4,309,625	16.10	1276578	1,637,475	28.27
City of Long Beach	463,406	561,694	21.21	163,088	198,040	21.43
City of Carson	90,526	109,412	20.86	24,744	30,597	23.65
Study Area*	***14,550***	***17,114***	***17.62***	***3,451***	***4,329***	***25.44***
Census Tract 5439.04	4,426	5,407	22.16	957	1,181	23.41
Census Tract 5728	263	309	17.49	29	36	24.14
Census Tract 2941.2	2,541	2,968	16.80	542	704	29.89
Census Tract 2946.2	3,950	4,563	15.52	968	1,194	23.35
Census Tract 2947	3,285	3,804	15.80	941	1,194	26.89
Census Tract 5657	46	63	36.96	14	20	42.86
Nearby Areas						
Census Tract 5723.01	3,628	4,370	20.45	917	1,087	18.54
Census Tract 5725	3715	4,480	20.59	1,256	1,523	21.26
Census Tract 5726	5151	6,236	21.06	1,228	1,435	16.86

Table 3.2-5
Existing and Projected Population and Households – 2000 To 2030

Area	Population 2000	Projected Population 2030	% Population Change	Households 2000	Projected Households 2030	% Households Change
Census Tract 5727	5517	6,719	21.79	1,306	1,545	18.30
Census Tract 5729	5134	6,198	20.72	1,233	1,485	20.44
Census Tract 5755	253	328	29.64	53	71	33.96
Census Tract 2933.01	2,991	3,508	17.29	1,043	1,296	24.26
Census Tract 2933.02	4,322	5,036	16.50	1,379	1,715	24.37
Census Tract 2933.04	4,227	4,890	15.68	1,344	1,724	28.27
Census Tract 2933.05	4,682	5,413	15.61	1,660	2,085	25.60
Census Tract 2942	4,446	5,133	15.45	1,240	1,518	22.42
Census Tract 2943	7,092	8,170	15.20	1,912	2,359	23.38
Census Tract 2941.10	4,079	4,747	16.38	1,045	1,302	24.59
Census Tract 2944.10	3,872	4,469	15.42	1,420	1,820	28.17
Census Tract 2944.20	3,285	3,797	15.59	1,047	1,329	26.93
Census Tract 2945.10	4,286	4,953	15.56	1,033	1,289	24.78
Census Tract 2945.20	3,626	4,196	15.72	862	1,092	26.68
Census Tract 2946.10	3,893	4,498	15.54	1,080	1,369	26.76
Census Tract 2948.10	4,058	4,695	15.70	962	1,216	26.40
Census Tract 2948.20	3,572	4,137	15.82	847	1,089	28.57
Census Tract 2948.30	3,289	3,810	15.84	837	1,053	25.81
Census Tract 2949	3,277	3,800	15.96	815	1,031	26.50
Census Tract 2951.01	5,213	6,005	15.19	2,032	2,562	26.08

*Study Area consists of the block groups within the five census tracts adjacent to the project alignment (see Figure 3.2-1).

The SCAG has forecasted the population for year 2030. According to the forecasts, the population of the study area would increase by 17.6 percent for the 30-year period from 2000 to 2030, while the households are forecasted to increase by 25.4 percent for the same period. The County of Los Angeles is projected to grow by 28.4 percent, the City of Los Angeles would grow by 16.6 percent, the City of Long Beach would grow by 21.7 percent, and the City of Carson would grow by 21.9 percent. The study area would therefore grow at a rate similar to the City of Los Angeles.

Between 2000 and 2030, the number of households in the County of Los Angeles is forecasted to grow by 31.5 percent, the number of households in the City of Los Angeles would grow by 28.4 percent, the number of households in the City of Long Beach would grow by 21.4 percent, and the number of households in the City of Carson would grow by 24.1 percent. The growth of households in the study area would closely resemble the City of Carson.

3.2.3 Environmental Consequences

3.2.3.1 Evaluation Criteria

A project could be considered growth-inducing if it either increases the rate of planned growth or induces unplanned growth.

The growth-inducing effects analysis was based on the established methodology and approach in the Caltrans CIA guidelines. The potential for the alternatives to result in growth-inducing effects was assessed based on the following key steps:

- Define growth-inducing effects.
- Describe the role of local agencies in land use planning and their role in directing future growth.
- Describe the factors that affect future growth in the study area.
- Generally identify areas of approved and planned development and areas not currently planned for development in the study area.
- Assess the potential for the project alternatives to result in growth-inducing effects.
- Identify a specific conclusion regarding the potential growth-inducing effects of each alternative.

Four questions were used to assess the potential for the alternatives to result in growth-inducing effects:

Question 1: Would the Alternative influence the overall rate of growth (that is, the speed at which growth occurs)?

Question 2: Would the Alternative influence the location of growth?

Question 3: Would the Alternative influence the amount of growth?

Question 4: Would the Alternative influence the type of growth?

Several factors were considered when answering these questions:

- Existing or anticipated pressure for growth and development (economic and market conditions) without the alternatives.
- Potential growth-inducing effects associated with existing and/or planned development.
- Overall local and subregional economic conditions related to unemployment, demand for housing, overall population growth, growth in the local economy and other factors.
- Local and County approvals for development absent commitments to the alternatives and other major transportation infrastructure improvements.
- Relationship of land use planning approvals/authorities and the alternatives (see Section 3.1.3.3 for a discussion of project consistency and compatibility with local and regional plans and policies).

The assessment of whether each alternative results in growth-inducing effects considered the following:

- How each alternative, including the No Action Alternative, may affect the rate, location, and/or amount of growth.
- Whether the effects of the alternatives would be considered growth inducing.
- Whether those changes in rate, location, and amount of growth would occur under the No Action Alternative as well as under the Build Alternatives.

One of the following conclusions, based on the Caltrans CIA guidance, was drawn regarding the potential growth-inducing effects of each alternative:

- Project will not affect growth.
- Cannot determine the effect on growth.
- Project hastens or slows growth, intensifies growth or shifts growth from elsewhere in the region.
- Project induces growth.

For the purposes of this Draft EIS/EIR, each project alternative was evaluated to determine if it would:

- Substantially increase the population or employment so as to require new infrastructure and or housing, the construction of which could cause adverse environmental consequences;
- Induce growth that exceeds levels anticipated under local land use plans and results in a substantial adverse physical change in the environment.

3.2.3.2 Methodology

A study area for the project was defined to include all census tracts adjacent to the project alignments. Information regarding population, race, income, and housing characteristics for year 2000 was obtained from the census. Windshield surveys were conducted to obtain information on the type of uses (businesses and facilities) that exist in the area. A related projects list provided in Section 5.2 identifies a number of residential and commercial facilities planned for the area surrounding the proposed project, as well as proposed projects within the Port of Long Beach and Port of Los Angeles. The proposed project is located in an area that is built out and is in an area that is currently developed.

3.2.3.3 Evaluation of Alternatives

3.2.3.3.1 Alternative 1: Bridge Replacement and SR-47 Expressway

3.2.3.3.1.1 Construction Effects

Direct

During the construction period, Alternative 1 would not directly induce growth, such as to require a change to a general plan and zoning ordinance for the jurisdiction to allow new residential development to occur.

The residential areas in the vicinity of the project site are largely built out and are relatively dense. Alternative 1 does not include development of new housing or population-generating uses such as large employment centers. Therefore, Alternative 1 is not anticipated to trigger new residential development.

The direct effects of a project on regional growth typically come from economic growth resulting from labor needs and expenditures. For the construction period, Alternative 1 would not result in the generation of a significant number of jobs in the region or the study area. Large-scale highway/bridge construction projects occur periodically in the region, and the short-term construction employees would likely be accommodated by the existing labor pool within the greater Los Angeles area. Therefore, no significant influx of workers into the local communities is anticipated; no significant growth in employment is anticipated.

Based on the above, construction activities for Alternative 1 would not involve the development of housing, and would not significantly affect the economy of the region. Therefore, no adverse direct growth-inducing effects would occur.

Indirect

A project would indirectly induce growth if it would remove obstacles to population growth or trigger the construction of new community service facilities that could increase the capacity of infrastructure in an area that currently meets the demand. Projects that would increase the capacity of a sewer treatment plant or widen a roadway beyond that which is needed to meet existing demand would indirectly induce growth.

Alternative 1 is located in an area that is built out and is on a site that is currently developed. The capacity of other, existing, infrastructure in the project area would not be expanded or upgraded to accommodate Alternative 1. The increase of infrastructure at the Ports of Los Angeles and Long Beach is planned in response to international market forces, and Alternative 1 is in response to growth at the port. Alternative 1 would not induce growth at the ports beyond that which is already forecasted.

The short-term indirect effects from construction may incrementally increase activity in nearby retail establishments as a result of construction workers patronizing local establishments. However, long-term effects would be negligible.

3.2.3.3.1.2 Operations Effects

Direct

Since the total number of housing units in the study area would not be affected by Alternative 1, no change in the demographic characteristics of the area could be reasonably expected to occur. The pattern and rate of population and housing growth would be expected to remain consistent with that which is contemplated in existing plans.

Indirect

No new or expanded infrastructure, housing, or other similar permanent physical changes to the environment would be necessary as an indirect consequence of Alternative 1.

3.2.3.3.2 Alternatives 1A, 2, 3, and 4

Under Alternatives 1A, 2, 3 and 4, the direct and indirect effects associated with construction and operation activities would be the same as those described for Alternative 1.

3.2.3.3.3 Alternative 5: Transportation System Management

The direct and indirect effects associated with construction and operation activities of Alternative 5 would be less than those described for Alternative 1.

3.2.3.3.4 Alternative 6: No Build

Under the No Build alternative, there would be no change to the existing bridge and/or roadways. Housing and economic conditions in the area would be unchanged from existing conditions, and there would be no temporary direct or indirect effect on the population growth of the area and there would be no long-term direct or indirect effect on the population growth of the area.

3.2.3.3.5 CEQA Consequences

Based on the information provided in the above analyses, when considered in the context of CEQA criteria, potential significant impacts to growth would not occur under any of the six project alternatives.

Potential impacts of the proposed project alternatives to growth are assessed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis and Appendix A – CEQA Checklist (XII, Population and Housing).

3.2.4 Avoidance, Minimization, and/or Mitigation Measures

No adverse effects are identified. Therefore, no avoidance, minimization, or mitigation measures are necessary for any of the alternatives addressed in this Draft EIS/EIR.

3.3 Community Resources

The community impacts discussed in this section are divided into three parts: Community Character and Cohesion; Relocations; and Environmental Justice. The information is based on the *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Community Impact Assessment* (CIA) prepared for the proposed project by Jones & Stokes (Caltrans, 2007). The CIA was prepared in accordance with the *Caltrans Environmental Handbook, Volume 4 – Community Impact Assessment* (1997).

3.3.1 Community Character and Cohesion

3.3.1.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA), established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). The Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the project's effects.

3.3.1.2 Affected Environment

The project alignments would be located in the Cerritos Channel area and adjoining areas to the south and north. A study area has been defined to include the eastern half of the Wilmington community of the City of Los Angeles, the northern section of the Port of Los Angeles, the western part of the City of Long Beach, and the southern part of the City of Carson (see Figure 3.2-1 in Section 3.2). This study area includes the tracts adjacent to the project alignments.

The study area is intensely developed with heavy industrial, commercial, and transportation uses associated with the nearby ports of Los Angeles and Long Beach. Residential neighborhoods are located primarily east of SR 103 and west of Alameda Street.

3.3.1.2.1 Regional Demographics and Local Demographics

Data on regional and local demographics are in Section 3.2 – Growth. The demographic characteristics provided are existing and forecasted population and housing. Information includes population by race/ethnicity and age; and number, type, and occupancy of housing units.

3.3.1.2.2 Income and Poverty Status

To determine the income and poverty characteristics for the study area, data were obtained from the 2000 U.S. Census at the tract level. These data indicate that per capita incomes for the study area population were for the most part markedly lower than in the County of Los Angeles or cities of Los Angeles, Long Beach, and Carson.

Data on the numbers of persons below the poverty threshold in the study area are indicative of a disadvantaged population (see Table 3.3-1). (The 1999 poverty threshold used for the 2000 U.S. data, as defined by the U.S. Census Bureau, was $8,501 for an individual and $17,029 for a family of four.)

Although the U.S. Census serves as the preferred income and poverty status indicator, data from the California Department of Education also provide information with which to assess the income and poverty characteristics of a community by identifying the number of students in project area schools that receive free or reduced price meals. In order for students to qualify for and receive free or reduced meal assistance, their family income must fall within certain poverty guidelines. The 2006 poverty level for a family of four, as defined by the U.S. Department of Health and Human Services (HHS) poverty guidelines, is $20,000.

Data from the California Department of Education indicates that several schools in the vicinity of the project received free or reduced price meal assistance during the 2004-2005 school year, thereby providing another strong indication that a substantial number of households in the study area are likely to have incomes below the poverty level (see Table 3.3-2). Data for percent receiving Cal Works in 2004–2005 was not available; the statistics for year 2003–2004 are presented in Table 3.3-2.

3.3.1.2.3 Neighborhood and Community Characteristics

The land use characteristics within the project area and vicinity are primarily industrial and manufacturing, with single-family residential neighborhood established directly to the east, west, and north of the proposed project alternatives. The neighborhoods to the east are within the City of Long Beach, while neighborhoods to the north and west are within the City of Carson.

Field surveys documented that there are no local commercial centers within the project area. Commercial centers are situated east of Alternative 1, along Santa Fe Avenue and Pacific Coast Highway.

The industrial sites in the project area generally consist of auto dismantling yards, recycling facilities, containment lots, and some old oil drilling facilities. Some of the businesses observed during field surveys are: Public Scale Recycling, Allco Auto Parts, and Shorty Auto Repair & Body Shop.

Table 3.3-1
Existing Regional and Local Population Characteristics – Income/Poverty (1999)

Area	Total Population	Per Capita Income ($)	Number of Persons Below Poverty Threshold	%
County of Los Angeles	9,519,338	20,683	1,674,599	17.59
City of Los Angeles	3,694,820	20,671	801,050	21.68
City of Long Beach	461,522	19,040	103,434	22.41
City of Carson	89,730	17,107	8,216	9.16
*Study Area**	*14,465*	*36,609 (9551)***	*3,765*	*26.11*
Census Tract 5439.04	4,426	9,811	978	22.10
Block Group 4	3	0	0	0.00
Census Tract 5728	263	5,873	205	77.95
Block Group 3	1	0	0	0.00
Census Tract 2941.2	2,529	12,278	317	12.53
Block Group 1	637	19,561	61	9.58
Block Group 2	1,204	7,805	193	16.03
Block Group 3	688	12,784	63	9.16
Census Tract 2946.2	3,931	10,173	941	23.94
Block Group 1	1,600	9,748	379	23.69
Block Group 2	1,581	10,655	323	20.43
Block Group 3	750	10,003	239	31.87
Census Tract 2947	3,270	9,622	1,324	40.49
Block Group 3	95	28,644	15	15.79
Block Group 4	1,894	7,513	808	42.66
Block Group 5	523	5,554	231	44.17
Block Group 6	727	15,315	270	37.14
Census Tract 5657	46	171,900	0	0.00
Block Group 2	2	171,900	0	0.00
Block Group 3	33	0	0	0.00

Table 3.3-1
Existing Regional and Local Population Characteristics – Income/Poverty (1999)

Area	Total Population	Per Capita Income ($)	Number of Persons Below Poverty Threshold	%
Nearby Areas				
Census Tract 5723.01	3,653	12,120	729	19.96
Census Tract 5725	3,700	10,268	1,530	41.35
Census Tract 5726	5,130	14,485	623	12.14
Census Tract 5727	5,495	12,215	895	16.29
Census Tract 5729	5,113	9,616	1,617	31.63
Census Tract 5755	252	6,992	111	44.05
Census Tract 2933.01	2,977	23,486	208	6.99
Census Tract 2933.02	4,302	19,856	421	9.79
Census Tract 2933.04	4,207	13,876	856	20.35
Census Tract 2933.05	4,660	21,084	698	14.98
Census Tract 2942	4,425	15,644	754	17.04
Census Tract 2943	7,059	13,060	1,654	23.43
Census Tract 2941.10	4,060	13,220	673	16.58
Census Tract 2944.10	3,854	14,856	1,092	28.33
Census Tract 2944.20	3,270	10,870	990	30.28
Census Tract 2945.10	4,266	9,615	1,167	27.36
Census Tract 2945.20	3,609	9,935	1,061	29.40
Census Tract 2946.10	3,875	12,330	853	22.01
Census Tract 2948.10	4,039	8,221	1,108	27.43
Census Tract 2948.20	3,555	13,063	1,601	45.04
Census Tract 2948.30	3,274	7,579	1,232	37.63
Census Tract 2949	3,262	8,087	1,343	41.17
Census Tract 2951.01	5,188	31,261	299	5.76

*Study Area consists of the block groups within the five Census Tracts adjacent to the project alignment (see Figure 3.2-1).

**Per Capita Income for Census Tract 5657 skews the average on the higher side and is not representative of the area. $9,551 is the average per capita income of the study area excluding Census Tract 5657; $36,609 is the average per capita Income of the study area including Census Tract 5657.

Source: Caltrans, 2007

Table 3.3-2
Study Area Income/Poverty Status – Students Receiving Assistance (2004 – 2005)

School	Percent Receiving Free and Reduced Price Meals 2004-2005	Percent Receiving Cal Works (Formerly AFDC) 2003-2004
Cabrillo (Juan Rodriguez) High School	57.9	5.1
Hudson Elementary School	77.5	9.9
Muir Elementary School	90.1	11.7
Savannah Academy (Grade 9)	57.8	3.8
Stephens Middle School	92.1	15.7
Wilmington Middle School	84.3	13.5
Wilmington Park Elementary School	80.5	13.7
Webster Elementary	94.2	24

Source: California Department of Education, Educational Demographics Unit (2005), Caltrans (2007).

3.3.1.3 Environmental Consequences

3.3.1.3.1 Evaluation Criteria

The proposed project alternatives were evaluated to determine if they would:

- Have indirect construction effects on the surrounding community that would be substantially greater in magnitude and/or longer in duration than is typical of similar construction projects and similar communities;
- Permanently impair access to and from the surrounding community through the placement of barriers or other impediments to the local circulation pattern; or
- Create a barrier or other physical change in the environment so substantial as to permanently divide, disperse, or otherwise severely disrupt a cohesive community.

3.3.1.3.2 Methodology

A study area for the project was defined in the CIA, and included all census tracts adjacent to the project alignments. Information regarding population, race, income, and housing characteristics for year 2000 was obtained from the Census. Windshield surveys were conducted to obtain information on the type of uses (businesses and facilities) that exist in the study area. Additionally, various print and Internet resources were consulted to gather data on the types of community facilities available in the vicinity of the alignments. The existing conditions data thus collected were analyzed to determine if and how the project would change the community dynamics. The evaluation criteria were used to determine if any adverse effects to the community would occur.

3.3.1.3.3 Evaluation of Alternatives

The following sections provide assessments of the potential environmental consequences of each alternative related to Community Character and Cohesion.

3.3.1.3.3.1 Alternative 1: Bridge Replacement and SR-47 Expressway

Construction Effects

Alternative 1

Construction activities would result in temporary, localized, site-specific disruptions to the community in the vicinity of the project area, primarily related to: construction-related traffic changes from trucks and equipment in the area; partial and/or complete street and lane closures, with some requiring detours; increased noise; lights and glare; and changes in air emissions.

Since project construction activities would be temporary and would not likely have effects substantially different from the same types of nuisance-like effects associated with typical construction activities throughout Southern California, no adverse effect is expected. Nonetheless, efforts will be made to inform the community about construction activities.

Direct Effects

Other than the short-term access disruptions related to project construction, no permanent barriers to neighborhood access are expected. Existing access points and circulation routes to and from the residential neighborhoods just west of the project area would remain open. To the extent that truck traffic is diverted onto the expressway and away from surface roadways such as Henry Ford Avenue and Alameda Street, local traffic congestion and safety could be expected to improve, with some ancillary beneficial effects on access to the residential neighborhoods.

The traffic study prepared for the project concluded that "The closure of lanes on the Schuyler Heim Bridge for construction purposes is not anticipated to significantly impact traffic operations on nearby streets and highways. Nearly all of the traffic that would normally use the Schuyler Heim Bridge, and travel on SR-103 or Henry Ford Avenue, is expected to use the I-110 or I-710 Freeways to get into and out of the Port area." (Meyer, Mohaddes Associates, 2007).

A Transportation Management Plan (TMP) will be prepared during the project design phase. The TMP will address strategies that should be used to enhance traffic operations during construction, such as:

- Public Awareness Campaign
- Alternate/detour routes with recommended signing
- Enhancements to existing signing and striping
- Safety and enforcement considerations
- Contingency Plans

In addition, the TMP will include measures to include safety considerations at the designated traffic signals at the intersections of Henry Ford Avenue and Anaheim Street, Henry Ford Avenue and Denni Street, Alameda Street and Pacific Coast Highway and at the recommended pedestrian crossings at Alameda Street and Robidoux Street, M Street and Mauretania Street. Designated crossing guard intersections for pedestrian routes for Wilmington Park Elementary School will not be affected.

In addition, the TMP will assure that pedestrian access to businesses and other destinations within the construction area would be maintained throughout the construction period. If usual access points were lost, provisions for alternative access would be made. Appropriate signage would be placed to inform pedestrians of changes to usual pedestrian routes. Temporary sidewalks, if necessary, would be installed during the construction phase. To the extent feasible, disabled access would be maintained during construction.

Indirect Effects

Indirect effects to the community during construction would include increased noise in the vicinity of construction staging areas and construction sites, diminished air quality during excavation and grading activities, and aesthetic impacts due to the presence of construction equipment and lights. Efforts to minimize such effects would include locating staging areas away from residential areas. In addition, barriers would be installed along the perimeter of construction staging areas to reduce noise and visual impacts.

Alternative 1A

Under Alternative 1A, direct and indirect construction effects would the same as those described under Alternative 1. The aesthetic improvements to the replacement bridge would not result in any effects other than those described under Alternative 1.

Operations Effects

Operational adverse effects would occur if the project would divide or disrupt an existing cohesive community or create barriers that would reduce access to and from a community.

Alternative 1

Direct

Access/Circulation

Alternative 1 does not propose permanent closure or realignment of any of the local streets within or bordering the communities in the study area. Access is likely to improve as a result of the improvements proposed under Alternative 1. The flyover would improve access to SR-47, and the new SR-47 Expressway would provide better access for vehicles to and from Terminal Island; these improvements are likely to reduce congestion on the existing circulation system.

Community Cohesion

Certain characteristics of the residential neighborhoods located near Alternative 1—including the duration of their existence, physical and spatial attributes, and demographic profile—are indicative of an established cohesive community. The homes in this neighborhood appear to be over 30 years old, and are primarily single-family residences, which may suggest that some aspects of cohesiveness and neighborhood character have developed over time among long-term residents. In addition, the residential areas are relatively small and surrounded by commercial properties or roadways, thereby contributing to a sense of community through spatial proximity. Finally, the demographic data for the area in which the neighborhoods are located show substantial proportions of minority and low-income persons. It can reasonably be inferred that many residents of this neighborhood fall within one or both of these groups. To the extent that demographic and physical characteristics have enabled a shared sense of stability to develop, some degree of community cohesion likely exists in this neighborhood.

The assessment of whether, and to what extent, Alternative 1 would adversely affect the cohesiveness of the adjacent community depends largely on whether the project is likely to create a barrier to the community. Because the project remains for the most part within existing rights-of-way adjacent to, but not through, the nearby residential portions of the community, no physical barrier would be created. The community surrounding the Alternative 1 would, therefore, be anticipated to remain intact.

Changes in Demographic Characteristics/Growth

Any residential displacement that may occur (Leeward Bay Marina) would not change the demographic characteristics of the project area. The pattern and rate of population and housing growth would be expected to remain consistent with that which is contemplated by existing plans for the area. No new or expanded infrastructure, housing, or other similar permanent physical changes to the environment would be necessary as an indirect consequence of Alternative 1.

It is anticipated that six boat slips would be acquired at the Leeward Bay Marina in the Port of Los Angeles, resulting in displacement of one resident. However, live-aboard residents at the Leeward Bay Marina rent slips on a month-to-month basis. According to the rental agreements, the Port can give these tenants 30 days advance notice to vacate for any reason, and the Port is not required to provide compensation (Caltrans, 2006).

Indirect

Indirect effects to the community during operations include air quality effects related to emissions from marine vessels that are unable to pass under the new bridge and must, instead, navigate around Terminal Island.

Alternative 1A

Under Alternative 1A, the operational direct and indirect effects would be the same as those described for Alternative 1. The aesthetic improvements to the replacement bridge would not result in effects other than those described under Alternative 1.

3.3.1.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

Construction Effects

Construction activities for the bridge replacement and flyover would be the same as described under Alternative 1. Construction activities for the SR-103 Extension would largely be contained within the Union Pacific Railroad (UPRR) and SCE rights-of-way.
A residential community exists to the east of existing SR-103. The extension of SR-103 could result in localized construction-period impacts on the nearby community. Two schools and a neighborhood park border the existing SR-103.

Direct

It is likely that, under Alternative 2, Willow Street from SR-103 would be affected for a short period of time until improvements are completed at this location. However, it is not expected that the construction would affect east-west travel along Willow Street. The SR-103 forms the western boundary of the community and does not pass through or bisect the community. The local street system within the community would remain unaffected by construction on SR-103.

Indirect

Indirect construction effects would largely be nuisance-type effects related to noise, visual resources and localized air quality. Indirect effects for the bridge replacement and flyover would be the same as described under Alternative 1. For the SR-103 Extension, only the southern portion borders the community; therefore, it is anticipated that the duration of construction activities in the vicinity of the community would be short. Additionally, views of the construction site would be shielded. There are no residences bordering the SR-103; therefore, there would be no effects to residences. The construction activities are unlikely to affect sports activities at the nearby school playgrounds and sports fields. The academic facilities are further east of SR-103; the noise and lights are unlikely to affect teaching activities.

Operations Effects

Operations effects for the bridge replacement and flyover would be the same as under Alternative 1. There are no operations effects anticipated to communities in the vicinity of Alternative 2. Improvements in access are likely to have some beneficial effects due to reduced congestion. The communities would remain intact; community character is likely to remain unaffected.

Direct

Access/Circulation

The community may benefit from the increased accessibility to and from I-405. No long-term impacts to the local circulation network are anticipated. Existing access to the community would remain unchanged.

Community Cohesion

Because the SR-103 portion of Alternative 2 remains for the most part within existing rights-of-way adjacent to, but not through, the nearby residential portions of the community, no physical barrier would be created. The community surrounding the project would, therefore, be anticipated to remain intact. Community character would remain unchanged. Implementation of Alternative 2 would not result in the introduction of new uses where none currently exist.

Changes in Demographic Characteristics/Growth

As no residential displacements are proposed, it is not likely that Alternative 2 would change the demographic characteristics of the project area. The pattern and rate of population and housing growth would be expected to remain consistent with that which is contemplated by existing plans for the area. Further, no new or expanded infrastructure, housing, or other similar permanent physical changes to the environment would be necessary as an indirect consequence of Alternative 2.

Indirect

No indirect permanent adverse effects would be the same as under Alternative 1.

3.3.1.3.3.3 Alternative3: Bridge Demolition Avoidance

Construction Effects

Construction effects would be similar to those described under Alternative 1; however, with this alternative the existing Schuyler Heim Bridge would not be demolished.

Direct

With the exception of retrofit of the Schuyler Heim Bridge, this alternative is similar to Alternative 1. This alternative would involve slightly more construction activity due to retrofit of the existing bridge, plus construction of a new replacement bridge and expressway. However, the retrofit activities would occur within the right-of-way of the existing bridge and would not be in the vicinity of any community areas. For this reason, no adverse effects are anticipated.

Indirect

Under Alternative 3, indirect effects would be similar to those described for Alternative 1.

Operations Effects

Under Alternative 3, permanent direct and indirect effects would be similar to those described for Alternative 1. Adverse effects are not anticipated.

3.3.1.3.3.4 Alternative 4: Bridge Replacement Only

Construction Effects

Construction of Alternative 4 would be limited to demolition of the existing bridge and construction of a new bridge. No roadway improvements or extensions would occur, and the flyover would not be constructed. Under this alternative, there would be no construction in the vicinity of the project area communities. Therefore, no adverse effects are anticipated.

Direct

No construction would take place in the vicinity of communities in Wilmington, Long Beach and Carson. Construction of the new bridge would not disrupt any communities.

Indirect

The construction site and staging area would be located far from the communities. No indirect effects related to noise, visual resources, and/or air quality would occur.

Operations Effects

Direct

The existing bridge does not meet current seismic criteria. Construction of the new bridge would ensure the safety of vehicles using it. No other direct effects would result.

Indirect

The new bridge may result in better flow of vehicles across the Cerritos Channel and may reduce bottleneck issues due to replacement of the lift bridge. This would be an overall beneficial effect for the transportation network in this area.

Under Alternative 3, indirect effects would be similar to those described for Alternative 1. No other indirect effects on the communities are anticipated.

3.3.1.3.3.5 Alternative 5: Transportation System Management

Construction Effects

Construction effects would result from roadway improvements such as restriping of lanes and road widening. These improvements may not be limited to one roadway; however, it is anticipated that improvements would be phased or staggered.

Direct

Depending on where the road widening would take place, the level of effects to the neighboring community would vary. If improvements are located on Alameda Street, SR-103, Willow Street, and/or Pacific Coast Highway, they are likely to result in minor traffic disruptions that may affect local communities. However, lane widening and restriping projects typically can be completed fairly quickly, and therefore, the disruptions would be for a relatively short period of time. No adverse effects would occur.

Indirect

No indirect effects are anticipated. The physical improvements/construction would be minor in nature. The traffic management techniques would not result in any indirect effects as construction would be minimal.

Operations Effects

The TSM Alternative would not result in any adverse effects, and the community would benefit from improvements in traffic conditions associated with this alternative.

Direct

Under this alternative, the traffic system in the area would be improved. However, the Schuyler Heim Bridge would continue to operate and pose a threat in the event of a major earthquake. Also, it would operate at current capacity, which is not sufficient to meet demands of the growing traffic. For these reasons, this TSM Alternative has a potential to result in adverse effects to the general population and not just the neighboring community in particular.

Indirect

The TSM measures would only provide congestion relief up to a certain roadway network capacity. In the future, as the traffic continues to increase, congestion conditions could occur. However, these conditions would primarily affect travel to and from the Ports, with some effects to the surrounding community, depending on effects to specific local traffic patterns.

3.3.1.3.3.6 Alternative 6: No Build

Construction Effects

Under Alternative 6, no direct or indirect construction effects would occur.

Operations Effects

The Schuyler Heim Bridge is expected to continue to deteriorate over time as its useful life is eroded further and as various magnitude earthquakes are experienced. At some point in the future, the bridge may need to be demolished and replaced solely to avoid safety hazards.

Direct

The bridge would continue to operate under capacity, and existing congestion conditions would continue. Additionally, the bridge is not seismically retrofitted; it therefore poses a safety hazard. The bridge would pose safety hazards for the general population using the bridge. However, the bridge does not provide a link between communities and therefore would not result in specific impacts on the neighboring community.

Indirect

No indirect effects would occur.

3.3.1.3.4 CEQA Consequences

Based on the information provided in the above analysis, when considered in the context of CEQA criteria, none of the six project alternatives would have impacts related to population growth. Under Alternatives 1 and 3, potential displacement of residents in the Leeward Bay Marina would be less than significant.

Potential impacts of the proposed project alternatives to the character and cohesion of the surrounding community are assessed in the context of CEQA criteria in Appendix A – CEQA Checklist (XII, Population and Housing).

3.3.1.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance, minimization, and/or mitigation measures would be implemented for identified impacts that have the potential to affect community character and cohesion: see Sections 3.5 – Traffic and Transportation; 3.7 – Visual Resources/Aesthetics; 3.13 – Air Quality; and 3.14 - Noise.

3.3.2 Relocations

3.3.2.1 Regulatory Setting

Several federal and state laws govern property acquisition procedures. The Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, as amended (Uniform Act), mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced as a direct result of programs or projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment of persons displaced from their homes or businesses who are eligible for assistance, and establishes uniform and equitable land acquisition policies. Generally, the Uniform Act requires that all aspects of property acquisition, including notice, appraisal, negotiation, and payment, be as reasonable and fair as possible and be handled as expeditiously as practicable.

According to Section 6018 of the Relocation Assistance and Real Property Acquisitions Guidelines (California Code of Regulations, Title 25, Section 1.6), the provisions of the California Relocation Act (California Act) (Government Code sections 7260-7277) shall apply in the absence of federal funds and/or involvement if a public entity undertakes a project and consequently must provide relocation assistance and benefits. The California Act, which is consistent with the intent and guidelines of the Uniform Act, seeks to: ensure the consistent and fair treatment of owners of real property; encourage and expedite acquisitions by agreement to avoid litigation and relieve congestion in the courts; and promote confidence in public land acquisitions.

The Uniform Act requires both financial assistance and programmatic assistance to eligible displaced persons, businesses, and non-profits, as described below.

The Relocation and Assistance Program (RAP) implemented by California Department of Transportation (Caltrans) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix E for a summary of the Draft Relocation Impact Report.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix D for a copy of the Department's Title VI Policy Statement.

3.3.2.1.1 Financial Assistance

Eligible displaced businesses and non-profit organizations are entitled to compensation for: reasonable moving expenses; direct losses of tangible personal property (not to exceed the cost of moving such property); expenses of searching for replacement property; and expenses of reestablishing a small business or non-profit organization (not to exceed $10,000). In lieu of the foregoing payments, a displaced business or non-profit can elect to receive a fixed relocation assistance payment of between $1,000 and $20,000.

3.3.2.1.2 Programmatic Assistance

Eligible displaced persons, businesses, and non-profit organizations are entitled to certain programmatic assistance in addition to monetary compensation. This assistance takes the form of coordinated relocation planning and counseling and may include recommendations on replacement housing or new business locations, information on other government assistance programs, and any other advisory services that may minimize the hardships of relocation. Programmatic assistance also would include the provision of certain "last resort" housing in the event that comparable replacement housing that is decent, safe, and sanitary is not available to displaced persons.

3.3.2.2 Affected Environment

The project alignments are located in an area that is intensely developed with heavy industrial, commercial, and transportation uses associated with the nearby Ports of Los Angeles and Long Beach. Residential neighborhoods are primarily located east of SR-103, and west of Alameda Street.

A large portion of the area in the vicinity of the project alternatives is owned by the Ports of Long Beach and Los Angeles.

3.3.2.3 Environmental Consequences

3.3.2.3.1 Evaluation Criteria

The proposed project alternatives were evaluated to determine if they would:

- Require residential property acquisitions and displacements so substantial as to disrupt the pattern and/or rate of existing and planned population and housing growth.
- Require non-residential property acquisitions and displacements so substantial as to disrupt the pattern and/or rate of existing and planned population and housing growth.

Temporary construction easements are defined as those acquisitions of property necessary to permit temporary occupancy of the property for construction staging and equipment storage areas, and for access to utilities and construction sites not otherwise accessible through public rights-of-way.

Permanent highway easements are defined as land that is encumbered by a permanent easement for as long as it is needed for highway purposes. When the highway need no longer exists, the land reverts to the underlying fee owner.

Permanent acquisitions include both full acquisitions of property, where an entire parcel would be acquired, and partial acquisitions of property, where only a portion of existing land, landscaping, parking, and/or structure would be acquired.

3.3.2.3.2 Methodology

Several types of acquisitions could occur for the proposed action. Implementation of one of the build alternatives (Alternative 1, 1A, 2, 3, 4) would involve permanent acquisition of properties and/or possible displacement of businesses located on those properties. In addition, permanent easements would be required in many locations. Any acquisitions, displacements, and easements related to construction of the proposed SR-47 Expressway, SR-103 Extension, or flyover are considered temporary in nature. The acquisitions, displacements, and easements necessary for operation of the proposed corridor are considered to be permanent.

A Draft Relocation Impact Report was prepared for the project; most of the information herein is from this report. To assess potential impacts, the parcels that would need to be acquired for the build alternatives were reviewed for the following circumstances.

- Whether the acquisition would be permanent or temporary
- What type of acquisition would be required (full acquisition or easement)
- Whether the acquisition would include relocation.

3.3.2.3.3 Evaluation of Alternatives

The project alternatives would not result in acquisition of residential properties. No residents would be displaced as a result of the project. It is anticipated that, under Alternatives 1, 1A, and 3, six boat slips would be acquired at the Leeward Bay Marina in the Port of Los Angeles, resulting in displacement of one resident. However, live-aboard residents at the Leeward Bay Marina rent slips on a month-to-month basis. According to the rental agreements, the Port can give these tenants 30 days advance notice to vacate for any reason, and the Port is not required to provide compensation (Caltrans, 2006). Several businesses may need to be acquired and relocated as a result of the project alternatives. The types of acquisitions and relocations are described under each alternative below.

3.3.2.3.3.1 Alternative 1: Bridge Replacement and SR-47 Expressway

Construction Effects

During construction, temporary construction easements would be required to serve as staging areas, material lay down areas, and other, similar, uses.

Alternative 1

Direct

All construction easements would be temporary. A 3.05-m (10-ft)-wide temporary construction easement for the limits of the aerial structure would be required. A right of entry for access and construction is required for the affected port properties. In cases where the temporary construction easement would affect an existing building, a lesser-width temporary construction easement would be used to avoid impinging on the building. No residential properties would be used for temporary construction easement. Six boat slips would be acquired at the Leeward Bay Marina.

There would be 82 temporary construction easements which may result in inconvenience to the property users/owners whose property is being used to accommodate construction of Alternative 1. However, the use and function of the businesses would remain unchanged and unaffected by these temporary easements.

Indirect

No indirect effects are identified.

Alternative 1A

Alternative 1A differs from Alternative 1 only in design of the new replacement bridge. Temporary construction easements for Alternative 1A would be the same as those described for Alternative 1.

Under Alternative 1A, construction direct and indirect effects would be the same as those described for Alternative 1.

Operations Effects

Alternative 1

Direct

Alternative 1 would result in permanent full acquisition of six businesses located on 11 parcels. These six businesses would have to be provided relocation assistance (see Tables 3.3-3 and 3.3-4). The businesses that would be relocated are machine shops, auto body shops, recycling, and container storage type uses, which generally are not compatible with residential and office commercial uses. The area in the vicinity of the Ports has been developed as an industrial area suitable for locating such businesses due to a lack of residential uses. Industrial uses may be considered undesirable due to issues related to use of hazardous materials, contamination, and noise/traffic nuisances. For this reason, the relocation of businesses would likely have to occur in an area where other such uses exist. If the relocated businesses could not be relocated within the Ports area, locations outside Los Angeles County would be considered.

Relocation activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to eligible recipients without discrimination.

There would also be permanent highway easements of approximately 129 partial takes (aerial/highway easements) (Table 3.3-5). Highway and aerial easements would be required along most of the SR-47 alignment. The right-of way takes include a 4.57-m (15-ft)-wide area from the drip line for aerial easements, and 3.05-m (10-ft)-wide highway easements where the structure is at-grade and directly under the structure when it is above grade.

Fee acquisition or permanent easements would be required where structural columns are located on private property. Permanent easements would accommodate the columns above ground and the foundations below grade.

Alternative 1 would require permanent full acquisition of 6,985 square (sq) m (75,181 sq ft). Details are provided in Table 3.3-3.

Based on the type of business, the number of employees displaced as a result of full acquisitions was estimated using employee generation factors taken from *The Fiscal Impact Handbook* (Burchell & Listokin, 1978).

Light Industrial use is the principal property type that would be displaced under Alternative 1. This alternative would displace 11 parcels, a total of 6,985 sq m (75,181 sf), and would result in the displacement of 100 employees (see Table 3.3-4).

Table 3.3-3
Permanent Full Acquisitions

Alternative 1*					
APN	**Address**	**Owner**	**Land Use**	**Type of Business**	**Area (sf)**
7428-005-014	1622 E Denni Street	Waterman Trust	Commercial/ Industrial	Recycling	5,140
7428-005-013	1100 N. Henry Ford Ave	Griselda Canaday Trust	Commercial/ Industrial	Not available	5,401
7428-005-028	1635 E. Denni Street	Eyraud Trust	Commercial/ Industrial	Materials, transportation systems and facilities management	5,543
7428-005-025	1120 N. Henry Ford Ave	Moine, Charles A	Commercial/ Industrial	Recycling	25,091
7428-001-036	1800 E. Pacific Coast Hwy.	Waterman Trust	Commercial/ Industrial	Truck Wash	8,742
7315-018-015	Not Available	Waterman Trust	Vacant	Not available	3,964
7315-018-016	Not Available	Waterman Trust	Vacant	Not available	4,443
7315-018-012	Not Available	Waterman Trust	Vacant	Not available	4,051
7315-018-013	Not Available	Waterman Trust	Vacant	Not available	4,530
7315-018-014	Not Available	Waterman Trust	Vacant	Not available	3,441
7315-018-017	1815 E. Colon Street	Waterman Trust	Commercial/ Industrial	Transportation company repair shop	4,835

*Permanent full acquisitions for Alternative 1A and 3 are the same as for Alternative 1.
Source: Alameda Corridor Transportation Authority, 2007.

Table 3.3-4
Full Acquisitions of Non-Residential Properties (Parcels)

Alternative 1			
	Number of Parcels	Square Feet	Number of Employees Displaced
Office	–	–	–
Industrial (Light)	6	54,752 sf	100
Parking	–	–	–
Vacant	5	20,429 sf	
Total	11	75,181	100

Employee displacement was calculated using the following factors: office – 1:250 sf and industrial – 1:525 sf (derived as an average of 1:300 sf for industrial plants and 1:750 sf for warehouses)

Source: Caltrans, 2007.

Table 3.3-5
Partial Acquisitions Required for Alternative 1

Item No	APN (Assumed Larger Parcel)	Owner/ Grantor	Area Acquired (Sq Ft.)
1	7436-029-906	City of Long Beach	5,511
2	7436-029-906	City of Long Beach	280
3	7436-029-906	City of Long Beach	2,024
4	7436-029-906	City of Long Beach	2,228
5	7436-029-906	City of Long Beach	280
6	7436-029-906	City of Long Beach	872
7	7436-029-914	City of Long Beach	7,416
8	7436-029-906	City of Long Beach	3,014
9	7436-029-906	City of Long Beach	958
10	7436-029-914	City of Long Beach	53,981
11	7436-029-914	City of Long Beach	16,157
12	7436-029-914	City of Long Beach	700
13	7436-029-914	City of Long Beach	775
14	7436-029-906	City of Long Beach (Rail)	248
15	7436-029-914	City of Long Beach (Rail)	2,260
16	7436-029-923	City of Long Beach	334
17	7436-029-923	City of Long Beach	183
18	7436-029-917	City of Long Beach	13,681
19	7436-029-917	City of Long Beach	1,109
20	7436-029-917	City of Long Beach	1,722
21	7436-029-917	City of Long Beach	1,647
22	7436-029-917	City of Long Beach	527
23	7436-029-923	City of Long Beach	969
24	7436-029-923	City of Long Beach	183
25	7436-029-923	City of Long Beach	893

Table 3.3-5
Partial Acquisitions Required for Alternative 1

Item No	APN (Assumed Larger Parcel)	Owner/ Grantor	Area Acquired (Sq Ft.)
26	7436-029-923	City of Long Beach	2,174
27	7436-029-923	City of Long Beach	474
28	7436-029-919	Vopak Terminal Long Beach*	215
29	7436-029-917	City of Long Beach	22
30	Street	City of Long Beach	581
31	7436-011-900	LACFCD	36,544
32	7436-011-900	LACFCD	9,892
33	7436-003-261	City of Long Beach	6,738
34	7436-003-261	City of Long Beach	25,511
35	7440-003-261, 906	City of Long Beach	13,358
36	7440-003-261, 906	City of Long Beach	77,490
37	7440-003-261	City of Long Beach	5,608
38	7440-003-281	City of Long Beach	9,784
39	7440-003-281	City of Long Beach	39,385
40	7436-029-917	City of Long Beach	1,087
41	7436-029-917	City of Long Beach	614
42	7436-029-917	City of Long Beach	97
43	7440-003-272	City of Long Beach	3,326
44	7440-003-272	City of Long Beach	8,224
45	7440-004-270	City of Long Beach	1,841
46	7440-004-270	City of Long Beach	2,185
47	7440-001-270	City of Long Beach	2,648
48	7440-001-270	City of Long Beach	10,430
49	7440-001-911	City of Long Beach	2,486
50	7440-001-911	City of Long Beach	17,524
51	7440-001-911	City of Long Beach	2,756
52	7440-001-912(?)	City of Los Angeles	624
53	7440-001-xxx	City of Los Angeles	3,972
54	7440-001-xxx	City of Los Angeles	624
55	7440-001-912	City of Los Angeles	2,508
56	7440-001-912	City of Los Angeles	20,473
57	7440-001-912	City of Los Angeles	3,810
58	7440-001-806	City of Los Angeles	355
59	7440-001-806	City of Los Angeles	2,110
60	7440-001-806	City of Los Angeles	323
61	7440-002-823	City of Los Angeles	4,521
62	7440-002-823	City of Los Angeles	23,799
63	7440-002-823	City of Los Angeles	818
64	7440-001-912	City of Los Angeles	6,760
65	7440-001-912	City of Los Angeles	65,445

Table 3.3-5
Partial Acquisitions Required for Alternative 1

Item No	APN (Assumed Larger Parcel)	Owner/ Grantor	Area Acquired (Sq Ft.)
66	7440-001-912	City of Los Angeles	12,874
67	7428-037-019	Sher Brothers	603
68	7428-037-007, 008	Fishfader Trust	474
69	7428-037-900, 901, 902, 903	City of Los Angeles	1,001
0	7428-045-001, 023	Kim Trust	883
71	7428-045-024	M. Chaney Jones	215
72	7428-045-900	City of Los Angeles	980
73	7490-002-908	City of Los Angeles	43
74	7425-043-052	Frederick Voigt	194
75	7425-043-019, 055	Jose & Discordia Canales	194
76	7425-043-056	Armando and Rebeca Serna	183
77	7425-043-050	Bergman Trust	183
78	7425-043-018, 017, 047, 048, 051	Mork Trust	484
79	7425-042-009,025, 026, 027, 028, 029, 030, 031, 032	Union Mutualista De San Jose	915
80	7428-033-904, 905, 906	City of Los Angeles	1,216
81	7428-033-045, 046, 047, 048	Ramirez & Gonzales	2,013
82	7428-033-910, 911	City of Los Angeles	969
83	7428-031-029	SWM No One LLC	2,637
84	7425-041-002, 009, 010 (006?)	Waterman Trust	377
85	7428-005-009, 029, 030	Eyraud Enterprises	3,983
86	7428-005-009, 029, 030	Eyraud Enterprises	194
87	7428-005-014	Canady Trust (or Gizelda Degrazia/ TR?)	3,488
88	7428-005-025	Moine Trust	9,483
89	7428-004-902	City of Los Angeles and City of Long Beach	6,469
90	7428-004-902	City of Los Angeles and City of Long Beach	16,620
91	7428-004-902	City of Los Angeles and City of Long Beach	118
92	7428-004-902	City of Los Angeles and City of Long Beach	6,469
93	7428-004-900	City of Los Angeles	2,551
94	7428-004-900	City of Los Angeles	118
95	7428-004-900	City of Los Angeles	7,858
96	7428-003-001, 002, 003, 004, 005	Ted R. and Theodore Smith	1,647
97	7428-003-001, 002, 003, 004, 005	Ted R. and Theodore Smith	6,760

Table 3.3-5
Partial Acquisitions Required for Alternative 1

Item No	APN (Assumed Larger Parcel)	Owner/ Grantor	Area Acquired (Sq Ft.)
98	7428-003-034, 035, 036, 037, 038, 039, 048, 049	Steinmeyer Trust	1,421
99	7428-003-034, 035, 036, 037, 038, 039, 048, 049	Steinmeyer Trust	5,576
100	7428-002-004, 005, 035, 036, 037, 038	Frank Dupuy	2,863
101	7428-002-004, 005, 035, 036, 037, 038	Frank Dupuy	11,582
102	7315-019-001, 002, 004, 005	Fuel Engineering	21,560
103	7440-002-917	City of Long Beach	33,573
104	7440-001-823 7440-001-912	City of Los Angeles	19,816
105	7428-004-902	City of Los Angeles City of Long Beach	32,389
106	7436-029-923	City of Long Beach	8,859
107	7440-021-913	US Govt (Navy)	5,038
108	7440-021-913	US Govt (Navy)	9,097
109	7436-032-907	COLB	68,814
110	7436-032-907	COLB	31,764
111	7436-032-907	COLB	14,639
112	7436-032-904	US Govt (transferred to COLB)	26,372
113	7436-032-904	US Govt (transferred to COLB)	9,655
114	7436-032-904	US Govt (transferred to COLB)	9,343
115	7436-032-800	SC Edison (transferred to COLB)	4,402
116	7436-032-800	SC Edison (transferred to COLB)	1,496
117	7436-032-800	SC Edison (transferred to COLB)	1,841
118	7436-032-901	COLB	7,847
119	7436-032-901	COLB	3,897
120	7436-032-901	COLB	1,690
121		COLB	5,586
122	7436-029-914	COLB	506
123	7436-029-914	COLB	12,432
124	7436-029-914	COLB	4,349
125	7436-029-914	COLB	775
126	7436-029-917	COLB	3,875
127	N/A	Exist Street ROW	19,773
128	7315-010-002	Mo Trust	2,260
129	7315-010-009	Hertz Equipment Rental Co.	3,294

Source: Alameda Corridor Transportation Authority, 2007

It is likely that displaced employees would relocate with the business or find employment in the vicinity, where similar types of uses and industries exist. If businesses are relocated in the vicinity of the displaced property, it is likely that no employees would be displaced.

Indirect

If the businesses are not able to relocate within the same jurisdiction, this could result in loss of tax revenue. However, no adverse effect is anticipated.

Alternative 1A

Under Alternative 1A, displacements would be the same as under Alternative 1, and direct and indirect permanent effects also would be the same as under Alternative 1.

3.3.2.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

For Alternative 2, a large portion of the right-of-way is owned by UPRR, Southern California Edison, and the Port of Los Angeles.

Highway and aerial easements would be required along almost the entire length of SR-103 for this alternative. Right-of-way takes include a 4.6-m (15-ft)-wide area from the drip line for aerial easements, 3.05-m (10-ft)-wide highway easements where the structure is at-grade, and under the structure when it is above grade. In addition, a 3.05-m (10-ft)-wide temporary construction easement would be required for the limits of the aerial structure.

Fee acquisition or permanent easements are required where structure columns are located on private property. A right of entry for access and construction would be provided for the affected Port properties.

Construction Effects

During construction, 73 temporary construction easements would be required to serve as staging areas, material lay down areas, and other, similar, uses.

Direct

Temporary construction easements would result in minor disturbance to the property owners, but would not affect use of the properties by the owners. No residential properties would be required for construction easement.

Indirect

No indirect effects are identified.

Operations Effects

Operations effects would occur as a result of permanent acquisitions and permanent easements.

Direct

Under Alternative 2, there would be no full takes of any residential or non-residential property. However, two buildings would be acquired as permanent highway easements, thereby denying them of their existing use for business. One of these businesses is owned by Corridor Properties, and the other is an industrial building owned by Southern California Edison. In the after-condition, the highway easements could allow for temporary uses, such as parking, temporary structures such as storage sheds or trailers, and storage of nonhazardous materials. There are 118 partial parcel takes (aerial/permanent highway easements) expected as a result of Alternative 2 (see Table 3.3-6).

Indirect

If the businesses are not able to relocate within the same jurisdiction, this could result in loss of tax revenue. However, no adverse effect is anticipated.

Table 3.3-6
Partial Acquisitions Under Alternative 2

Item No	APN	Owner/ Grantor	Area Acquired (Sq. M.)
1	7315-021-270, 901	City of Long Beach and City of Los Angeles	3,057
2	7315-021-270, 901	City of Long Beach and City of Los Angeles	15,629
3	7315-021-270, 901	City of Long Beach and City of Los Angeles	3,789
4	7315-016-801, 804, 805	SCE	7,998
5	7315-021-801	SCE	44,972
6	7315-021-801	SCE	11,668
7	7315-015-905	City of Los Angeles	11,991
8	7315-015-905	City of Los Angeles	64,024
9	7315-015-905	City of Los Angeles	18,051
10	7315-015-012	Watson Land Co	915
11	7315-015-012	Watson Land Co	527
12	Street	City of Carson (E. Sepulveda Blvd.)	12,766
13	Street	City of Carson (E. Sepulveda Blvd.)	4,456
14	7315-011-805	SPRR (UPRR)	21,980
15	7315-011-805	SPRR (UPRR)	42,755
16	7315-011-805	SPRR (UPRR)	5,307
17	Street	City of Carson (Intermodal Wy)	2,077
18	Street	City of Carson (Intermodal Wy)	1,647
19	Street	City of Carson (Intermodal Wy)	36,759
20	Street	City of Carson (Intermodal Wy)	5,554
21	Street	City of Carson (Intermodal Wy)	807
22	Street	City of Carson (Intermodal Wy)	14,661
23	7315-011-013	Watson Land Co	6,857
24	7315-011-013	Watson Land Co	6,889
25	7315-011-807, 808, 811, 812, 814, 815	SPRR (UPRR)	59,267
26	7315-011-807, 808, 811, 812, 814, 817	SPRR (UPRR)	290,122

Table 3.3-6
Partial Acquisitions Under Alternative 2

Item No	APN	Owner/ Grantor	Area Acquired (Sq. M.)
27	7315-011-807, 808, 811, 812, 814, 818	SPRR (UPRR)	10,775
28	7315-011-812, 814, 815	SPRR (UPRR)	37,060
29	7315-011-807	SPRR (UPRR)	1,001
30	7315-011-021	Watson Land Co	6,588
31	7315-011-021	Watson Land Co	38,341
32	7315-011-021	Watson Land Co	19,903
33	Street	City of Los Angeles (S. Alameda St.)	12,271
34	Street	City of Los Angeles (S. Alameda St.)	5,533
35	7315-010-005	Myron Chlavin and Rae Desser Estate	2,185
36	7315-010-005	Myron Chlavin and Rae Desser Estate	27,427
37	7315-010-005	Myron Chlavin and Rae Desser Estate	51,323
38	7315-010-005	Myron Chlavin and Rae Desser Estate	4,446
39	7315-010-008	Corridor Properties	30,903
40	7315-010-008	Corridor Properties	6,297
41	7315-010-002	Mo Trust	7,546
42	7315-010-009	Hertz Equipt. Rental Corp.	9,720
43	7436-029-906	City of Long Beach	5,543
44	7436-029-906	City of Long Beach	280
45	7436-029-906	City of Long Beach	3,444
46	7436-029-906	City of Long Beach	205
47	7436-029-906	City of Long Beach	1,389
48	7436-029-906	City of Long Beach	2,024
49	7436-029-906	City of Long Beach	4,209
50	7436-029-906	City of Long Beach	10,592
51	7436-029-906	City of Long Beach	2,605
52	7436-029-906	City of Long Beach	818
53	7436-029-906	City of Long Beach	16,609
54	7436-029-906	City of Long Beach	53,626
55	7436-029-906	City of Long Beach	7,007
56	7436-029-906	City of Long Beach	6,189
57	7436-029-906	City of Long Beach	10,592
58	7436-029-906	City of Long Beach	5,533

Table 3.3-6
Partial Acquisitions Under Alternative 2

Item No	APN	Owner/ Grantor	Area Acquired (Sq. M.)
59	7436-029-906	City of Long Beach	4,596
60	7436-029-914	City of Long Beach	161
61	7436-029-914	City of Long Beach	172
62	7436-029-914	City of Long Beach	248
63	7436-029-914	City of Long Beach	118
64	7436-029-914	City of Long Beach	54
65	7436-029-914	City of Long Beach	280
66	7436-029-914	City of Long Beach	183
67	7436-029-914	City of Long Beach	355
68	7436-029-914	City of Long Beach	205
69	7436-029-914	City of Long Beach	614
70	7436-029-914	City of Long Beach	355
71	7436-029-923	City of Long Beach	334
72	7436-029-923	City of Long Beach	484
73	7436-029-923	City of Long Beach	258
74	7436-029-923	City of Long Beach	151
75	7436-029-917	City of Long Beach	5,909
76	7436-029-917	City of Long Beach	1,701
77	7436-029-923	City of Long Beach	5,899
78	7436-029-923	City of Long Beach	484
79	7436-029-923	City of Long Beach	1,496
80	7436-029-923	City of Long Beach	1,044
81	7436-029-019	Vopak Terminal Long Beach, Inc.	2,325
82	7436-029-019	Vopak Terminal Long Beach, Inc.	1,421
83	7436-029-917	City of Long Beach	1,873
84	7436-029-917	City of Long Beach	2,250
85	7436-029-923	City of Long Beach	6,932
86	7436-029-923	City of Long Beach	3,305
87	7436-029-923	City of Long Beach	24,639
88		City of Long Beach	2,325
89		City of Long Beach	129
90	7436-011-900	LACFCD	9,074
91	7436-011-900	LACFCD	36,576
92	7436-003-261	City of Long Beach	6,706
93	7436-003-261	City of Long Beach	26,921
94	7436-003-261	City of Long Beach	17,933

Table 3.3-6
Partial Acquisitions Under Alternative 2

Item No	APN	Owner/ Grantor	Area Acquired (Sq. M.)
95	7436-003-261	City of Long Beach	25,457
96	7436-003-281	City of Long Beach	893
97	7440-021-913	US Govt (Navy)	5,038
98	7440-021-913	US Govt (Navy)	9,096
99	7436-032-907	COLB	68,814
100	7436-032-907	COLB	31,764
101	7436-032-907	COLB	14,639
102	7436-032-904	US Govt (transferred to COLB)	26,372
103	7436-032-904	US Govt (transferred to COLB)	9,655
104	7436-032-904	US Govt (transferred to COLB)	9,343
105	7436-032-800	SC Edison (transferred to COLB)	4,402
106	7436-032-800	SC Edison (transferred to COLB)	1,496
107	7436-032-800	SC Edison (transferred to COLB)	1,841
108	7436-032-901	COLB	8,267
109	7436-032-901	COLB	4,026
110	7436-032-901	COLB	1,862
111		COLB	5,586
112	7436-029-914	COLB	506
113	7436-029-914	COLB	12,432
114	7436-029-914	COLB	4,349
115	7436-029-914	COLB	775
116	7436-029-917	COLB	1,615
117	N/A	Exist Street ROW	15,705
118	7315-010-800	Southern Pacific (UPRR)	840

Source: Alameda Corridor Transportation Authority, 2007

3.3.2.3.3.3 Alternative 3: Bridge Demolition Avoidance

Most of the Alternative 3 alignment, including the flyover, is similar to Alternative 1, except it proceeds easterly to avoid the existing Schuyler Heim Bridge and swings back westerly to join the existing Terminal Island Freeway. For Alternative 3, a major portion of the required right-of-way is owned by either the Port of Long Beach or a private property owner named Ultramar.

Construction Effects

During construction, 41 temporary construction easements would be required to serve as staging areas, material lay down areas, and other, similar, uses.

Operations Effects
There would be 61 partial parcel takes (aerial/permanent highway easements) expected as a result of Alternative 3. Under this alternative, there would be no residential or non-residential displacements requiring relocation.

3.3.2.3.3.4 Alternative 4: Bridge Replacement Only

Construction Effects

Direct

This alternative would require 8 temporary construction easements only for replacement of the existing Schuyler Heim Bridge. Land in the vicinity of the bridge is owned primarily by the Ports of Long Beach and Los Angeles. Construction of the replacement bridge would require eight temporary construction easements. Similar to Alternative 1, there would be no permanent residential acquisitions and, therefore, no residential displacements associated with the project construction.

Indirect

No indirect effects would occur.

Operations Effects
There would be operational easements of approximately 17 partial takes (aerial/highway easements) for Alternative 4.

3.3.2.3.3.5 Alternative 5: Transportation System Management
Under Alternative 5, no easements or acquisitions are anticipated. As a result, there would be no construction or operations effects related to relocations under this alternative.

3.3.2.3.3.6 Alternative 6: No Build
The project would not be constructed under the No Build alternative. No relocations would occur. As a result, there would be no construction or operations effects related to relocations under this alternative.

3.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

3.3.2.4.1 Avoidance and Minimization Measures

3.3.2.4.1.1 Alternatives 1, 1A, and 3
CI-1 Provide relocation assistance or compensation to eligible persons and businesses in accordance with the federal *Uniform Relocation Assistance and Property Acquisition Act of 1970*, as amended (42 USC Sections 4601-4655) and the *California Relocation Act* (California Government Code, Section 7260 et. seq.)

3.3.2.4.1.2 Alternative 2
See **CI-1** under Alternative 1, above.

3.3.2.4.1.3 Alternative 3
See **CI-1** under Alternative 1, above.

3.3.2.4.1.4 Alternative 4
See **CI-1** under Alternative 1, above.

3.3.2.4.2 Alternatives 5 and 6
Under Alternatives 5 and 6, no avoidance and minimization measures would be required.

3.3.2.4.3 Mitigation Measures

No mitigation measures would be required.

3.3.3 Environmental Justice

3.3.3.1 Regulatory Setting

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, signed by President Clinton on February 11, 1994, directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse human health or environmental effects of federal projects and programs on minority and low-income populations to the greatest extent practicable and permitted by law. The term "minority" includes persons who identify themselves as Black, Asian/Pacific Islander, Native American, or of Hispanic origin. The term "low-income" includes persons whose household income is at or below the HHS poverty guidelines. A different threshold (e.g., U.S. Census Bureau poverty threshold) may be utilized as long as it is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines. For 1999, this was $17,029 for a family of four and for 2007 was $20,650. All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in the proposed project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix D of this document.

3.3.3.2 Affected Environment

As noted in Section 3.2, the population of the project study area is characterized by substantial proportions of both minority and low-income persons (i.e., 82 percent minority, as many as 77 percent of persons below the poverty threshold in some areas). The proportions of these groups in the project area are much greater than in either the City or County of Los Angeles. Other indicators of a disadvantaged community also appear in the data (e.g., higher proportions of persons under 18 years of age and above 65, and greater housing density as measured by persons per household). In addition, given the relatively large proportions of minority and low-income persons reported in the U.S. Census tract and block group data for the project study area, it appears that these populations are in readily identifiable groups rather than dispersed in pockets throughout the greater area.

3.3.3.3 Environmental Consequences

3.3.3.3.1 Evaluation Criteria

The environmental justice analysis has been prepared in accordance with the applicable guidance for addressing environmental justice, including: DOT Order 5610.2 (April 15, 1997); FHWA Order 6640.23 (December 2, 1998); and FHWA Western Resource Center Interim Guidance (March 2, 1999). Consistent with this guidance, the environmental justice analysis evaluates the proposed project based on:

- Potential adverse effects on the project area population, including minority and low-income population groups; and
- Disproportionately high and adverse effects on minority and low-income population groups.

3.3.3.3.2 Methodology

The environmental justice analysis for the proposed project describes:

- The existing population and the presence of minority and low-income population groups
- Potential adverse effects on the project area population, including minority and low-income population groups
- Disproportionately high and adverse effects on minority and low-income population groups
- Community outreach and public involvement efforts

3.3.3.3.3 Evaluation of Alternatives

3.3.3.3.3.1 Existing Population Characteristics

Please refer to the discussion of affected environment in Section 3.3.1.2.

3.3.3.3.3.2 Adverse Effects to Overall Population

Technical studies and analyses supporting the EIS/EIR have been reviewed to determine whether the project alternatives would have any adverse effects on all segments of the population, including minority and low-income population groups. The technical studies addressing air and water quality, noise, traffic and transportation, hazardous materials, and cultural resources indicate that some potential adverse effects are expected as a result of Alternatives 1, 1A, 2, 3, and 4. The impacts identified in these technical reports and the measures to avoid or reduce them can be summarized as follows:

Noise – Alternatives 1, 1A, 2, 3, and 4

- Construction of Alternatives 1, 1A, 2, 3, and 4 would generate short-term noise, including noise from pile driving, at nearby sensitive receptors. This noise will be abated to the extent feasible.
- Pile driving will be restricted to daytime hours.
- Residents of Anchorage Way Marinas and Leeward Bay Marina who are identified as being adversely affected by pile driving noise would be able to obtain hotel vouchers for a local hotel so they can temporarily move.
- For operation of Alternatives 1, 1A, 2, and 3, permanent noise walls have been proposed for abatement at appropriate locations, based on the noise study conducted for the project.
- See the Noise analysis in Section 3.14 of this Draft EIS/EIR.

Traffic and Transportation – Alternatives 1, 1A, 2, 3, and 4

- During project construction, where there are lane closures of the Schuyler Heim Bridge, some traffic is expected to divert to I-110 or I-710. When these routes are operating at acceptable levels of service (LOS D or better), no congestion is anticipated. However, when I-110 and I-710 are operating at LOS E or LOS F, the addition of traffic diverted from the Schuyler Heim Bridge may result in added congestion and delays on these routes.
- TMP will be prepared to enhance traffic movement during construction.

- See the Traffic and Transportation analysis in Section 3.5 of this Draft EIS/EIR.

Air Quality – Alternatives 1, 1A, 2, 3, and 4

- During construction, operation of onsite heavy-duty construction equipment, earth-moving activities, vehicle trips by employees, rerouting of automobile traffic during construction, and asphalt paving would generate emissions of nitrogen oxides (NO_X), volatile organic compounds (VOC), or reactive organic gases (ROG), PM_{10}, $PM_{2.5}$, sulfur oxides (SO_X), and CO. These emissions would have a temporary but adverse air quality impact.
- Best Management Practices (BMPs) have been proposed that include application of soil stabilizers, reduction of vehicle speed, a trip reduction plan, and other measures to reduce emissions.
- The project is not expected to cause any direct adverse air quality impacts during operations. However, indirect adverse air quality impacts would occur due to emissions from marine vessels that would not be able to pass under the new fixed-span bridge and, instead, would be required to circumnavigate Terminal Island.
- See the Air Quality analysis in Section 3.13 of this Draft EIS/EIR.

Hazardous Materials – Alternatives 1, 1A, 2, 3, and 4

- During construction, excavation, drilling, and/or removal of aboveground structures could encounter hazardous materials, with resulting exposure of workers or the public and/or the release of hazardous materials to offsite locations.
- Standard engineering practices and BMPs would be followed, including, but not limited to, soil and groundwater sampling, predemolition surveys for asbestos-containing material and lead-based paint. Considerations for Alternative 2 include soil and groundwater investigations and soil investigations for aerially deposited lead. Based on these practices and procedures, no adverse effects would occur.
- See the Hazardous Waste/Hazardous Materials analysis in Section 3.12 of this Draft EIS/EIR.

Cultural Resources – Alternatives 1, 1A, 2, 3, and 4

- The existing Schuyler Heim Bridge has been determined to be eligible for listing on the National Register of Historic Places. The loss of this resource would be considered an adverse effect that could not be fully mitigated.
- See the Cultural Resources analysis in Section 3.8 of this Draft EIS/EIR.

Acquisitions and Displacements – Alternatives 1,1A, 2, 3, and 4

- Implementation of the build alternatives would not require acquisition or relocation of any residences. Under any of these alternatives, no more than six businesses would be fully acquired. This would affect a maximum of 100 jobs, which would not be a significant amount compared to the amount of comparable employment opportunities available in the area.

- See the Relocation analysis in Section 3.3.2 of this Community Resources discussion (Section 3.3).

3.3.3.3.3.3 Disproportionately High and Adverse Effects to Minority and Low-Income Populations

Taking into consideration the abatement measures for noise impacts that have been proposed in the EIS/EIR, the impact avoidance and minimization efforts that have occurred during the project planning and development process, and the potential benefits that would accrue to the community, environmental justice considerations require an assessment of whether the effects of the project on minority and low-income groups could be considered disproportionately high and adverse.

Efficacy of Mitigation Efforts – Unavoidable Adverse Effects

Of the potential adverse effects identified, most would be avoided or substantially minimized. Others, such as substantial modification or demolition of the historic bridge; air quality impacts due to temporary construction air emissions; and air quality impacts due to emissions from diversion of marine vessels around Terminal Island, could not be satisfactorily mitigated.

3.3.3.3.3.4 Other Measures to Minimize Adverse Effects

As part of the project planning and development process that has occurred over the past several years, measures have been incorporated into the project to avoid or minimize impacts to the surrounding community. Most notably, it was the likelihood of potentially severe community impacts (i.e., substantial property acquisitions and displacements) that led to the withdrawal of several alternative expressway alignments from further consideration.

Project Benefits

Implementation of one of the build alternatives would have offsetting benefits that would accrue to the community as a whole. Residents, businesses, and visitors would be afforded a safer and more reliable bridge. A critical link in the local and regional circulation system would be restored and would potentially assist in stimulating social and economic redevelopment projects proposed for the community.

Potential Disproportionately High and Adverse Effects

The determination of whether or not the effects of the proposed action are disproportionately high and adverse depends on whether: the effects of the project are predominately borne by a minority or low-income population; the effects of the project are appreciably more severe or greater in magnitude to minority or low-income populations compared to the effects on non-minority or non-low-income populations (see FHWA, 1999).

Of the two considerations above, the first is most applicable to the determination of whether the proposed action may have a disproportionately high and adverse effect on minority and low-income persons in the study area. The second consideration could not likely be met in this case because the technical studies have shown no demonstrable evidence that the effects of this project are markedly different in severity or magnitude compared to other past or present highway improvement projects in the region.

Although the effects of the project would occur within an area having a population that is both minority and low-income, these effects cannot reasonably be considered disproportionately high and adverse. All but one Census tract in the project study area, (Census tract 5657 along Ocean Boulevard) are composed of substantial proportions of minority and low-income populations. Even though these groups would bear a large part of the burden associated with the project, it is due only to their proximity to short-term construction activities, and is the same as for any community that would be similarly affected by proximity to construction. Although the Schuyler Heim Bridge is an important part of the regional circulation system, local circulation patterns would not be substantially affected by construction of a new bridge. Construction of the flyover and SR-47 Expressway under Alternatives 1, 1A, and 3 may result in temporary construction-period inconveniences due to detours and delays. Also, construction of the flyover, new bridge, and SR-103 Extension under Alternative 2 may result in detours and delays.

The potential adverse effects resulting from the project would not be appreciably more severe or greater in magnitude on minority or low-income populations than they would be on the population as a whole. As noted above, most of the potential adverse effects could be satisfactorily avoided or minimized through implementation of avoidance, minimization, or mitigation measures. Because there has been no evidence to suggest that the efficacy of these measures would differ with respect to different population groups, the net result would be the same for all population groups for these resource areas. The adverse effects that have been identified as unavoidable even after implementation of mitigation would also not be appreciably more severe or greater in magnitude on minority or low-income populations. For example, the Schuyler Heim Bridge and the characteristics that qualify it for historic status are presumably of similar importance to all population groups.

As is detailed more fully below, the lead agencies have instituted public involvement and community outreach efforts to ensure that issues of concern or controversy to minority and low-income populations are identified and addressed where practicable as part of the project planning and development process and the environmental process.

Community Outreach and Public Involvement

To date, community outreach and public involvement have included the scoping meetings, open houses, presentations, and publications described in Chapter 6.0, Summary of Comments and Coordination. In addition, local elected officials were consulted to determine their issues and concerns. Efforts will continue to ensure meaningful opportunities for public participation during the project planning and development process. This may include, but not necessarily be limited to, additional community meetings, informational mailings, a project web site, and news releases to local media. The community outreach and public involvement programs for the project will seek to actively and effectively engage the affected community and will include mechanisms to reduce cultural, language, and economic barriers to participation. The project should also comply with applicable federal requirements promulgated in accordance with Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency (August 11, 2000), which requires that federal programs and activities be accessible to persons with limited English language proficiency.

The project will be developed in accordance with Title VI of the Civil Rights Act of 1964, which provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving federal financial assistance. In addition, the project will be developed in conformity with related statutes and regulations mandating that no person in the State of California shall, on grounds of race, color, sex, age, national origin, or disabling condition, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity administered by or on behalf of Caltrans.

3.3.3.4 Environmental Justice Determination

Given the results of technical studies concluded thus far, and taking into consideration the following: (1) similarity of impacts to minority and low-income populations compared to the general population; (2) generally equivalent efficacy of proposed mitigation measures and project enhancements; and (3) off-setting benefits of the transportation facility, no disproportionately high and adverse effect on any minority and/or low-income populations would result from any of the build alternatives.

No minority or low-income population have been identified that would be adversely affected by the proposed project as determined above. Therefore, this project is not subject to the provisions of Executive Order 12898.

3.4 Utilities and Public Services

3.4.1 Regulatory Setting

3.4.1.1 Federal

The applicable federal regulatory agency is the Federal Energy Regulatory Commission (FERC). The FERC was created through the Department of Energy Organization Act on October 1, 1977, and assumed the responsibilities of its predecessor, the Federal Power Commission. FERC's legal authority comes from the Federal Power Act of 1935, the Natural Gas Act (NGA) of 1938, and the Natural Gas Policy Act of 1992. It is an independent regulatory agency within the Department of Energy that:

- Regulates the transmission and sale of natural gas for resale in interstate commerce
- Regulates the transmission of oil by pipeline in interstate commerce
- Regulates the transmission and wholesale of electricity in interstate commerce
- Licenses and inspects private, municipal, and state hydroelectric projects
- Oversees environmental matters related to natural gas, oil, electricity, and hydroelectric projects
- Administers accounting and financial reporting regulations and conduct of jurisdictional companies
- Approves site choices as well as abandonment of interstate pipeline facilities

3.4.1.2 State

3.4.1.2.1 California Public Utility Commission

The California Public Utility Commission (PUC) regulates privately owned electric, telecommunications, natural gas, water, and transportation companies, in addition to household goods movers and rail safety. The PUC Energy Division works in setting electric rates, protecting consumers, and promoting energy efficiency, electric system reliability, and utility financial integrity. The PUC regulates natural gas local distribution facilities and services, natural gas procurement, intrastate pipelines, and intrastate production and gathering. It works to provide opportunities for competition when in the interest of consumers, takes the lead in environmental review of natural gas-related projects, recognizes the growing interaction of electric and gas markets, and monitors gas energy efficiency and other public purpose programs.

3.4.1.2.2 California Energy Commission

The California Energy Commission (CEC) (formerly the Energy Resources Conservation and Development Commission) was established by the California Legislature in 1974 to address the energy challenges facing the state and address the importance of energy conservation. Created by the Warren-Alquist Act, the CEC is the principal energy policy and planning organization for California. The CEC has five major responsibilities, including: 1) forecasting future energy needs and maintaining historical energy data, 2) licensing 50 megawatt or larger thermal power plants, 3) promoting energy efficiency through appliance and building standards, 4) developing energy technologies and supporting renewable energy, and 5) planning for and directing state response to energy emergencies. The CEC has been directed by the state legislature to direct energy research programs and renewable energy programs in the wake of electricity industry restructuring or deregulation.

3.4.1.2.3 Solid Waste

Assembly Bill (AB) 75, passed in 1999, requires all state agencies and large state facilities to meet 25 percent and 50 percent waste reduction mandates by January 1, 2002, and January 1, 2004, respectively. This reduction means that currently 50 percent of all solid wastes must be diverted from landfill disposal and transformation. The 50 percent mandate can be accomplished through source reduction, recycling, and composting. AB 75 also requires that state agencies and large state facilities adopt an Integrated Waste Management Plan.

3.4.1.3 City

The following discussion identifies regional and local City policies and regulations applicable to the project site.

3.4.1.3.1 City of Los Angeles

Regulatory oversight for public services within the city planning documents that provide guidance for new development are addressed in the following sections.

3.4.1.3.1.1 City of Los Angeles General Plan (2002)

Chapter 9 of the City of Los Angeles General Plan outlines goals and policies related to public service provisions for new development:

Infrastructure and Public Services

Police

Goal 9I

Every neighborhood in the City has the necessary police services, facilities, equipment, and manpower required to provide for the public safety needs of that neighborhood.

Objective 9.14

Protect the public and provide adequate police services, facilities, equipment, and personnel to meet existing and future needs.

Objective 9.15

Provide for adequate public safety in emergency situations.

Policy 9.15.1: Maintain mutual assistance agreements with local law enforcement agencies, state law enforcement agencies, and the National Guard to provide for public safety in the event of emergency situations.

Fire

Goal 9J

Every neighborhood has the necessary level of fire protection service, EMS, and infrastructure.

Objective 9.16

Monitor and forecast demand for existing and projected fire facilities and service.

Policy 9.16.1: Collect appropriate fire and population development statistics for the purpose of evaluating fire service needs based on existing and future conditions.

Objective 9.17
Assure that all areas of the city have the highest level of fire protection and EMS, at the lowest possible cost, to meet existing and future demand.

Objective 9.18
Phase the development of new fire facilities with growth.

Policy 9.18.1: Engage in fire station development advance planning, acknowledging the amount of time needed to fund and construct these facilities.

Objective 9.19
Maintain the Los Angeles Fire Department's ability to assure public safety in emergency situations.

Policy 9.19.1: Maintain mutual aid or mutual assistance agreements with local fire departments to ensure an adequate response in the event of a major earthquake, wildfire, urban fire, fire in areas with substandard fire protection, or other fire emergencies.

Policy 9.19.2: Maintain special firefighting units at the Port of Los Angeles, Los Angeles International Airport, and Van Nuys Municipal Airport capable of responding to special emergencies unique to the operations of those facilities.

Policy 9.19.3: Maintain the continued involvement of the fire department in the preparation of contingency plans for emergencies and disasters.

Libraries

Objective 9.21
Ensure library services for current and future residents and businesses.

Policy 9.21.1: Seek additional resources to maintain and expand library services.

Policy 9.21.2: Encourage the expansion of nontraditional library services, such as book mobiles and other book sharing strategies, where permanent facilities are not adequate.

Policy 9.21.3: Encourage the inclusion of library facilities in mixed-use structures in community and regional centers, at transit stations, and in mixed-use boulevards.

Schools

Goal 9N
Public schools that provide a quality education for all of the city's children, including those with special needs, and adequate school facilities to serve every neighborhood in the city so that students have an opportunity to attend school in their neighborhoods.

Objective 9.31
Work constructively with the Los Angeles Unified School District to monitor and forecast school service demand based upon actual and predicted growth.

Policy 9.31.1: Participate in the development of, and share demographic information about, population estimates.

Objective 9.32

Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth.

Policy 9.32.1: Work with the Los Angeles Unified School District to ensure that school facilities and programs are expanded commensurate with the city's population growth and development.

Policy 9.32.2: Explore creative alternatives for providing new school sites in the city, where appropriate.

Policy 9.32.3: Work with LAUSD to explore incentives and funding mechanisms to provide school facilities in areas where there is a deficiency in classroom seats.

Objective 9.33

Maximize the use of local schools for community use and local open space and parks for school use.

Safety Element of General Plan – City of Los Angeles

The Safety Element goals, objectives, policies, and programs are broadly stated to reflect the comprehensive scope of the Emergency Operations Organization (EOO). The EOO is the only program that implements the element. All city emergency preparedness, response, and recovery programs are integrated into EOO operations and are reviewed and revised continuously.

Goal 2

A city that responds with the maximum feasible speed and efficiency to disaster events so as to minimize injury, loss of life, property damage, and disruption of the social and economic life of the city and its immediate environs.

3.4.1.3.2 City of Long Beach

City of Long Beach General Plan is currently being updated. The City of Long Beach General Plan outlines goals and policies related to public service provisions for new development within the city.

The Safety Element, adopted in 1975, is to be tied in with social, economic, and environmental factors in the general development plan. Many city departments have established goals for the operation of their particular functions. These relevant development and protection goals are listed below:

Development Goals

Goal 3

Provide an urban environment that is as safe from all types of hazards as possible.

Goal 6

Encourage transportation systems, utilities, industries, and similar uses to locate and operate in a manner consistent with public safety goals.

Goal 7

Assure continued safe accessibility to all urban land uses throughout the city.

Goal 9
Encourage development that would augment efforts of other safety-related departments of the city (i.e., design for adequate access for firefighting equipment and police surveillance).

Protection Goals

Goal 3
Reduce public exposure to safety hazards.

Goal 4
Effectively utilize natural or man-made landscape features to increase public protection from potential hazards.

Goal 10
Provide the maximum feasible level of public safety protection services.

3.4.2 Affected Environment

Federal, state, county, and city governments, as well as private agencies, provide utilities and other public services (including emergency services) to the project area. The following discussion details the utilities and public/emergency services currently provided.

Utility services include electric and natural gas/liquid commodity services and distribution, telecommunications, solid waste disposal, water supply and treatment, and wastewater treatment systems.

The project area is intensely developed with heavy industrial, commercial, and transportation uses associated with the nearby Ports of Los Angeles and Long Beach. A residential neighborhood is located just west of the study area, south of Pacific Coast Highway (PCH) and west of Alameda Street. Another residential area is to the east of SR-103. Most residences in this area are single family. There also appear to be some live-aboard boats in the marina facility located at the Dominguez Channel. Figure 3.4-1 and Table 3.4-1, which includes a map key for Figure 3.4-1, depict the public services and facilities within the general vicinity of the proposed action.

3.4.2.1 Utilities

3.4.2.1.1 Electricity

The proposed project alternatives cross through three municipalities: the City of Los Angeles (and Port of Los Angeles), City of Carson, and City of Long Beach (and Port of Long Beach).

The City of Carson and the City and Port of Long Beach (including the vertical-lift Schuyler Heim Bridge) receive electrical power from Southern California Edison (SCE). SCE generates power from sources such as the San Onofre generating plant, the Big Creek hydroelectric plant, and Etiwanda generating station (gas-fired generation).

Table 3.4-1
Community Facilities and Services (2005)

Map Key	Facility Type	Name	Address
1	Police Stations	Long Beach Police – West Division	1835 Santa Fe Avenue Long Beach, CA
2		Long Beach Police Department – South Patrol Division	400 W Broadway
3		Los Angeles Police Department – Harbor Division	2175 John S. Gibson Boulevard
4		Port of Los Angles Police	425 South Palos Verdes
5		US Coast Guard – Sector Los Angeles-Long Beach	1001 South Seaside Avenue, Bldg. 20 San Pedro, CA 90731
6	Fire Stations	LAFD Station No. 38	124 I Street
7		LAFD Station No. 40	330 Ferry Street
8		LAFD Station No. 48	1101 South Grand Avenue
9		LAFD Station No. 49	400 Yacht Street
10		LAFD Station No. 110	2945 Miner Street, Berth 44-A
11		LAFD Station No. 111	954 South Seaside Avenue, Berth 260
12		LAFD Station No. 112	444 South Harbor Boulevard, Berth 86
13		LBFD Headquarters	925 Harbor Plaza Drive, Suite 100
14		LBFD Beach Operations	2101 East Ocean Boulevard
15		LBFD Station No. 1	100 Magnolia Avenue
16		LBFD Station No. 6	1231 Pier Avenue
17		LBFD Station No. 13	2475 Adriatic Avenue
18		LBFD Station No. 15	Pier F Avenue, Berth 202
19		LBFD Station No. 20	1900 Pier D Street
20		LBFD Station No. 21	225 Marina Drive
21		LBFD Station No. 24	611 Pier T Avenue
22	Schools	Hudson Elementary School	2335 Webster Avenue Long Beach, CA
23		Cabrillo High School	2001 Santa Fe Avenue Long Beach, CA
24		John Muir Elementary School	3038 Delta Avenue Long Beach, CA
25		St. Lucy Elementary School	2320 Cota Avenue Long Beach, CA
26		Webster Elementary School	1755 W. 32nd Way Long Beach, CA

Table 3.4-1
Community Facilities and Services (2005)

Map Key	Facility Type	Name	Address
27	Schools (continued)	Will J Reid Continuation High School	2152 W Hill Street Long Beach, CA
28		Bethune School	2041 San Gabriel Avenue Long Beach, CA
29		William Logan Stephens Jr. High	1830 W Columbia Street Long Beach, CA
30		Banning Senior High School	1527 Lakme Avenue Wilmington, CA
31		First Baptist Christian School	1360 Broad Avenue Wilmington, CA
32		Wilmington Park Elementary	1140 Mahar Avenue Wilmington, CA
33		Holy Family Grammar School	1122 E Robidoux Street Wilmington, CA
34	Places of Worship	Pramuan Simsriwatna Buddhist Temple	2015 W. Hill Street Long Beach, CA
35		St. Lucy Church	2344 Cota Avenue Long Beach, CA
36		Westside Baptist Church	2280 Caspian Avenue Long Beach, CA
37		St Paul's Baptist Church	1392 W 25th Street Long Beach, CA
38		Kingdom Hall-Jehovah's Witness	1295 W Willow Street Long Beach, CA
39		Willow St Church Of God	1455 W Willow Street Long Beach, CA
40		Word Of God Ministries	1401 W Spring Street Long Beach, CA
41		Inter Faith Cogic	1585 W 33rd Street Long Beach, CA
42		Holy Family Catholic Church	1011 E L Street Long Beach, CA
43		Faith Tabernacle Church	1643 Broad Avenue Wilmington, CA
44		Church Of Christ	24930 Lakme Avenue Wilmington, CA
45	Community Services	Senior Citizen Center	Silverado Park 1545 W. 31st Street Long Beach, CA
46	Libraries	Long Beach City Library – Harte Library	1595 W. Willow Street Long Beach, CA

SCE's power is distributed through a system of high-voltage (230-volt) transmission lines and receiving stations. Power is transformed specifically for customer use. For situations where substantial amounts of power are needed, 230-volt power is transformed to 34,500 volts (34.5 kilovolts [kV]) and directly linked to an industrial station. For commercial and residential use, the power is transformed to 4.8 kV and sent to a supply distribution station for distribution to users (including commercial or office complexes).

The City and Port of Los Angeles receive electrical power from a network of power stations and other sources operated by Los Angeles Department of Water and Power (LADWP). The LADWP generates power from sources such as the Haynes generating station, the Harbor steam plant, the Valley and Scattergood plants (oil and gas field sources), and the Los Angeles Aqueduct system.

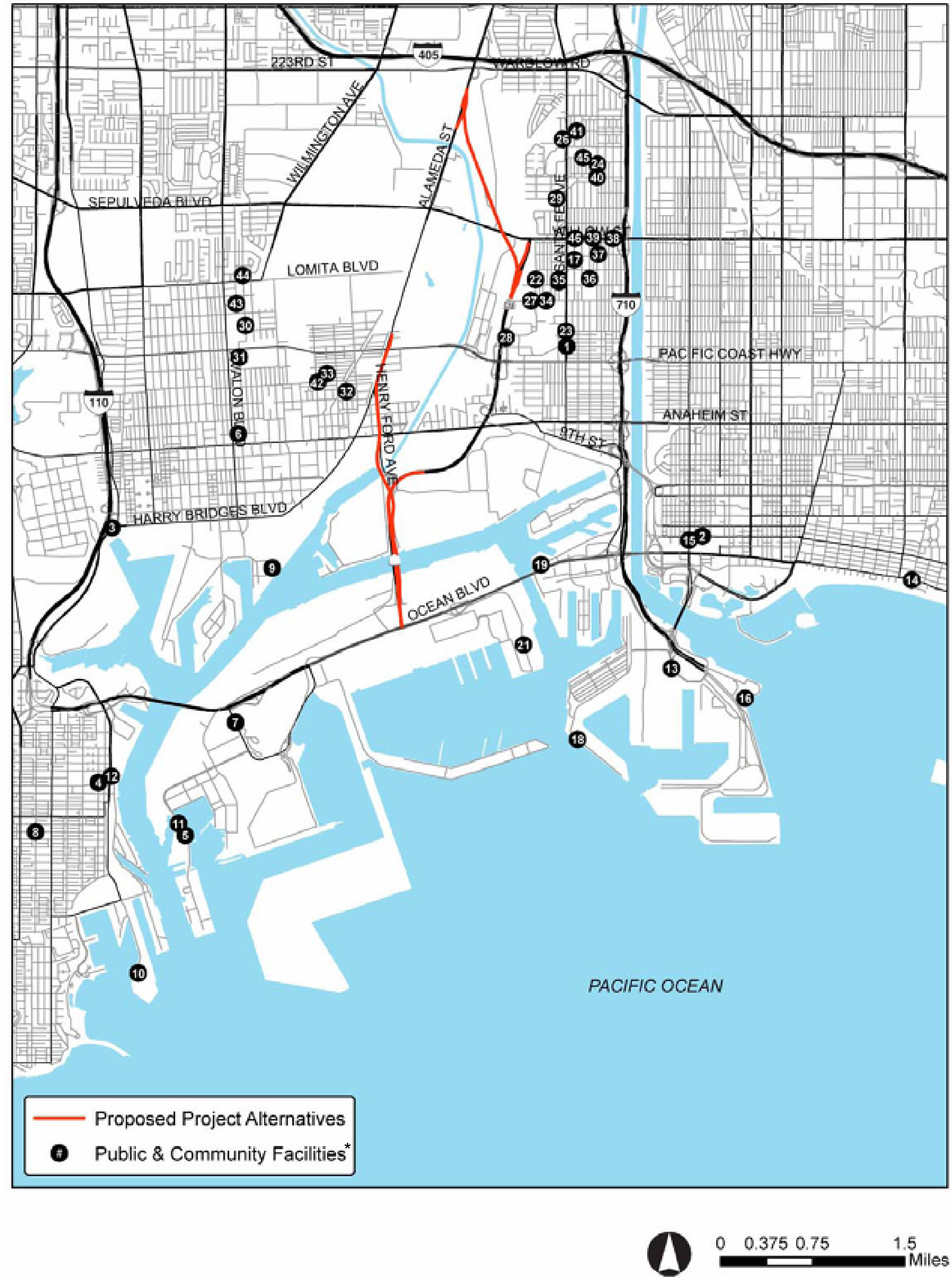
The LADWP distributes power in a manner similar to that described above for SCE. In the immediate project area, the LADWP distribution system carries power across the Cerritos Channel to the Port of Los Angeles and portions of Terminal Island located within the City of Los Angeles. As previously mentioned, the Schuyler Heim Bridge is powered by SCE. The LADWP aboveground distribution lines are located along the western portion of the Schuyler Heim Bridge.

3.4.2.1.2 Natural Gas and Liquid Commodities

The Southern California Gas Company (SCG) provides natural gas services to residents and businesses within the project area. The SCG service area encompasses 23,000 square miles of diverse terrain throughout most of Central and Southern California, and delivers nearly 1 trillion cubic feet of gas annually, or about 5 percent of all the natural gas delivered in the U.S. The total storage capacity is 122.1 billion cubic feet of gas—an amount sufficient to meet the needs of all SCG residential and business customers for about 20 weeks during the non-winter months, or 13 weeks during the winter, before being depleted (Southern California Gas Company, 2005).

Interstate pipeline delivery capacity into Southern California is over 4,000 million cubic feet per day (MMcf/day), with approximately 3,230 MMcf/day available directly to Gas Company customers. The interstate pipeline systems, along with local California gas supplies, deliver gas to most Southern California customers through SCG. SCG is forecasting an increase in total pipeline delivery capacity, from 3,875 MMc/day in 2004 to 4,675 MMcf/day in 2008.

Natural gas and liquid commodity pipelines are an integral part of the industrial transportation system and operational activities within the Ports of Long Beach and Los Angeles. Aboveground and underwater pipelines are located throughout the Ports to serve marine terminals for loading and unloading petroleum products and liquid commodities. Several pipelines are located along the Schuyler Heim Bridge. Pipelines owned and operated by Tidelands Oil and Petroleum Company (TOPCO), Exxon Mobil Corporation, Gulf Oil, Lomita, Southern California Gas, and other entities are located underneath the Schuyler Heim Bridge (suspended from the bridge, underground, and within Cerritos Channel). Pipelines are also located within streets in the project area.



* See Table 3.4-1

Figure 8
Community Facilities and Serices
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Jones & Stokes, 2005.

3.4.2.1.3 Telecommunications

GTE/Verizon and Southwestern Bell Communications (now AT&T) provide telephone service for the Los Angeles metropolitan area, including the Ports of Long Beach and Los Angeles. GTE/Verizon and AT&T engineer and maintain communication lines and service the telecommunication system in the project area. Existing major conduits run from the mainland to Terminal Island along the underside of Schuyler Heim Bridge.

3.4.2.1.4 Water

Water is supplied to the project vicinity by the Los Angeles Department of Water and Power (LADWP) and the Long Beach Water Department (LBWD).

Los Angeles

The LADWP provides water services to the City of Los Angeles. As the largest municipal utility in the nation, LADWP supplies an average of 215 billion gallons of water per year to approximately 3.9 million residents and businesses in Los Angeles. Because of the city's substantial size and growth, Los Angeles must rely upon a complex water system network for its water supply, drawing water from the Eastern Sierra Nevada watershed, the Sacramento and San Joaquin Rivers (via the California Aqueduct), and the Colorado River (via the Colorado River Aqueduct). The city also uses recycled water for industrial and irrigation purposes (about 1 percent of the total supply). To supplement these sources, the city uses recycled water for industrial and irrigation purposes. In 2004 (a year of below-normal snowfall), LADWP obtained 30 percent of its water supply from Los Angeles Aqueduct (Eastern Sierra), purchased 59 percent from the Metropolitan Water District of Southern California (MWD), and drew 11 percent from groundwater.

Long Beach

The Long Beach Water Department (LBWD) supplies water to the City of Long Beach and presently serves 492,000 people. Currently, water demand is met through rigorous conservation, aggressive water reuse, importing water, and by pumping and treating groundwater. The LBWD water supply is comprised of surface water purchased from MWD (42 percent), groundwater from 26 local groundwater wells (38 percent), conserved water (14 percent), and recycled water (6 percent).

3.4.2.1.5 Wastewater

Wastewater disposal services for the project area are provided by the City of Los Angeles and the City of Long Beach.

Los Angeles

The City of Los Angeles wastewater system serves over 4 million people within the city and 27 contract cities. The system consists of over 6,500 miles of sewer pipes, 54 pumping plants, and 4 wastewater treatment plants. The wastewater treatment plants collectively process 550 million gallons of wastewater per day.

Wastewater generated in the project area (within City of Los Angeles boundaries) is treated at the Terminal Island Treatment Plant/Advanced Water Treatment Facilities located on Terminal Island, approximately 2 miles southwest of the Schuyler Heim Bridge. The plant treats wastewater from over 130,000 people and 100 businesses in the heavily industrialized Los Angeles Harbor area, the communities of Wilmington and San Pedro, and a portion of Harbor City. The plant's capacity is 30 million gallons per day (mgd). It discharges an average of 16 mgd through a 60-inch-diameter outfall in the harbor. During peak wet weather, the Terminal Island Treatment Plant can handle 45 mgd.

The Terminal Island Treatment plant recently became the third Los Angeles wastewater treatment plant to produce reclaimed water and one of the few plants in the country to produce water using reverse osmosis. The plant is capable of processing 4.5 mgd through reverse osmosis, resulting in water that meets all drinking water quality standards. Currently, treated water is used as valuable boiler feed water for local industries, saving millions of gallons of potable water each day. The plant also produces biosolids and biogas for beneficial reuse.

Long Beach

The LBWD is responsible for the various functions of the city's sanitary sewer system, including operations and maintenance. The system consists of 765 miles of sewer pipelines throughout the city. In 2005, the department televised 81,898 feet of sewer mains and laterals, enabling efficient location of maintenance/repair needs without expensive street excavation.

Approximately 40 million gallons of wastewater is delivered daily to Los Angeles County Sanitation District facilities located on the north and south sides of the City of Long Beach. Wastewater generated in the project vicinity could be delivered to either the Joint Water Pollution Control Plant (JWPCP) (located in Carson) or the Long Beach Water Reclamation Plant (located in Long Beach, west of the 605 Freeway). The JWPCP provides primary and partial secondary treatment for 350 million gallons of wastewater per day, and serves a population of 3.5 million people. The Long Beach Reclamation Plant provides primary, secondary, and tertiary treatment for 25 million gallons of wastewater per day, serving a population of 250,000 people. Treated sewage is used in one of three ways: irrigation for parks, golf courses, cemeteries, and athletic fields; groundwater basin recharge; or pumped into the Pacific Ocean.

3.4.2.1.6 Solid Waste

Solid waste is generated as a result of residential, commercial and industrial activities. There are nine major solid-waste landfill sites that serve the project region (which includes the Ports of Los Angeles and Long Beach, the Cities of Long Beach and Los Angeles, and the County of Los Angeles). Combined, these facilities have a total estimated remaining fill capacity of 147 million cubic yards of solid waste. Table 3.4-2 presents information for these solid waste disposal sites in the project region (California Integrated Waste Management Board [CIWMB], 2006).

The Integrated Waste Management Act of 1989 (AB 939) mandated that California cities and counties divert 50 percent of all solid waste entering landfills by the year 2000. This legislation, in addition to rapid economic development and expanding population growth in Southern California, has led to the development of facilities for the production of energy from solid waste. The Sanitation Districts of Los Angeles County currently operate two refuse-to-energy plants with a combined permitted capacity of 3,240 tons per day. These facilities are presented in Table 3.4-3.

Los Angeles County is also served by inert waste disposal sites and demolition waste recycling facilities. There are several construction and demolition debris recyclers in Los Angeles County that accept the type of waste that would be produced from demolition of the existing Schuyler Heim Bridge (concrete, asphalt, and metal). Table 3.4-4 lists four facilities that accept all three of these types of materials.

Table 3.4-2
Combined Disposal Capacity of Existing Permitted Solid Waste Facilities in Los Angeles County

Class III Landfill	Solid Waste Facility Permit Number	Facility Address	Remaining Capacity (cubic yards)
Antelope Valley	19-AA-0009	1200 West City Ranch Road Palmdale, CA 93551	2,978,143
Bradley West	19-AR-0008	9227 Tujunga Avenue Sun Valley, CA 91352	4,881,010
Calabasas	19-AA-0056	5300 Lost Hills Road Agoura, CA 91301	16,900,400
Chiquita Canyon	19-AA-0052	29201 Henry Mayo Drive Valencia, CA 91384	26,024,360
Lancaster	19-AA-0050	600 E. Avenue F Lancaster, CA 93535	22,645,000
Puente Hills	19-AA-0053	2800 South Workman Mill Road Whittier, CA 91745	62,291,000
Scholl Canyon	19-AA-0012	3001 Scholl Canyon Road Glendale, CA 91206	11,723,400
Savage Canyon	19-AH-0001	13919 East Penn Street Whittier, CA 90602	7,787,177
Sunshine Canyon	19-AA-0853	14747 San Fernando Road Los Angeles, CA 91344	16,000,000
TOTAL			147,280,895

Source: CIWMB, 2006

Table 3.4-3
Combined Disposal Capacity Refuse-to-Energy Facilities in Los Angeles County

Transformation Facility	Solid Waste Facility Permit Number	Facility Address	Permitted Capacity (tons per day)
Commerce Refuse-to-Energy Facility	19-AA-0506	5926 Sheila Street Commerce, CA 90040	1,000
Southeast Resource Recovery Facility	19-AK-0083	4000 Seaside Boulevard Long Beach, CA 90822	2,240

Source: CIWMB, 2006

Table 3.4-4
Los Angeles County Construction and Demolition Debris Recyclers (Concrete, Asphalt, and Metal Materials)

C&D Debris Recyclers	Facility Address
Calabasas Sanitary Landfill	5300 Lost Hills Road Agoura, CA 91301
Master Recycling Center, Inc.	2845 Durfee Avenue El Monte, CA 91732
Nu-way Live Oak Landfill – Waste Management	13620 Live Oak Lane Irwindale, CA 91706
Scholl Canyon Landfill – Los Angeles Co. Sanitation District	3001 Scholl Canyon Road Glendale, CA 91206

Source: CIWMB, 2006

3.4.2.2 Public Services

3.4.2.2.1 Police Protection

Police protection in the project area is a cooperative effort among a number of law enforcement entities. The United States Coast Guard (USCG) has primary regulatory authority over the port waterways and any other type of water-based law enforcement or emergency response. However, most law enforcement response in the project area is handled jointly between USCG and state or local law enforcement entities. USCG use of the Cerritos Channel for water-based law enforcement response is limited because of the restricted speed zone (to reduce wake) and the possibility of damage to local marinas and small marine vessels caused by USCG vessels. Instead, USCG typically responds to law enforcement calls by navigating south of the ports using the outside channel (USCG, 2006).

Police services to the Port of Los Angeles are provided by both the Los Angeles Harbor Department Port Police (Port Police) and the Los Angeles Police Department (LAPD). The Port Police is the primary response agency in the Port by jurisdictional responsibility and is responsible for operations within Port boundaries. While the Port Police are the first response to an emergency, the port is within the City of Los Angeles, so the primary responsibility for police services falls to the Los Angeles Police Department (LAPD). The LAPD station located at 2175 John S. Gibson Boulevard in San Pedro has a staff of 257 officers and 28 civilians. Patrols are divided into two watches (day/PM and PM/morning), and both radio-dispatched cars and traffic-control motorcycles are used to patrol the vicinity. Average emergency response time for the entire Harbor Division is approximately 10.6 minutes (LAPD, 2004). While LAPD has the capacity to provide land-based law enforcement to support Port Police if needed, it does not conduct boat patrols of the harbor, and more than 95 percent of its land patrols are not associated with the Port of Los Angeles.

The Port Police maintains a staff of more than 50 sworn officers. They provide 24-hour surveillance of port-controlled property, patrolling the waterfront with a fleet of approximately 40 various vehicles, 5 police boats, and a single skiff used to transport police divers. It is responsible for the safety and security of all passenger, cargo, and vessel operations at the port and enforces municipal, state, and federal laws, as well as Port tariff regulations. Port Police is headquartered in San Pedro at 425 South Palos Verdes. Access to Terminal Island is gained primarily across the Vincent Thomas Bridge and the Schuyler Heim Bridge. Port Police uses the Schuyler Heim Bridge as the primary route to respond to land-based emergency calls in Wilmington and East Wilmington. Port Police uses the Cerritos Channel for water-based law enforcement responses that are west of the Schuyler Heim Bridge, where its jurisdiction ends. Response time for patrol vehicles is less than 5 minutes for all patrol areas (LAHD Port Police, 2004).

The Long Beach Police Department (LBPD) and Port of Long Beach Harbor Patrol provide law enforcement for the Port of Long Beach. The Long Beach Harbor Patrol provides land-based security for the port area, contracting to the Long Beach Police Department for law enforcement and other police services. The LBPD is primarily an antiterrorism unit, providing land- and water-based law enforcement for the Port of Long Beach.

The LBPD South Division is headquartered just north of the Port of Long Beach at 400 West Broadway. The Long Beach Harbor Patrol is headquartered at the Port of Long Beach Administration Building, 1835 Santa Fe Avenue. The LBPD uses primarily the Gerald Desmond Bridge for land-based law enforcement responses. Use of Cerritos Channel for water-based law enforcement is rare because LBPD jurisdiction extends only slightly west of the Schuyler Heim Bridge. Assistance to USCG and local and state law enforcement entities described above is provided as required by LAPD, California Department of Fish and Game (CDFG) wardens, U.S. Customs Inspectors, and the Federal Bureau of Investigation.

3.4.2.2.2 Fire Protection

Fire and emergency response services are provided to the project area by two fire departments. The Los Angeles City Fire Department (LAFD) provides services for the Port of Los Angeles, and the Long Beach Fire Department (LBFD) serves the Port of Long Beach.

The Long Beach and Los Angeles fire departments have stations specifically equipped to respond to either land- or water-based emergencies. Mutual aid agreements can be established between the city fire departments to assist each other if a need arises.

3.4.2.2.2.1 Los Angeles City Fire Department

The LAFD provides fire protection and emergency services for the project area that lies within the city boundaries of Los Angeles. The LAFD has a required minimum response time of 5 minutes. The LAFD facilities include land-based fire stations and fireboat companies located in the vicinity of the proposed action. Four LAFD fire stations and five fireboats that respond to water-based emergencies currently serve the Port of Los Angeles. The locations of these fire stations are listed in Table 3.4-1 and shown in Figure 3.4-1. The LAFD typically does not navigate through the Cerritos Channel east of the Schuyler Heim Bridge to respond to water-based emergencies because its line of jurisdiction ends to the west of the bridge. Under existing mutual aid agreements, LAFD and LBFD will provide backup emergency service for the other in the event of an emergency/disaster where no additional city apparatus are available to respond.

Fire Station No. 49, Berth 194, East Harbor Basin (400 Yacht Street) is a swing fire company with capabilities to respond to both land- and water-based emergencies by structuring a response crew with hook-and-ladder fire engine or fireboat, depending upon the type of emergency. Fireboat No. 3 (11.8 m [39 ft] and Fireboat No. 4 (22.5 m [74 ft]) are housed at Fire Station No. 49.

Fire Station No. 110, Berth 44-A, Cabrillo Marina Area (2945 Miner Street), and Fire Station No. 111, Berth 260, Fish Harbor (954 South Seaside Avenue), each house one small fireboat (Fireboats No. 5 and No. 1, respectively). These small fireboats are 11.8 m (39 ft) in length, with a pumping capacity of 2,000 gallons per minute (gpm). Each fireboat has a crew of three (one boat operator and two firefighters/scuba divers). Fire Station No. 112, Berth 86, Ports O'Call (444 South Harbor Boulevard), is a combination water- and land-based fire station. The station has one hook-and-ladder fire engine with a four-member crew and two paramedics. Fire Station No. 112 also houses Fireboat No. 2, a tractor tug, 32 m (105 ft) in length, 9 m (30 ft) wide, and approximately 13.7 m (45 ft) tall (from the waterline to the top of the vessel). The nearest fire protection facility has a staff of 15, including an Emergency Medical Services supervisor, a single engine company, a paramedic rescue ambulance, and one fireboat (LAFD Station 112, 2004).

In addition, several land-based fire stations are located within the Port of Los Angeles and the immediate vicinity, jointly responding to port-related emergencies with one or more of the four water-based fire stations, when required. These fire stations use the Schuyler Heim Bridge as their primary land-based response route between the City of Wilmington and western Terminal Island (LAFD, 2002).

Fire Station No. 40, Terminal Island (300 Ferry Street), is a land-based fire unit with one hook-and-ladder fire engine and a four-member crew.

Fire Station No. 38, Task Force and Rescue Unit 38 (124 East I Street), is a land-based fire unit with two hook-and-ladder fire engines operated by a crew of nine. Rescue Unit 38 is a two-person paramedic crew. Station 38 is a task force station with a staff of 9 and maintains a truck and engine company and paramedic ambulance (LAFD Station 38, 2004).

Fire Station No. 111 is on Terminal Island and home to LAFD Fireboat No. 1. The station is located at 1444 South Seaside Avenue, Berth 256, in San Pedro Harbor.

Fire Station No. 112 is located at 444 South Harbor Boulevard, Berth 86, in San Pedro Harbor. The station houses Fireboat No. 2, but also Engine No. 112, Rescue Ambulance No. 112, Emergency Medical Service (EMS) No. 6, and a medical supply trailer.

Fire Station No. 48 is located at 1601 South Grand Avenue, in San Pedro. The station is a task force station with a staff of 16. It maintains a truck and engine company and a hazardous materials unit (LAFD Station 48, 2004).

3.4.2.2.2.2 Long Beach Fire Department

District 1 of the LBFD provides fire and emergency services to the Port of Long Beach. District 1 is located in the southwest area of the City of Long Beach (which includes the Port of Long Beach and downtown area) and includes of Fire Stations No. 1, 2, 3, 6, 10, 15, 20, and 24. Collectively, the District 1 stations have daily staff of 52 personnel, and the following equipment: eight fire engines, one truck, four paramedic ambulances, two fireboats, and one technical rescue vehicle.

Water-based LBFD Fire Stations No. 15 and 20 are in the Port of Long Beach at Pier F and Pier D, respectively. These stations serve primarily the Port of Long Beach and would be the first to respond to water-based emergency calls within LBFD jurisdiction in the vicinity of the Schuyler Heim Bridge. The locations of these stations are shown in Table 3.4-1 and Figure 3.4-1. An additional water-based LBFD station is located at the Long Beach Marina

(Station No. 21). Because of its distance from the Port of Long Beach, Station No. 21 would provide secondary or backup support to emergency calls in the vicinity of the Schuyler Heim Bridge. Each of the water-based fire stations is equipped with one fireboat; and Stations No. 15 and 20 each have a fire engine pumper (LBFD, 2000). Emergency response to port locations along the western extent of the LBFD jurisdiction requires navigation of the Cerritos Channel and travel to the western side of the Schuyler Heim Bridge (LBFD, 2002a).

Additional land-based LBFD fire stations are located in the vicinity of the Port of Long Beach and include Fire Station No. 1 at 100 Magnolia Avenue, Fire Station No. 6 at 1231 Pier F Avenue, and Fire Station No. 24 at 611 Pier T Avenue. These locations respond to land-based emergencies with the following equipment:

- Fire Station No. 1: two pumpers, one truck, and one paramedic rescue vehicle
- Fire Station No. 6: one pumper
- Fire Station No. 24: one pumper and one technical rescue vehicle.

These fire stations use the Gerald Desmond Bridge as the primary land-based emergency response route between the City of Long Beach and eastern Terminal Island. However, the Schuyler Heim Bridge could be used as a secondary access route when heavy traffic or other impediments preclude the use of the Gerald Desmond Bridge (LBFD, 2002b).

3.4.2.2.2.3 Los Angeles County Fire Department
The Los Angeles County Fire Department (LACOFD) serves unincorporated areas of the County of Los Angeles. LACOFD Station No. 127 is located at 2049 East 223rd Street in the City of Carson.

3.4.2.2.3 Schools
There are 12 educational facilities within the general vicinity of the proposed action. Of these, two are within the Los Angeles Unified School District (LAUSD), seven are within the Long Beach Unified School District (LBUSD), and three are private schools (Holy Family Grammar School, First Baptist Christian School, and St. Lucy Elementary School).

3.4.2.2.3.1 Los Angeles Unified School District – Local District 8
The LAUSD serves the City of Los Angeles, portions of 16 other cities in the county, and numerous unincorporated areas of the county that surround the City of Los Angeles. The LAUSD covers an area of 703.8 square miles, with an estimated population of 4.6 million. The two LAUSD schools within the project area are Banning Senior High School and Wilmington Park Elementary School.

3.4.2.2.3.2 Long Beach Unified School District
The LBUSD spans five cities: Long Beach, Lakewood, Signal Hill, Carson, and Avalon, as well as Two Harbors on Santa Catalina Island. The LBUSD educates more than 95,000 students in 95 public schools within the five cities. The seven LBUSD schools within the project area are Hudson Elementary School, Cabrillo High School, John Muir Elementary School, Webster Elementary School, Will J Reid High School, Bethune School, and William Logan Stephens Jr. High School.

3.4.2.2.4 Libraries
The City of Long Beach Public Library (LBPL), a network of community libraries, provides local public library service to the project area through the Bret Harte Neighborhood Library, located at 1595 West Willow Street. The Bret Harte Neighborhood Library provides an array

of special services, including a Family Learning Center, child and teen reading programs, computer facilities, and the Bookworm Buddy Program (LBPL website). There are no City of Los Angeles or Los Angeles County libraries in the study area.

3.4.2.2.5 Other Public Services and Facilities

Parks and Recreational Facilities are discussed in Section 3.1, Land Use, Recreation, and Coastal Zone.

3.4.3 Environmental Consequences

3.4.3.1 Evaluation Criteria

3.4.3.1.1 Utilities

3.4.3.1.1.1 Electricity

For the purposes of this Draft EIS/EIR, the proposed alternatives were evaluated to determine if they would:

- Require or result in the need for new or expanded offsite distribution systems or power generating facilities, the construction of which would cause a substantial adverse physical change in the environment
- Conflict with adopted energy conservation plans
- Result in wasteful, inefficient, and unnecessary consumption of energy

Natural Gas and Liquid Commodities

For the purposes of this Draft EIS/EIR, the proposed action would have an adverse environmental effect related to natural gas and liquid commodities if it would:

- Require or result in the need for new or expanded natural gas infrastructure, the construction of which would cause a substantial adverse physical change in the environment
- Conflict with adopted energy conservation plans
- Result in wasteful, inefficient, and unnecessary consumption of energy

Telecommunications

For the purposes of this Draft EIS/EIR, the proposed project would have an adverse environmental effect related to telecommunications if it would:

- Require or result in the need for new or expanded telecommunications infrastructure, the construction of which would cause a substantial adverse physical change in the environment

Water Supply

For the purposes of this Draft EIS/EIR, the project would have an adverse environmental effect if it:

- Substantially depletes water supplies

- Requires new offsite water supply or distribution facilities or expansion of existing facilities, the construction of which would cause a substantial adverse physical change in the environment
- Requires new or expanded water entitlements

Wastewater

For the purposes of this Draft EIS/EIR, the project would have an adverse environmental effect if resulting wastewater flows:

- Exceed the capacity of the existing sanitary sewer system or treatment plant that serves the project site, thereby requiring new or expanded facilities, the construction of which would cause a substantial physical adverse change in the environment
- Exceed the capacity of existing sewer system or treatment plant, resulting in sewage spills or overflows that would have a substantial physical adverse effect on public health or the physical environment

Solid Waste

For the purposes of this Draft EIS/EIR, the proposed project would result in adverse environmental effects if it would generate solid waste that would:

- Exceed the capacity of the landfill(s) serving the project site
- Require or result in new or expanded solid waste disposal facilities, the construction of which would cause a substantial adverse physical change in the environment

3.4.3.1.2 Public Services

Police Protection

For the purposes of this Draft EIS/EIR, the proposed project would result in adverse environmental effects to police protection if it would:

- Create a substantial need for additional police services, requiring new or altered police facilities to maintain acceptable service ratios or response times, the construction of which would cause a substantial adverse physical change in the environment
- Substantially diminish the level of police protection services, thereby posing a hazard to public safety and security

Fire Protection

For the purposes of this Draft EIS/EIR, the proposed project would result in adverse environmental effects to fire protection if it would:

- Create a substantial need for additional fire protection services, requiring new or altered fire department facilities to maintain acceptable service ratios or response times, the construction of which would cause a substantial adverse physical change in the environment
- Substantially diminish the level of fire protection services or results in inadequate emergency access, thereby posing a hazard to persons or property

Schools

For the purposes of this Draft EIS/EIR, the proposed project would result in adverse environmental effects to schools if it would:

- Result in the students generated by the project exceeding existing enrollment capacities, thereby creating a substantial need for new or altered facilities, the construction of which would cause a substantial adverse physical change in the environment
- The physical effects of the project substantially affect the health, safety, or education of students at local schools

Libraries

For the purposes of this Draft EIS/EIR, the proposed project would result in adverse environmental effects to libraries if it would:

- Create a substantial need or demand for library services, requiring new or physically altered library facilities in order to maintain acceptable service ratios, the construction of which would cause adverse environmental effects

Other Public Services and Facilities

For the purposes of this Draft EIS/EIR, the proposed project would result in adverse environmental effects to other public services and facilities if it would

- Create a substantial need for additional facilities, requiring new of physically altered facilities in order to maintain acceptable service ratios, the construction of which would cause adverse environmental effects

3.4.3.2 Methodology

The potential effects of the project alternatives are evaluated on a quantitative and qualitative basis through coordination with respective service agencies. Adverse effects would occur if the project would adversely affect the ability of service agencies to provide adequate service to the project area or other existing service areas. Due to the long-term nature of the project, certain assumptions and predictions regarding future supply of materials and the reliability of service providers were made. Potential effects have been evaluated utilizing the most current data and best professional judgment regarding future resource availability and service potential. Effects have been assessed through the criteria established for this project as defined above.

3.4.3.3 Evaluation of Alternatives

3.4.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

Alternative 1 would affect existing utilities in the project area, requiring relocation and avoidance, with the potential for some service disruption. As part of standard construction practices and requirements, Underground Service Alert (USA) would be notified of the project prior to construction or demolition. USA would inform utility owners of the construction so that they can mark the location of utility lines prior to groundbreaking. Coordination with USA would serve to further identify the presence of unknown or unmarked utilities so that relocations or bypasses can occur, or the utilities can be avoided, in order to minimize service disruptions.

During final design, after selection of the preferred alternative, a determination will be made regarding which of the identified utilities will be relocated. Plans for the relocations will be developed in consideration of the project schedule and consultation with the utility providers which include, but are not limited to, LADWP, LBWD, SCE, SCG, GTE/Verizon, AT&T, City of Los Angeles. In addition, pipeline relocations will be planned and implemented in consultation with TOPCO, Exxon Mobil, Gulf Oil, and SCG. In further consultation with utility providers, some obsolete utilities may be removed at the request of the provider.

3.4.3.3.1.1 Construction Effects

Utilities

Electricity

Construction of Alternative 1 would require minimal amounts of electricity. No new offsite power or electrical infrastructure improvements would be required to accommodate the amount of energy needed for the project.

Existing electrical lines located along the bridge would be relocated to the new replacement bridge once the eastern half of the new bridge has been constructed.

At the LADWP Substation No. DS 119 near Pier A Plaza, existing 4.8-kilovolt (kV) overhead lines east of the substation lie in the path of elevated SR-47 structures. High power lines that would conflict with the proposed expressway and the flyover would require relocation on a taller steel pole. It is estimated that four high-voltage pole structures would be affected by Alternative 1.

A segment of an overhead feeder running from the West Basin Lead Track to a power pole immediately south of the Dominguez Channel would require relocation to the west of SR-47. It is estimated that six steel poles would be required. This segment consists of two 34.5-kV feeders and two 4.8-kV feeders and is considered by LADWP to be of major importance.

Overhead lines that parallel Henry Ford Avenue (34.5-kV and 4.8-kV lines) would require relocation from the West Basin Lead Track to Grant Street. Within this line segment, five 34.5-kV feeder crossings occur at Grant, Opp, First, and Anaheim Streets. These lines will require relocation from Denni Street to Robidoux Street. One 34.5-kV line, three 4.8-kV lines, and a secondary service line that crosses Henry Ford Avenue and Alameda Street will require relocation. It is expected that these line relocations will require underground ducts.

North of Robidoux Street, a single 4.8-kV overhead feeder runs parallel with SR-47 to Pacific Coast Highway. Within this feeder run, one 34.5-kV line, four 4.8-kV lines and one secondary service line cross Alameda Street. All these feeder lines will require relocation via underground ducts.

Prior to relocation activities, proper notice of service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Utility lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and SCE. New or relocated utility lines, poles, and towers would be placed in an existing disturbed industrial area, and are thus not expected to have an adverse effect on the existing environment. Alternative 1 would not conflict with adopted energy conservation plans, nor would it result in wasteful or inefficient use of electricity.

Natural Gas and Liquid Commodities

Presently, there are numerous natural gas and oil pipelines crossing the project area in various directions. Construction of Alternative 1 would require the relocation of several segments of these pipelines. Relocation would be accomplished safely prior to construction.

A segment of existing TOPCO oil pipelines located south and east of the LADWP Substation (east of Henry Ford Avenue), occurring beneath the proposed northbound SR-47 Expressway ramps, would require relocation. Further north, an existing TOPCO oil pipeline corridor runs east to west. Relocation of a segment of each of these pipelines would be required, to avoid interference with the project. Just west of this point, additional TOPCO lines run beneath the proposed SR-47 Expressway, joining the corridor. A segment of these lines beneath the expressway would require relocation. Several utility lines, including oil and gas, are located along Henry Ford Avenue and Alameda Street, running north to south. The proposed SR-47 Expressway generally follows Henry Ford Avenue to Alameda Street. Along the route, several additional segments of oil pipeline would require relocation. Between "I" Street and East Grant Street, a long section of Mobil Oil pipeline would be relocated just east of the existing line, beneath the proposed elevated expressway. Further north, between Robidoux Street and Pacific Coast Highway, an additional long segment of utility lines, including oil and gas pipeline, would be relocated, shifted east.

Natural gas lines owned by SCG occur in various locations along the proposed SR-47 Expressway. A 3-meter (m) (10-foot [ft]) SCG line, starting from a point north of Badger (rail) Bridge, runs north-south just outside a utility corridor west of Henry Ford Avenue. A segment of this line would be permanently relocated to accommodate the proposed expressway. Further north, to the east of the proposed alignment, a 3-m (10-ft) SCG pipeline is located along Henry Ford Avenue. Segments of this line (north of the West Basin Lead Track) would require relocation to accommodate the proposed alignment. To the north, as the proposed expressway comes down to grade at Alameda Street, several segments of an existing SCG line located within Alameda Street would require relocation. This would include a long segment that would extend from Robidoux Street to Pacific Coast Highway.

Relocation of gas and oil pipelines could result in temporary disruption of service to customers within the vicinity. Prior to relocation activities, gas customers would be given notice of potential service disruptions. Coordination with oil pipeline owners would be required to facilitate relocation. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Utility lines that would be maintained in place during construction would be protected in accordance with the requirements of the Alameda Corridor Transportation Authority (ACTA) and the respective owners.

The relocations of pipeline segments are not expected to result in adverse environmental effects, as the segments would be placed near existing lines, and within existing utility corridors or industrialized areas. Trenching would not disturb previously undisturbed, or residential, areas. Alternative 1 would not conflict with adopted energy conservation plans, nor would it result in wasteful or inefficient use of oil or natural gas.

Telecommunications

A 1,500-pair telephone line runs underground from Anchorage Street northward, to a point 30 m (98 ft) south of Dominguez Channel. This line is located toward the west side of the existing Henry Ford utility corridor. This line crosses SR-47 as it extends east to Henry Ford Avenue and then heads northward along Henry Ford Avenue. South of Anaheim Street, placement of the foundation may interfere with this telephone line.

A minor telephone line (less than 50 pairs) runs parallel with SR-47 from Anchorage Street west of SR-47 until the intersection of Pier A Way and Pier A Plaza. This facility will require relocation via an underground duct bank.

A major underground telephone utility (approximately 900 pairs) runs under SR-47 from an existing telephone cabinet located near the intersection of Pier A Way and Pier A Plaza. This underground line interferes with the proposed SR-47 Expressway under Alternative 1 and would require relocation.

At the intersection of Anaheim Street and Henry Ford, the same major line crosses SR-47 as it comes west before it turns south toward Dominguez Channel. The portion of this line near the intersection may have to be relocated to miss a foundation.

North of Anaheim Street, telephone service to various buildings on both sides of Henry Ford Avenue are provided from multi-pair telephone cables that are currently installed on the east side of Henry Ford Avenue. From this overhead line, services to customers are provided via overhead lines and underground conduits.

The proposed SR-47 Expressway would require redesign of the present telephone distribution system. This redesign would incorporate a main telephone cable running underground along Henry Ford Avenue. From these main telephone cables, lateral runs would be provided on both sides of the streets where the lateral transitions to the overhead system via service poles. Service connections will be provided downstream from these laterals.

Relocation of telephone lines could result in the temporary disruption of telecommunication services. However, prior to relocation activities, proper notice of service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Telecommunication lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and the respective owners. New or relocated telephone lines and poles would be placed in an existing disturbed industrial area and would not have an adverse effect on the existing environment.

Water

Presently, there are numerous LADWP-owned water supply pipelines crossing the project area in various directions. Construction of Alternative 1 would require the relocation of several segments of these pipelines. Relocation would be accomplished prior to construction.

A 10-inch water line segment bisecting SR-47 north of the Schuyler Heim Bridge would be permanently removed. Further north along the alignment (where the transfer yard facility track and Henry Ford Avenue cross the Dominguez Channel), a segment of 4-inch water pipe would be relocated (shifted) to the north, and a segment of 23.5-inch water pipe would also require relocation to the east. Further north, several utility lines (natural gas, water, oil) are located within Alameda Street, directly beneath the proposed alignment. In this area (beginning at a point parallel with E Street), several segments of water pipe would need to be relocated prior to construction. This includes a short segment of 6-inch water pipe (to be shifted east), a short segment of 23.5-inch water pipe (shifted west), and a short segment 6-inch water pipe near Robidoux Street (shifted east). Beginning at Robidoux Street, a lengthy segment of 8-inch water pipe would be moved east, the relocation extending to Pacific Coast Highway.

Relocation of water supply lines could result in the temporary disruption of water service to customers in the area. However, prior to relocation activities, proper notice of service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Water lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and LADWP. New or relocated water lines would be placed in an existing disturbed industrial area and would not have an adverse effect on the existing environment.

A minimal amount of potable or gray water (reclaimed water) would be used during project construction for dust suppression and other construction related activities. Water would also be used by construction workers and for washing and cleaning construction equipment and vehicles. Adequate water supplies exist to accommodate the minimal amount of water that would be used during the construction phase. Thus, no adverse effect to water supply or infrastructure would occur.

Wastewater

Wastewater (sanitary sewer) lines owned by the City of Los Angeles presently cross the project area. Construction of Alternative 1 would require relocation of various segments of these wastewater lines. Relocation would be accomplished prior to construction.

Two short segments of 12-inch wastewater pipe located along Hanjin Way at Pier A (south of the LADWP substation) would be relocated to accommodate the proposed alignment; one segment would be shifted slightly west, the other segment slightly north. Segments of wastewater lines located along Henry Ford Avenue would require relocation, including segments of 8-inch pipe located just north of Anaheim Street, at I Street, and south of Opp Street. Further north, at Young Street and Henry Ford Avenue, relocation of a segment of 8-inch LADWP pipe would be required. Several utility lines (natural gas, water, oil) are located within Alameda Street directly beneath the proposed alignment. Among these, a lengthy segment of 8-inch wastewater line would be shifted south; the relocation would extend from a point several hundred feet north of Young Street to Pacific Coast Highway.

Relocation of wastewater and sewer lines could result in temporary disruption of wastewater service to customers in the area. However, prior to relocation activities, proper notice of potential service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Wastewater lines and sewer pipes that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and LADWP. Relocated wastewater pipe segments would be placed in an existing disturbed industrial area and would not have an adverse effect on the existing environment.

Construction activities for Alternative 1 would not result in the generation of substantial amounts of wastewater. Portable toilets would be available on-site for construction workers. Consequently, construction activities would not result in the discharge of wastewater into the existing sanitation systems. No adverse wastewater effects would result from construction of Alternative 1. Although Alternative 1 is estimated to generate approximately 15 million gallons of construction dewatering, this volume will be shipped offsite and treated.

Solid Waste

Construction of Alternative 1 would involve demolition of the existing vertical-lift Schuyler Heim Bridge. Demolition of the bridge would require disposal of bridge materials, including asphalt, concrete, steel, rebar, and other materials. Approximately 23,000 cubic meter (m^3) (30,083 cubic yards [yd^3]) of concrete and 5,900 metric tons (MT) (6,504 tons) of structural steel would be removed during demolition. Other debris (such as concrete, asphalt, wood, and steel) would also result from construction of the SR-47 Expressway. Approximately 6,106 m^3 (7,986 yd^3) of asphalt would be removed. A minimum 50 percent of construction and demolition debris would be diverted in accordance with AB 75, to which cities, counties, and regional agencies are subject. Recyclable materials would be hauled to local recycling facilities or inert landfills. This would minimize the use of Los Angeles County solid waste landfills and, therefore, minimize effects to landfill capacity. With the primary use of recycling facilities and inert landfills, capacities at existing permitted municipal solid waste facilities would not be adversely affected by the temporary and short-term disposal needs of the project.

Public Services

Under Alternative 1, a fixed bridge would be constructed east of the existing footprint of the Schuyler Heim Bridge. The existing bridge would remain functional while the new bridge is constructed. However, in order to transition vehicular traffic from the existing Schuyler Heim Bridge to the new fixed bridge, both routes would have to be closed temporarily for up to 1 month. The southbound SR-47 exit ramp at New Dock Street would be closed for approximately 4 months to construct the outstanding ramp and shift traffic east to the new bridge. During that time, traffic seeking to exit SR-47 at New Dock Street would be routed with a series of right turns to Ocean Boulevard, then to Henry Ford Avenue, and finally to New Dock Street. As a result, land-based public and emergency services that rely upon the Schuyler Heim Bridge as their primary emergency route, including Port Police and LBFD, would be required to use alternative emergency response routes (primarily the Vincent Thomas and Gerald Desmond Bridges). Alternate routes would be developed prior to construction, which would not substantially affect average response times for land-based police, fire, and emergency services.

Additionally, construction activities for the portion of the bridge that spans the Cerritos Channel, including demolition of the existing bridge and placement of piles for the new bridge, would be conducted from barges anchored to the channel bottom. Water vessel traffic through this portion of Cerritos Channel would be temporarily restricted during construction of Alternative 1, and there would be a temporary closure of Cerritos Channel to marine vessel crossings for approximately 25 days throughout bridge construction period. Although attempts would be made to accommodate emergency response vessels that need to cross Cerritos Channel during construction, some detours may be necessary. As a result, water-based public and emergency services could be required to use alternate response routes. Alternate emergency access water routes would be developed by port authorities and emergency service providers. Adequate advance notice of water traffic, detours, and restrictions would be provided to affected parties. Alternate access routes would not substantially affect average emergency response times in the project area.

The new SR-47 Expressway would begin on Terminal Island, at the intersection of SR-47 and Ocean Boulevard, extending north over New Dock Street and onto the Schuyler Heim Bridge replacement. A new northbound on-ramp would be constructed from New Dock Street, and a new southbound off-ramp would be constructed to New Dock Street, as described above. The expressway would extend northward to Alameda Street, north of the intersection with Pacific Coast Highway, a distance of approximately 2.7 kilometers (km) (1.5 miles). Consequently, the construction of the expressway on land may result in delays and disruptions for public facilities and services near SR-47 along the Henry Ford Avenue construction area. However, alternate routes for emergency response would be developed prior to construction, and average response times for land-based police, fire, and emergency services would not be substantially affected.

Operations Effects

Operation of the replacement bridge, new SR-47 Expressway, and flyover would not result in permanent adverse effects to utilities and public services.

Utilities

Electricity

Operation of Alternative 1 would result in the consumption of modest amounts of electricity used for bridge and expressway lighting. Roadway illumination and bridge lighting would be required during nighttime hours as a measure of safety and security. The amount of electricity required for such lighting would not be substantial. Also, energy required to light the new bridge is not expected to be greater than what is currently used to light the existing Schuyler Heim Bridge (which will be demolished and will no longer require energy). Sufficient electricity supply exists to accommodate the expected operational needs of Alternative 1. No adverse effects to electricity supply or infrastructure would result.

Natural Gas and Liquid Commodities

Operation of Alternative 1 would result in the relocation of various segmented pipeline infrastructure. Relocation would be accomplished during construction, and is not expected to result in adverse effects. Thus, no permanent operational effects to natural gas or liquid commodity facilities, infrastructure, or supply would occur as a result of Alternative 1.

Telecommunications

Alternative 1 would not result in permanent operational effects to telecommunication facilities, infrastructure, or service. All required relocation of telecommunication lines would be accomplished during construction.

Water Supply
Alternative 1 would not involve construction of any structures that would consume water or require a water supply. Thus, Alternative 1 would not affect water supply, infrastructure, or service. No adverse effects to water would result from operation of Alternative 1.

Wastewater
Alternative 1 would involve construction of a new bridge and roadway infrastructure and would not generate wastewater. Thus, Alternative 1 would not affect wastewater treatment capacity, infrastructure, or service. No adverse effects to wastewater treatment would result from the operation of Alternative 1.

Solid Waste
Operation of the proposed fixed bridge, expressway, and flyover under Alternative 1 would not generate solid waste. Thus, no permanent operational effects to solid waste disposal would occur.

Public Services
Operation of the new fixed bridge would not impede the ability of public and emergency services to respond to either water- or land-based emergencies. On the contrary, the new fixed bridge would be designed to withstand a major earthquake without collapsing, thus allowing emergency marine vessels to utilize the channel, as well as providing immediate service to emergency response vehicles. The additional lane width combined with the new 3-m (10-foot) shoulders in each direction would provide increased space for emergency vehicles to travel across the bridge, potentially decreasing land-based response times. The increased vertical height of the new bridge 14.3 meters (m) (47 feet [ft]) would allow quicker emergency response times for emergency response vessels (police and fireboats) by eliminating the existing vertical-lift bridge and the potential for delay when the lift span is raised. The replacement would provide adequate vertical clearance for oil and hazardous material spill response vessels and would have minimal, if any, effect on response times.

The replacement bridge would have the same navigable channel clearance as the existing bridge (54.9 m [180 ft]). Therefore, it would not impede the ability of the largest water-based emergency response vessels to pass between bridge support.

Adequate height and width clearances would be provided with the replacement bridge. Large water-based emergency response vessels would not be impeded or delayed.

In addition, if the Vincent Thomas Bridge were to collapse, or if other events blocked the inner harbor channels of either the Port of Long Beach or the Port of Los Angeles, Alternative 1 would cause vessels such as sailboats with mast heights greater than 14.3 m (47 ft) and other tall vessels to be detained in the port until an exit could be cleared. Because such an event would be infrequent and would not affect emergency vessel transport through the Cerritos Channel (the 14.3-m [47-ft] bridge height would provide adequate clearance for the largest emergency response vessel), no serious adverse effects are anticipated.

Other effects from the new SR-47 Expressway include benefits to traffic circulation for public facilities and services near Henry Ford Avenue. In addition, operation of the flyover would include benefits to traffic circulation in the vicinity of the Ocean Boulevard/SR-47 intersection on Terminal Island.

3.4.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

The SR-103 alignment north of the Schuyler Heim Bridge would transition westerly and join the existing SR-47 alignment near the existing LADWP Substation No. DS 119 near Pier A Plaza. Construction of the foundations for the bents that would support the elevated roadway and flyover would affect existing utilities. Additionally, utilities with aerial easements would be restricted due to the proposed new structures. Several overhead telephone and electrical facilities would be affected along the route.

As part of standard construction practices and requirements, USA would be notified of the project prior to construction or demolition. USA would inform utility owners of the construction so that they can mark the location of utility lines prior to groundbreaking. Coordination with USA would serve to further identify the presence of unknown or unmarked utilities so that relocations or bypasses can occur, or the utilities can be avoided, in order to minimize service disruptions.

Construction Effects

Utilities

Electricity

Alternative 2 would have the same effect on the LADWP Substation No. DS 119 (near Pier A Plaza) as Alternative 1. Existing 4.8-kilovolt (kV) overhead lines east of the substation lie in the path of elevated SR-103 structures. High power lines that would conflict with the proposed roadway would require relocation on a taller steel pole. It is estimated that four high-voltage pole structures would be affected by Alternative 2. SCE has a 2-inch underground electrical conduit along Sepulveda Boulevard, providing power for street lights. In addition, SCE duct banks are located along the east and west sides of Intermodal Way, and 2-inch SCE PVC conduits for street lighting are on both sides of Intermodal Way.

The proposed SR-103 extension would rise vertically from the center of the existing SR-103, transition to the north and west, and cross over the SCE utility corridor. Several existing high-voltage (66-kV and 240-kV) SCE transmission lines would conflict with the proposed SR-103 highway structure. In order to accommodate the new alignment, the existing towers would need to be raised 13.7 m (45 ft) on the average. The towers are currently 13.7 to 15.2 m (45 to 50 ft) high. Each tower installation would consist of four towers – three of which would carry the 240-kV lines, plus a single tower that would carry the 66-kV line. Transferring the transmission lines to taller structures would result in potential service disruptions to customers in the vicinity, and substantial utility relocation costs to the project. Similarly, for the flyover, taller poles would be required to hold the SCE transmission lines. Underground SCE conduit along Sepulveda Boulevard and Intermodal Way may require avoidance or relocation. Transmission lines could be relocated underground; however, the construction cost for such an option would be dramatically more than that of increasing the height of existing towers.

Prior to relocation activities, proper notice of service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Utility lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and SCE. New or relocated utility lines, poles, and towers would be placed in an existing disturbed industrial area, and are not expected to have an adverse effect on the existing environment. Raising the height of the utility towers could alter the existing view of the area; however, given the industrial setting, and the lack of scenic views, this would not be considered an adverse effect.

Alternative 2 would not conflict with adopted energy conservation plans, nor would it result in wasteful or inefficient use of electricity.

Natural Gas and Liquid Commodities

Presently, there are numerous natural gas and oil pipelines crossing the project area. A 12-inch SCG gas main is located within the Cerritos Channel just west of the Schuyler Heim Bridge, directly beneath the proposed replacement bridge. This gas main would be protected in place during construction. Several additional SCG pipelines are located at various points along the proposed bridge and SR-47 portion of Alternative 2, but would not directly conflict with those structures. However, SCG has an 8.5-inch line along the north side of Sepulveda Boulevard, and a 10-inch line along the south side of Sepulveda Boulevard.

Several oil pipelines coincide with the project area. Along the proposed SR-47 route, near LADWP Substation No. DS 119, existing TOPCO oil pipelines currently run east, then turn north, and eventually continue east. Relocation of a segment of these pipelines would be required near the southeast corner of the substation. Pipelines along the SR-103 portion of Alternative 2 include existing oil lines from Shell Oil and Exxon/Mobil. The Exxon/Mobil line appears to be an abandoned line. Along the proposed SR-103 portion of Alternative 2, a variety of oil pipelines are located north and south of Sepulveda Boulevard and within the 100-foot right-of-way. North of Sepulveda Boulevard are: one 6-inch Pacific States Oil line; four 4-inch to 10-inch Richfield Oil lines; and four 3-inch to 8-inch Richfield gasoline lines. On the south side of Sepulveda Boulevard are: two 8-inch Associated/Tidewater oil lines, one 6-inch Associated/Powerine oil line, one 5-inch Sunset Pacific Gasoline line, and one 6-inch U.S. Army gasoline line.

These various segments of natural gas and oil pipelines would be relocated safely prior to construction of Alternative 2. Though unlikely, relocation of pipelines could result in temporary disruption of service to natural gas customers in the surrounding vicinity. Prior to relocation activities, gas customers would be given notice of potential service disruptions.

Coordination with SCG and with oil pipeline owners would be required in order to facilitate relocation. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Utility lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and the respective owners.

The relocation of pipeline segments is not expected to result in adverse environmental effects, as the segments would be placed near existing lines, within existing utility corridors or industrialized areas. Trenching would not disturb previously undisturbed, or residential, areas. Alternative 2 would not conflict with adopted energy conservation plans, nor would it result in wasteful or inefficient use of oil or natural gas.

Telecommunications

A 1,500-pair telephone line runs underground from Anchorage Street northward, to a point 30 m (98 ft) south of the Dominguez Channel. This line is located toward the west side of the existing Henry Ford utility corridor. This line crosses SR-47 as it extends east to Henry Ford Avenue and then heads northward along Henry Ford Avenue.

From Anchorage Street west of SR-47, a minor telephone line (less than 50 pairs) runs parallel with SR-47 until the intersection of Pier Way and Pier A Plaza. This facility would require relocation via an underground duct bank.

A major underground telephone utility (approximately 900 pairs) runs under SR-47 from an existing telephone cabinet located near the intersection of Pier A Way and Pier A Plaza. This underground line would interfere with the proposed SR-47 and requires relocation.

Relocation of telephone lines could result in the temporary disruption of telecommunication services. However, prior to relocation activities, proper notice of service disruptions would be given to affected customers. Utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Telecommunication lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and the respective owners. Because the relocated telephone lines and poles would be placed in an existing disturbed industrial area, they are not expected to have an adverse effect on the existing environment.

Water

Presently, numerous LADWP-owned water supply pipelines cross the project area in various directions. Construction of Alternative 2 would require the relocation of several segments of these pipelines. Relocation would be accomplished prior to construction.

Near the SR-47 portion of Alternative 2, a 10-inch water line segment bisecting SR-47 north of the Schuyler Heim Bridge would be permanently removed. All other water lines in this area would be protected in place. Along the proposed SR-103 portion of Alternative 2, on the south side of Sepulveda Boulevard, is a 12-inch Dominguez water line. Another water line of unknown diameter is also along Sepulveda Boulevard, and there is one along Intermodal Way. There also is a monitoring well in the cul-de-sac at the end of Intermodal Way.

Relocation of water supply lines could result in the temporary disruption of water service to customers in the area. However, prior to relocation activities, proper notice of service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Water lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and LADWP. New or relocated water lines would be placed in an existing disturbed industrial area and would not have an adverse effect on the existing environment.

A minimal amount of potable or gray water (reclaimed water) would be used during project construction for dust suppression purposes and other construction related activities. Water would also be used by construction workers and for washing and cleaning construction equipment and vehicles. Adequate water supplies exist to accommodate the minimal amount of water that would be used during the construction phase. Thus, no adverse effect to water supply or infrastructure would occur.

Wastewater

Wastewater (sanitary sewer) lines owned by the City of Los Angeles presently cross the project area. Construction of Alternative 2 would require relocation of various segments of these wastewater lines. Relocation would be accomplished prior to construction.

In the vicinity of the SR-47 portion of Alternative 2, no sanitary sewer or wastewater lines would require relocation. All lines in this area would be protected in place. There are no sanitary sewer lines along the proposed SR-103 portion of Alternative 2. However, there is a sanitary sewer line along Sepulveda Boulevard, as well as on Intermodal Way.

Relocation of wastewater and sewer lines could result in temporary disruption of wastewater service to customers in the area. However, prior to relocation activities, proper notice of potential service disruptions would be given to affected customers. As mentioned above, utility relocations would be coordinated with USA, thus helping minimize temporary service disruptions and potential adverse effects to utilities. Wastewater lines and sewer pipes that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and LADWP. Relocated wastewater pipe segments would be placed in an existing disturbed industrial area and, therefore, would not have an adverse effect on the existing environment.

Construction activities for Alternative 2 would not result in the generation of substantial amounts of wastewater. Portable toilets would be available on-site for construction workers. Consequently, construction activities would not result in the discharge of wastewater into the existing sanitation systems. No adverse wastewater effects would result from construction of Alternative 2.

Solid Waste

Construction of Alternative 2 would involve demolition of the existing Schuyler Heim Bridge. Demolition of the bridge would require disposal of bridge materials, including asphalt, concrete, steel, rebar, and other materials. Approximately 23,000 m^3 (30,083 yd^3) of concrete and 5,900 MT (6,504 tons) of structural steel would be removed during demolition. Other debris (such as asphalt, concrete, steel, rebar, wood, etc.) would also result from construction of the SR-47 and SR-103 portions of the project. Approximately 7,901 m^3 (10,334 yd^3) of asphalt would be removed. A minimum 50 percent of construction and demolition debris would be diverted in accordance with AB 75, to which cities, counties, and regional agencies are subject. Recyclable materials would be hauled to local recycling facilities or inert landfills. This would minimize the use of Los Angeles County solid waste landfills and, therefore, minimize effects to landfill capacity. With the primary use of recycling facilities and inert landfills, capacities at existing permitted municipal solid waste facilities would not be adversely affected by the temporary and short-term disposal needs of the project.

Public Services

Under Alternative 2, a fixed bridge and flyover would be constructed, the same as under Alternative 1, and construction effects to public services would be similar to those under Alternative 1. However, other effects would occur from construction of the SR-103

Extension rather than from the SR-47 Expressway that would be constructed under Alternative 1.

This alternative would extend SR-103 to the northwest on a four-lane elevated viaduct to join Alameda Street between Sepulveda Boulevard and I-405. Improvements to SR-103 would begin approximately 3.2 km (2 miles [mi]) north of the Schuyler Heim Bridge and extend a distance of approximately 2.6 km (1.6 mi). The viaduct would cross over the Union Pacific Railroad manual yard and San Pedro Branch, through the Southern California Edison (SCE) utility corridor, across the Los Angeles Harbor Department Warehouse 16/17 area, over Sepulveda Boulevard, then parallel the western boundary of the Intermodal Container Transfer Facility (ICTF) to the centerline of Alameda Street. The viaduct would slope to grade south of the Wardlow Road ramps to I-405. Improvements would be made to the existing SR-103 to accommodate the southerly and northerly end connections of the viaduct. Consequently, construction of the SR-103 extension may result in delays and disruptions for public facilities and services near SR-103.

Operations Effects

Utilities

Under Alternative 2, permanent effects of utilities (electricity, natural gas and liquid commodities, telecommunications, water supply, wastewater, and solid waste) would be the same as described for Alternative 1. No adverse effects would occur.

Public Services

Operations effects to public services under Alternative 2 would be similar to those described for Alternative 1. However, effects of a new expressway would occur relative to the SR-103 Extension rather than the SR-47 Expressway described under Alternative 1.

Other effects from the SR-103 Extension also would benefit traffic circulation for public facilities and services.

3.4.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.4.3.3.3.1 Construction Effects

Utilities

Under Alternative 3, construction effects would be similar to Alternative 1, with the addition of retrofitting the existing Schuyler Heim Bridge, which would remain in place. The new bridge would be constructed to the east of the existing bridge. Thus, much of the short-term construction effects to utilities would be the same as those discussed under Alternative 1.

As part of standard construction practices and requirements, USA would be notified of the project prior to construction or demolition. USA would inform utility owners of the construction so that they can mark the location of utility lines prior to groundbreaking. Coordination with USA would serve to further identify the presence of unknown or unmarked utilities so that relocations or bypasses can occur, or the utilities can be avoided, in order to minimize service disruptions.

Electricity

Under Alternative 3, the existing Schuyler Heim Bridge would not be demolished. Thus, any existing utility lines running along the bridge would remain in place. Remaining construction effects and relocations relating to electricity would be the same as those discussed under Alternative 1. Construction activities would not adversely affect the electrical infrastructure, supply or service in the vicinity of the proposed project.

Natural Gas and Liquid Commodities

The existing SCG gas line west of the Schuyler Heim Bridge would not be affected, as the existing bridge would remain in place. Other oil pipeline effects would be the same as those described for Alternative 1.

Telecommunications

None of the existing telecommunication lines in the bridge and approach area would be affected. Thus, temporary construction effects to telecommunications would be the same as those described under Alternative 1 and adverse effects would not occur.

Water

Under Alternative 3, construction effects and relocations relating to water supply would be the same as those discussed under Alternative 1. Construction activities would not adversely affect water supply, infrastructure, or service in the vicinity of Alternative 3.

Wastewater

Under Alternative 3, construction effects and relocations relating to wastewater conveyance and treatment would be the same as those discussed under Alternative 1. Construction activities would not adversely affect wastewater treatment and conveyance capacity, infrastructure, or service in the vicinity of Alternative 3.

Solid Waste

Construction and demolition debris (such as asphalt, concrete, steel, rebar, and wood) from construction activities proposed under Alternative 3 would be similar to, but substantially less than, under Alternative 1, as the existing Schuyler Heim Bridge would not be demolished but would remain in place. Approximately 10,000 m^3 (13,080 yd^3) of concrete, 3,300 MT (3,638 tons) of steel, and 4,663 m^3 (6,099 yd^3) of asphalt would be removed. A minimum of 50 percent of construction and demolition debris would be diverted in accordance with AB 75, to which cities, counties, and regional agencies are subject. Recyclable materials would be hauled to local recycling facilities or inert landfills. This would minimize the use of Los Angeles County solid waste landfills and, therefore, minimize effects to landfill capacity. With the primary use of recycling facilities and inert landfills, capacities at existing permitted municipal solid waste facilities would not be adversely affected by the temporary and short-term disposal needs of the project.

Public Services

This alternative preserves the existing Schuyler Heim Bridge while constructing a new fixed-span bridge on an alignment east of the existing bridge. The proposed fixed-span bridge is the same as described under Alternative 1. Construction effects to public services under Alternative 3 would be similar to Alternative 1. Under this alternative, the existing Schuyler Heim Bridge would remain in place, but would not be used.

3.4.3.3.3.2 Operations Effects

Utilities

Under Alternative 3, permanent effects to utilities (electricity, natural gas and liquid commodities, telecommunications, water supply, wastewater, and solid waste) would be the same as described for Alternative 1. No adverse effects would occur.

Public Services

Under Alternative 3, the operational effects to public services (police protection, fire protection, schools, and libraries) would be the same as those described under Alternative 1. No adverse effects would occur.

3.4.3.3.4 Alternative 4: Bridge Replacement Only

3.4.3.3.4.1 Construction Effects

Utilities

As with Alternative 1, the eastern half of the new, fixed-span bridge would be constructed while the existing Schuyler Heim Bridge remains in service. Traffic would then be directed to the newly constructed portion of the fixed-span bridge, and the Schuyler Heim Bridge would be demolished; then the rest of the new bridge would be constructed. Construction of the foundations for the bents that support the elevated portion of the roadway would impinge on the existing utilities. In addition, the aerial easements would impose restrictions on utilities where the new structures are proposed. Several overhead telephone and electrical facilities would be affected along the route, resulting in effects similar to those described under Alternative 1. Other construction effects would not occur, as this alternative does not include an expressway or flyover.

Electricity

Under this alternative, anticipated effects to the LADWP Substation No. DS 119 would be similar to those discussed under Alternative 1. Specifically, existing overhead lines east of the substation lie in the path of elevated SR-47 structures. An existing segment of two 34.5-kV feeders and two 4.8-kV feeders would conflict with the proposed roadway and would require relocation to taller steel poles. LADWP considers this segment of be of major importance. It is estimated that six high-voltage steel pole structures would be required.

Temporary disruptions to electrical service could potentially occur due to relocation activities. However, prior to such activities, proper notice of service disruptions would be given to affected customers. Utility lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA and SCE. New or relocated utility lines, poles, and towers would be placed in an existing disturbed industrial area, and are thus not expected to have an adverse effect on the existing environment. Furthermore, Alternative 4 would not conflict with adopted energy conservation plans, nor would it result in wasteful or inefficient use of electricity.

Natural Gas and Liquid Commodities

Near the LADWP Substation No. DS 119, existing TOPCO oil pipelines currently run east, then turn north, and eventually continue east. Relocation of a segment of these pipelines would be required near the southeast corner of the substation.

Telecommunications

A minor telephone line (less than 50 pairs) runs parallel with SR-47 from Anchorage Street west of SR-47 until the intersection of Pier A Way and Pier A Plaza. This facility would require relocation via an underground duct bank.

Temporary disruptions to telecommunication services could occur due to relocation activities. However, prior to such activities, proper notice of service disruptions would be given to affected customers. Telecommunication lines that would be maintained in place during construction would be protected in accordance with the requirements of ACTA, and the respective owners. New or relocated telephone lines and poles would be placed in an existing disturbed industrial area, and would not have an adverse effect on the existing environment.

Water Supply

Under Alternative 4, anticipated effects to water supply and infrastructure during construction would be similar to those described under Alternative 1, as applicable to replacement of the Schuyler Heim Bridge, or north to the SR-103 freeway connection. Required infrastructure changes would include removal of a segment of 10-inch water pipeline located north of the northern abutment of the existing Schuyler Heim Bridge.

It is also anticipated that minimal amounts of potable or gray water (reclaimed water) would be used during project construction for dust suppression and other construction related activities. Water would also be used by construction workers and for washing and cleaning construction equipment and vehicles. Adequate water supplies exist to accommodate the minimal amount of water that would be used during the construction phase. Thus, no adverse effect to water supply or infrastructure would occur under Alternative 4.

Wastewater

Under Alternative 4, wastewater or sewer line relocations are not anticipated. Construction activities for this alternative would not result in the generation of substantial amounts of wastewater. Portable toilets would be available on-site for construction workers. Consequently, construction activities would not result in the discharge of wastewater into the existing sanitation systems. No adverse wastewater effects would result from construction of Alternative 4.

Solid Waste

Construction of Alternative 4 would involve demolition of the existing Schuyler Heim Bridge. Demolition would require disposal of bridge materials, including asphalt, concrete, steel, rebar, and other materials. Approximately 23,000 m^3 (30,083 yd^3) of concrete and 5,900 MT (6,504 tons) of structural steel would be removed during demolition. Other debris (such as concrete, asphalt, wood, and steel) would also result from construction of the elevated expressway portion of the project. Approximately 2,602 m^3 (3,403 yd^3) of asphalt would be removed. A minimum of 50 percent of construction and demolition debris would be diverted in accordance with AB 75, to which cities, counties, and regional agencies are subject. Recyclable materials would be hauled to local recycling facilities or inert landfills. This would minimize the use of Los Angeles County solid waste landfills and, therefore, minimize effects to landfill capacity. With the primary use of recycling facilities and inert landfills, capacities at existing permitted municipal solid waste facilities would not be adversely affected by the temporary and short-term disposal needs of the project.

Public Services

Under Alternative 4, a new, fixed-span bridge would be constructed within and east of the existing footprint of the Schuyler Heim Bridge. Construction effects to public services under Alternative 4 would be similar to those related to bridge replacement under Alternative 1, without additional effects from the new SR-47, or flyover, which would not be constructed under this alternative.

3.4.3.3.4.2 Operations Effects

Utilities

Under Alternative 4, permanent effects to utilities (electricity, natural gas and liquid commodities, telecommunications, water supply, wastewater, and solid waste) would be comparable to those described for Alternative 1 as related to replacement of the Schuyler Heim Bridge. No adverse effects would occur.

Public Services

Under Alternative 4, operational effects to public services (police protection, fire protection, schools, and libraries) would be the same as those described for Alternative 1 as related to replacement of the Schuyler Heim Bridge. No adverse effects would occur.

3.4.3.3.5 Alternative 5: Transportation System Management

3.4.3.3.5.1 Construction Effects

Utilities

Construction of the proposed TSM Alternative could include pavement re-striping, traffic signal adjustment, installation of new ramp metering, signal synchronization, installment of changeable message signs (CMS), and closed circuit television surveillance systems (CCTV).

Electricity

None of the proposed improvements or systems would require the relocation of electrical utility lines. Negligible amounts of electricity could be required for installation of TSM elements. Thus, no adverse effects would result from the construction of this alternative.

Natural Gas and Liquid Commodities

Construction of the proposed improvements and systems would not affect existing natural gas pipelines or oil pipelines. No pipeline relocation would be required. Thus, no adverse effects to natural gas and liquid commodities would result from the construction of this TSM Alternative.

Telecommunications

Construction of the proposed improvements and systems would not affect any existing telecommunication lines in the project area. No utility relocation would be required. Thus, no adverse effects to telecommunications would result from the construction of this TSM Alternative.

Water Supply

Construction of the proposed improvements and systems under Alternative 5 would not affect any existing water supply lines or infrastructure in the project area. No utility relocation would be required. Thus, no adverse effects to water supply would result from the construction of this alternative.

Wastewater

Construction of the proposed improvements and systems would not affect any existing wastewater lines in the project area. No utility relocation would be required. Thus, no adverse effects to wastewater treatment, conveyance, or infrastructure would result from the construction of Alternative 5.

Solid Waste

Construction of Alternative 5 could result in minimal amounts of solid waste and debris. The amount of debris generated is expected to be negligible and would not adversely exceed the capacity of landfills serving the project site. Thus, construction would not result in adverse effects to solid waste disposal.

Public Services

Alternative 5 would include low-cost, easily implementable improvements as an alternative to construction of more expensive improvements. This alternative focuses on improvements to routes that parallel the proposed SR-47 Expressway and that serve the same trips. The TSM Alternative would include measures to improve capacity and traffic circulation at the Port of Long Beach and Port of Los Angeles through policy changes and use of the latest technologies. Consequently, construction effects from this alternative would be less than adverse to public facilities and services in the project area.

3.4.3.3.5.2 Operations Effects

Utilities

Implementation of Alternative 5 would not adversely affect natural gas, liquid commodities, telecommunications, water supply, wastewater, or solid waste disposal facilities. However, electricity would be required for the operation of various elements proposed under this alternative.

Electricity

Electricity would be required for operation of various elements proposed under this alternative. Changeable message signs (CMS), closed circuit television surveillance systems (CCTV), ramp meters and intelligent transportation system (ITS) applications would require the use of electricity. The amount of electricity required would be minimal. Energy saving measures, such as solar power, would be applied wherever feasible. Thus, no long-term or permanent adverse effects to electricity supply or infrastructure are anticipated as a result of the operation of Alternative 5.

Natural Gas and Liquid Commodities

Implementation of Alternative 5 would not adversely affect natural gas or liquid commodity supply, infrastructure, or service. No adverse effects would result.

Telecommunications

Implementation of Alternative 5 would not adversely telecommunication infrastructure or service. Therefore, no long-term or permanent adverse effects to telecommunications are anticipated as a result of Alternative 5.

Water Supply

Implementation of Alternative 5 would not adversely affect water supply, infrastructure, or service. No adverse effects would result.

Wastewater

Implementation of Alternative 5 would not adversely affect wastewater conveyance, treatment, or infrastructure. No adverse effects would result.

Solid Waste

Alternative 5 would not generate solid waste. Therefore, no long-term or permanent effects to solid waste facilities are anticipated as a result of Alternative 5.

Public Services

Implementation of Alternative 5 would not adversely affect public services (police and fire protection, schools, and libraries).

3.4.3.3.6 Alternative 6: No Build

3.4.3.3.6.1 Construction Effects

Under the No Build alternative, replacement of the Schuyler Heim Bridge would not occur, nor would the SR-47 Expressway, SR-103 Extension, or flyover be constructed; thus, energy would not be required for construction. No utility relocation would take place. The No Build alternative would not result in any adverse effects to utilities or public services.

3.4.3.3.6.2 Operations Effects

Utilities

Under the No Build alternative, replacement of the Schuyler Heim Bridge would not occur, nor would the SR-47 Expressway, SR-103 Extension, or flyover be constructed. As a result, utility service would remain the same as under existing conditions, and existing infrastructure would continue to provide the project area with electricity, natural gas, telecommunications, water, wastewater treatment, and solid waste disposal without interruption or other effects.

Public Services

Public and emergency services would continue to respond to calls within their service areas; existing response routes would continue to be used and no change in response times would occur.

However, under the No Build alternative, the existing Schuyler Heim Bridge would remain seismically deficient, and there is a likelihood that a future major seismic event would damage the bridge such that it would have to be replaced or that the event could result in collapse of the bridge. In either case, emergency services and response to and from Terminal Island and/or through the Cerritos Channel would be temporarily restricted until the bridge could be repaired or replaced.

3.4.3.3.7 CEQA Consequences

Based on the information provided in the above analyses of the affected environment, when potential impacts of the proposed project alternatives are assessed in the context of the CEQA criteria for Public Services and for Utilities and Service Systems, the above analysis demonstrates that impacts either will not occur or will be less than significant. None of the project alternatives would result in a need to construct new or alter existing fire or police protection, schools, parks, or other public facilities. Therefore, under CEQA, there would be no impact to Public Services under any of the six project alternatives.

The above analysis also shows that impacts to landfill capacity would be less than significant for Alternatives 1 through 5; impacts to stormwater drainage facilities would be less than significant for Alternatives 1 through 4; impacts to water supply would be less than significant for Alternatives 1 through 5, impacts to water supply would be less than significant for Alternatives 1 through 5. For Alternatives 5 and 6, there would be no impact. Also, because the project would comply with regulatory requirements for solid waste and would not require new or expanded wastewater treatment facilities, there would be no impact related to these issues under any of the six project alternatives. Therefore, under CEQA, impacts to Utilities and Service Systems either would be less than significant or would not occur at all.

Potential impacts of the proposed project alternatives to Utilities and Service Systems are assessed in the context of the CEQA criteria in Chapter 4.0 – CEQA Analysis and Appendix A – CEQA Checklist (XII, Public Services; XVI, Utilities and Service Systems).

3.4.4 Avoidance, Minimization, and/or Mitigation Measures

3.4.4.1 Avoidance and Minimization Measures

3.4.4.1.1 Construction

3.4.4.1.1.1 Alternatives 1, 1A, 2, 3, and 4

U-1 Provide advance notification to utility users of the potential for service disruption and the anticipated time/date of the disruption.

U-2 Prior to bridge construction, notify watch commanders and station chiefs of all fire, police, and other land- and water-based response stations that service the port area or use the Schuyler Heim Bridge or Cerritos Channel as a travel route to respond to service calls in order to minimize delays to emergency response providers during project construction. This action will allow for the identification of alternate routes and the development of contingency response plans, including:

- Temporary interim policies that will identify alternative resources within the public service and emergency response organization (i.e., alternative response units located closer to the incident); and
- Mutual aid agreements between bordering public service and emergency response organizations (i.e., LAFD and LBFD) that could be dispatched in the event of a response delay of the primary emergency response provider.

U-3 Specify in the contract that construction in the Cerritos Channel must occur in a manner that allows emergency marine vessels to pass or be carried out in such a way that barges with construction equipment will be moved quickly to allow passage of emergency vessels.

U-4 Determine where construction-related activities have the potential to disrupt response routes, and coordinate with Los Angeles and Long Beach police and fire departments, as well as any local emergency medical service units.

U-5 Utilize a Transportation Management Plan that is agreeable to all emergency service providers and the project design team.

U-6 During final design, after selection of the preferred alternative, a determination will be made regarding which of the identified utilities will be relocated. Plans for the relocations will be developed in consideration of the project schedule and consultation with the utility providers which include, but are not limited to, LADWP, LBWD, SCE, SCG, GTE/Verizon, AT&T, City of Los Angeles. In addition, pipeline relocations will be planned and implemented in consultation with TOPCO, Exxon Mobil, Gulf Oil, and SCG. In further consultation with utility providers, some obsolete utilities may be removed at the request of the provider.

3.4.4.1.1.2 Alternatives 5 and 6
No avoidance or minimization measures would be necessary.

3.4.4.1.2 Operations
No avoidance or, minimization measures would be required for operation of the proposed project.

3.4.4.2 Mitigation Measures

No mitigation measures are proposed for utilities or public services for any of the project alternatives.

3.5 Traffic and Transportation

This section summarizes the results of the *Traffic Study: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Meyer, Mohaddes Associates [MMA], 2007), a comprehensive traffic study that analyzed traffic conditions in the project area and the potential effects of the project alternatives on those conditions. The analysis includes current and forecasted traffic volumes and levels of service (LOS). It evaluates effects to traffic from replacement of the Schuyler Heim Bridge, either alone or in association with a new SR-47 Expressway or SR-103 Extension (see Figures 3.5-1 and 3.5-2).

3.5.1 Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans, as assigned by FHWA, is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

3.5.2 Affected Environment

3.5.2.1 Transportation System

For this analysis, the study area includes the area bounded by: Ocean Boulevard, Seaside Avenue, and Route 47/Vincent Thomas Bridge to the south; I-110 to the west; Sepulveda Boulevard to the north; and I-710 to the east. Specifically, the analysis includes the SR-47 Expressway mainline, ramps, and intersections in the immediate vicinity of the project, and intersections north and south of the project. The following intersections were analyzed:

- SR-47/Ocean Boulevard Interchange (future configuration with flyover)
- SR-47/New Dock Street on-ramp (unsignalized)
- SR-47/New Dock Street off-ramp (unsignalized)
- SR-47/Henry Ford Avenue ramps (unsignalized existing and signalized in future)
- Henry Ford Avenue/Anaheim Street
- Henry Ford Avenue/Denni Street
- Alameda Street/Anaheim Avenue
- Alameda Street/PCH connector ramp north of PCH
- PCH/Alameda Street connector ramp east of Alameda Street
- Alameda Street/Sepulveda Boulevard connector ramp north of Sepulveda Boulevard
- Sepulveda Boulevard/Alameda Street connector ramp east of Alameda Street

- Alameda Street/223rd Street connector ramp south of 223rd
- 223rd Street/Alameda Street connector ramp east of Alameda Street
- 223rd Street/I-405 southbound ramps
- Alameda Street/I-405 northbound ramps
- Alameda Street/Carson Street connector ramp south of Carson Street
- Carson Street/Alameda Street connector ramp east of Alameda Street
- Alameda Street/Del Amo Boulevard connector ramp south of Del Amo Boulevard
- Del Amo Boulevard/Alameda Street connector ramp east of Alameda Street
- Alameda Street/SR-91 eastbound ramps
- Alameda Street/Artesia Boulevard connector ramp north of Artesia Boulevard

Except as otherwise noted, the intersections are signalized.

Three bus routes serve the project area. The Los Angeles Metropolitan Transportation Authority operates Routes 202 and 232; Los Angeles Department of Transportation Transit operates Commuter Express Route 142. Route 202 provides AM and PM peak hour service from Wilmington to Willow Brook via Alameda Street. Route 202 operates on 30-minute headways from 5:25 AM until 9:49 AM and again from 3:25 PM until 7:19 PM. Route 232 provides all-day service from Los Angeles International Airport to Downtown Long Beach via Pacific Coast Highway. Route 232 operates with approximately 20-minute headways during peak hours and 30-minute headways during off-peak hours. Service for Route 232 begins at 3:46 AM and continues through 12:31 AM. Commuter Route 142 provides daily service between San Pedro, Terminal Island, and Downtown Long Beach. Route 142 provides service on 25-minute headways throughout the day and 30-minute headways from 6:10 PM until 11:40 PM. Route 142 has bus stops located along Ocean Boulevard.

3.5.2.2 Existing Traffic Conditions

The Schuyler Heim Bridge is one of three bridges that connect Terminal Island to the mainland. The Schuyler Heim Bridge is a steel vertical-lift bridge that spans a popular route for traffic to and from Terminal Island and has become a vital traffic link between the ports and the mainland.

The two other bridges are the Gerald Desmond Bridge in the Port of Long Beach, east of Terminal Island, and the Vincent Thomas Bridge in the Port of Los Angeles, west of Terminal Island. The Ports of Long Beach and Los Angeles are the two largest ports in the United States, based on container cargo volume. The Schuyler Heim Bridge is located between Interstate (I)-710 and I-110 and provides a route to both highways in the event of an earthquake that disrupts service on the Gerald Desmond Bridge, which provides I-710 access to Terminal Island, and the Vincent Thomas Bridge, which provides I-110 access to Terminal Island.

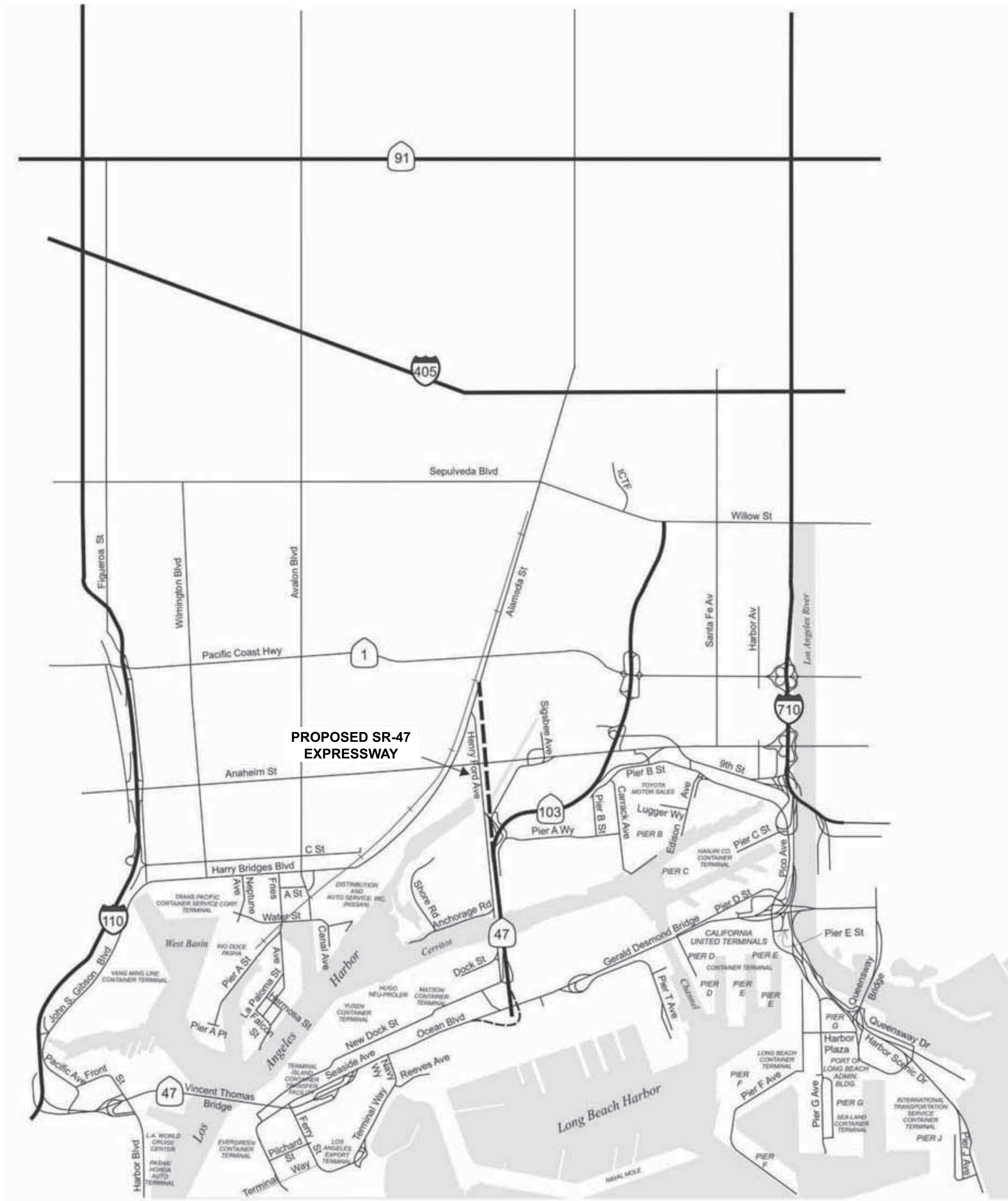


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Figure 3.5-1
Proposed SR-47 Expressway
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: Meyer, Mohaddes Associates

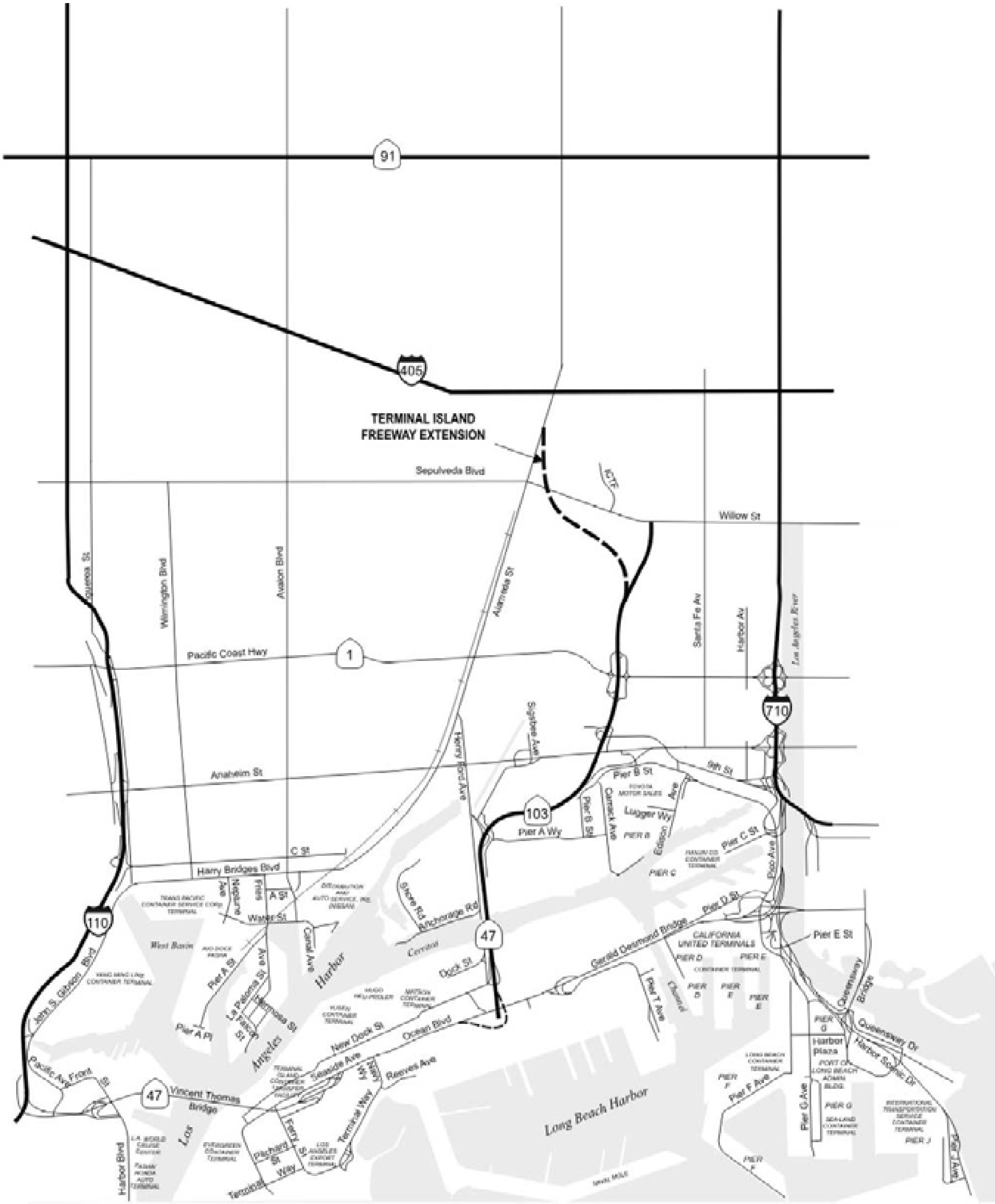

Figure 3.5-2
Proposed SR-103 Extension
Schuyler Heim Bridge Replacement and SR-47 Expressway

No Scale

Source: Meyer, Mohaddes Associates

The Ports of Los Angeles and Long Beach, Caltrans, the MTA, and the cities of Los Angeles and Long Beach are currently developing several transportation improvement projects to alleviate freeway system congestion. Among these is the SR-47 Expressway, which would provide a four-lane elevated limited-access expressway, with auxiliary lanes at transition points with other roadways and at the Cerritos Channel crossing. The expressway would eliminate at-grade railroad crossings and signalized intersections between Terminal Island and Alameda Street/Pacific Coast Highway. The number of daily train crossings for Wilmington Wye East, Wilmington Wye West, Manual Subdivision (UPRR San Pedro), Henry Ford Bypass (ACTA3), and West Basin Lead (Leeward Bay Marina) are 15, 8, 79, 21, and 118 trains, respectively. Daily long trains (greater than 1,000 ft) on Wilmington Wye East and Wilmington Wye West are approximately 10 percent and 6 percent of traffic, respectively. The train traffic is estimated to increase by 8 percent per year.

When complete, the expressway would provide the missing link between the Ocean Boulevard Interchange on Terminal Island and Alameda Street on the mainland. This link would allow traffic to continue north from Terminal Island to connect to Pacific Coast Highway, I-405, and/or SR-91. The expressway would also help maximize use of the recently completed six-lane Alameda Street.

At present, to connect from Terminal Island to Alameda Street, vehicles must travel 1.5 kilometers (km) (0.9 mile [mi]) north from Ocean Boulevard, exit at the Henry Ford Avenue off-ramp, travel north through local streets, signalized intersections, and railroad crossings for about 2.0 km (1.2 mi), then join Alameda Street just south of Pacific Coast Highway.

Traffic volumes in the study area are shown in Table 3.5-1. Existing SR-47 mainline and ramp volumes for the AM, Mid-day (MD), and PM peak hours are shown in Figure 3.5-3. New intersection turning movement traffic counts were taken at all 20 study locations in 2004 for the AM, MD, and PM peak hours. All traffic volume counts include separate truck classification counts, separating auto and truck traffic to facilitate the application of passenger car equivalent (PCE) factors. Existing turning movements at the study intersections are presented in Figures 3.5-4, 3.5-5, and 3.5-6 for the AM, MD, and PM peak hours, respectively.

Table 3.5-1
2003 Traffic Volumes

Location	AADT/Peak Hour
Interstate 110 – south of PCH*	112,000/9,000
Interstate 710 – north of PCH*	143,000/11,600
Interstate 710 – south of PCH*	130,000/11,800
SR-103 – south of PCH*	14,300/1,650
Henry Ford Avenue – north of Anaheim Street	AM Peak – 650 (46% truck) PM Peak – 720 (22% truck)
Alameda Street – SR-1 to I-405	AM Peak – 1,670 (30% truck) PM Peak – 1,980 (28% truck)
Alameda Corridor Expressway – south of PCH	NA – future proposed facility

*Source: 2003 Caltrans Count Book as described in the Traffic Study for the project MMA, 2007.

Intersection operations are described by LOS criteria. In accordance with commonly accepted traffic engineering guidelines, LOS categories A through F are directly related to the average control delay per vehicle (see Table 3.5-2).

Table 3.5-2
LOS Categories

LOS	Avg Delay/Vehicle (Sec)	Traffic Conditions
A	≤ 10	Little or no delay/congestion
B	> 10 – 20	Slight congestion/delay
C	> 20 – 35	Moderate delay/congestion
D	> 35 – 55	Significant delay/congestion
E	> 55 – 80	Extreme congestion/delay
F	> 80	Intersection failure/gridlock

Source: MMA, 2007.

Table 3.5-3 summarizes the existing AM, MD, and PM peak-hour intersection operating conditions. For signalized intersections, operations are described in terms of volume/capacity (V/C) ratio, using the Critical Movement Analysis (CMA) in conformance with City of Carson and City of Los Angeles guidelines. For unsignalized intersections, operations are reported in terms of average vehicle delay, using the Highway Capacity Manual (HCM) delay-based methodology. As shown, all but three of the study locations currently operate at LOS C or better. Three locations are currently at LOS D:

- Alameda Street/Anaheim Street (PM peak hour)
- Sepulveda Boulevard/Alameda Street connector ramp east of Alameda Street (PM peak hour)
- 223rd Street/Alameda Street connector ramp east of Alameda Street (PM peak hour)

3.5.2.2.1.1 Implementation of Truck/Passenger Car Equivalencies

The presence of vehicles larger than passenger cars in the traffic stream affects traffic flow in two ways: (1) vehicles that are larger than passenger cars occupy more roadway space (and capacity) than individual passenger cars, and (2) the operational capabilities of these vehicles, including acceleration, deceleration, and maintenance of speed, are generally inferior to passenger cars, resulting in formation of gaps in the traffic stream, thereby reducing overall highway capacity.

For the LOS analysis, the forecast truck traffic volumes are converted to PCE, as follows:

- A PCE factor of 1.1 was applied to tractors (bobtails) truck volumes
- A PCE factor of 2.0 was applied to chassis truck volumes
- A PCE factor of 2.0 was applied to container truck volumes

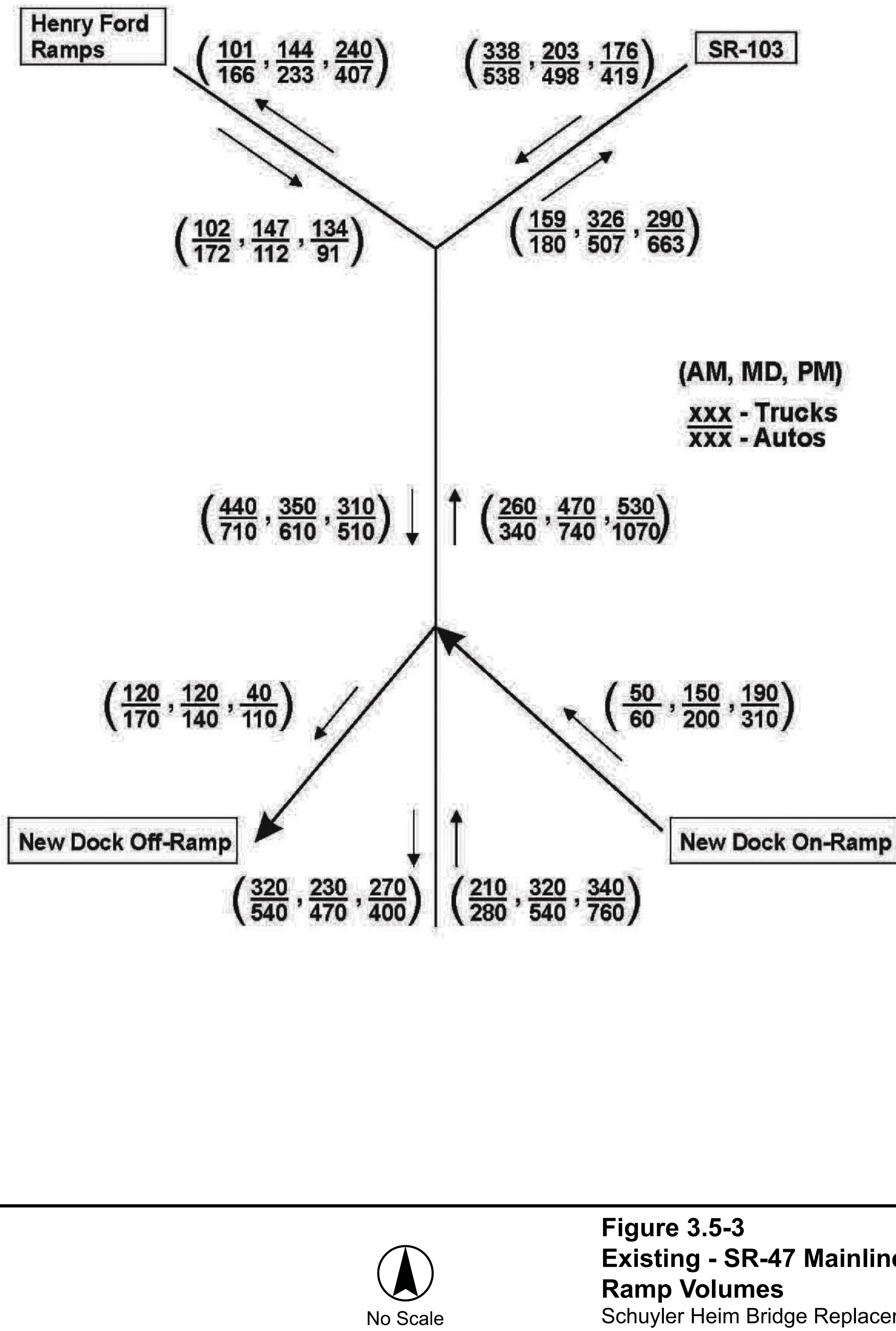

Figure 3.5-3
Existing - SR-47 Mainline and Ramp Volumes
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

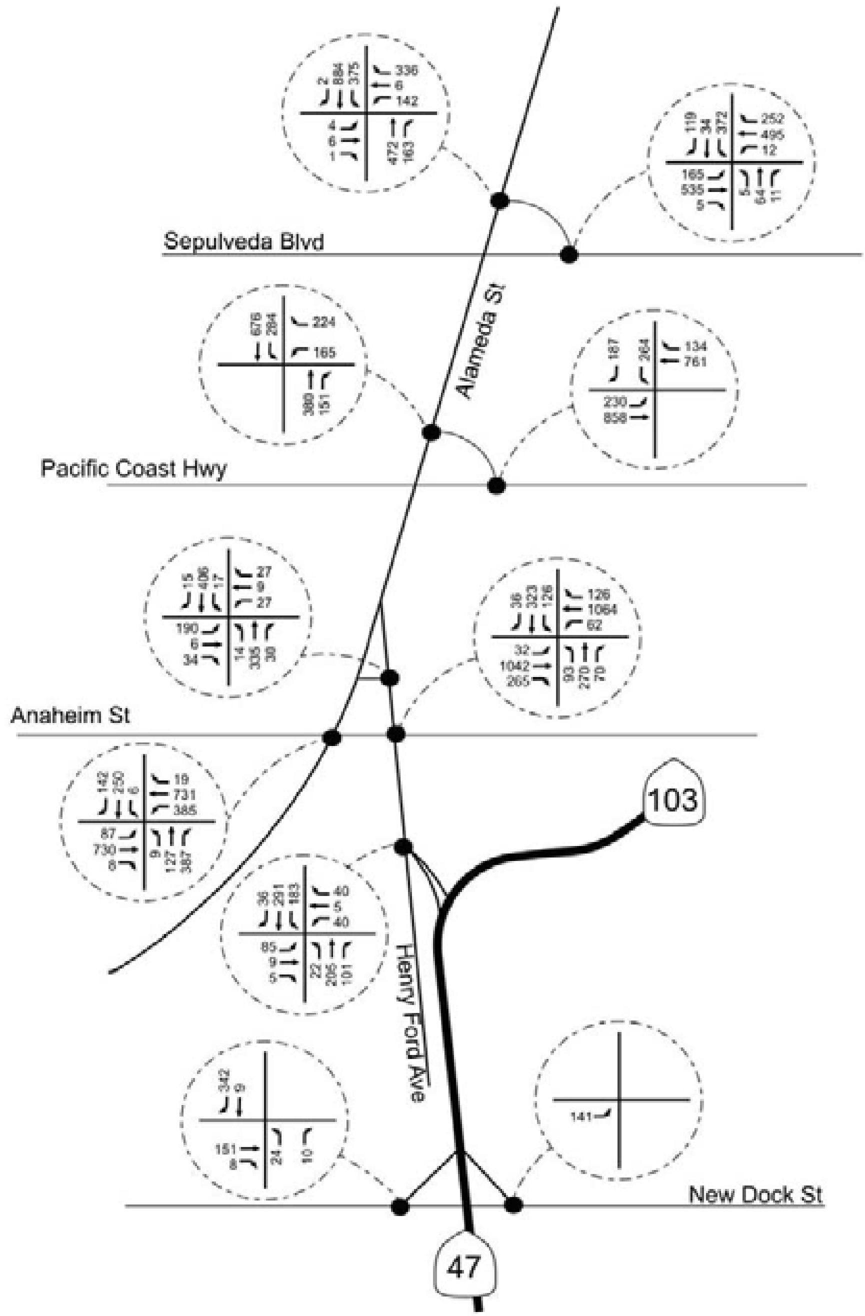

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Figure 3.5-4a
Existing AM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

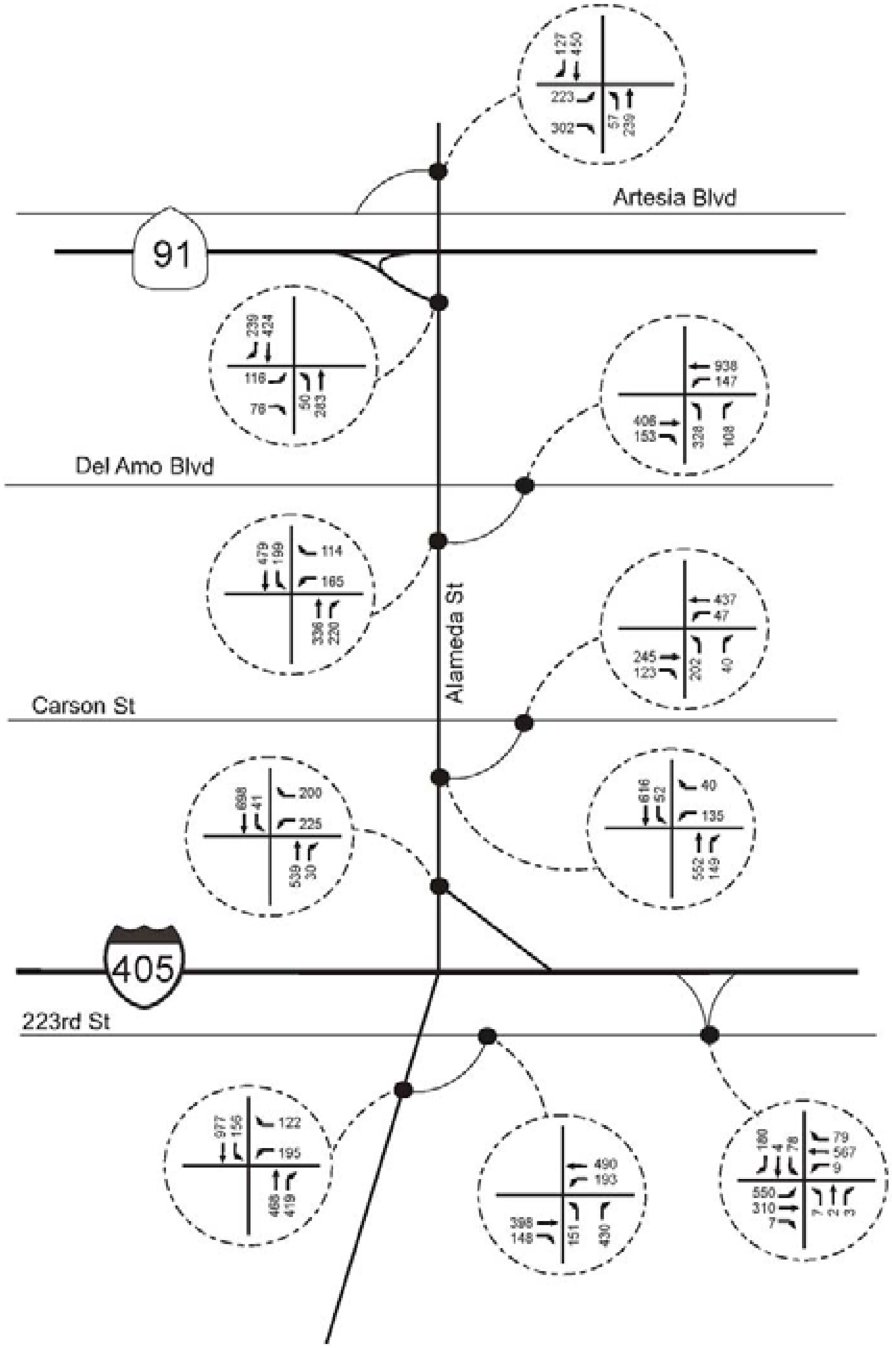

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Figure 3.5-4b
Existing AM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

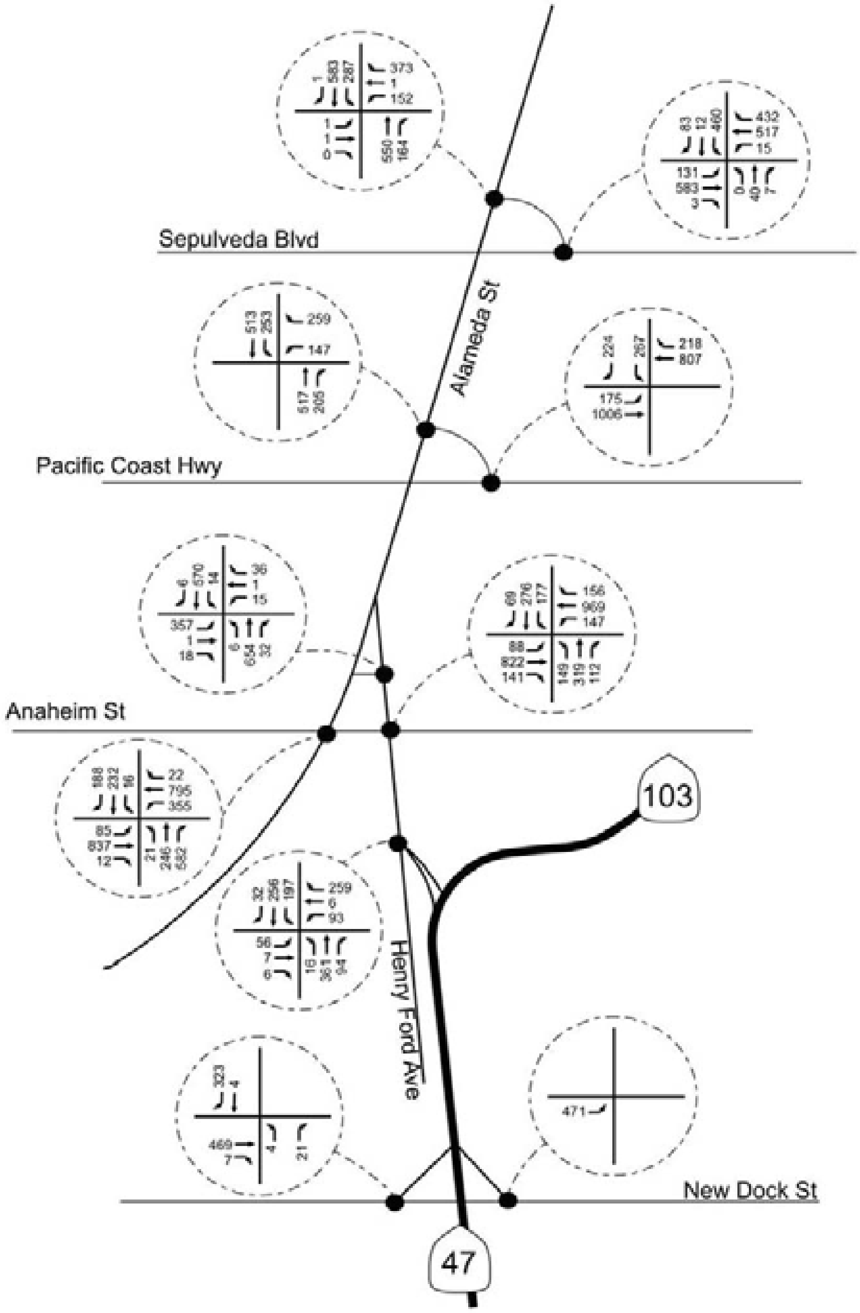

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Figure 3.5-5a
Existing MD Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

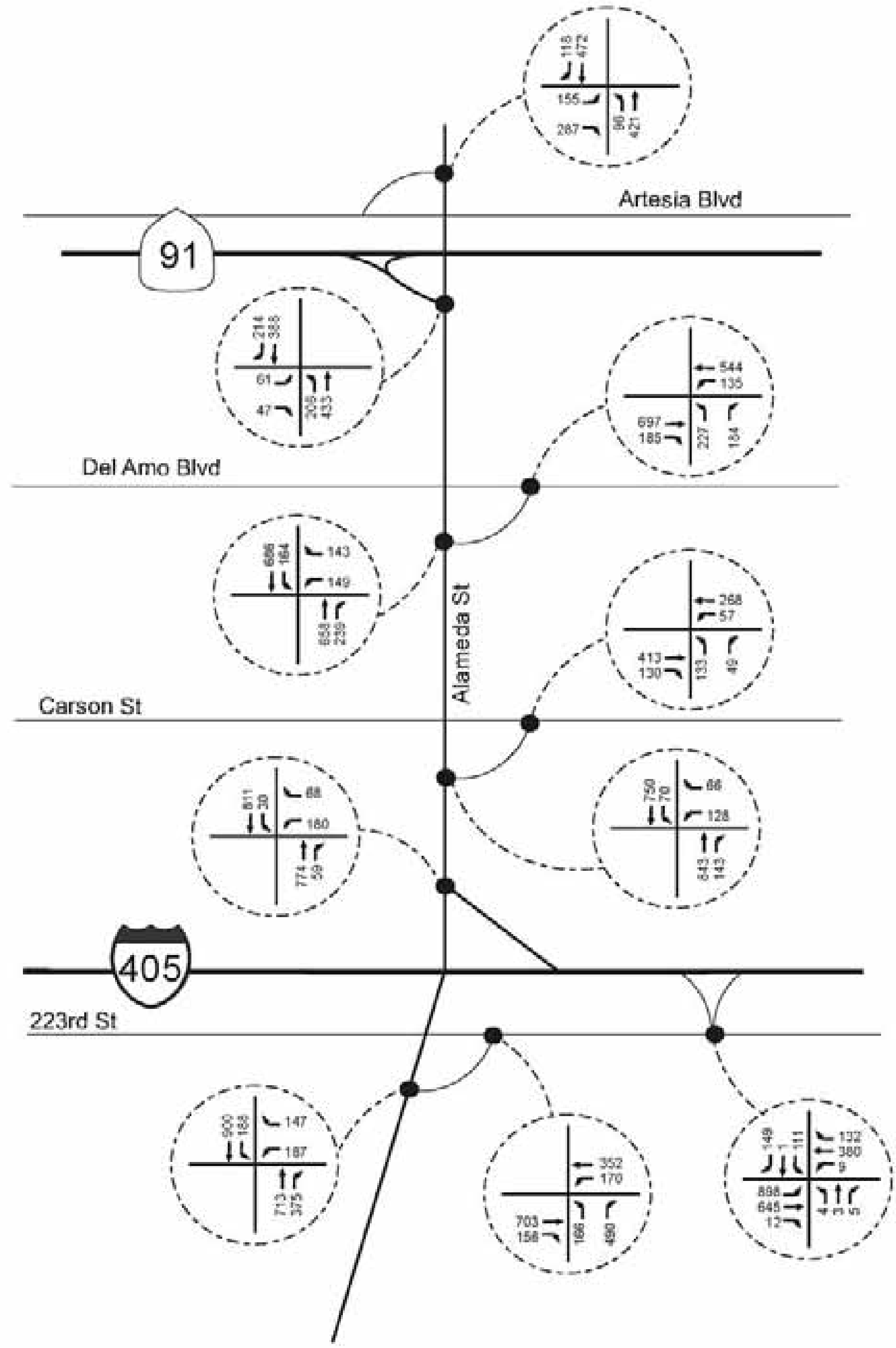

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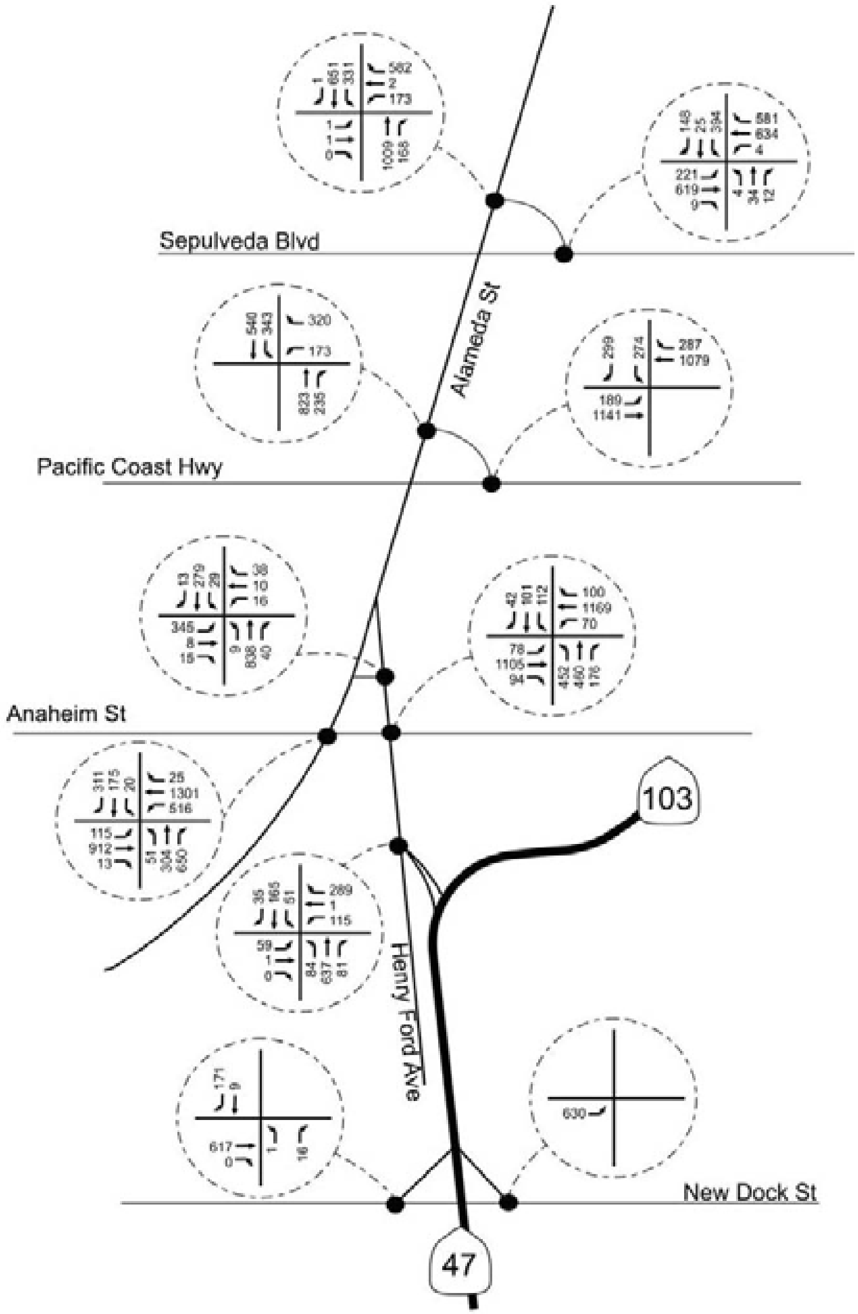
Figure 3.5-5b
Existing MD Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates



No Scale

Figure 3.5-6a
Existing PM Peak Hour Volumes (PCE)

Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

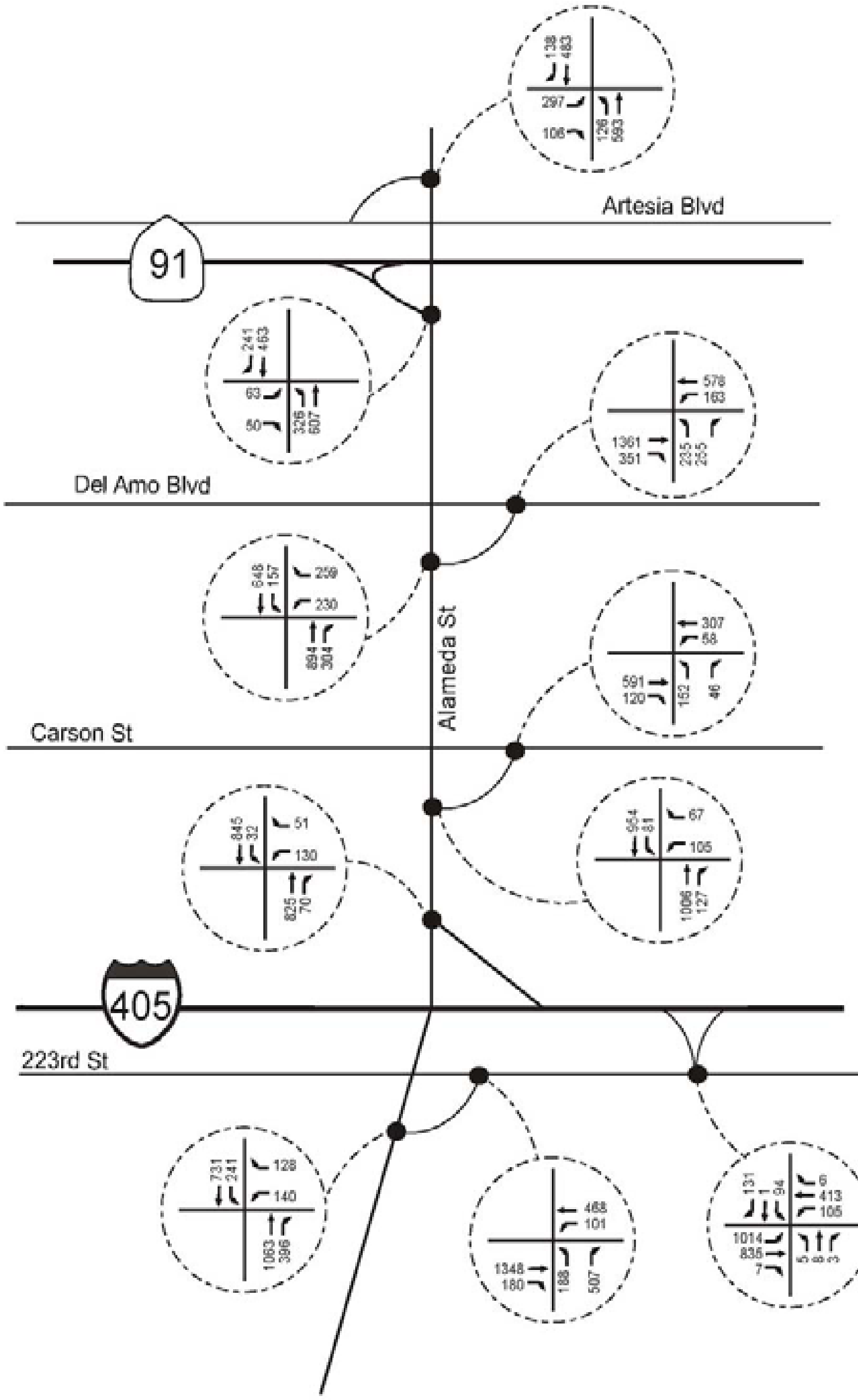


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Figure 3.5-6b
Existing PM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

Table 3.5-3
Existing Intersection Operating Conditions (PCE)*

	AM Peak Period		MD Peak Period		PM Peak Period	
Intersection	Volume/ Capacity or Delay	LOS	Volume/ Capacity or Delay	LOS	Volume/ Capacity or Delay	LOS
SR-47/New Dock SB off-ramp[a]	11.1	B	10.8	B	10.7	B
SR-47/New Dock NB on-ramp[b]	8.3	A	10.2	B	11.6	B
SR-47/Henry Ford ramps*	10.1	B	11.2	B	12.9	B
Henry Ford Avenue/Anaheim Street	0.579	A	0.639	B	0.767	C
Henry Ford Avenue/Denni Street	0.347	A	0.531	A	0.605	B
Alameda Street/Anaheim Street	0.535	A	0.718	C	0.818	D
Alameda Street/PCH Connector Ramp north of PCH	0.462	A	0.503	A	0.658	B
PCH/Alameda Street Connector Ramp east of Alameda Street	0.556	A	0.550	A	0.644	B
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	0.536	A	0.490	A	0.690	B
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.699	B	0.694	B	0.825	D
Alameda Street/223rd Street Connector Ramp south of 223rd Street	0.540	A	0.526	A	0.618	B
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.441	A	0.591	A	0.836	D
223rd Street/I-405 SB ramps	0.497	A	0.574	A	0.616	B
Alameda Street/I-405 NB ramps	0.320	A	0.342	A	0.324	A
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.240	A	0.313	A	0.348	A
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.304	A	0.324	A	0.397	A
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.288	A	0.331	A	0.462	A
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.346	A	0.345	A	0.523	A
Alameda Street/SR-91 EB ramps	0.216	A	0.266	A	0.381	A
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.284	A	0.344	A	0.373	A

[a] Unsignalized intersection – analyzed using HCM delay based methodology.
[b] Intersection currently does not function as standard intersection as there are no conflicting traffic movements until terminal is built-out.
*PCE – Passenger Car Equivalent (1 bobtail = 1.1 cars, 1 chassis = 2 cars, 1 container = 2 cars)
Source: MMA, 2007.

3.5.2.3 Pedestrian and Bicycle Facilities

There are few pedestrian facilities or bicycle facilities along the alternative alignments, as the area is predominantly industrial in character and has high volumes of multiple-axle truck traffic. However, pedestrian routes and street crossings for the Wilmington Park Elementary School are noted. Although most are west of Alameda Street and outside the project area, four pedestrian crossings are within the project area; three are east of Alameda Street at the intersections of Alameda Street/Robidoux Street, Alameda Street/M Street, and Alameda Street/Mauretania Street. A fourth pedestrian crossing is at the intersection of Alameda Street/Pacific Coast Highway.

The nearest bike trail is the Los Angeles River Bike Path, located along the Los Angeles River, parallel to I-710.

New continuous ADA-compliant sidewalks and curb ramps along Henry Ford Avenue are proposed. For safety reasons, pedestrians and bicycles are prohibited on the expressway.

3.5.3 Environmental Consequences

3.5.3.1 Evaluation Criteria

Study intersections fall within the City of Long Beach, City of Los Angeles, and City of Carson. The cities of Long Beach and Carson consider LOS D to be the minimum acceptable level of service. In those cities, an adverse effect is considered to be a project-related change in V/C ratio of 0.02 or greater, where the resulting "with-project" level of service is E or F. In the City of Los Angeles, LOS D is also the minimum acceptable threshold; however, the City has a sliding scale of acceptable effects for service levels C, D, E, and F. For example, a greater effect is allowed under LOS C than LOS D before being considered adverse. It is noted that Caltrans does not have LOS designations.

A regional standard approach that is consistent with the three jurisdictions is used for this analysis. An adverse effect is considered to be a project-generated change in V/C ratio of 0.02 or greater, with a final LOS of E or F.

3.5.3.2 Methodology

3.5.3.2.1 Traffic Volume Development

3.5.3.2.1.1 Year 2030 Traffic Volumes

The travel demand forecasting (TDF) model used to forecast future traffic volumes is based on the Ports of Long Beach and Los Angeles Transportation Study model, which was developed in 2001, approved by the Ports of Long Beach and Los Angeles for Port area Transportation Planning Studies and environmental studies, and is based on the regional model of the Southern California Association of Governments (SCAG). The model was updated in 2004 for the analysis of the proposed project, as well as for other port area transportation planning studies. The 2004 update includes incorporation of the most current regional model data and the most current port data. The model was calibrated as part of the Joint Port Study. Details on model development and calibration are provided in the "Ports of Long Beach and Los Angeles Transportation Study," TRANPLAN.

3.5.3.2.1.2 2030 Trip Tables

The 2030 AM, MD, and PM peak-hour regional trip tables were developed using the SCAG 2030 trip tables, which then were divided by 0.38, 0.25, and 0.27, respectively, to develop peak-hour trip tables. The peak-hour factors were developed as part of the Ports of Long Beach and Los Angeles Transportation Study model calibration and validation. The resulting model includes unique hourly trip tables, which match the peak-hour trip generation estimates that were developed for the Port zones. The trip tables were developed for 8 to 9 AM, 2 to 3 PM, and 4 to 5 PM, which are the Port AM, MD, and PM peak hours.

The analysis includes a single Schuyler Heim Bridge configuration which consists of a new bridge with two traffic lanes and one auxiliary lane in the northbound direction and three traffic lanes and one auxiliary lane in the southbound direction. Additionally, the bridge includes full shoulders.

3.5.3.2.2 Analysis Methodologies

This analysis evaluates existing and forecast Year 2030 conditions within the study area for each of the proposed alternatives. The year 2030 was used because the standard for traffic evaluation is to evaluate conditions for 20 years after opening year. The following were analyzed:

- SR-47 Expressway mainline weaving analysis for Year 2030
- Mainline operations analysis on SR-47, I-110, I-710, and SR-103
- Intersection LOS
- Arterial operations and weaving analysis of the section of Alameda Street at and north of the point where the new expressway meets the existing roadway system.

Mainline Analysis

The results of the 2030 base (without the project) mainline LOS analysis are presented in Table 3.5-4, which shows that the level of service is expected to be LOS E or better during all peak hours on SR-103 and I-110 (south of Pacific Coast Highway). The LOS on I-710 south of Pacific Coast Highway is expected to be LOS E in the northbound direction and LOS F in the southbound direction for the AM peak hour, and LOS F in the northbound and southbound directions for the MD and PM peak hours.

Table 3.5-4
Year 2030 Mainline Level-of-Service (without the project)

	2030 Base					
	AM		MD		PM	
Location	Density	LOS	Density	LOS	Density	LOS
NB Alameda Corridor Expressway – south of PCH	NA	NA	NA	NA	NA	NA
SB Alameda Corridor Expressway – south of PCH	NA	NA	NA	NA	NA	NA
NB SR-103 – south of PCH	22.7	C	25.7	C	31.1	D
SB SR-103 – south of PCH	21.6	C	20.6	C	11.6	B
NB Interstate 710 – south of PCH	> 45	F	>45	F	> 45	F
SB Interstate 710 – south of PCH	> 45	F	>45	F	> 45	F

Table 3.5-4
Year 2030 Mainline Level-of-Service (without the project)

	2030 Base					
	AM		MD		PM	
Location	Density	LOS	Density	LOS	Density	LOS
NB Interstate 710 – north of PCH	> 45	F	>45	F	> 45	F
SB Interstate 710 – north of PCH	> 45	F	>45	F	> 45	F
NB Interstate 110 – south of PCH	35.2	E	32.O	D	29.1	D
SB Interstate 110 – south of PCH	26.9	D	30.0	D	37.2	E

Source: MMA, 2007.

Intersection Levels of Service

Table 3.5-5 summarizes the 2030 AM, MD, and PM peak-hour levels of service at 20 intersections in the study area. The table shows that 10 of the intersections are forecast to operate at LOS E or LOS F during one or more peak hours in 2030 without the project.

3.5.3.3 Evaluation of Alternatives

3.5.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.5.3.3.1.1 Construction Effects

Construction of Alternative 1 requires closing lanes on the existing Schuyler Heim Bridge, resulting in impacts to traffic operations.

Port truck traffic is heaviest during MD and PM peak hours. To accommodate expected flows during the peak hours, the Schuyler Heim Bridge is assumed to have two lanes in the northbound direction and one lane in the southbound direction open during the construction period. To analyze the effect of lane closures, traffic model estimates of traffic diversion due to bridge closure were generated. On both I-110 and I-710, truck volumes were projected to increase by 10 to 60 trucks per hour during the AM, MD, and PM peaks, with the highest increases in the AM peak. Most surface streets were projected to have decreases in truck volumes, with only minor increases (10 to 20 trucks per hour) on parts of Pacific Coast highway and Sepulveda Boulevard.

During bridge closures, traffic volumes will decrease on SR-103 and Henry Ford Avenue because most of the traffic affected by bridge closure (especially trucks) is expected to use the I-110 and I-710 Freeways to get in and out of the Port area. When these routes are operating at acceptable levels of service (LOS D or better), no congestion is anticipated. However, when I-110 and I-710 are already operating at LOS E or LOS F, the addition of traffic diverted from the Schuyler Heim Bridge may result in added congestion and delays.

Transit service is anticipated to be interrupted or rerouted occasionally during construction. After construction, transit service is expected to resume normal operations.

Table 3.5-5
Year 2030 Projected Intersection Conditions (without the project) *

	AM		MD		PM	
Intersection	**Volume/ Capacity or Delay**	**LOS**	**Volume/ Capacity or Delay**	**LOS**	**Volume/ Capacity or Delay**	**LOS**
SR-47/New Dock SB off-ramp**	35.8	E	68.8	F	15.6	C
SR-47/New Dock NB on-ramp**	15.8	C	29.5	D	37.1	E
SR-47/Henry Ford ramps**	31.4	D	75.5	F	139.6	F
Henry Ford Avenue/Anaheim Street	0.991	E	1.073	F	1.167	F
Henry Ford Avenue/Denni Street	0.540	A	0.778	C	0.812	D
Alameda Street/Anaheim Street	0.822	D	1.095	F	1.122	F
Alameda Street/PCH Connector Ramp north of PCH	1.266	F	1.357	F	1.367	F
PCH/Alameda Street Connector Ramp east of Alameda Street	1.001	F	0.949	E	1.024	F
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.011	F	1.160	F	1.296	F
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.781	C	0.909	E	1.008	F
Alameda Street/223rd Street Connector Ramp south of 223rd Street	0.857	D	0.993	E	1.093	F
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.620	B	0.639	B	0.901	E
223rd Street/I-405 SB ramps	0.552	A	0.700	C	0.683	B
Alameda Street/I-405 NB ramps	0.691	B	0.711	C	0.711	C
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.469	A	0.64	B	0.697	B
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.403	A	0.432	A	0.562	A
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.611	B	0.724	C	0.792	C
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.676	B	0.577	A	0.678	B
Alameda Street/SR-91 EB ramps	0.263	A	0.358	A	0.333	A
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.320	A	0.543	A	0.502	A

* Based on PCE volumes (1 bobtail = 1.1 cars, 1 chassis = 2 cars, 1 container = 2 cars)
** Unsignalized intersection – analyzed using HCM delay based methodology.
Source: MMA, 2007.

Schuyler Heim Bridge

The forecasted 2011 peak-hour traffic volumes and LOS on the Schuyler Heim Bridge during construction are summarized in Tables 3.5-6 and 3.5-7, respectively. The bridge capacity and the average speed are assumed to be 1,500 passenger cars per hour per lane (pcphpl) and 25 mph, respectively,, LOS E is the worst-case condition, which would occur southbound during the morning peak. At other times, the bridge would operate at LOS D or better.

Table 3.5-6
Forecasted 2011 Construction Period Peak-Hour Traffic Volumes on Schuyler Heim Bridge

	Northbound (2 Lanes Only)			Southbound (1 Lane Only)		
Peak Hour	Auto Traffic	Truck Traffic	Total PCE* Traffic	Auto Traffic	Truck Traffic	Total PCE* Traffic
AM	240	170	520	450	400	1170
Midday	380	580	1390	170	470	960
PM	810	400	1480	250	150	500

*PCE – Passenger Car Equivalent (1 bobtail = 1.1 cars, 1 chassis = 2 cars, 1 container = 2 cars)
Source: MMA, 2007.

Table 3.5-7
Level of Service along Schuyler Heim Bridge during Construction

	Northbound		Southbound	
Peak Hour	V/C Ratio	LOS	V/C Ratio	LOS
AM	0.17	E or Better	0.75	E or Better
Midday	0.45	E or Better	0.62	E or Better
PM	0.48	E or Better	0.32	E or Better

Source: *Traffic Study Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (MMA, 2007).

New Dock Street Southbound On-ramp and Off-ramp Closures

Off-Ramp Closure

During project construction, the New Dock Street off-ramp from SR-47 will be closed for several months. To analyze the effect of this closure, the TDF traffic model was run for freeways and surface streets in the study area, with the New Dock Street off-ramp closed and the number of lanes on the Schuyler Heim Bridge reduced. The model showed a reduction of 180, 190, and 70 trucks using southbound Schuyler Heim Bridge during the AM, MD, and PM peak hours, respectively. These trucks are mostly diverted to I-710 and I-110.

On-Ramp Closure

During construction, the New Dock Street on-ramp from SR-47 also will be closed for several months. To analyze the effect of this closure, the TDF model was run for freeways and surface streets in the study area, with the New Dock Street on-ramp closed and the number of lanes on the Schuyler Heim Bridge reduced. The model showed a reduction of 110, 220, and 120 trucks using northbound Schuyler Heim Bridge during the AM, MD, and PM peak hours, respectively. These trucks are mostly diverted to I-710 and I-110, which increase by 40 to 70 trucks in the AM and PM peak hours, and by 30 to 110 trucks in the

MD peak hour. Compared to the volumes on the I-710 and I-110, the addition of the new truck volumes is considered to be low and would not result in a change in LOS on these freeway facilities. Thus, routes currently operating at acceptable levels (LOS D or better) are not expected to become congested due to the on-ramp closure. The closure will add more traffic to I-710 during times when it operates at LOS E or LOS F, so traveler delays may become somewhat longer on the I-110 or I-710 at times when these freeways are already operating at LOS E or LOS F.

For I-110 and I-710, the addition of 40 to 70 trucks will result in an increase in demand of approximately 1 percent. At LOS D or worse, the decrease in speed associated with a 1 percent increase in demand is less than 1 mph (Transportation Research Board, 2000). For 5 miles of freeway at 50 mph, this will result in a difference in travel time of 7 seconds or less.

Conclusion

Lane closures on the Schuyler Heim Bridge and closures of the New Dock Street ramps during construction are not anticipated to have an adverse effect on traffic operations on nearby streets and highways. Nearly all of the traffic that would normally use the Schuyler Heim Bridge and travel on SR-103 or Henry Ford Avenue is expected to use the I-110 or I-710 freeways to get into and out of the Port area. Table 3.5-6 provides an estimate of the vehicles that are forecast to use the Schuyler Heim Bridge during project construction by type (truck/auto), direction, and time of day. During the mid-day peak hour, an estimated 2,350 vehicles would use the I-710 and I-110 freeways in times of bridge closure during project construction. The increase in traffic to these freeways is low compared to existing traffic volumes. As a result, traffic volumes on I-110 and I-710 south of Pacific Coast Highway are expected to show little variance due to bridge and ramp closures during project construction (see Table 3.5-8). Also, levels of service are not expected to change.

A more detailed traffic analysis and a Transportation Management Plan (TMP) will be prepared during the design phase of the selected alternative. The TMP will address strategies to enhance traffic operations during construction, such as:

- Public awareness campaign
- Alternate/detour routes with recommended signing
- Enhancements to existing signing and striping
- Safety and enforcement considerations
- Contingency plans

In addition, the TMP will assure that pedestrian access to businesses and other destinations within the construction area would be maintained throughout the construction period. If usual access points were lost, provisions for alternative access would be made. Appropriate signage would be placed to inform pedestrians of changes to usual pedestrian routes. Temporary sidewalks, if necessary, would be installed during the construction phase. To the extent feasible, disabled access would be maintained during construction.

Table 3.5-8
Forecasted 2011 Peak-Hour Traffic Volumes for I-710 and I-110

		Passenger Car Equivalent (PCE) Traffic[a]			
		Northbound		Southbound	
Roadway	Time of Day	Before Construction	During Construction	Before Construction	During Construction
I-710 s/o PCH	AM	5,690	5,790	6,460	6,560
	MD	6,100	6,190	6,320	6,420
	PM	6,460	6,500	6,250	6,340
I-110 s/o PCH	AM	6,410	6,420	5,190	5,360
	MD	5,950	6,030	5,860	5,730
	PM	5,650	5,700	6,790	6,870

[a] Additional detail (trucks, autos, PCE) is provided in MMA, 2007, Tables 20 and 21.
Source: MMA, 2007

Parking

During project construction, Alternative 1 is anticipated to have temporary effects to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S Terminals. Construction would affect up to 820 off-street employee parking spaces and 54 marine terminal equipment spaces (see Table 3.5-9). These temporary effects would be considered adverse and would require measures to minimize harm.

Table 3.5-9
Project-Related Off-Street Parking Requirements

Alternative	Location	Temporary Parking Spaces	Temporary Marine Terminal Equipment Parking	Permanent Parking Spaces
1/1A: Bridge Replacement and SR-47 Expressway	Pier A East	330	23	0
	Pier S	490	31	15[a]
	Total	820	54	15
2: SR-103 Extension to Alameda Street	Pier A East	330	23	0
	Pier S	490	31	15[a]
	Total	820	54	15
3: Bridge Demolition Avoidance	Pier A East	487	23	0
	Pier S	490	144	0
	Total	977	167	0
4: Bridge Replacement Only	Pier A East	97	23	0
	Pier S	490	31	15[a]
	Total	587	54	15
5: Transportation System Management	Undetermined		Undetermined	Undetermined
6: No Build	None		None	None

[a] Pier S permanent parking impacts estimated at 15 spaces per 0.1 acre.

Also during project construction, up to 12 off-street parking spaces at the southeast corner of Alameda Street and M Street may be removed. These parking spaces are associated with businesses that would be removed for right-of-way acquisition and would be included in the overall compensation. Also, there could be a temporary loss of 15 to 25 on-street parking spaces along the east side of Henry Ford Avenue between Grant Street and Anaheim Street during project construction.

Pedestrian and Bicycle Facilities

Project construction may interfere with pedestrian traffic. Construction may require temporary removal or blockage of sidewalks and interruption of traffic signals. Pedestrians may be required to use temporary walkways and/or adhere to construction–specific intersection control measures.

Project construction will not affect the Los Angeles River Bike Path.

3.5.3.3.1.2 Operations Effects

Alternatives 1 and 1A Traffic Conditions

Year 2030 traffic volumes with Alternative 1 for the roadways and intersections within the study area were developed using the methodology and traffic model described previously. Figures 3.5-7, 3.5-8, and 3.5-9 illustrate forecast link traffic volumes and changes in traffic flow due to the project. As shown, Alternative 1 would reduce port truck volumes on I-110 by up to 10 percent, or 110 trucks, during the PM peak hour and on I-710 by up to 11 percent, or 500 trucks, during the AM peak hour. SR-47 mainline and ramp volumes for the 2030 Alternative 1 AM, MD, and PM peak hours are shown in Figure 3.5-10. Figures 3.5-11, 3.5-12, and 3.5-13 illustrate traffic volumes at study intersections with Alternative 1 for the AM, MD, and PM peak hours, respectively.

Weaving Analysis

Operation of SR-47 Expressway was modeled for the MD peak-hour condition, which has the heaviest truck traffic on this corridor. Table 3.5-10 shows Year 2030 MD peak-hour level of service for the weaving sections on SR-47, generally from the merge/diverge points north of the New Dock Street ramps to the area where SR-47 and SR-103 split. The results indicate LOS D or better for Alternative 1.

Table 3.5-10
Alternative 1 Weaving Analysis – SR-47 between New Dock Street On- and Off-ramps and the Diverge/Merge with SR-103

Expressway Segment	Midday Peak Hour	
	Density	LOS
Southbound SR-47 north of New Dock off-ramp	13.8	B
Northbound SR-47 north of New Dock on-ramp	25.5	C

Source: MMA, 2007.

Mainline Analysis

The mainline level of service results are presented in Table 3.5-11 and shows that mainline level of service is expected to be LOS E or better during all peak hours on SR-47, SR-103, and I-110 (south of Pacific Coast Highway). The LOS on I-710 is expected to be LOS F in the northbound and southbound directions for the AM, MD and PM peak hours. Comparing the results to Table 3.5-4, the project would result in improved LOS on northbound SR-103 and I-110 south of Pacific Coast Highway and in reduced vehicle density on several other road segments.

Table 3.5-11
Year 2030 Alternative 1 Mainline Level-of-Service (PCE)*

	AM		MD		PM	
Location	Density	LOS	Density	LOS	Density	LOS
NB Alameda Corridor Expressway – south of PCH	18.2	C	21.1	C	24.2	C
SB Alameda Corridor Expressway – south of PCH	17.1	B	16.8	B	10.5	B
NB SR-103 – south of PCH	22.0	C	24.4	C	28.6	D
SB SR-103 – south of PCH	18.1	C	17.9	B	14.3	B
NB Interstate 710 – south of PCH	> 45	F	>45	F	> 45	F
SB Interstate 710 – south of PCH	> 45	F	>45	F	> 45	F
NB Interstate 710 – north of PCH	> 45	F	>45	F	> 45	F
SB Interstate 710 – north of PCH	> 45	F	>45	F	> 45	F
NB Interstate 110 – south of PCH	34.3	D	31.2	D	28.0	D
SB Interstate 110 – south of PCH	25.5	C	29.5	D	36.4	E

*PCE – Passenger Car Equivalent (1 bobtail = 1.1 cars, 1 chassis = 2 cars, 1 container = 2 cars)
Source: MMA, 2007.

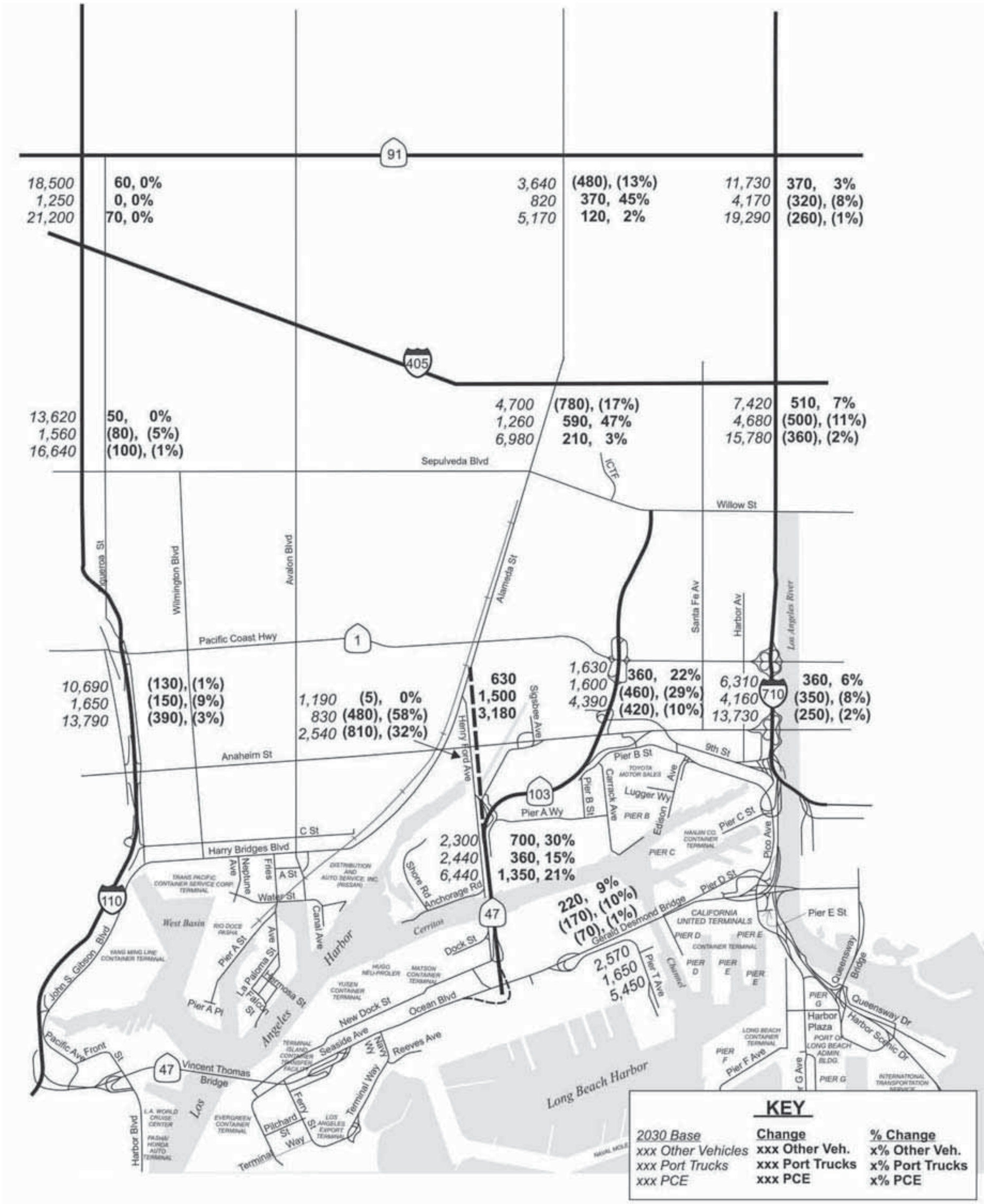
Intersection Levels of Service

Tables 3.5-12, 3.5-13, and 3.5-14 summarize the 2030 Alternative 1 AM, MD, and PM peak-hour levels of service at the intersections in the study area. The SR-47/Ocean Boulevard/Henry Ford Avenue interchange analysis results are presented separately in Table 3.5-15. The project does not result in any adverse effects at the study intersections.

At a few locations, the forecast is for the V/C ratio to decrease, and the level of service to improve. For the intersections of SR-47 ramps and Henry Ford Avenue, as well as Henry Ford Avenue and Anaheim Street, the improvement is due to the SR-47 Expressway providing a more attractive alternative route for north/south traffic.

The V/C ratio marginally improves at a few other locations north of the expressway; the project primarily contributes added traffic to north/south through-movements, which are grade separated. The model predicts that, in some locations, the turning movements to/from Alameda Street would be reduced slightly. Some automobile traffic is displaced to other routes due to the higher propensity for trucks and autos to use the grade-separated portions of Alameda Street.

Alternative 1 will improve the LOS at most of the intersections in comparison with Year 2030 No Build alternative with the exception of Alameda Street/223rd Street ramp during the PM peak hour. In order to mitigate the impact of additional traffic on this intersection, geometric improvements are made to the intersections as part of the project. A detailed traffic operation analysis using SYNCHRO are performed to evaluate the traffic operation of the intersections with the proposed improvements and results are presented in Table 3.5-16. As results indicate, the intersections would operate at LOS C or better.



No Scale

Figure 3.5-7
Changes in 2030 AM Peak Hour Volumes (Alt1)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

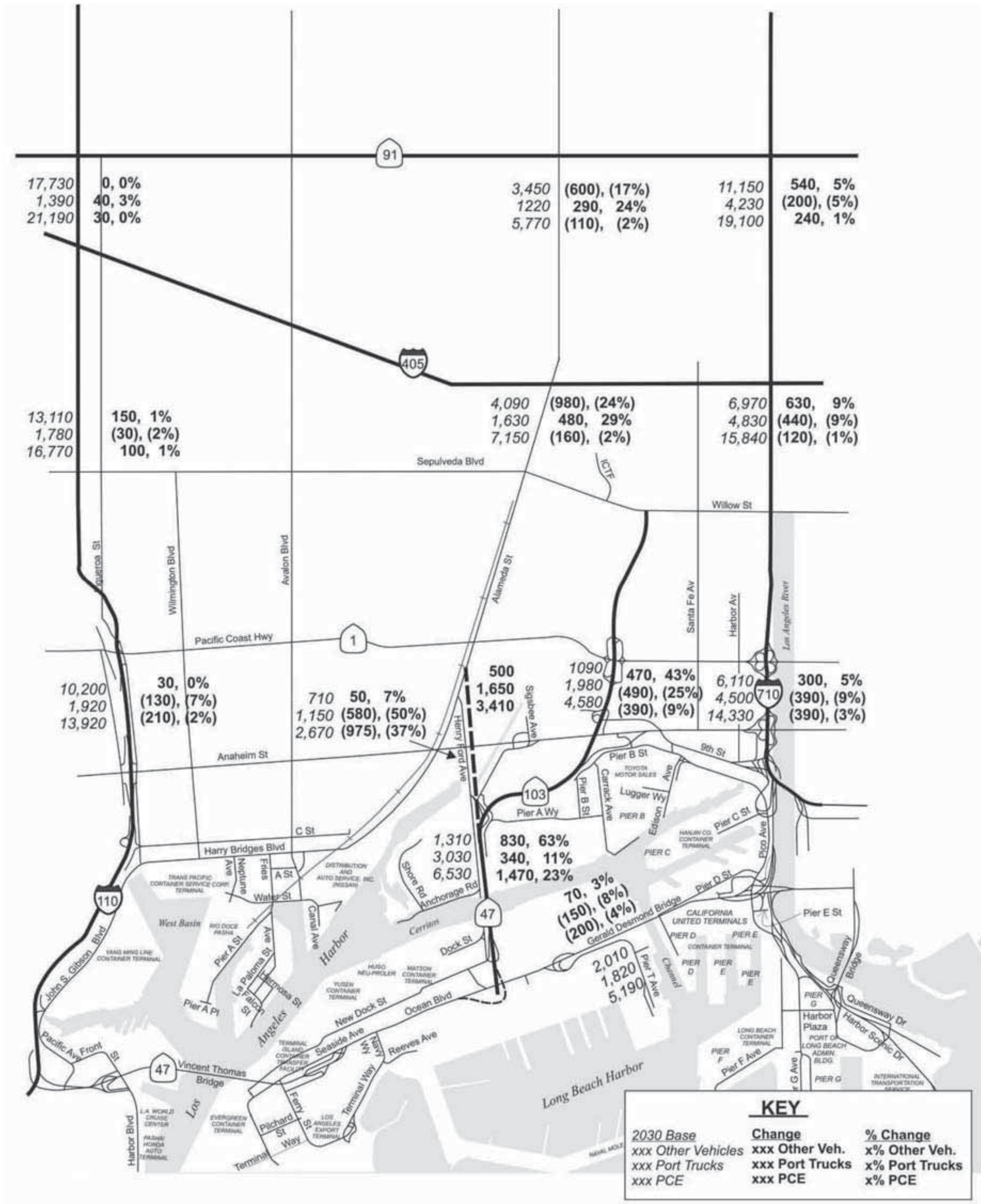


Figure 3.5-8
Changes in 2030 MD Peak Hour Volumes (Alt1)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

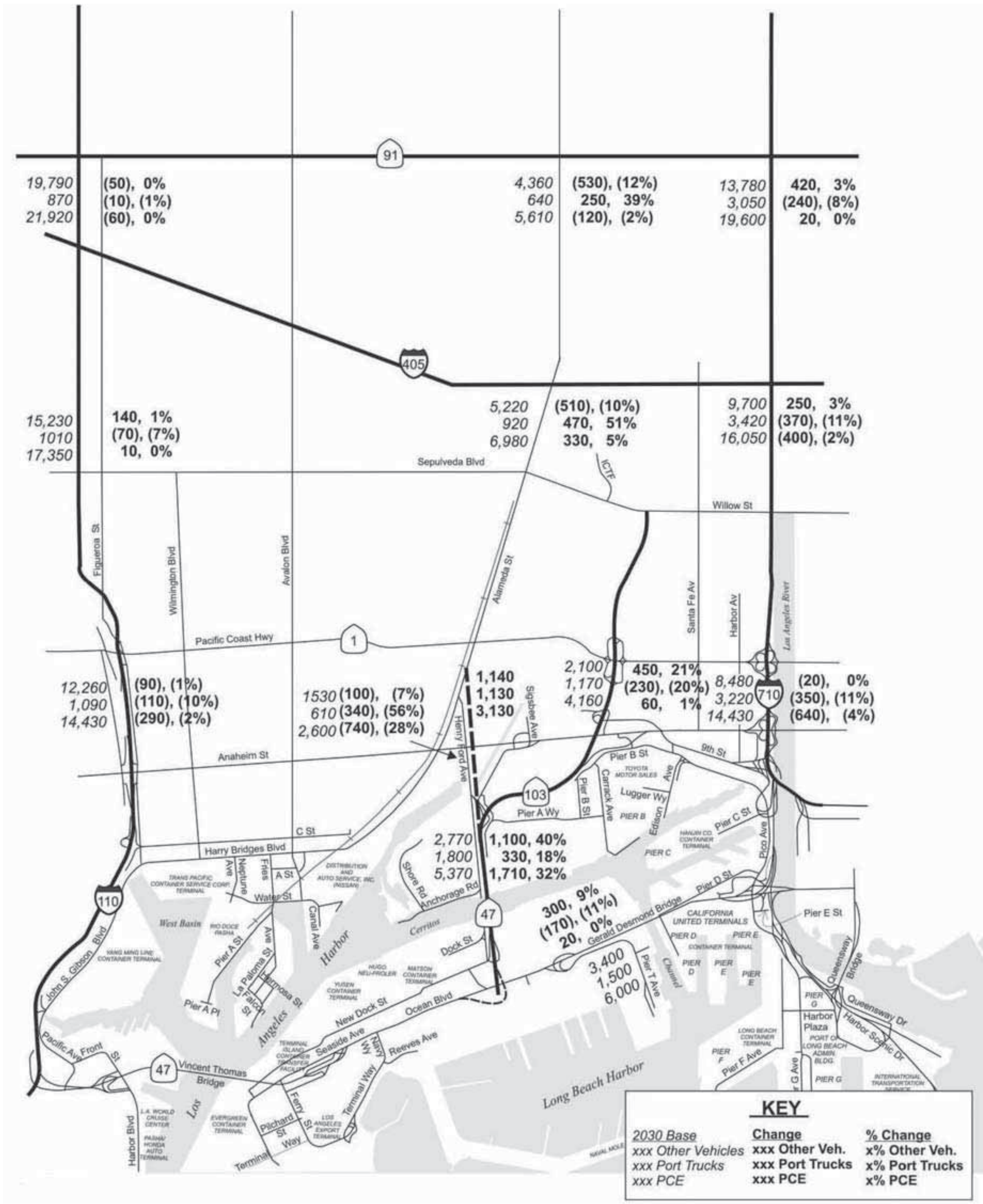
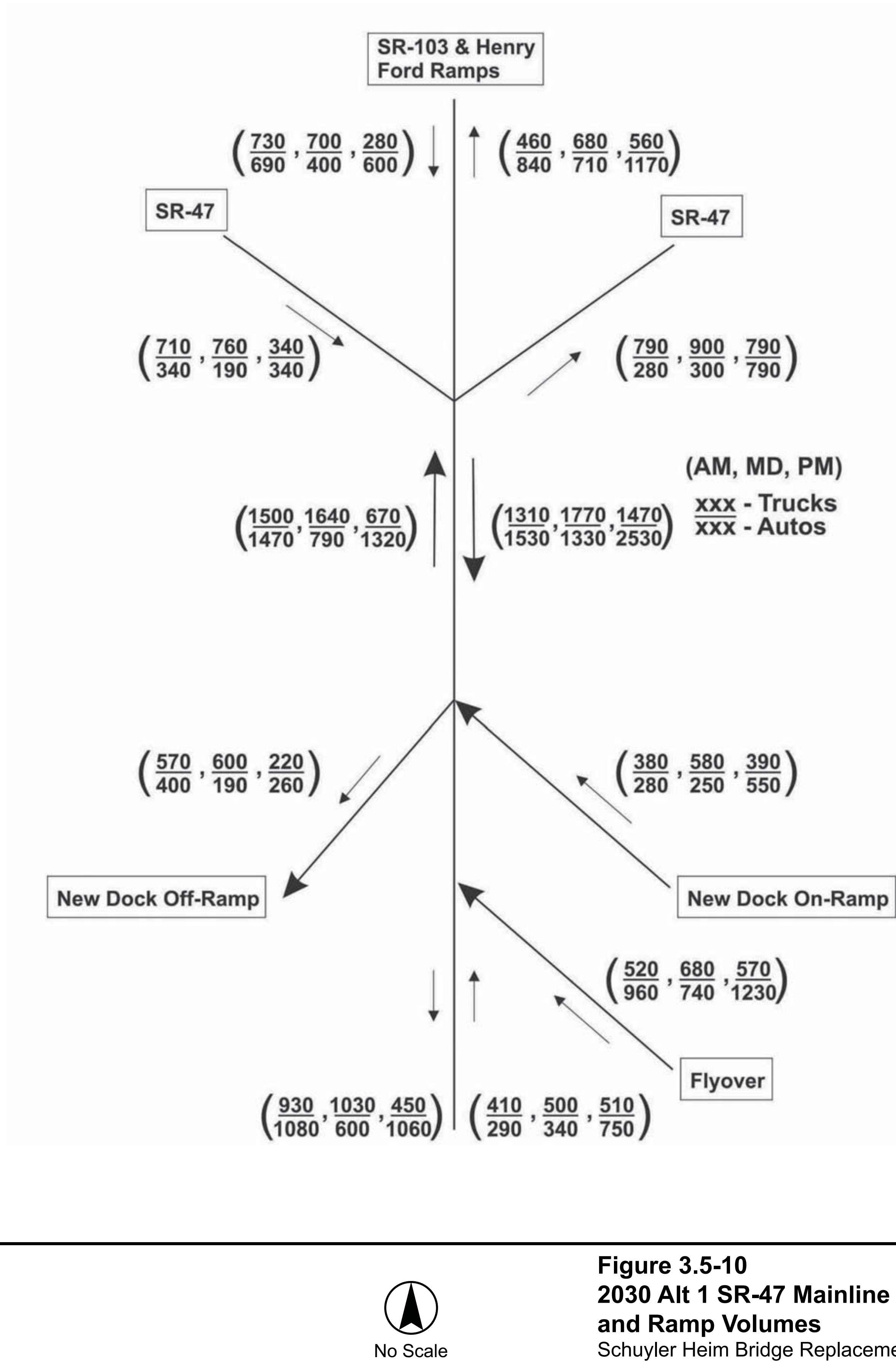


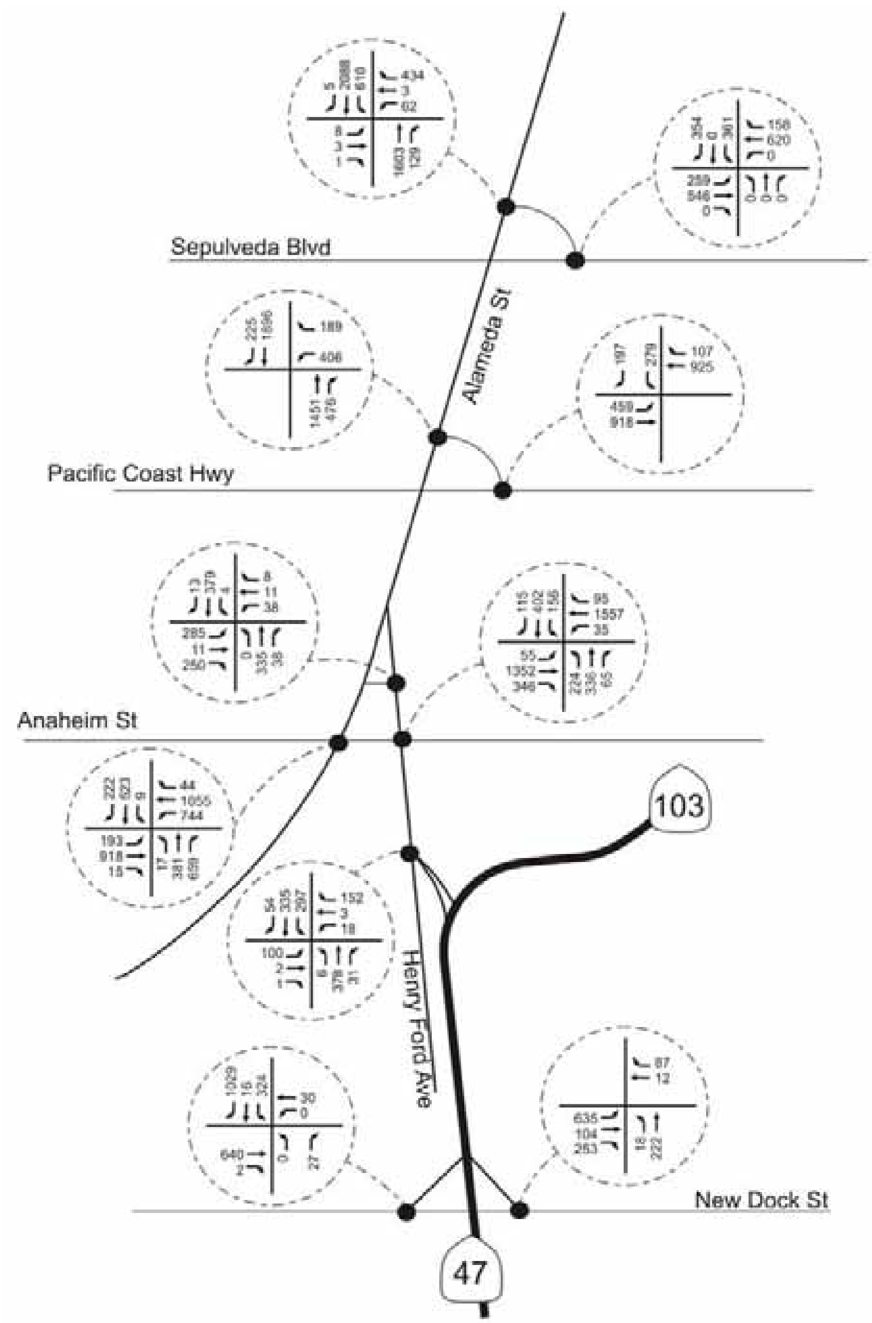
Figure 3.5-9
Changes in 2030 PM Peak Hour Volumes (Alt1)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates



Source: Meyer, Mohaddes Associates

Figure 3.5-10
2030 Alt 1 SR-47 Mainline and Ramp Volumes
Schuyler Heim Bridge Replacement and SR-47 Expressway



No Scale

Figure 3.5-11a
2030 SR-47 AM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

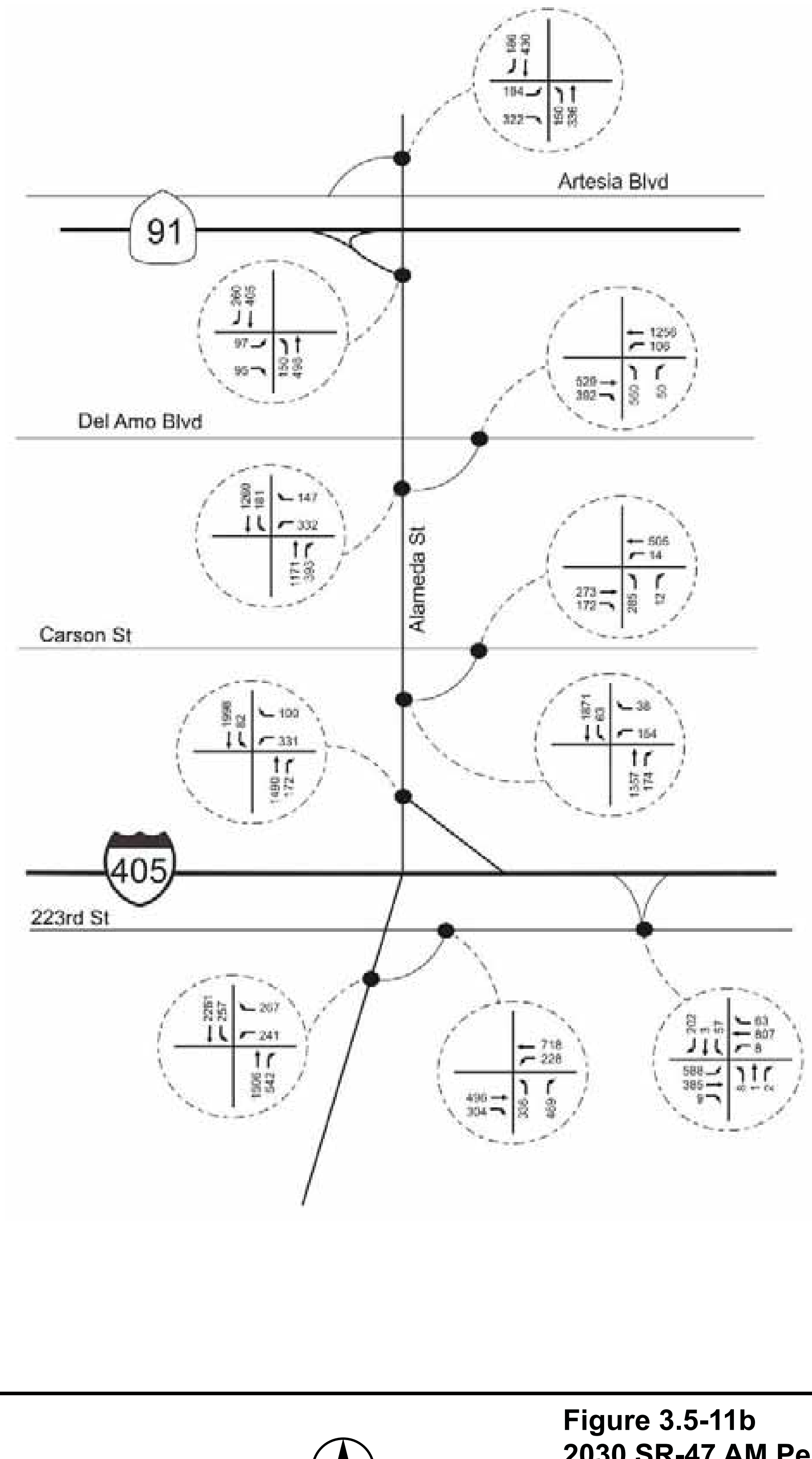
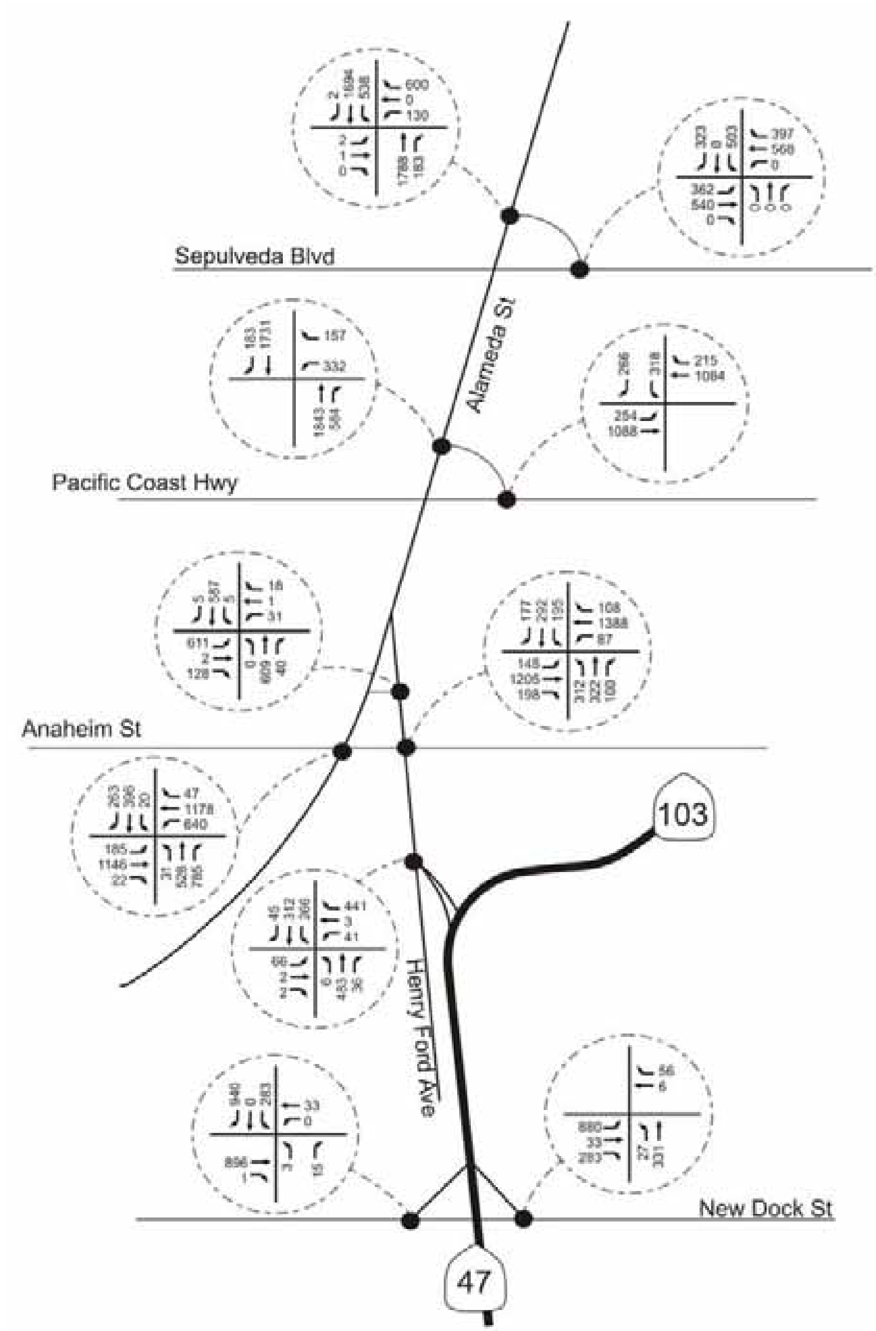


Figure 3.5-11b
2030 SR-47 AM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates



No Scale

Source: Meyer, Mohaddes Associates

Figure 3.5-12a
2030 SR-47 MD Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

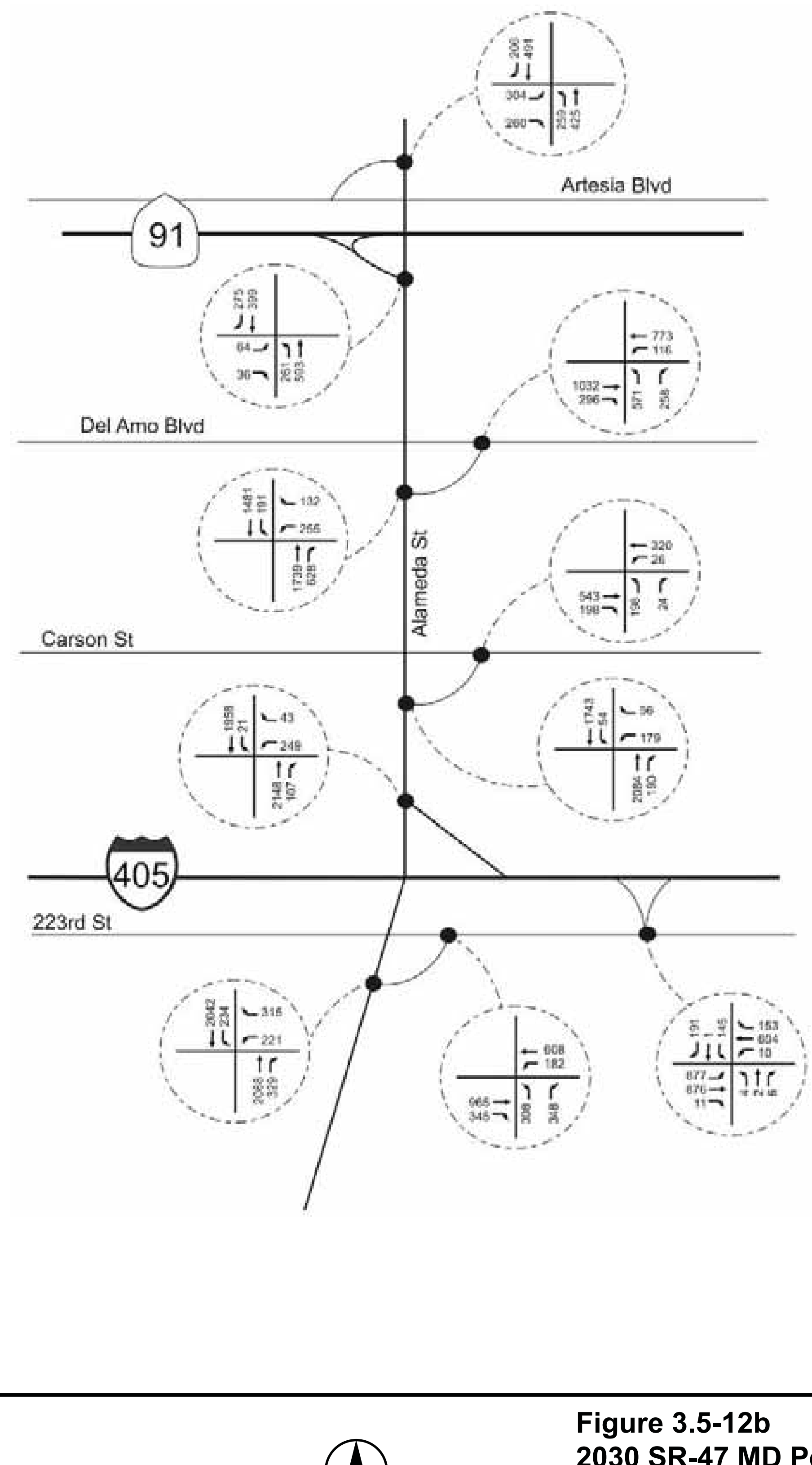


Figure 3.5-12b
2030 SR-47 MD Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

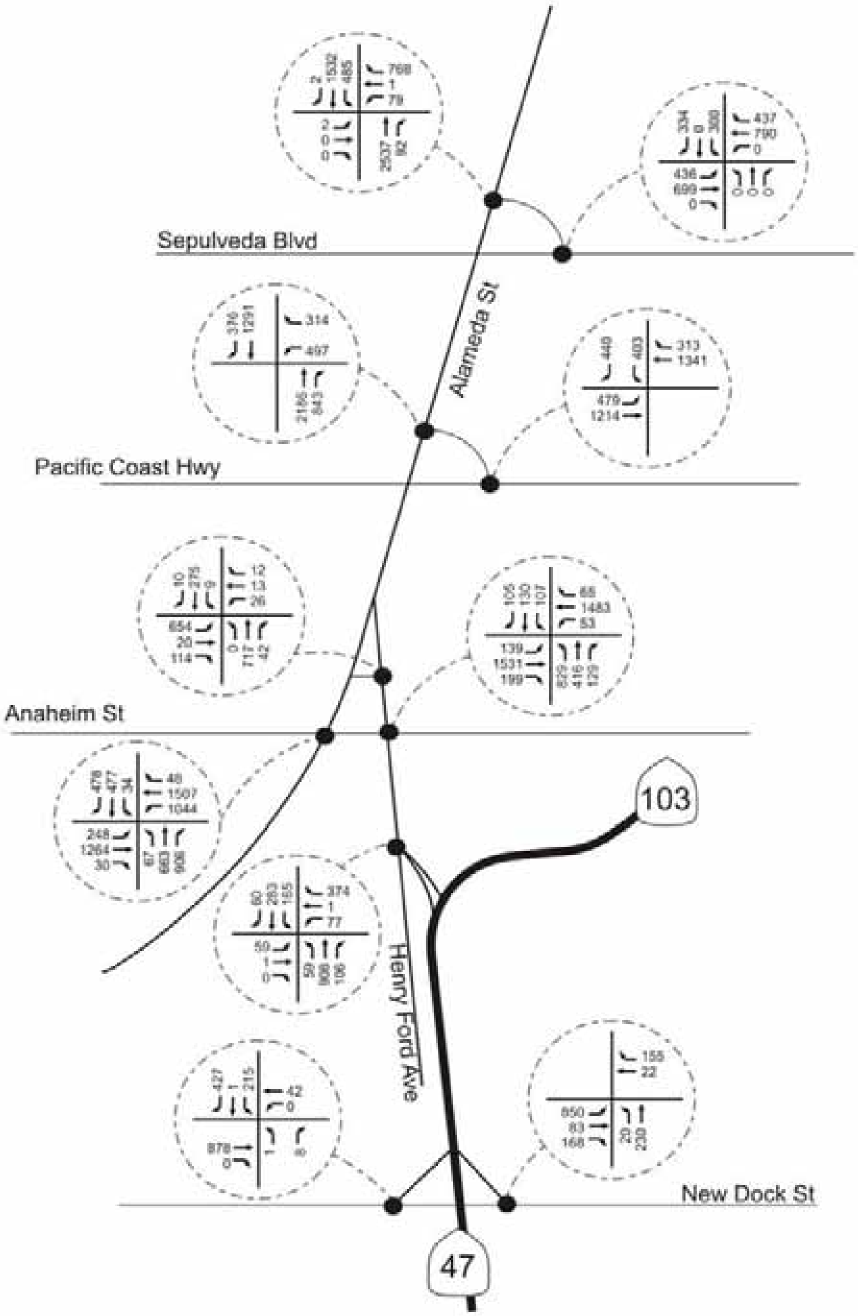


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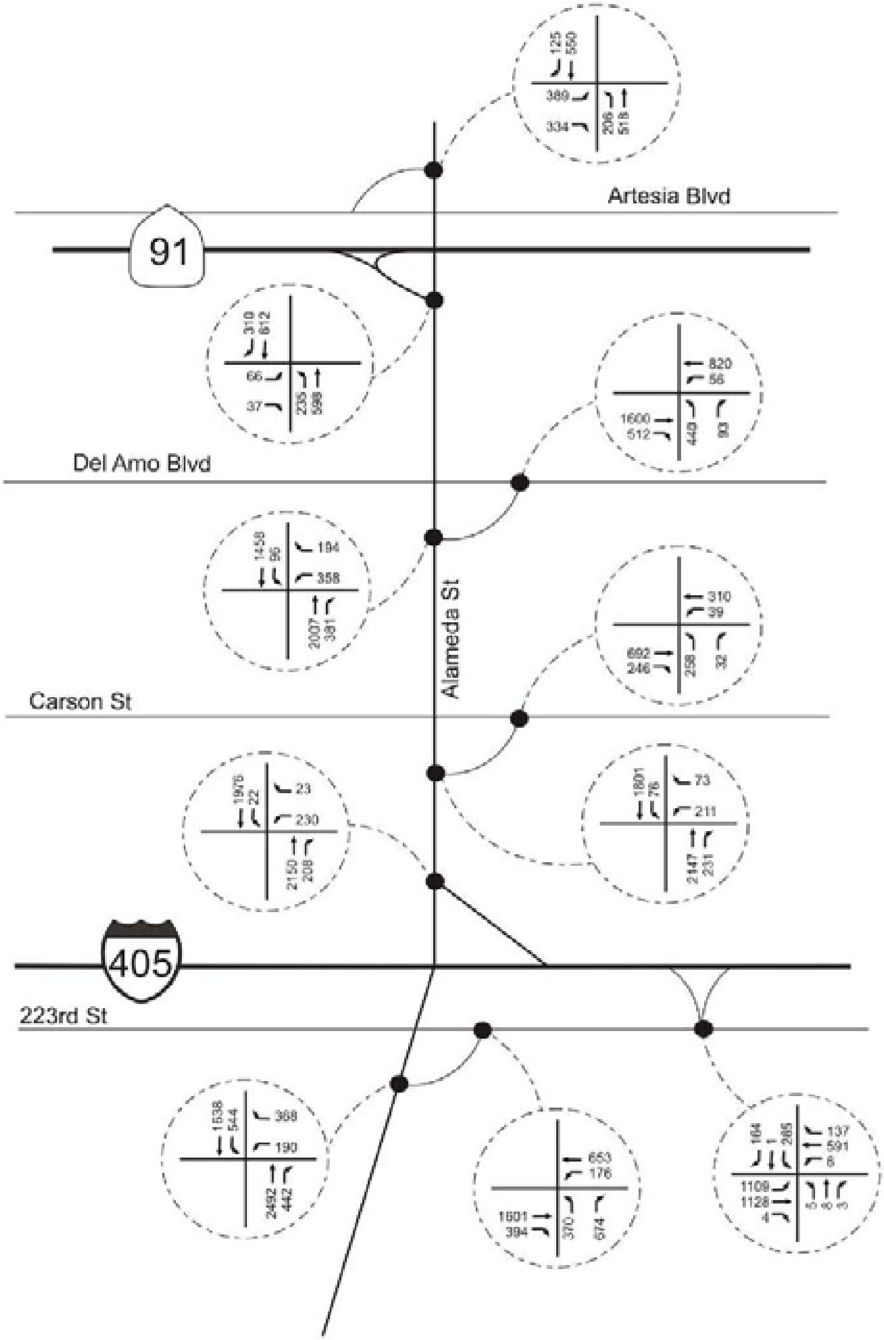
Figure 3.5-13a
2030 SR-47 PM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates



No Scale

Figure 3.5-13b
2030 SR-47 PM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

Table 3.5-12
Year 2030 Alternative 1 AM Peak Intersection Conditions

Intersection	Base Volume/ Capacity or Delay	Base LOS	Alternative 1 Volume/ Capacity or Delay	Alternative 1 LOS	Change
SR-47/New Dock SB off-ramp*	35.8	E	35.0	D	***-0.8***
SR-47/New Dock NB on-ramp*	15.8	C	13.7	B	***-2.1***
SR-47/Henry Ford ramps*	31.4	D	13.6	B	***-11.5***
Henry Ford Avenue/Anaheim Street	0.991	E	0.842	D	***-0.149***
Henry Ford Avenue/Denni Street	0.540	A	0.380	A	***-0.16***
Alameda Street/Anaheim Street	0.822	D	0.810	D	***-0.012***
Alameda Street/PCH Connector Ramp north of PCH	1.266	F	0.692	B	***-0.574***
PCH/Alameda Street Connector Ramp east of Alameda Street	1.001	F	0.759	C	***-0.242***
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.011	F	0.942	E	***-0.069***
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.781	C	0.756	C	***-0.025***
Alameda Street/223rd Street Connector Ramp south of 223rd Street	0.857	D	0.829	D	***-0.028***
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.620	B	0.542	A	***-0.078***
223rd Street/I-405 SB ramps	0.552	A	0.580	A	0.028
Alameda Street/I-405 NB ramps	0.691	B	0.700	B	0.009
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.469	A	0.472	A	0.003
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.403	A	0.377	A	***-0.026***
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.611	B	0.564	A	***-0.047***
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.676	B	0.566	A	***-0.11***
Alameda Street/SR-91 EB ramps	0.263	A	0.268	A	0.005
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.320	A	0.331	A	0.011

* Unsignalized intersection – analyzed using HCM delay based methodology.
Source: MMA, 2007.

Table 3.5-13
Year 2030 Alternative 1 MD Peak Intersection Conditions

Intersection	Base		Alternative 1		Change
	Volume/ Capacity or Delay	LOS	Volume/ Capacity or Delay	LOS	
SR-47/New Dock SB off-ramp*	68.8	F	35.2	E	***-33.6***
SR-47/New Dock NB on-ramp*	29.5	D	21.3	C	***-8.2***
SR-47/Henry Ford ramps*	75.5	F	13.9	B	***-43.4***
Henry Ford Avenue/Anaheim Street	1.073	F	0.881	D	***-0.192***
Henry Ford Avenue/Denni Street	0.778	C	0.682	B	***-0.096***
Alameda Street/Anaheim Street	1.095	F	0.975	E	***-0.12***
Alameda Street/PCH Connector Ramp north of PCH	1.357	F	0.631	B	***-0.726***
PCH/Alameda Street Connector Ramp east of Alameda Street	0.949	E	0.705	C	***-0.244***
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.160	F	0.992	E	***-0.168***
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.909	E	0.847	D	***-0.062***
Alameda Street/223rd Street Connector Ramp south of 223rd Street	0.993	E	0.880	D	***-0.113***
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.639	B	0.625	B	***-0.014***
223rd Street/I-405 SB ramps	0.700	C	0.653	B	***-0.047***
Alameda Street/I-405 NB ramps	0.711	C	0.717	C	0.006
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.640	B	0.607	B	***-0.033***
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.432	A	0.417	A	***-0.015***
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.724	C	0.726	C	0.002
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.577	A	0.543	A	***-0.034***
Alameda Street/SR-91 EB ramps	0.358	A	0.321	A	***-0.037***
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.543	A	0.471	A	***-0.072***

* Unsignalized intersection – analyzed using HCM delay based methodology.
Source: MMA, 2007.

Table 3.5-14
Year 2030 Alternative 1 PM Peak Intersection Conditions

Intersection	Base Volume/ Capacity or Delay	Base LOS	Alternative 1 Volume/ Capacity or Delay	Alternative 1 LOS	Change
SR-47/New Dock SB off-ramp*	15.6	C	13.6	B	***-2.0***
SR-47/New Dock NB on-ramp*	37.1	E	19.3	C	***-17.8***
SR-47/Henry Ford Ramps*	139.6	F	18.9	C	***-97.2***
Henry Ford Avenue/Anaheim Street	1.167	F	1.013	F	***-0.154***
Henry Ford Avenue/Denni Street	0.812	D	0.753	C	***-0.059***
Alameda Street/Anaheim Street	1.122	F	1.114	F	***-0.008***
Alameda Street/PCH Connector Ramp north of PCH	1.367	F	0.893	D	***-0.474***
PCH/Alameda Street Connector Ramp east of Alameda Street	1.024	F	1.006	F	***-0.018***
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.296	F	1.140	F	***-0.156***
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	1.008	F	0.976	E	***-0.032***
Alameda Street/223rd Street Connector Ramp south of 223rd Street	1.093	F	1.201	F	0.108
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.901	E	1.035	F	0.134
223rd Street/I-405 SB ramps	0.683	B	0.796	C	0.113
Alameda Street/I-405 NB ramps	0.711	C	0.728	C	0.017
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.697	B	0.656	B	***-0.041***
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.562	A	0.538	A	***-0.024***
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.792	C	0.734	C	***-0.058***
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.678	B	0.583	A	***-0.095***
Alameda Street/SR-91 EB ramps	0.333	A	0.354	A	0.021
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.502	A	0.488	A	***-0.014***

* Unsignalized intersection – analyzed using HCM delay based methodology.
Source: MMA, 2007.

Table 3.5-15
Year 2030 Alternative 1 SR-47/Ocean Boulevard/Pier S Avenue Interchange Analysis Results

Scenario	Time Period	Average Intersection Delay Henry Ford	Average Intersection Delay Ocean Blvd.	Overall Intersection Level of Service Henry Ford	Overall Intersection Level of Service Ocean Blvd.
Base	AM	41.5	69.2	D	E
	MD	45.0	77.2	D	E
	PM	36.6	50.8	D	D
SR-47 Expressway	AM	28.5	49.1	C	D
	MD	30.8	47.6	C	D
	PM	23.4	43.9	C	D

Source: MMA, 2007.

Table 3.5-16
Year 2030 Alternative 1 Alameda Street/223rd Street Traffic Operation Analysis Results with Project Improvements

	Intersection	AM Peak LOS	AM Peak Delay (sec).	Cycle Length (sec.)	MD Peak LOS	MD Peak Delay (sec.)	Cycle Length (sec.)	PM Peak LOS	PM Peak Delay (sec.)	Cycle Length (sec.)
	Alternative 1									
1	Alameda St / 223rd St Connector Ramp s/o 223rd St	B	20	120	B	19.9	120	C	25.4	120
2	223rd St / Alameda St Connector Ramp e/o Alameda St	B	18.6	120	B	17.4	120	C	31.4	120

Source: MMA, 2007.

Parking

During project operations, Alternative 1 is anticipated to have permanent effects to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal (see Table 3.5-9). This loss of parking capacity is considered an adverse effect. Measures to minimize harm would be implemented.

During project operations, the parking spaces removed with the businesses at the corner of Alameda Street and M Street would be permanently lost, as would their associated businesses. Also, 15 to 25 on-street parking spaces along the east side of Henry Ford Avenue between Grant Street and Anaheim Street could be permanently impacted, depending on the final placement of columns for the overhead expressway. This impact is not considered adverse, as on-street parking at this location is at the discretion of the jurisdiction or Caltrans and can be removed at any time. No avoidance, minimization, mitigation, or compensation measures would be required.

3.5.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.5.3.3.2.1 Construction Effects

Under Alternative 2, construction effects will be the same as those described for Alternative 1 for activities related to replacement of the Schuyler Heim Bridge and construction of the flyover. There would be no effects in the vicinity of the Consolidated

Slip/Dominguez Channel, as construction would not occur in that area. Under Alternative 2, the same types of construction effects would occur along SR-103 as along SR-47 under Alternative 1.

Parking

Parking effects would be the same as under Alternative 1 (see Table 3.5-9).

3.5.3.3.2.2 Operations Effects

Year 2030 traffic volumes were developed using the methodology described in Section 3.5.3.2.1. Figures 3.5-14, 3.5-15, and 3.5-16 illustrate Year 2030 link traffic volumes and changes in traffic flow due to Alternative 2. SR-47 mainline and ramp volumes for the 2030 Alternative 2 AM, MD, and PM peak hours are shown in Figure 3.5-17. Figures 3.5-18, 3.5-19, and 3.5-20 illustrate study intersection volumes with Alternative 2, for the AM, MD, and PM peak hours, respectively.

Mainline Analysis

The results of the 2030 Alternative 2 Expressway mainline analysis indicate that the level of service is expected to be LOS E or better during all peak hours on southbound SR-103 (south of PCH) and I-110 (both directions, south of PCH) (Table 3.5-17). LOS on I-710 is expected to be LOS F in the northbound direction for the MD and PM peak hours, and LOS F in the southbound direction for all three peak hours. Alternative 2 is projected to improve LOS on northbound and southbound SR-47 south of Pacific Coast Highway, on northbound I-110 south of Pacific Coast Highway, and to reduce vehicle density on several other analysis segments.

Table 3.5-17
Year 2030 Alternative 2 Mainline Level of Service

Location	AM		MD		PM	
	Density	LOS	Density	LOS	Density	LOS
NB Alameda Corridor Expressway – south of PCH	NA	NA	NA	NA	NA	NA
SB Alameda Corridor Expressway – south of PCH	NA	NA	NA	NA	NA	NA
NB SR-103 – south of PCH	40.1	E	40.7	E	40.9	E
SB SR-103 – south of PCH	34.7	D	33.3	D	23.5	C
NB Interstate 710 – south of PCH	44.0	E	>45	F	> 45	F
SB Interstate 710 – south of PCH	> 45	F	>45	F	> 45	F
NB Interstate 710 – north of PCH	> 45	F	>45	F	> 45	F
SB Interstate 710 – north of PCH	> 45	F	>45	F	> 45	F
NB Interstate 110 – south of PCH	33.3	D	30.3	D	27.8	D
SB Interstate 110 – south of PCH	25.4	C	29.5	D	36.1	E

Source: MMA, 2007.

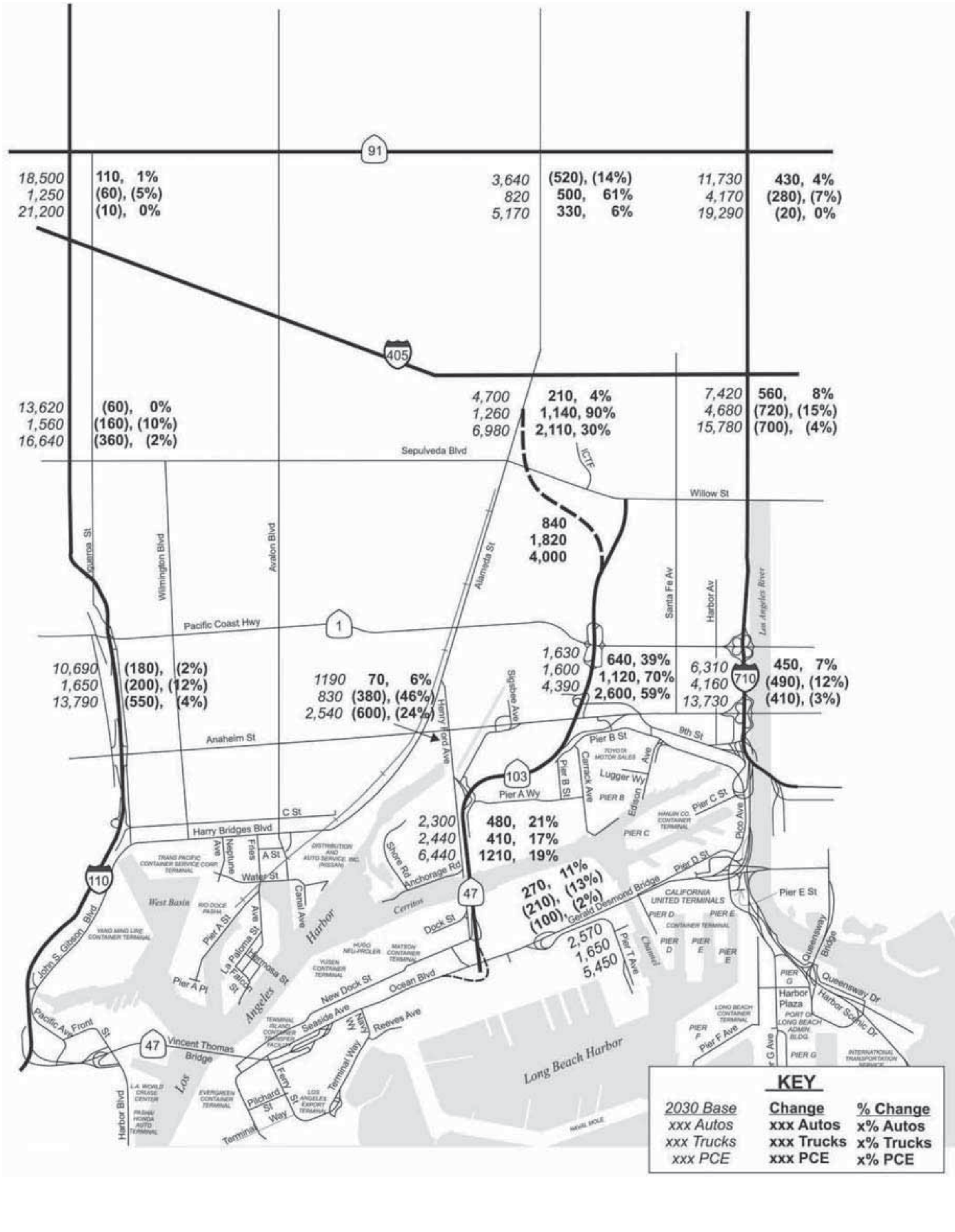
Intersection Levels of Service

For Alternative 2, Tables 3.5-18, 3.5-19, and 3.5-20 summarize the 2030 AM, MD, and PM peak-hour intersection LOS. The SR-47/Ocean Boulevard/Henry Ford Avenue interchange analysis results are presented separately in Table 3.5-21. Results are similar to Alternative 1, although an unsignalized intersection at the SR-47/New Dock Street southbound off-ramp is anticipated to degrade from LOS B to LOS C during the AM peak hour.

Table 3.5-18
Year 2030 Alternative 2 AM Peak Intersection Conditions

Intersection	Base		Alternative 2		Change
	Volume/ Capacity or Delay	LOS	Volume/ Capacity or Delay	LOS	
SR-47/New Dock SB off-ramp*	35.8	E	28.0	D	***-7.8***
SR-47/New Dock NB on-ramp*	15.8	C	13.6	B	***-2.2***
SR-47/Henry Ford ramps	31.4	D	15.8	C	***-10.4***
Henry Ford Avenue/Anaheim Street	0.991	E	0.86	D	***-0.131***
Henry Ford Avenue/Denni Street	0.540	A	0.431	A	***-0.109***
Alameda Street/Anaheim Street	0.822	D	0.802	D	***-0.02***
Alameda Street/PCH Connector Ramp north of PCH	1.266	F	0.494	A	***-0.772***
PCH/Alameda Street Connector Ramp east of Alameda Street	1.001	F	0.748	C	***-0.253***
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.011	F	0.739	C	***-0.272***
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.781	C	0.757	C	***-0.024***
Alameda Street/223rd Street Connector Ramp south of 223rd Street	0.857	D	1.169	F	0.312
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.620	B	0.754	C	0.134
223rd Street/I-405 SB ramps	0.552	A	0.622	B	0.07
Alameda Street/I-405 NB ramps	0.691	B	0.865	D	0.174
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.469	A	0.502	A	0.033
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.403	A	0.410	A	0.007
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.611	B	0.550	A	***-0.061***
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.676	B	0.537	A	***-0.139***
Alameda Street/SR-91 EB ramps	0.263	A	0.255	A	***-0.008***
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.320	A	0.353	A	0.033

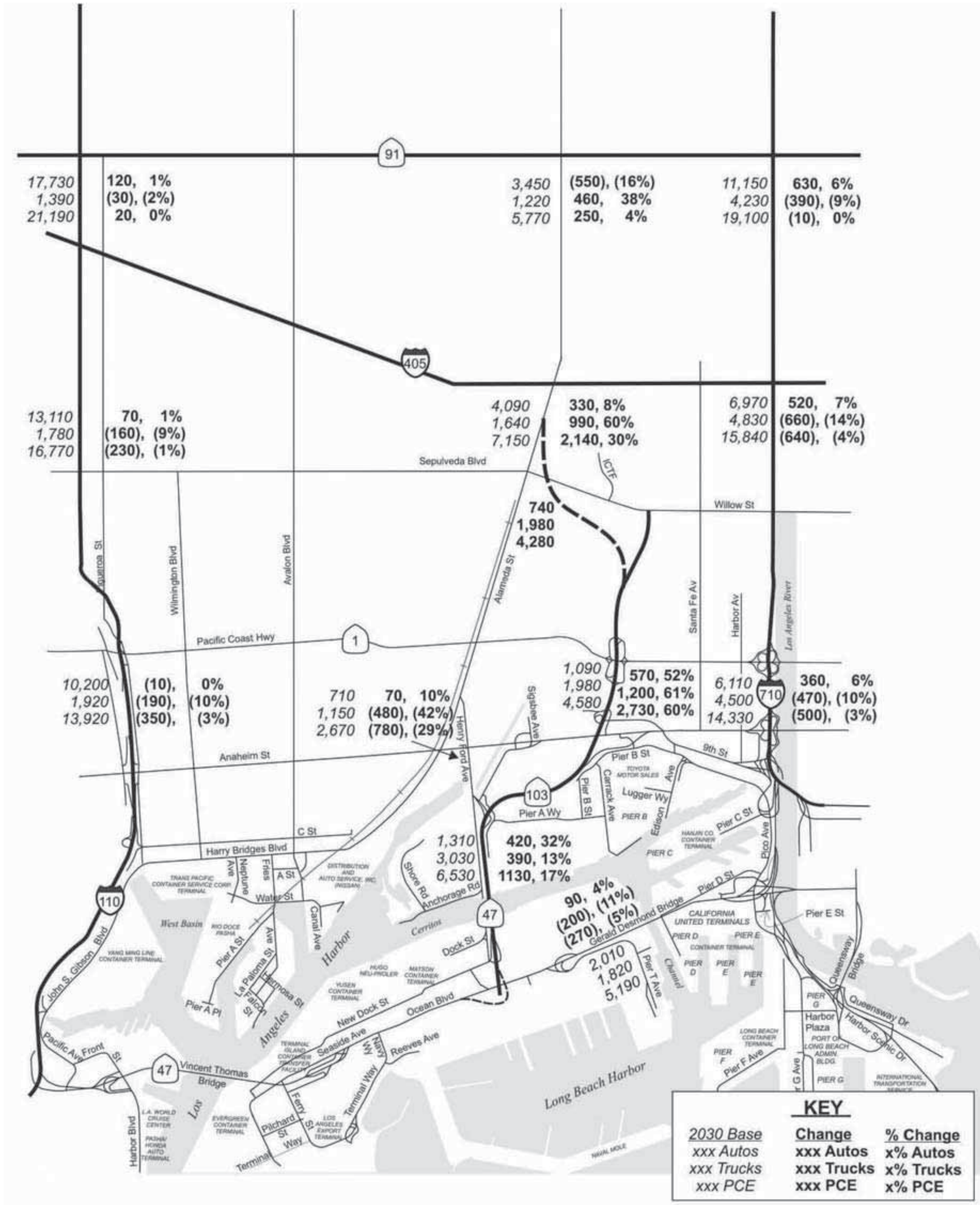
* Unsignalized intersection – analyzed using HCM delay based methodology.
Source: MMA, 2007.



No Scale

Figure 3.5-14
Changes in 2030 AM Peak Hour Volumes (Alt2)
Schuyler Heim Bridge Replacement and SR-47 Expressway

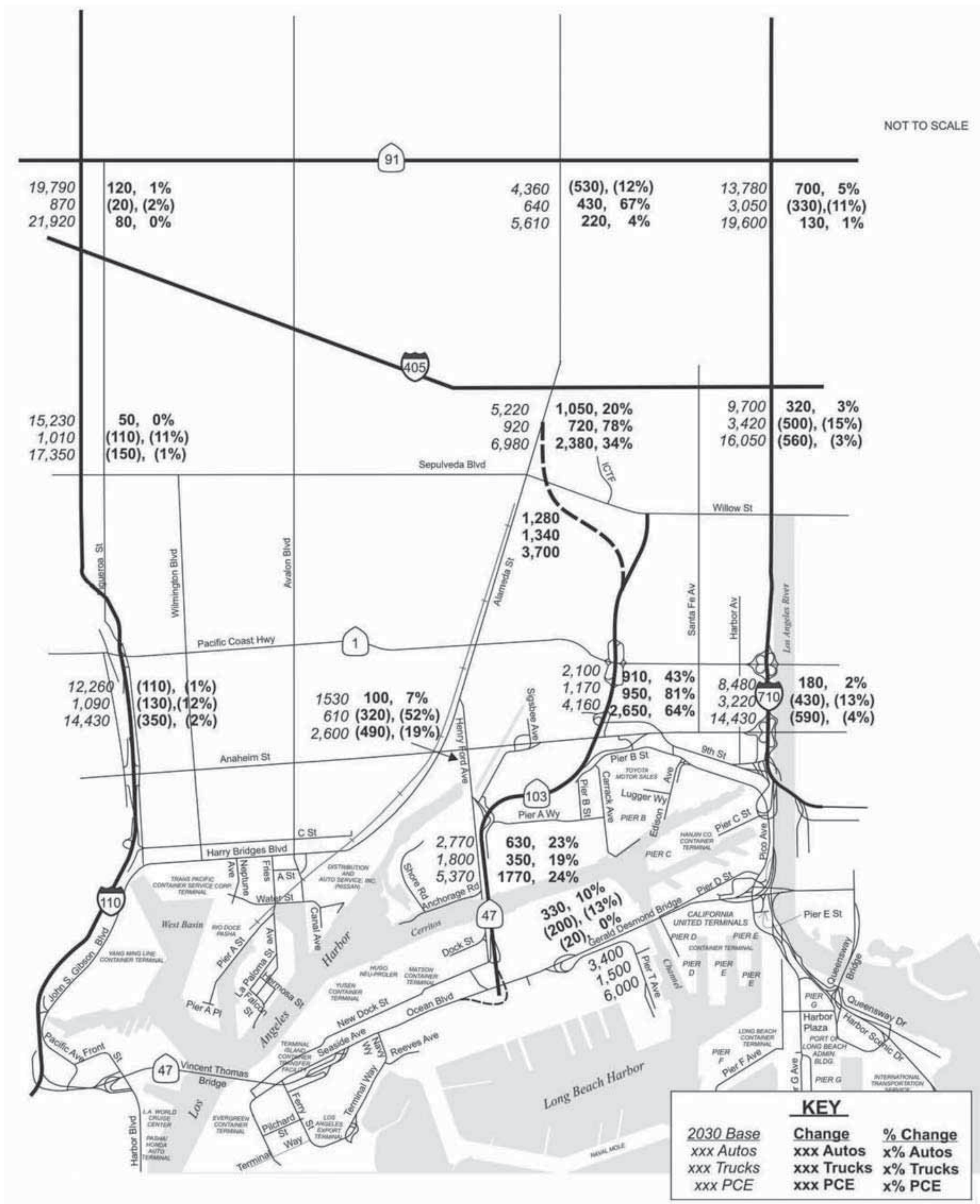
Source: Meyer, Mohaddes Associates



No Scale

Figure 3.5-15
Changes in 2030 MD Peak Hour Volumes (Alt2)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates



No Scale

Figure 3.5-16
Changes in 2030 PM Peak Hour Volumes (Alt2)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

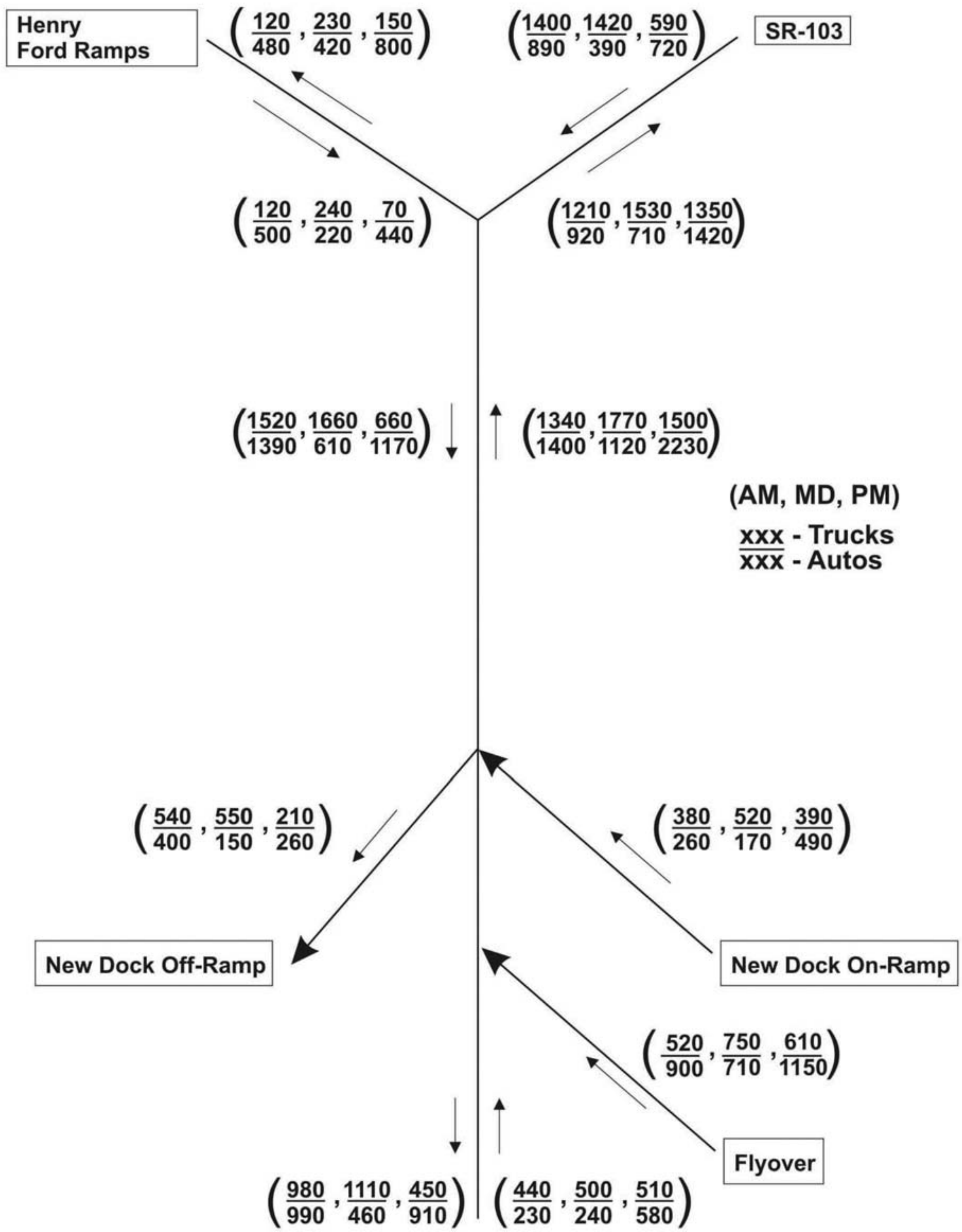


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Figure 3.5-17
2030 Alt 2 SR-47 Mainline and Ramp Volumes
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

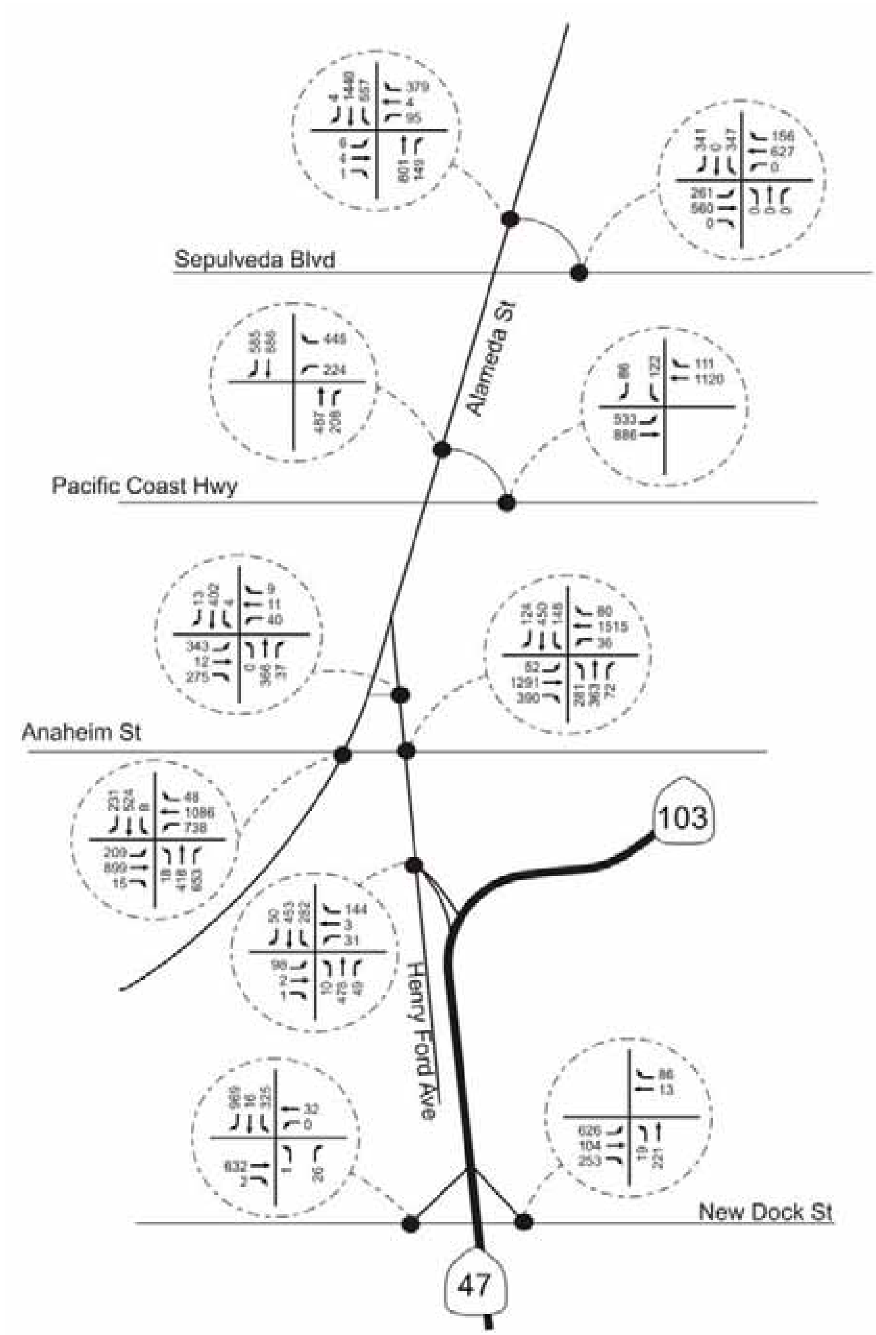

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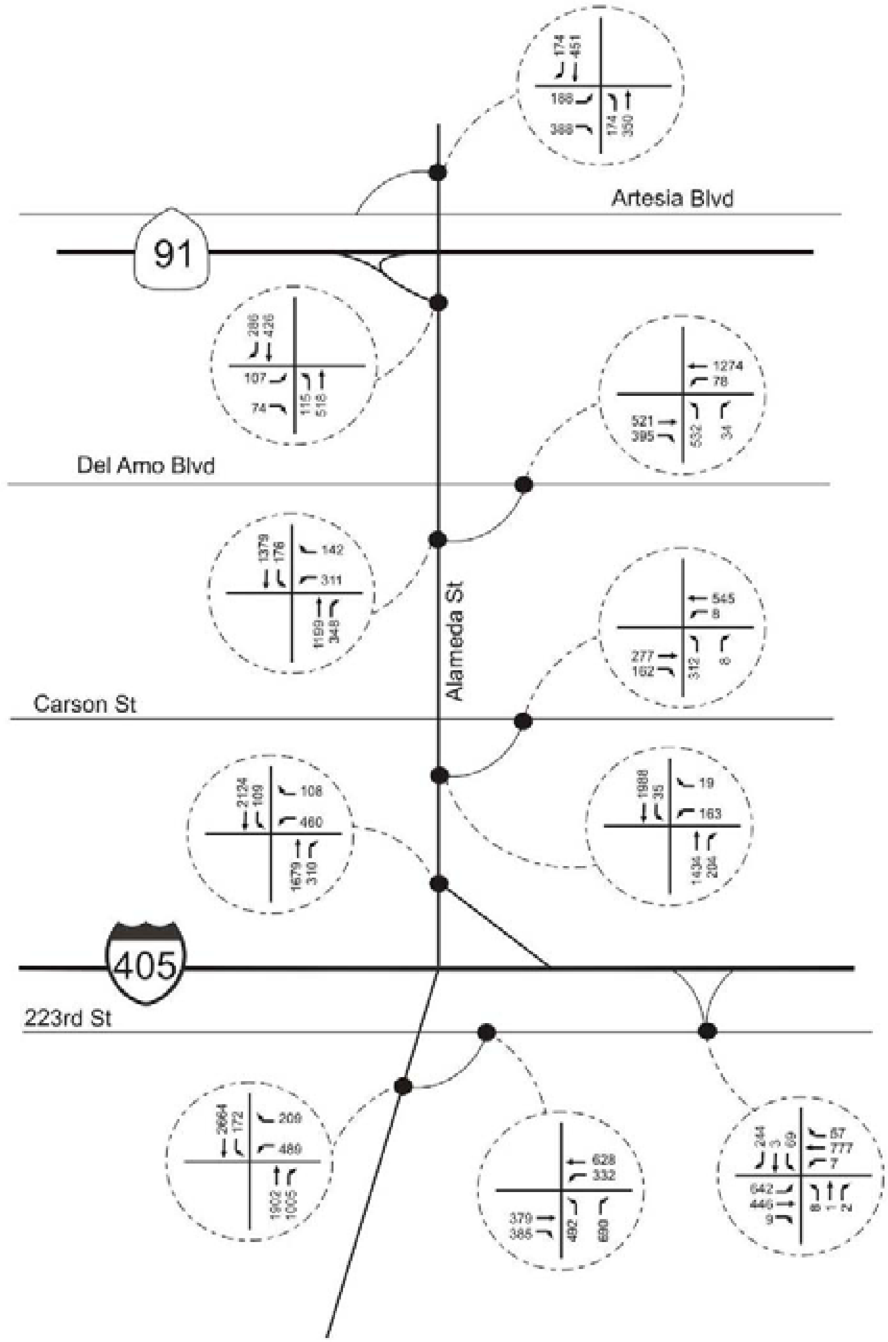
Figure 3.5-18a
2030 SR-103 AM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

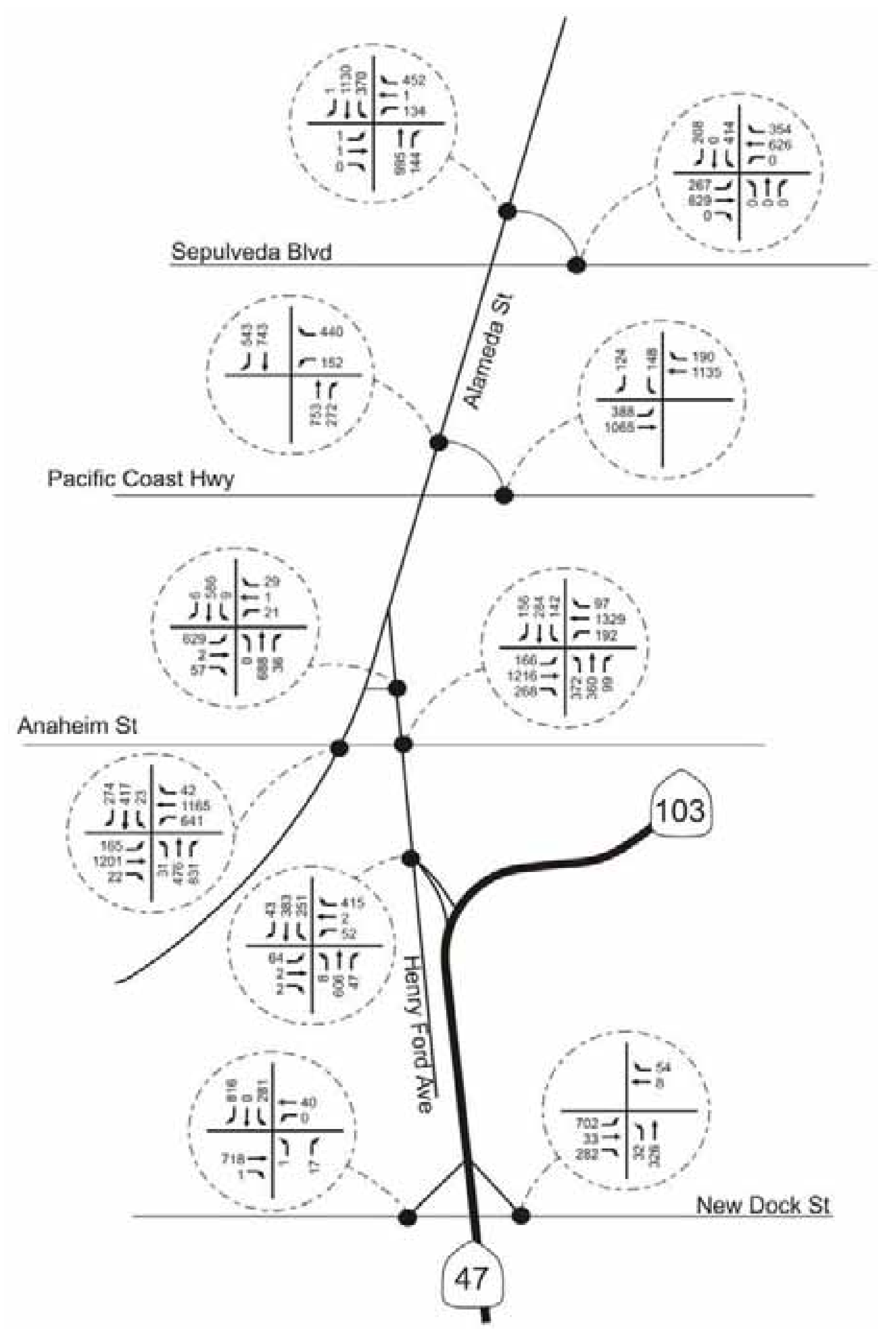


No Scale

Figure 3.5-18b
2030 SR-103 AM Peak Hour Volumes (PCE)

Schuyler Heim Bridge Replacement and SR-47 Expressway

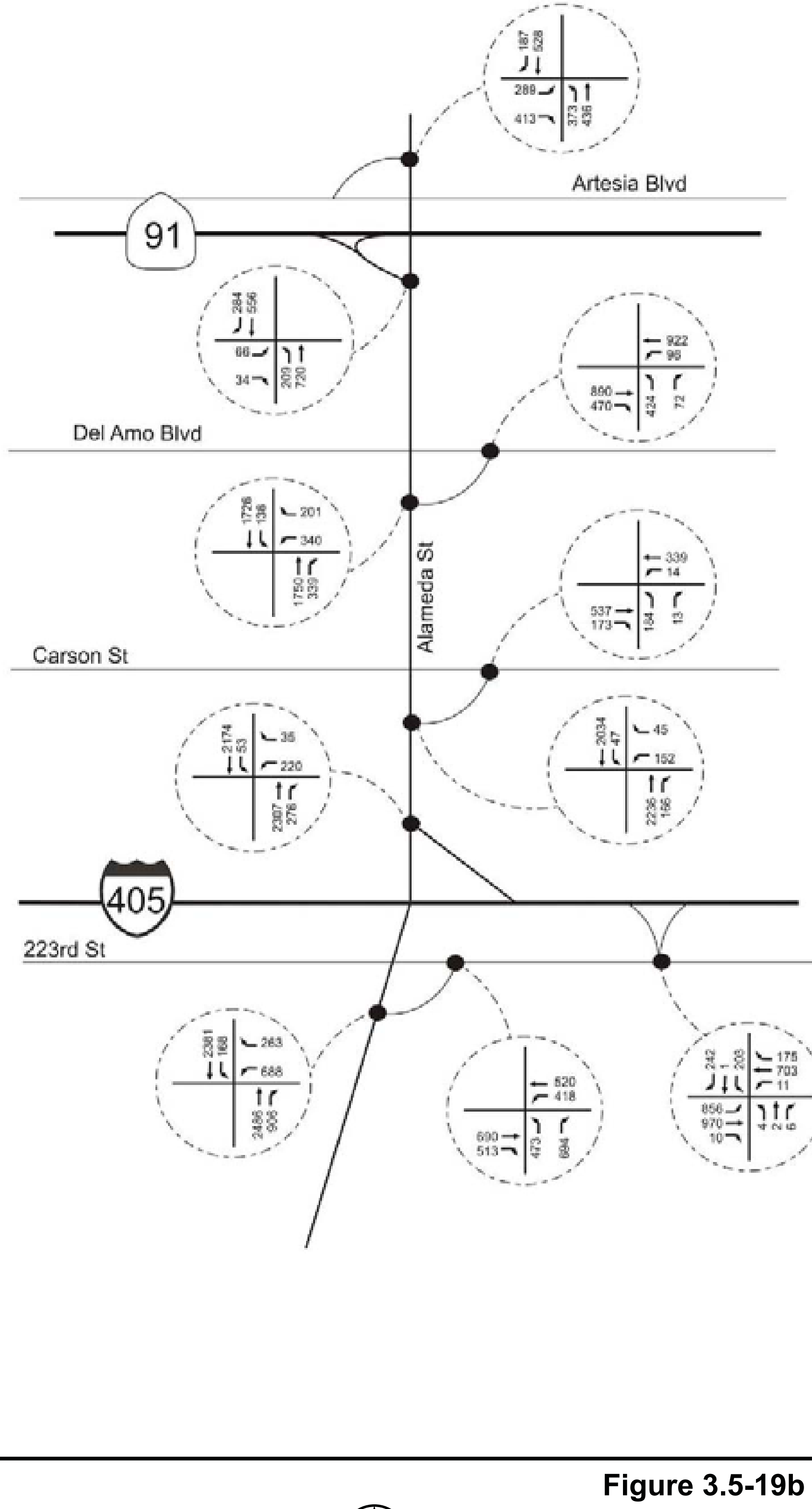
Source: Meyer, Mohaddes Associates



No Scale

Source: Meyer, Mohaddes Associates

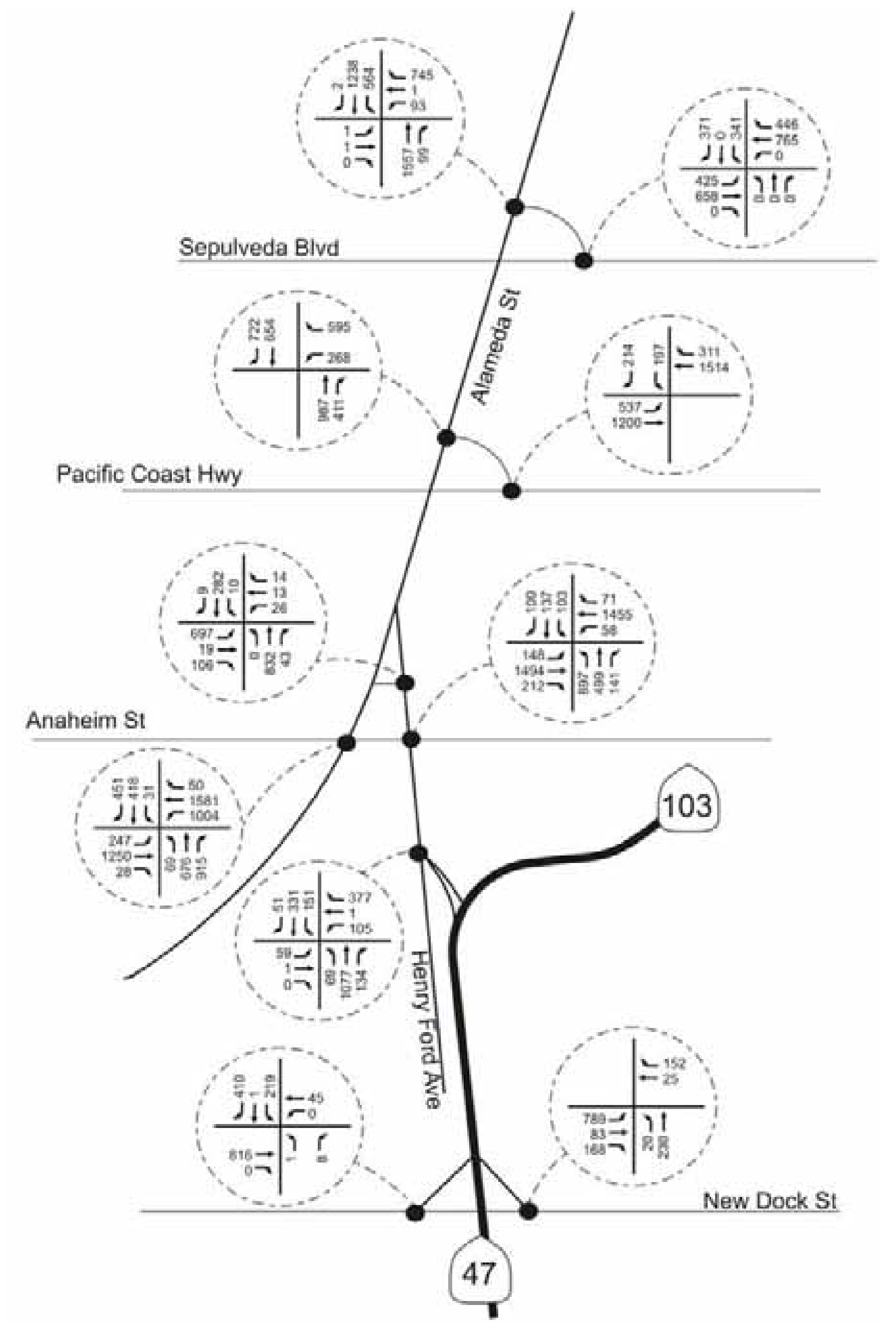
Figure 3.5-19a
2030 SR-103 MD Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway



No Scale

Figure 3.5-19b
2030 SR-103 MD Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

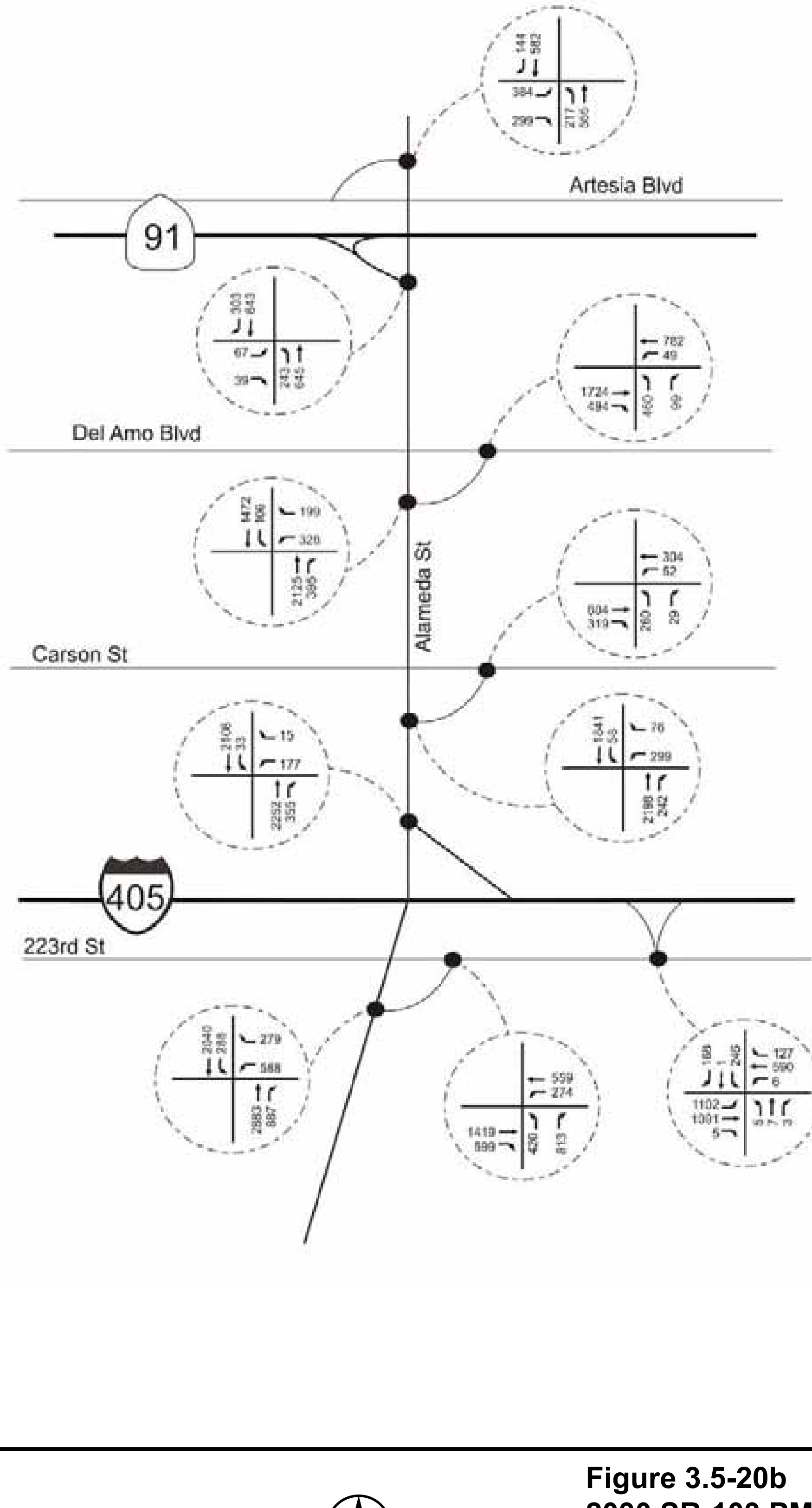
Source: Meyer, Mohaddes Associates



No Scale

Figure 3.5-20a
2030 SR-103 PM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates



No Scale

Figure 3.5-20b
2030 SR-103 PM Peak Hour Volumes (PCE)
Schuyler Heim Bridge Replacement and SR-47 Expressway

Source: Meyer, Mohaddes Associates

Table 3.5-19
Year 2030 Alternative 2 MD Peak Intersection Conditions (PCE)

Intersection	Base Volume/ Capacity or Delay	Base LOS	Alternative 2 Volume/ Capacity or Delay	Alternative 2 LOS	Change
SR-47/New Dock SB off-ramp*	68.8	F	18.9	C	***-49.9***
SR-47/New Dock NB on-ramp*	29.5	D	15.6	C	***-13.9***
SR-47/Henry Ford ramps	75.5	F	17.6	C	***-41.6***
Henry Ford Avenue/Anaheim Street	1.073	F	0.872	D	***-0.201***
Henry Ford Avenue/Denni Street	0.778	C	0.725	C	***-0.053***
Alameda Street/Anaheim Street	1.095	F	1.028	F	***-0.067***
Alameda Street/PCH Connector Ramp north of PCH	1.357	F	0.475	A	***-0.882***
PCH/Alameda Street Connector Ramp east of Alameda Street	0.949	E	0.686	B	***-0.263***
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.160	F	0.659	B	***-0.501***
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.909	E	0.786	C	***-0.123***
Alameda Street/223rd Street Connector Ramp south of 223rd Street	0.993	E	1.394	F	0.401
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.639	B	0.853	D	0.214
223rd Street/I-405 SB ramps	0.700	C	0.709	C	0.009
Alameda Street/I-405 NB ramps	0.711	C	0.796	C	0.085
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.640	B	0.621	B	***-0.019***
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.432	A	0.388	A	***-0.044***
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.724	C	0.672	B	***-0.052***
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.577	A	0.561	A	***-0.016***
Alameda Street/SR-91 EB ramps	0.358	A	0.323	A	***-0.035***
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.543	A	0.559	A	0.016

* Unsignalized intersection – analyzed using HCM delay based methodology.
Source: MMA, 2007.

Table 3.5-20
Year 2030 Alternative 2 PM Peak Intersection Conditions (PCE)

Intersection	Base: Volume/ Capacity or Delay	Base: LOS	Alternative 2: Volume/ Capacity or Delay	Alternative 2: LOS	Change
SR-47/New Dock SB off-ramp*	15.6	C	13.3	B	***-2.3***
SR-47/New Dock NB on-ramp*	37.1	E	17.3	C	***-19.8***
SR-47/Henry Ford ramps	139.6	F	37.6	E	***-77.9***
Henry Ford Avenue/Anaheim Street	1.167	F	1.034	F	***-0.133***
Henry Ford Avenue/Denni Street	0.812	D	0.825	D	0.013
Alameda Street/Anaheim Street	1.122	F	1.112	F	***-0.01***
Alameda Street/PCH Connector Ramp north of PCH	1.367	F	0.671	B	***-0.696***
PCH/Alameda Street Connector Ramp east of Alameda Street	1.024	F	0.942	E	***-0.082***
Alameda Street/Sepulveda Boulevard Connector Ramp north of Sepulveda Boulevard	1.296	F	1.011	F	***-0.285***
Sepulveda Boulevard/Alameda Street Connector Ramp east of Alameda Street	1.008	F	0.967	E	***-0.041***
Alameda Street/223rd Street Connector Ramp south of 223rd Street	1.093	F	1.497	F	0.404
223rd Street/Alameda Street Connector Ramp east of Alameda Street	0.901	E	1.068	F	0.167
223rd Street/I-405 SB ramps	0.683	B	0.776	C	0.093
Alameda Street/I-405 NB ramps	0.711	C	0.757	C	0.046
Alameda Street/Carson Street Connector Ramp south of Carson Street	0.697	B	0.691	B	***-0.006***
Carson Street/Alameda Street Connector Ramp east of Alameda Street	0.562	A	0.543	A	***-0.019***
Alameda Street/Del Amo Boulevard Connector Ramp south of Del Amo Boulevard	0.792	C	0.757	C	***-0.035***
Del Amo Boulevard/Alameda Street Connector Ramp east of Alameda Street	0.678	B	0.615	B	***-0.063***
Alameda Street/SR-91 EB ramps	0.333	A	0.368	A	0.035
Alameda Street/Artesia Boulevard north of Artesia Boulevard	0.502	A	0.505	A	0.003

* Unsignalized intersection – analyzed using HCM delay based methodology.
Source: (MMA, 2007).

Table 3.5-21
Year 2030 Alternative 2 SR-47/Ocean Boulevard/Pier S Avenue Interchange Analysis Results

Scenario	Time Period	Average Intersection Delay – Henry Ford	Average Intersection Delay – Ocean Blvd	Overall Intersection Level of Service – Henry Ford	Overall Intersection Level of Service – Ocean Blvd
Base	AM	41.5	69.2	D	E
	MD	45.0	77.2	D	E
	PM	36.6	50.8	D	D
SR-103 Extension	AM	26.0	46.8	C	D
	MD	25.6	55.3	C	E
	PM	27.1	46.6	C	D

Source: MMA, 2007.

Alternative 2 will improve the LOS at most of the intersections in comparison with the Year 2030 No Build alternative with the exception of Alameda Street/223rd Street ramp during the PM peak hour. In order to mitigate the impact of additional traffic on this intersection, geometric improvements are made to the intersections as part of the project. A detailed traffic operation analysis using SYNCHRO are performed to evaluate the traffic operation of the intersections with the proposed improvements and results are presented in Table 3.5-22. As results indicate, the intersections would operate at LOS D or better.

Table 3.5-22
Year 2030 Alternative 2 Alameda Street/223rd Street Traffic Operation Analysis Results with Project Improvements

	Intersection	Alternative 2: AM Peak LOS	AM Peak Delay (sec).	Cycle Length (sec.)	MD Peak LOS	MD Peak Delay (sec.)	Cycle Length (sec.)	PM Peak LOS	PM Peak Delay (sec.)	Cycle Length (sec.)
1	Alameda St / 223rd St Connector Ramp s/o 223rd St	B	15.5	120	C	22.1	120	D	37.7	120
2	223rd St / Alameda St Connector Ramp e/o Alameda St	C	22.4	120	C	26.8	120	D	39.7	120

Source: MMA, 2007.

Parking

During project operations, Alternative 2 is anticipated to have permanent effects to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal (see Table 3.5-9). This loss of parking capacity is considered adverse. Measures to avoid or minimize adverse effects would be implemented.

3.5.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.5.3.3.3.1 Construction Effects

Under Alternative 3, construction effects to traffic and transportation would be the same as those described under Alternative 1.

Parking
During project construction, Alternative 3 is expected to have temporary effects to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S Terminals. Up to 977 off-street employee parking spaces and 167 marine terminal equipment spaces would be affected (see Table 3.5-9). These temporary effects are considered adverse. Measures to avoid or minimize adverse effects would be implemented. On-street parking is not expected to be affected by project construction.

3.5.3.3.3.2 Operations Effects
Under Alternative 3, traffic effects during project operations would be the same as those described for Alternative 1.

Parking
During project operations, Alternative 3 would not affect existing parking (see Table 3.5-9). No measures to avoid or minimize adverse effects would be required.

3.5.3.3.4 Alternative 4: Bridge Replacement Only
3.5.3.3.4.1 Construction Effects
Under Alternative 4, construction effects related to traffic and transportation would be the same as under Alternative 1, but would pertain only to replacement of the Schuyler Heim Bridge, as no other construction is proposed under Alternative 4.

Parking
During project construction, Alternative 4 is expected to have temporary effects to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S Terminals. Up to 587 off-street employee parking spaces and 54 marine terminal equipment spaces would be affected (see Table 3.5-9). These temporary effects are considered adverse. Measures to avoid or minimize adverse effects would be required. On-street parking is not expected to be affected by project construction.

3.5.3.3.4.2 Operations Effects
Under Alternative 4, congestion at the Cerritos Channel crossing would be lessened. Because the new bridge would be a fixed-span structure, traffic would be able to cross at all times, unlike the current condition where traffic may be required to queue and wait for the existing Schuyler Heim Bridge to be lowered. Under Alternative 4, traffic at the Ocean Boulevard/SR-47 intersection would not be expected to increase as it would under Alternatives 1, 1A, 2, and 3. With those alternatives, the new SR-47 Expressway or SR-103 Extension is projected to attract additional traffic. Under Alternative 4, there would be no new expressway to attract additional traffic at the Ocean Boulevard/SR-47 intersection.

Parking
During project operations, Alternative 4 is anticipated to have permanent effects to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal (see Table 3.5-9). This loss of parking capacity is considered adverse. Measures to avoid or minimize adverse effects would be implemented.

3.5.3.3.5 Alternative 5: Transportation System Management

3.5.3.3.5.1 Construction Effects

Under Alternative 5, construction will involve a variety of improvements to streets and intersections within the project study area. Effects from constructing the selected TSM facilities are expected to be minimal, such as partial lane closures for short periods of time to erect signs and make other improvements. If street widening should occur, temporary lane closures on the selected rights-of-way would be expected. Temporary detours would be established, if necessary.

Parking

It is anticipated that off-street parking would not be affected. However, there could be temporary effects to on-street parking in the vicinity of construction activities.

3.5.3.3.5.2 Operations Effects

Under Alternative 5, traffic flow in the project area would be facilitated within the existing system of roads. Changes to the number of vehicles using the various roadways are not anticipated.

Parking

Effects to off-street parking are not anticipated. There could, however, be effects to current parking capacity if on-street parking is removed to provide additional travel lanes. The overall result of establishing the selected TSM measures would be an improvement in traffic flow. However, any permanent effects to parking capacity would be considered adverse.

3.5.3.3.6 Alternative 6: No Build

Under Alternative 6, there would be no change to the existing Schuyler Heim Bridge or existing roadway system. As a result, there would be no effects to existing traffic patterns or to the existing transportation system. Traffic levels would increase as projected within the project area (see Tables 3.5-4 and 3.5-5).

Parking

Under Alternative 6, there would be no changes to existing on-street or off-street parking capacities. No avoidance or minimization measures would be required.

3.5.3.3.7 CEQA Consequences

Based on the information provided in the above analysis, when considered in the context of CEQA criteria, impacts to traffic and transportation, including parking issues, would be less than significant. Under Alternatives 1, 2, 3, and 4, temporary parking will be provided during the period of project construction as part of project design. Also, a TMP will be implemented during project construction. Under Alternatives 1, 2, and 4, compensation for permanent loss of parking capacity will be provided as part of the project, based on an agreement between Caltrans and the Port of Long Beach. Impacts under Alternative 5 would be less than significant. There would be no impact to traffic and transportation under Alternative 6.

Potential impacts of the proposed project alternatives to Traffic and Transportation are addressed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis and Appendix A – CEQA Checklist (XV, Transportation/Traffic).

3.5.4 Avoidance, Minimization, and/or Mitigation Measures

3.5.4.1 Construction

3.5.4.1.1 Avoidance and Minimization Measures

3.5.4.1.1.1 Alternatives 1, 1A, 2, and 4

T-1 Prior to construction, temporary parking spaces will be provided to replace existing parking capacity that will not be available during project construction. Caltrans will coordinate with the Port of Long Beach and Port of Los Angeles to identify replacement parking for the Pier A East and Pier S Terminals. Exact locations will be determined after consultation with responsible parties, including property owners. Considerations of feasibility will include, but not be limited to, vehicle capacity, time of availability, distance from terminal(s), and the need for employee shuttles.

T-2 The Transportation Management Plan will be implemented to enhance vehicular and pedestrian traffic.

3.5.4.1.1.2 Alternative 3: Bridge Demolition Avoidance

T-1, T2 See T-l and T2, above.

3.5.4.1.1.3 Alternatives 5 and 6

No avoidance or minimization measures would be required for construction of the TSM and No Build alternatives.

3.5.4.1.2 Mitigation Measures

No mitigation measures would be required during project construction.

3.5.4.2 Operations

3.5.4.2.1 Avoidance and Minimization Measures

3.5.4.2.1.1 Alternatives 1, 1A, 2, and 4

T-3 Compensation for the permanent loss of an estimated 15 employee parking spaces at the Port of Long Beach Pier S Terminal will be provided. Compensation will be based on an agreement between Caltrans and the Port of Long Beach.

3.5.4.2.1.2 Alternative 5

No avoidance or minimization measures are proposed for Alternative 5. As necessary, measures would be developed and included in the Final EIS/EIR if this alternative is chosen for development.

3.5.4.2.1.3 Alternative 6

No avoidance or minimization measures are proposed for Alternative 6.

3.5.4.2.2 Mitigation Measures

No mitigation measures would be required for project operations.

3.6 Marine Vessel Transportation

The information provided in this section is based entirely on the *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Long Long-Term Economic Impacts to Marine Vessel Operation in Cerritos Channel* (Caltrans, 2006), which is hereby incorporated in its entirety.

3.6.1 Regulatory Setting

3.6.1.1 Federal

Federal regulations concerning marine navigation are codified in 33 CFR parts 1 through 399 and are implemented by the U.S. Coast Guard (USCG) and the U.S. Army Corps of Engineers. Federal regulations for marine vessel shipping are codified in 46 CFR Parts 1 through 599 and are implemented by the USCG, Maritime Administration, and Federal Maritime Commission. The Navigation Rules, enforced by the USCG, establish actions to be taken by vessels to avoid collision. These rules are established through the International Navigational Rules Act of 1977 (Public Law 95-75, 91 Stat. 308, or 33 U.S.C. 1601-1608). California laws concerning marine navigation are codified in the Harbors and Navigation Code and implemented by local city and county governments.

The entire marine vessel study area is within the 11th USCG District, which includes all of California offshore waters. Each USCG District publishes a weekly *Local Notice to Mariners* (LNM), which is the primary means for disseminating information pertaining to navigational safety and other items of interest to mariners. Information contained in the LNM includes reports on hazards to navigation, channel conditions, obstructions, dangers, restricted areas, and construction or modification of bridges. The report includes the establishment of, changes to, and deficiencies in aids to navigation and any other information pertaining to the safety of the waterways. These notices are published weekly. LNMs are developed from information received from the USCG, the general public, the Army Corps of Engineers, U.S. Merchant Fleet and other sources.

The USCG has consolidated the requirements for drawbridge operations, including Cerritos Channel, as contained in Code 33 of Federal Regulations, Part 117. Radiotelephones are installed to enable the drawtender at the Schuyler Heim Bridge and the Badger Avenue Bridge to communicate with vessels by radiotelephone.

The USCG would issue the permit to construct the new bridge proposed under Alternatives 1, 2, 3, and 4. According to the USCG, when a bridge is no longer used for its permitted purpose of providing land transportation, the bridge must be removed from the waterway. Therefore, the federal permit for the replacement bridge would include the condition that the existing Schuyler Heim Bridge be removed.

3.6.1.2 Local

Vessel operating rules and regulations outside the harbor entrances have been developed over the years as a result of past experience. The rules and regulations are continuously updated by the USCG, with input from the pilots, Ports of Los Angeles and Long Beach, shipping lines, and other involved entities. As discussed above, they are published in the CFR and United States (U.S.) Coast Pilot, as well as Port Tariffs.

Marine vessel transportation within the Ports of Los Angeles and Long Beach is governed in accordance with a myriad of local, state, and federal regulations, plus requirements of international treaties. Vessel traffic in the Ports is regulated by policies established by the USCG; the USCG and the respective Port Police enforce these policies. The Vessel Traffic System and the Marine Exchange monitor vessel transits. The transits are controlled and guided by the Ports of Los Angeles and Long Beach Port Pilots, and transits follow the USCG Navigation Rules of the Road. Overall management is under the guidance of the USCG Captain of the Port.

The Marine Exchange is a voluntary, nonprofit organization affiliated with the Los Angeles Chamber of Commerce. The organization is supported by subscriptions from port-related organizations that recognize the need for such an organization and use its services. The Marine Exchange is designed to enhance vessel safety in the main approaches (i.e., the Precautionary Area) to the port. Although the service is voluntary, all vessels are encouraged to participate in the interests of safety and prudent seamanship. The service consists of a coordinating office, specific reporting points, and very high frequency-frequency modulation (VHF-FM) radio communications used to communicate with participating vessels. Vessel traffic channels have been established in the port, and there are numerous aids to navigation. Within the Ports of Los Angeles and Long Beach, local rules are established and enforced by the Port's Police Department.

3.6.2 Affected Environment

For the purposes of this discussion, the affected environment consists of San Pedro Bay and the Cerritos Channel.

3.6.2.1 San Pedro Bay

San Pedro Bay, between Seal Beach on the east and Point Fermin on the west, is 132 kilometers (km) (82 miles [mi]) northwest of San Diego. On the shores of the bay are the cities and port areas of Long Beach and Los Angeles. Terminal Island, in the northwest part of San Pedro Bay, separates the outer bay from Los Angeles and Long Beach inner harbors. The bay is protected by breakwaters and is a safe harbor in any weather. The openings between the breakwaters, known as Angels Gate and Queens Gate, provide entry to the Port of Los Angeles and the Port of Long Beach, respectively. Long Beach Harbor, in the eastern part of San Pedro Bay, includes the City of Long Beach and part of Terminal Island. Los Angeles Harbor, at the western end of San Pedro Bay, includes the districts of San Pedro, Wilmington, and a major part of Terminal Island. Long Beach and Los Angeles Harbors are connected by Cerritos Channel. The distance between the seaward entrances to the two harbors is about 6.4 km (4 mi).

The Ports of Long Beach and Los Angeles form the largest port complex on the Pacific coast, and have the reputation of being America's most modern port facilities. Both ports have extensive foreign and domestic traffic, with modern facilities for the largest ocean-going vessels, accommodating all types of marine cargo.

3.6.2.2 Cerritos Channel

The Port of Los Angeles and Port of Long Beach do not place restrictions on the size or type of vessels that enter the Ports although, in the Inner Harbor, vessels are limited by water depths of 14 meters (m) (45 feet [ft]). Cerritos Channel can accommodate vessels with drafts of this magnitude. The Cerritos Channel currently accommodates vessels with maximum dimensions as follows: length 244 m (800 ft), beam 27 m (90 ft), draft 14 m (45 ft), and vertical clearance 50 m (165 ft). The channel is about 183 m (600 ft) wide except for passage under the Schuyler Heim Bridge, where it is 55 m (180 ft) wide. This channel is about 1.8 nautical miles in length and links the Inner Harbor section (Port of Long Beach) of the Port complex with the East Basin (Port of Los Angeles), in addition to having uses along its banks (Piers 191-213, plus private marinas).

As stated above, the Commodore Schuyler F. Heim Bridge (Schuyler Heim Bridge) crosses the Cerritos Channel, but has clearance limitations; large commercial vessels are unable to travel under it. It is easier for these vessels to get to berths in the Port of Long Beach via the Long Beach Back Channel. Therefore, very few large commercial vessels pass under the Schuyler Heim Bridge. The vessel traffic in the East Basin and Cerritos Channel near the project site includes auto carrier ships traveling to Berths 196-198, scrap metal dry-bulk ships bound for the Hugo Neu-Proler terminal, small liquid-bulk tankers going to Dow Chemical, and motor and sailboats traveling to and from the East Basin marinas.

The normal height of the Schuyler Heim Bridge in the lowered position is approximately 10.9 m (36 ft) to 12.4 m (41 ft) above water, depending on the tide. This compares to the adjacent (west) Henry Ford Avenue Railroad Bridge (Badger Avenue Bridge), which has a vertical clearance of approximately 1.8 m (6 ft) to 2.4 m (8 ft) above water. The Badger Avenue Bridge is maintained by the Port of Los Angeles, but is operated by the Pacific Harbor Line (PHL). Full lift height of the Schuyler Heim Bridge is approximately 38 m (126 ft) above water. The Caltrans operator controls the height of the lift. The bridge is lifted only after surface traffic comes to a complete halt, and it is verified that no pedestrians are on the bridge. The Caltrans operator is contacted by the vessel by audio signal, visual signal, or marine radio (this must comply with USCG Regulations). The majority of the contacts are by marine radio.

3.6.2.3 Vessel Traffic

Vessel traffic channels have been established in the harbor, where there are numerous aids to navigation. Many types of recreational and commercial marine vessels utilize the harbor area, including fishing boats, recreational vessels, passenger-carrying vessels, tankers, auto carriers, container vessels, dry bulk carriers, and barges. Commercial vessels follow traffic lanes established by the USCG when approaching and leaving the harbor. These traffic lanes meet at the "Precautionary Area" where incoming and outgoing traffic crosses.

The harbor utilizes a Vessel Traffic Information Service (VTIS), operated by the Marine Exchange and the USCG, using shore based radar to monitor traffic within the main approaches to the harbor, including the Precautionary Area and vicinity. Radar systems are also operated by both the Long Beach and Los Angeles pilot services to monitor vessel traffic within the harbor area. This information is available to all vessels upon request. The pilot services also manage the use of anchorages under an agreement with the USCG. A communication system links the following key operational centers: USCG Captain of the Port, VTIS, Los Angeles Pilot Station, Long Beach Pilot Station, and Port of Long Beach Security. This system is used to exchange vessel movement information and safety notices among the various organizations.

An estimated 5,845 vessels called at the Ports in 2005, a 2 percent increase from the 5,724 calls in 2004; vessel traffic to the Ports is anticipated to continue to increase (see Table 3.6-1). Vessel traffic in the Cerritos Channel consists mostly of recreational vehicles, tugs and barges, and shipping, with few tankers or other marine traffic.

Table 3.6-1
Vessel Calls at the Ports of Los Angeles and Long Beach

Year	Vessel Calls
2008[a]	6,095
2007[a]	6,040
2006[a]	5,915
2005	**5,845**
2004	5,727
2003	5,696
2002	5,396
2001	5,662
2000	5,936

Source: Marine Exchange of Southern California, (2005), including
[a] Projections for 2006-2008.

Due to additional train traffic from the Alameda Corridor, there has been an additional waiting time for the Badger Avenue Bridge to lift in Cerritos Channel. As a result, vessels are going around Terminal Island, and the number of lifts has decreased (Table 3.6-2). To avoid the Badger Avenue Bridge and Schuyler Heim Bridge delays, vessels circumnavigate Terminal Island. For a tug/barge combination, about 60 to 90 minutes are needed to make a complete detour around Terminal Island.

Table 3.6-2
Vessels Through Cerritos Channel Requiring Bridge Lift

	2003[a] January and July	2004 January and July	2005 January and July
Tugs	1,578	1,428	1,554
Tugs w/Barge	528	486	498
Fishing	24	0	12
Sail	792	852	510
Cruise	30	36	24
Oil Container	27	6	12
Ship	15	6	6
Power	36	30	24
CG Cutter	6	30	6
Tanker	6	0	12
Tow	12	0	0
Fire Boat	18	18	6
Total	3,072	2,892	2,664

[a] Data adjusted to account for bridge closure in early January 2003.
Source: Caltrans, 2006.

3.6.3 Environmental Consequences

3.6.3.1 Evaluation Criteria

An adverse effect on marine vessel transportation would occur if an increase in traffic from project construction and/or operations results in congestion within the harbor and/or if the capacity for maritime commerce to operate efficiently and safely is exceeded. This would include an increase in delays or interference with port operations that results in an increase in operator cost, forcing closure of the port operation.

3.6.3.2 Methodology

The USCG is responsible for issuing permits for bridges and structures that cross the Cerritos Channel. As part of the bridge permitting process, the USCG considers anticipated economic effects to marine vessel usage. Caltrans was engaged to quantify effects to marine vessel navigation through the Cerritos Channel resulting from the potential reconstruction of the Schuyler Heim Bridge from a lift bridge to a fixed-span bridge. The primary economic effect would be increased operating costs for marine vessels that would have to detour around Terminal Island as a result of the new height restriction, as the maximum clearance under the new bridge would be less than the maximum clearance under the existing bridge in the lift position.

Factors used to analyze the economic effect on marine vessel navigation in the Cerritos Channel include: overall growth in marine vessel traffic, length of detour, distribution of traffic by vessel type, seasonality, vessel size, mast folding, horizontal constraints of the Cerritos Channel, and operating cost (Caltrans, 2007).

Data show that more vessels are choosing to detour around Terminal Island because of the uncertainty in delay times in the Cerritos Channel; therefore it was assumed that there would be a lack of growth in marine vessel traffic in the Cerritos Channel. It was assumed that the time needed to detour around Terminal Island is approximately 90 minutes for tugs with barge combinations and tow vessels, and 60 minutes for all other vessels traveling at higher speeds. For purposes of the economic analysis, the added cost to operators is the net detour time, which is the detour time minus the through-channel time. The net detour time for vessel operation will be approximately 35 minutes for vessels traveling at high speeds and 65 minutes for tugs with barge combinations and tow vessels. In addition, data show that the distribution of traffic by vessel type demonstrates that vessel traffic through the Cerritos Channel declined from 2003 to 2005. Based on interviews with vessel, bridge, and Port facility operators and the USCG, maritime traffic in the Cerritos Channel would continue to be seasonal, peaking during the summer months of June, July, and August.

The interviews also indicate that the size of vessels traveling though Cerritos Channel is not likely to increase over time. As fleets are replaced, operators will have a strong economic incentive to use replacement vessels that can pass under the new, fixed-bridge structure to avoid operational costs associated with detours. It was assumed that all vessels with masts higher than 14.3 m (47 ft) would detour (i.e., no vessels would fold their masts to pass under the new fixed bridge). It was also assumed that there would be no constraints to marine traffic from the navigational width of the new bridge, as it would be the same as with the existing lift-bridge. Only tug/barge combinations could be constrained because of the horizontal distance between bridge fenders and water level.

Operational costs were obtained from Crowley Maritime Services for tugs and tugs with barges; published rental rates were used for fishing boats and sailboats. When data for a particular vessel type were unavailable, costs from one of the available vessel types were used. The primary economic impact would be increased operating costs for marine vessels that would have to detour around Terminal Island as a result of the new height restrictions.

Marine vessel traffic patterns within the Port of Los Angeles are established in accordance with requirements of the USCG. With the proposed project, vessel traffic patterns would be the same as under existing conditions. Vessels that call at berths adjacent to the Schuyler Heim Bridge would continue to enter the Outer Harbor at Angel's Gate, then proceed to the area via the Glenn Anderson Ship Channel, Main Channel, East Basin Channel, and Cerritos Channel. Ships that call in the area would be guided to a berth by port tugboats. Project operations would result in ships with heights above 14.3 m (47 ft) accessing the terminal from the Port of Long Beach, east of the project site. Implementation of the project would alter the current navigation routes and schedules of these vessels.

Various sources were used to estimate the effects presented in this analysis. The main sources of data include:

- Video analysis by Port of Los Angeles for 2000 and 2001
- Schuyler Heim Bridge activity logs, April-June 2001 and April-June 2002
- 1994 Badger Bridge Reconstruction Economic Analysis, by Los Angeles Harbor Department
- 1999, 2000, and 2001 Annual Marina Surveys, by Marina Masters Association
- Caltrans, Schuyler Heim Bridge Lift Data for January and July 2003, January and July 2004, and January and July 2005
- Operating cost data from interviews with a vessel operator and published reports and charter rates

A complete list of contacts and references is included in the economic effect to marine vessel transportation study (Caltrans, 2007).

In order to verify the above data and focus research efforts on relevant areas, staff from various organizations, such as Port of Long Beach, Port of Los Angeles, USCG, were interviewed either in person, by telephone, or both. In addition to reviewing various support documents, historical data, recent data, traffic projections, current infrastructure improvements, and information from interviews were analyzed to ascertain marine vessel transportation trends and patterns.

3.6.3.3 Evaluation of Alternatives

3.6.3.3.1 Alternative 1: Bridge Replacement and SR-47 Expressway

3.6.3.3.1.1 Construction Effects

Alternative 1

[illegible]

Construction of the proposed replacement bridge would result in constraints to marine vessel navigation for a 2-year period. These constraints would be a reduced bridge clearance height of approximately 13.1 m (43 ft) and reduced width of 22.9 m (75 ft). Although marine vessel traffic would be affected by bridge construction, it would not be affected by construction of the expressway or flyover.

Construction operations affecting the Cerritos Channel would require the use of barges aided by tugboats to erect the channel falsework (pile driving and beam erection), span construction, remove the existing Schuyler Heim Bridge structure, and construct the other half of the new bridge. Barges and tugboats operating approximately 2 hours per day would be needed, on average, to remove or ship in materials for construction of the new bridge structure. This would result in partial blockage of the approximate 22.9 m (75 ft) wide channel during this phase of construction. Although the use of one barge and tug daily would be a small percentage of existing maritime traffic in the Cerritos Channel, no tug with barge combinations would be able to pass under the bridge during construction when the channel is restricted horizontally to an approximate 22.9 m (75 ft) width due to bridge falsework.

The Cerritos Channel would be closed to marine traffic for approximately 25 days; closed intermittently for 40 days; and have channel restrictions to approximately 13.1 m (43 ft) vertical clearance and 22.9 m (75 ft) horizontal clearance for 240 days over a total period of 16 months (September 2009 through December 2010) (see Appendix E in Caltrans, 2006.)

A list of marine terminal facilities and marinas on Cerritos Channel is provided in Table 3.6-3, but is not inclusive of all affected marine operators. Restrictions and closures associated with constructing the proposed replacement bridge in the Cerritos Channel would result in an estimated economic effect of $2.6 million to marine vessel operators.

Table 3.6-3
Marine Terminal Facilities and Marinas in Cerritos Channel

Marine Terminal Facilities	Marinas
Long Beach Marine Terminal	Terminal Island Marina
Dow Chemical	Fellows Marina
Matson Container Terminal	Cerritos Yacht Anchorage
	Yacht Anchorage
	Lighthouse Yacht Anchorage
	Colonial Yacht Anchorage
	Newmark's Yacht Anchorage

Source: Caltrans, 2006.

Roadway Effects
The proposed Schuyler Heim Bridge replacement could result in longer travel times and distances for freight and other roadway users during the construction period. It is estimated that the bridge would not be closed to road traffic for more than a few days at a time during each construction phase. However, there would be lane closures during construction which would restrict traffic movement.

Alternative 1A
Construction effects under Alternative 1A are expected to be comparable to those under Alternative 1. Because there would be fewer piers placed in the Cerritos Channel under Alternative 1A, effects from width restrictions within the channel are expected to be slightly less than under Alternative 1.

3.6.3.3.1.2 Operations Effects

Alternative 1

Marine Vessel Effects
Under Alternative 1, the new fixed-span bridge would provide a vertical clearance for marine traffic of approximately 14.3 m (47 ft). The existing bridge provides vertical clearance of approximately 38.4 m (126 ft), provides a horizontal clearance of about 54.9 m (180 ft) between fenders, and has a span length of 73.2 m (240 ft). The replacement bridge would provide the same horizontal clearance between fenders and span, but would decrease the effective vertical clearance by approximately 24.1 m (79 ft) to 14.3 m (47 ft).

Data from the Port of Los Angeles for the year 2002 indicate that about 13 percent of the vessels over 12.2 m (40 ft) in height that traveled in the Cerritos Channel at that time were between 12.2 m (40 ft) and 14.3 m (47 ft). Thus, it was assumed that 13 percent of the vessels requiring a lift in 2005 could pass under a 14.3 m (47 ft) bridge and would not need to detour (see Table 3.6-2). For the current analysis, it was estimated that, over a period of 20 years, the operational height of the new bridge would result in detours costing the marine industry approximately $23.6 million. The period of 20 years is consistent with the standard that was used for traffic evaluation (see Section 3.5), which is to evaluate conditions for 20 years after opening year.

Compensation related to marine vessel detours would be provided as a permit condition if lawfully imposed by the U.S. Coast Guard.

Roadway Effects
The proposed replacement bridge would provide substantial economic benefits for roadway users of the Schuyler Heim Bridge. These benefits are described below.

EcnEffcyM
Replacement of the Schuyler Heim Bridge with a fixed-span structure is critical to successful completion of the SR-47 Expressway project. When complete, the 2.7 km (1.7 mi.) expressway would provide the missing link between the Ocean Boulevard Interchange on Terminal Island and Alameda Street on the mainland. This link would allow traffic to continue north to connect to Pacific Coast Highway, I-405, and/or SR-91. The proposed expressway also would help maximize use of Alameda Street, most of which is six lanes, and provide crossing over the signalized intersections at Henry Ford Avenue, Anaheim Street, and Denni Street.

Year 2030 traffic projections indicate that the proposed expressway would result in a 6 percent reduction in truck traffic on I-710 (between Ocean Boulevard and Pacific Coast Highway) and a 5 percent reduction in truck traffic on I-110 (between SR-47 and Pacific Coast Highway). Traffic conditions on parallel arterial streets also would improve.

The economic benefits that would result from this project include:

- Reduced delay to roadway users during operations due to elimination of the lift bridge.
- Fewer accidents related to operation of the bridge as a lift bridge.
- Indirect benefits to businesses resulting from more reliable and consistent delivery of goods to and from Terminal Island.

pSfyEgRp

The SR-47 Expressway and new bridge would provide an important service route that would enable emergency service vehicles and equipment to access Terminal Island in the event of an emergency.

In the event of an earthquake, the new fixed-span bridge and SR-47 Expressway would provide a route to both I-710 and I-110 in the event service was disrupted on both the Gerald Desmond Bridge and the Vincent Thomas Bridge. The new bridge and expressway would also provide a route that could remain in service to ensure ground and vessel transportation immediately following a major earthquake. After a major earthquake, the new bridge and expressway would provide a safety route for vehicular users of the bridge and marine users of the Cerritos Channel.

OgBgCtRs

Replacement of the Schuyler Heim Bridge would minimize the annual capital costs of bridge improvements by maximizing the life span of the bridge and minimizing future maintenance, operational activities, and costs.

3.6.3.3.2 Alternatives 1A, 2, 3 and 4

Construction and operations effects from Alternatives 1A, 2, 3, and 4 would be comparable to those described for Alternative 1.

3.6.3.3.3 Alternatives 5 and 6

Under Alternatives 5 and 6, construction or operations effects to marine vessel transportation are not anticipated.

3.6.3.3.4 CEQA Consequences

Based on the information provided in the above analyses, when considered in the context of CEQA criteria, project-related effects to marine vessel traffic would be less than significant under Alternatives 1, 2, and 3. Alternatives 4, 5, and 6 would not affect marine vessel traffic.

Evaluation of Marine Vessel Transportation in the context of CEQA criteria is provided in Chapter 4.0 – CEQA Analysis and Appendix A – CEQA Checklist, where a criterion for marine vessels has been added to XV, Transportation/Traffic..

3.6.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed related to marine vessel transportation.

3.7 Visual Resources/Aesthetics

This section analyzes how implementation of the proposed project would affect the visual environment of areas near the project. The FHWA methodology for Visual Assessment for Highway Projects (FHWA, 1981) has been used as a guide for conducting the analysis. The information provided in this section is derived from the *Visual Impact Assessment: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, 2007) which is hereby incorporated by reference.

3.7.1 Regulatory Setting

Federal, state, and regional and local requirements that pertain specifically to aesthetic resources and urban design in the proposed project area are summarized below.

3.7.1.1 Federal Requirements

The National Environmental Policy Act of 1969, as amended (NEPA), requires the federal government to use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest, taking into account adverse environmental impacts including, among others, the destruction or disruption of aesthetic values.

3.7.1.2 State Requirements

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code Section 21001[b]).

3.7.1.3 Regional and Local Requirements

The Port of Los Angeles Master Plan, City of Los Angeles General Plan, Wilmington-Harbor Community Plan, Port of Long Beach Master Plan, City of Long Beach Municipal Code, and City of Carson General Plan have general and specific goals and policies that pertain to aesthetics associated with transportation projects within their jurisdiction. A summary of those goals and policies is provided below.

3.7.1.3.1 Port of Los Angeles Master Plan

The Port Master Plan (1979, plus amendments) provides for the short- and long-term development, expansion, and alteration of the Port of Los Angeles. The Port Master Plan has been certified by the California Coastal Commission is part of the Local Coastal Program (LCP) of the City of Los Angeles, and is consistent with the Port of Los Angeles Plan, an element of the City's General Plan. The Port Master Plan does not contain any element specific to visual resources.

3.7.1.3.2 City of Los Angeles General Plan

The City of Los Angeles General Plan is an advisory document with 11 elements: Transportation, Infrastructure Systems, Housing, Noise, Air Quality, Conservation, Open Space, Historic Preservation and Cultural Resources, Safety, Public Facilities and Services, and Land Use. The Land Use Element, in turn, includes 35 local area plans, known as Community Plans, as well as counterpart plans for the Port of Los Angeles and Los Angeles International Airport. The Port of Los Angeles Plan is intended to serve as the official 20-year guide to the continued development and operation of the Port, and is consistent with the Port Master Plan (City of Los Angeles, 1982).

The City of Los Angeles General Plan Land Use Map designates John S. Gibson Boulevard, Pacific Avenue, Front Street, and Harbor Boulevard as scenic routes, with specific acknowledgment of the views of harbor activities and the Vincent Thomas Bridge available to north- and southbound motorists (City of Los Angeles, 1999a). These routes are also designated as Super Truck Routes, a designation related to the volume of Port-related truck traffic accessing Port facilities along these roadways (City of Los Angeles, 1982). Front Street is additionally designated as a scenic route for its views westward of historic San Pedro. South of the Vincent Thomas Bridge, Harbor Boulevard is similarly designated as a scenic route because of Port views (City of Los Angeles, 1999a). No other area roadways are designated scenic routes, and there are no officially designated scenic lookouts.

The City has not adopted formal guidelines governing the scenic corridors associated with designated scenic highways, but has established interim guidelines as part of the Transportation Element addressing roadway alignment, earthwork, signage, landscaping, and utilities (City of Los Angeles, 1999b).

The one objective of the Los Angeles General Plan that addresses aesthetic concerns is:

> **Objective 4:** To assure priority for water and coastal-dependent development within the Port while maintaining and, where feasible, enhancing the coastal zone environment and public views of, and access to, coastal resources.

3.7.1.3.3 Wilmington-Harbor City Community Plan

The Wilmington-Harbor City Community Plan includes policies and standards for multiple residential, commercial, and industrial projects and for community design. These design policies and standards are to ensure that residential, commercial, and industrial projects and public spaces and rights of way incorporate specific elements of good design. The intent is to promote a stable and pleasant environment. In commercial corridors, the emphasis is on the provision and maintenance of the visual continuity of streetscapes and the creation of an environment that encourages pedestrian and economic activity. In industrial areas, the intent is to improve compatibility with the nonindustrial areas and encourage quality industrial development.

The community design and landscaping guidelines section establishes a set of guidelines to "improve the environment, both aesthetically and physically, as opportunities in the Wilmington-Harbor City Community Plan area occur which involve public improvements or other public and/or private projects that affect public spaces and rights-of-way."

The guidelines advocate that "public spaces and rights-of-way should capitalize on existing physical access to differentiate the community as a unique place in the City." Additionally, the guidelines state that "the presence or absence of street trees is an important ingredient in the aesthetic quality of an area. Consistent use of appropriate street trees provides shade during hot summer months, emphasizes sidewalk activity by separating vehicle and pedestrian traffic, and creates an area-wide identity which distinguishes neighborhoods within the Wilmington-Harbor City from each area."

The following areas for improvements that address aesthetic concerns on major transportation corridors and are recommended within the guidelines include:

- Entryway Improvements
- Streetscape
- Street Trees
- Street Lighting
- Sidewalks/Paving
- Signage

3.7.1.3.4 Port of Long Beach Master Plan

The Port Master Plan includes a public access, visual quality, and recreational/tourist element (POLB, 1999). Visual quality is addressed in the following language from the Master Plan:

> *The Port has several major responsibilities in the area of visual quality, particularly in regard to: (a) minimizing disruptive views, (b) landscaping or providing an attractive buffer between the recreational facilities and port industries, and (c) improving the appearance of Harbor lands at or along the major vehicular approaches. The Port has also made a commitment to providing enhanced comprehensive informational signage to provide better guidance to the public in reaching places of business and points of interest within the Harbor District.*
>
> *The most sensitive views include:*
>
> - *Predominant structures visible to the east from downtown Long Beach and along the ocean bluffs*
> - *Ground-level views along the boundary of Queensway Bay*
> - *Ground level views along Harbor Scenic Drive from southbound lanes south of Anaheim Street*
> - *Color, form, texture, and scale are the four criteria used during project review.*

3.7.1.3.5 City of Long Beach Municipal Code and General Plan

The City of Long Beach Municipal Code (21.42.032) specifies "the landscape requirements for Port-related Industrial Zone (IP) zoned properties shall be those established in the Master Landscape Plan for the Port. The Port of Long Beach (POLB) Planning Bureau shall review and approve all landscape plans for projects located in the IP zone." All properties located within the Long Beach portions of the proposed roadway corridor are zoned IP.

The General Plan indicates that the responsibilities for planning within legal boundaries of the harbor lies with the Board of Harbor Commissioners.

3.7.1.3.6 City of Carson General Plan

The City of Carson General Plan Land Use Element and the Transportation and Infrastructure Element emphasize the general aesthetic environment of the City of Carson, and include provisions related to the specific aesthetic environment of the Alameda Corridor (City of Carson, 2004a; City of Carson, 2004b). The eastern side of the Alameda Corridor between Dominguez Street and the southern boundary of the City is identified in the Land Use Element as a Special Study Area. Special study areas "offer special opportunities for development and redevelopment based on their size, location, access, or freeway visibility." Goals, policies, and implementation measures included in the Land Use and Transportation and Infrastructure elements that address aesthetic concerns are presented below.

The City of Carson General Plan – Land Use Element guiding principle states that "the City of Carson is committed to creating an attractive environment for its citizens by developing, implementing, and enforcing community design guidelines which will assure quality development and the maintenance and beautification of properties."

The Land Use Element specifically states that "property maintenance is important in Carson. In both residential neighborhoods and non-residential areas, focus should be placed on property maintenance and improvement." The goal of the City is to "eliminate all evidence of property deterioration throughout Carson" and includes the following policy and implementation measure:

- Policy LU-9.3: Continue to promote and expand programs such as the Carson Beautification Program, which recognizes excellence in property upkeep in residential areas.
  - Implementation LU-IM-9.7: Develop a design and improvement plan based on the City Capital Improvement Program including strengthened landscaping, identification graphics, and other physical improvements to enhance major public thoroughfares and activities areas.

The Land Use Element specifically lists the Alameda Corridor as an issue, as follows: "While there are distinct advantages to the Alameda Corridor, there are also disadvantages. Traffic, noise, and economic impacts to businesses and residential neighborhoods immediately adjacent are among the primary issues." The goal of the City is "development along the Alameda Corridor which is beneficial to residents, property owners, businesses, and the City." The policy and implementation measure applicable to the proposed project and related to this goal includes:

- Policy LU-10.2: Work with the existing applicable task forces and prepare a special study for those areas adversely impacted by the development of the Corridor.
  - Implementation Measure LU-IM-10.1: Prepare a special study for those area(s) adversely impacted by the development of the Corridor, specifically that area east of the Alameda Corridor, between Dominguez Street and the southern boundary of the City. Provide appropriate mitigation for the impacts associated with the Corridor on the neighborhood.

(Note: The special study for the Alameda Corridor has not yet been conducted [City of Carson, 2005a].)

The Land Use Element specifically identifies City Image as an issue, as follows:

> *There are a number of unattractive and/or nonconforming land uses located along highly visible freeway corridors which impact the public's perception of the community. Many of these properties are located in areas which can be considered 'gateways' into the City. Appropriate screening, landscaping, and buffering should be encouraged in order to improve the City's image. In addition, entries into the City and key streets should be enhanced with landscaping and entry statements as appropriate.*

The goal of the City is to "create a visually attractive appearance through Carson." The policies and implementation measures applicable to the project presented in the Land Use Element related to this goal include:

- Policy LU-12.1: Develop and implement a Citywide Urban Design Plan.
  - Implementation Measure LU-IM-12.1: Develop a Citywide Urban Design Plan.

(Note: The Urban Design Plan has not yet been developed [City of Carson, 2005b].)

- Policy LU-12.4: Amend the landscaping requirements in the Zoning Ordinance to enhance the appearance of the community and to provide for the use of trees to provide shade.
  - Implementation Measure LU-IM-12.9: Enhance landscaping requirements and maintenance standards in the landscape section(s) of the City's Ordinance.
  - Implementation Measure LU-IM-12.10: Encourage drought-tolerant plant species, water conservation and related features in the landscape section(s) of the City's Ordinance.
- Policy LU-12.5: Improve City appearance by requiring landscaping to screen, buffer, and unify new and existing development. Mandate continued upkeep of landscaped areas.
  - Implementation Measure LU-IM-12.11: Require exposed structural sidewalls to be screened with landscaping.
  - Implementation Measure LU-IM-12.12: Require landscaping to provide visual continuity along a street, even where the buildings are in different zones or land use districts.
  - Implementation Measure LU-IM-12.13: When conflicting land uses adjoin, require a dense landscape screen to mitigate the friction between land uses.

Another goal provided under the City image issue is to "enhance freeway corridors and major arterials which act as gateways into the City of Carson." The policies and implementation measures applicable to the project presented in the Land Use Element related to this goal include:

- Policy LU-14.1: Work with California Department of Transportation (Caltrans) to provide and maintain an attractive freeway environment in Carson, including access ramps.

- Implementation Measure LU-IM-14.1: Provide and properly maintain appropriate freeway landscaping.
- Implementation Measure LU-IM-14.2: Enhance the landscaping near freeway on- and off-ramps to announce the driver's entry into Carson.
- Implementation Measure LU-IM-14.3: Improve the surfaces of freeway structures visible to travelers with scoring, tile, landscaping, or other treatments to improve the raw, unfinished appearance of these structures.

- Policy LU-14.3: Provide entry markers with landscaping on the major arterials.
  - Implementation Measure LU-IM-14.4: Design and fund attractive entry markers and areas for the major arterials.

The Transportation and Infrastructure Element specifically identifies improving the quality of transportation corridors as an issue as follows: "some of the City's major transportation corridors are deficient in infrastructure maintenance and landscaping improvement." The goal of the City is to "provide improved aesthetic enhancements to and maintenance of the City's transportation corridors." The policies and implementation measures applicable to the project presented in the Transportation and Infrastructure Element related to this goal include:

- Policy TI-7.1: Provide landscaped medians and greenbelts along major arterials, when economically feasible.
  - Implementation Measure TI-IM-7.1: Through design standards and zoning requirements, require landscaped medians and parkways for all new development on major arterials.
- Policy TI-7.2: Encourage the aesthetic quality and maintenance of facilities within the City, under the jurisdiction of other agencies.
  - Implementation Measure TI-IM-7.2: Pursue agreements within Caltrans to construct new sound walls, as necessary, with landscaping, along all state freeways in the City.
- Policy TI-7.3: Target and prioritize street beautification programs along major transportation corridors.
  - Implementation Measure TI-IM-7.4: Develop design plans for all major streets to provide walls, landscape features, and hardscape features, as appropriate, to protect and beautify neighborhoods to provide an aesthetic environment for the users of transportation corridors. First priority should be given to Avalon, south of Carson, and Wilmington, south of 213th Street.
  - Implementation Measure TI-IM-7.5: Develop a land use and design plan for the Alameda Transportation Corridor to provide for appropriate uses, access, sound walls, landscape features, and hardscape features, to protect and beautify the Dominguez area/neighborhoods as well as to limit access to Alameda and improve the flow of traffic.

(Note: The land use and design plan for the Alameda Transportation Corridor has not yet been developed [City of Carson, 2005a].)

3.7.2 Affected Environment

3.7.2.1 Regional Setting

The project is located in the southern portion of the Los Angeles Basin coastal plain in an area characterized by relatively flat topography. The nearest naturally elevated features are the Palos Verdes hills, which are located approximately 6.4 kilometers (km) (4 miles [mi]) west of the proposed project, and Signal Hill, which is located approximately 4.8 km (3 mi) east of the project. The landscape in the project region is characterized by low-density urban development, with scattered pockets of residential, commercial, industrial, public facilities, extraction, and open space land uses.

The proposed project is in southwestern Los Angeles County. The Ports of Los Angeles and Long Beach are located in the southern portion of the project area. State Route (SR) -47 and the Schuyler Heim Bridge are generally located on the boundary between the two Ports. Most of the industrial uses in the project region are concentrated in the Ports and along and adjacent to Alameda Street, which extends north of the project area (Figure 3.7-1).

The study area is bounded by Terminal Island and the Ports of Los Angeles and Long Beach on the south, SR-91 (Gardena Freeway) on the north, Interstate (I) -110 (Harbor Freeway) on the west, and I-710 (Long Beach Freeway) on the east.

3.7.2.2 Project Setting

To provide a clear description of the existing visual setting and define anticipated effects, the project area is divided into four landscape units. Landscape units are areas of distinct, but not necessarily homogenous, visual character that offer similar kinds of views toward the proposed project and/or within which there would likely be similar concerns about landscape issues. A landscape unit often corresponds to a place or district that is commonly known among local viewers. These landscape units provide the framework for analyzing the effects of the proposed project alternatives and developing appropriate impact mitigation measures.

The four landscape units listed below are shown in Figure 3.7-1:

- Channel Landscape Unit
- Wilmington Landscape Unit
- Long Beach Landscape Unit
- Carson Landscape Unit

The description of existing visual conditions in each of the four landscape units includes the following elements that contribute to the visual environment: an overview of the location of the unit; characterization of the unit's visual character; discussion of the unit's viewshed and key view(s); and a description of the visual quality of the unit as seen from key view(s).

3.7.2.2.1 Description and Visual Character

A general description of the location of each landscape unit is provided to establish its geographic setting relative to the overall project area. The visual character of each landscape unit is described, as are the land uses and features that contribute to its visual character. Visual character is descriptive and nonevaluative; it is based on a consideration of the pattern of the landscape as a product of the visual characteristics of the underlying landform and the landcover on it, including water, vegetation, and developed features.

3.7.2.2.2 Viewshed and Key Views

A viewshed is a subset of a landscape unit and is comprised of all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views from the location of the proposed project. The viewshed also includes the locations of viewers likely to be affected by visual changes brought about by project features. Potential viewsheds extend out into the surrounding area. But, from many areas in the flat urban landscape of the project area, views toward the proposed alignments and structures are substantially screened by intervening structures and, in some cases, by vegetation. The viewsheds for the proposed project include locations within the four landscape units where viewers are likely to be affected by visual changes related to the project features. For the purposes of this analysis, the ends of viewsheds are defined by the boundaries of the landscape units.

It is impractical to attempt to capture all locations within a viewshed from where a project may be seen. Therefore, representative locations called "key views" were selected. In selecting these key views, the emphasis was placed on views from publicly accessible locations of proposed project elements that have the potential to be seen by the largest numbers of sensitive viewers. The locations of the key viewpoints used to illustrate visual conditions and photographic simulations are depicted in Figure 3.7-1. Photographs of existing conditions associated with key viewpoints are valuable to help describe the appearance of the landscape unit. The photographs are also important because they provide a basis for evaluating potential visual effects of the project and help depict visual elements that can be seen in various distance zones. The three distance zones used to describe the distance between viewers and an object are foreground, middleground, and background.

3.7.2.2.3 Visual Quality

The description of each landscape unit includes an assessment of the visual quality of the landscape viewed from key view(s) within that unit. Visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed; assessments of these three qualities are combined to develop an overall rating of the setting's visual quality. The three dimensions used to evaluate visual quality are defined as follows:

Vividness – The visual power or memorability of landscape components as they combine in distinctive visual patterns.

Intactness – The visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.

Unity – The visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual manmade components in the landscape.

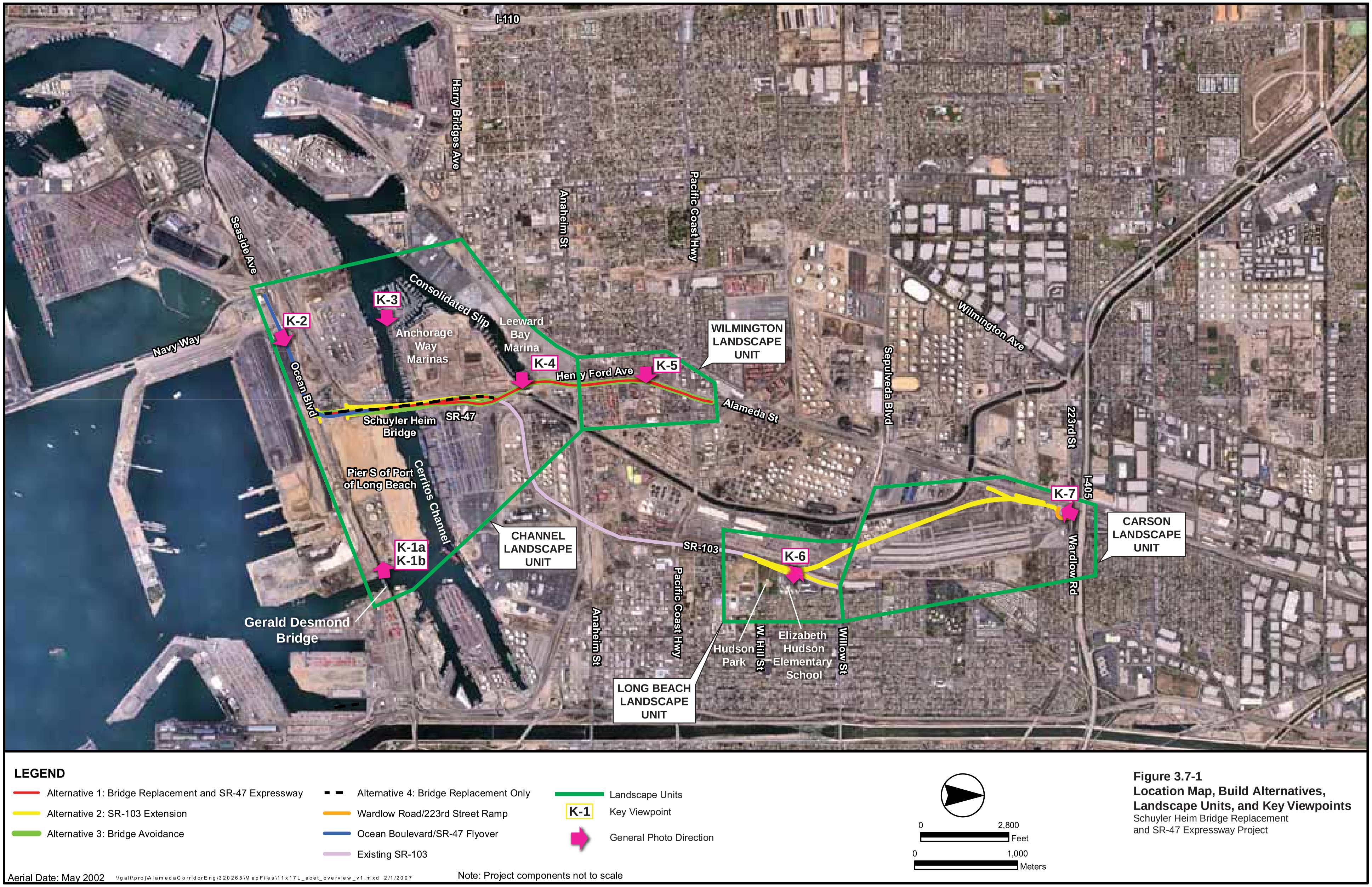


Figure 3.7-1
Location Map, Build Alternatives, Landscape Units, and Key Viewpoints
Schuyler Heim Bridge Replacement and SR-47 Expressway Project

3.7.2.3 Landscape Units

A description of each of the landscape units is provided below. To support the descriptions, character photos are used in some cases to illustrate existing visual conditions. In addition, within each landscape area, one or more simulation viewpoints were selected to capture views typical of those in the viewing area. Typical viewpoints are important because they provide a basis for evaluating the potential project visual effects of greatest concern. In selecting these viewpoints, the emphasis was placed on views from publicly accessible locations that have the potential to be seen by the largest numbers of sensitive viewers. The locations of the viewpoints used for the analysis are shown in Figure 3.7-1.

3.7.2.3.1 Channel Landscape Unit

3.7.2.3.1.1 Description and Visual Character

The Channel Landscape Unit is the largest unit evaluated and includes the southernmost parts of the proposed project area. This unit includes portions of Terminal Island, including a segment of Ocean Boulevard and the Cerritos Channel, the marinas and Port lands on the north side of the Cerritos Channel, and the Consolidated Slip/Dominguez Channel.

The visual character of most of this unit is maritime industry and/or heavy industry. Large-scale transportation features such as shipping channels, freeways, bridges, and railroads pass through the unit and are prominent visual elements. Most of the land in this landscape unit is part of either the Port of Los Angeles or Port of Long Beach. The north-south SR-47 alignment in this area lies along the approximate boundary between the two ports. Land use in this area reflects its role as part of the ports complex. Two large shipping terminals line the banks of the Cerritos Channel. A large area on the south side of the channel east of the Schuyler Heim Bridge has been cleared by the Port of Long Beach to accommodate additional terminal development. A new abovegrade Ocean Boulevard alignment is under construction, on a separate Port of Long Beach project, south of the existing Ocean Boulevard.

Other uses in the area include large paved areas used for container storage, a power plant, and tank storage facilities. The Union Pacific Railroad is located west of SR-47, south of the Terminal Island Freeway (SR-103), and crosses the Cerritos Channel via Badger Avenue Bridge, a lift bridge located directly west of the Schuyler Heim Bridge. There are several marinas located in both the Cerritos Channel and Dominguez Channel that contain recreational vessels, some of which are occupied by live-aboard residents. No other residences are located within the Channel Landscape Unit. The marinas have the same appearance as many commercial pleasure marinas, with landscaped parking areas, walkways, service buildings, floating docks, and boats. However, the lands and waters that surround the marinas have a maritime industrial and/or heavy industry visual character.

3.7.2.3.1.2 Viewshed and Key View(s)

The terrain in this landscape unit is essentially flat, although elevated views are available to travelers on the Gerald Desmond Bridge, Schuyler Heim Bridge, elevated sections of the roadway south and north of the Schuyler Heim Bridge, and sections of Ocean Boulevard, east of Navy Way. Key views from three viewsheds were selected to represent the visual condition of the Channel Landscape Unit. The three key views would also have views of the proposed project. Key View 1 is located on the western end of the Gerald Desmond Bridge and was chosen to represent elevated views of the unit (to the west) from a major transportation route. Key View 2 was selected to represent views along eastbound

Ocean Boulevard to the southern approach of the Schuyler Heim Bridge (SR-47) to include the proposed flyover.

Key View 3 was selected to represent views of the Cerritos Channel to the east from the Anchorage Way Marinas, which is located at the intersection of the Cerritos Channel and the Consolidated Slip. Key View 4 was selected to represent views to the east from Leeward Bay Marina, which is located at the upstream end of the Consolidated Slip.

Key View 1 (Gerald Desmond Bridge)
The primary view from the western end of the Gerald Desmond Bridge is to the west and includes the Schuyler Heim Bridge, Badger Avenue Bridge, and elevated portions of SR-47 north and south of the Schuyler Heim Bridge (see Figures 3.7-2, 3.7-3, and 3.7-4). Additionally, heavy industrial land uses associated with Port activities, including the open-water shipping channel, container ships, container facilities, and associated structures (marine terminals, container handling facilities, bulk material handling facilities, and large overhead cranes) are part of the expansive view. Tall electric transmission towers and open land slated for future Port development are included the heavily industrial view.

Key View 2 (Eastbound Ocean Boulevard)
The primary view looking eastward along Ocean Boulevard is of a major transportation route to the Gerald Desmond Bridge and includes current construction of the future abovegrade Ocean Boulevard (to be completed as a separate Port of Long Beach project) (Figure 3.7-5). Container handling facilities on the north side of Ocean Boulevard are part of the view, and the City of Long Beach skyline is visible to the east.

Key View 3 (Anchorage Way Marinas)
The primary views from this viewpoint are of the Schuyler Heim Bridge and Badger Avenue Bridge, and heavy industrial land uses associated with Port activities. These uses include marine terminals, container handling facilities, bulk material handling facilities, large overhead cranes, and storage facilities (Figures 3.7-6 and 3.7-7, existing views). The open water of the Cerritos Channel and associated marine vessels at the Anchorage Way Marinas are part of the near view.

Key View 4 (Leeward Bay Marina)
Views from Key View 4 take in the two elevated rail truss bridges, Henry Ford Avenue north of SR-47, and various Port activities such as large overhead cranes (Figure 3.7-8, existing view). In addition, the open water of the Consolidated Slip, associated marine vessels, the marina office, a restaurant, an oil refinery, transmission lines, and heavy industrial land uses associated with Port activities are part of the expansive view from this location.

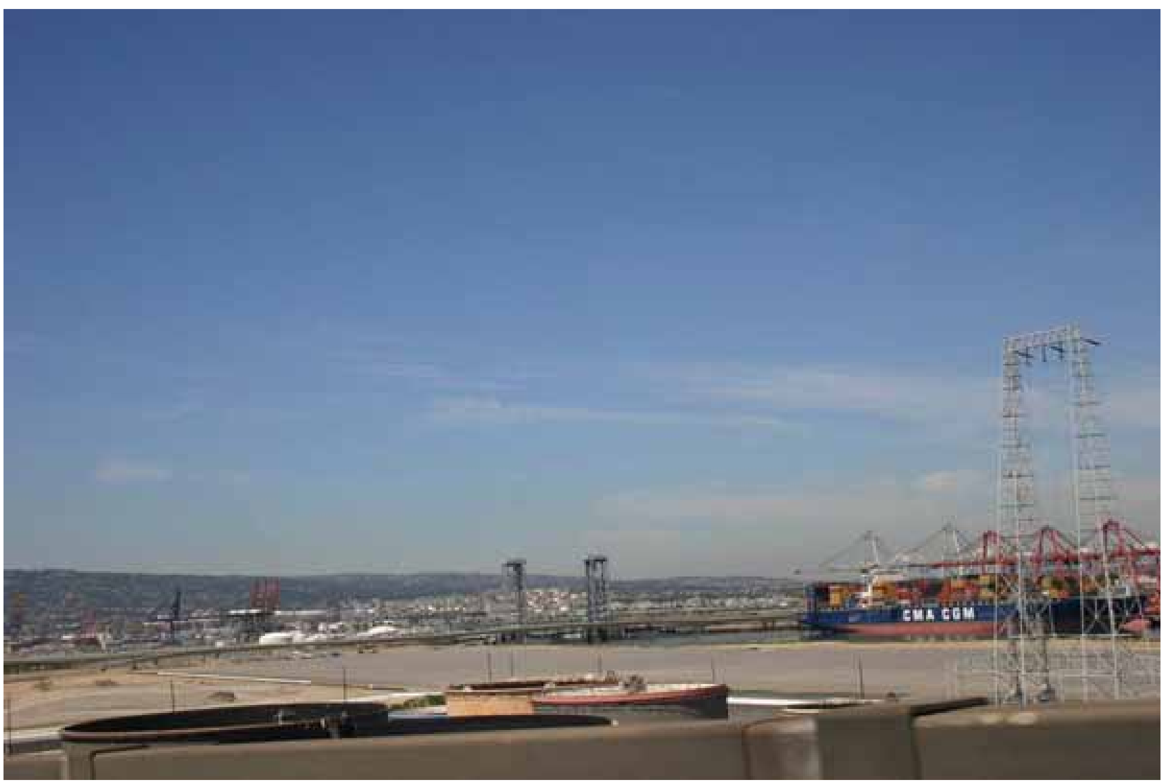
3.7.2.3.1.3 Visual Quality
The visual quality of the Channel Landscape Unit is characterized as “low” because of the adjacent Port-related activities, most of which have a maritime industry and/or heavy industry character. Land uses are similar in character within this landscape unit; but they lack visual vividness, intactness, or unity. There is little vegetation, except for landscaping associated with commercial properties, along a few transportation corridors, and at the marinas. The Dominguez Channel is bordered by a concrete levy on either side; the Cerritos Channel is bordered by concrete levies and manufactured pilings.

Key View 1: Existing Gerald Desmond View - looking west toward Schuyler Heim Bridge

Key View 1: Simulation of Gerald Desmond Bridge View of fixed-span bridge - looking west toward Schuyler Heim Bridge

Figure 3.7-2
Key View 1a (Gerald Desmond Bridge) - Fixed-Span Bridge
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

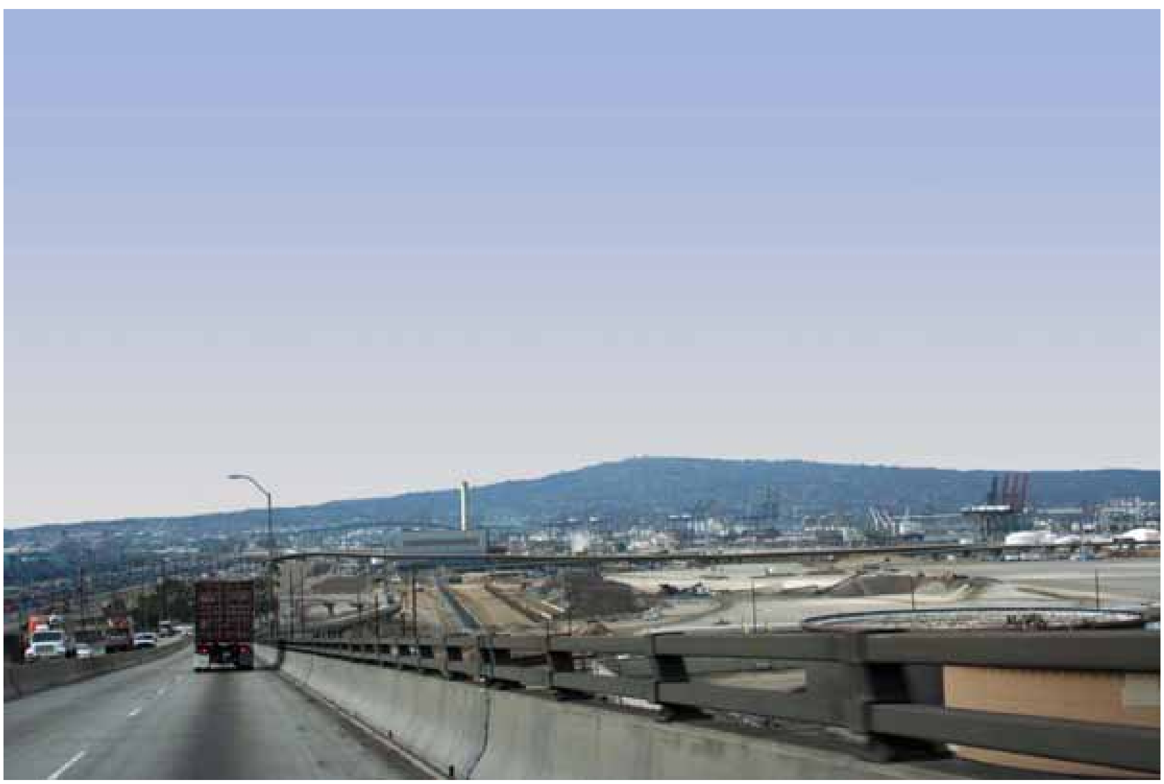
Key View 1: Existing Gerald Desmond View - looking west toward Schuyler Heim Bridge



Key View 1: Simulation of Gerald Desmond Bridge View of fixed-span bridge (haunch design) - looking west toward Schuyler Heim Bridge

Figure 3.7-3
Key View 1a (Gerald Desmond Bridge) - Fixed-Span Bridge (Haunch Design)
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

Key View 1: Existing Gerald Desmond Bridge View - looking west toward Schuyler Heim Bridge



Key View 1: Simulation of Gerald Desmond Bridge View - looking west toward Schuyler Heim Bridge

Figure 3.7-4
Key View 1b (Gerald Desmond Bridge) - Flyover
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

Key View 2: Existing Ocean Boulevard - looking eastward

Key View 2: Simulation of Ocean Boulevard - looking eastward

Figure 3.7-5
Key View 2 (Eastbound Ocean Boulevard) - Flyover
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

Key View 3: Existing Anchorage Way Marinas View - looking east toward Badger Bridge and Schuyler Heim Bridge

Key View 3: Simulation of Anchorage Way Marinas View of fixed-span bridge - looking east toward Badger Bridge and Schuyler Heim Bridge

Figure 3.7-6
Key View 3 (Anchorage Way Marinas) - Fixed-Span Bridge
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

Key View 3: Existing Anchorage Way Marinas View - looking east toward Badger Bridge and Schuyler Heim Bridge

Key View 3: Simulation of Anchorage Way Marinas View of fixed-span bridge (haunch design) - looking east toward Badger Bridge and Schuyler Heim Bridge

Figure 3.7-7
Key View 3 (Anchorage Way Marinas) -
Fixed-Span Bridge (Haunch Design)
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

Key View 4: Existing Leeward Bay Marina View - looking east toward Henry Ford Avenue and SR-47

Key View 4: Simulation of Leeward Bay Marina View of elevated expressway - looking east toward Henry Ford Avenue and SR-47

Figure 3.7-8
Key View 4 (Leeward Bay Marina) - Elevated Expressway
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

The majority of public views within the Channel Landscape Unit encompass transportation corridors, including local streets; rail and utility corridors; and heavy industrial, light industrial, and commercial uses. Publicly available views of the marine channel are generally limited to views seen from the marinas in the Cerritos Channel and Consolidated Slip. These views are dominated by Port and infrastructure facilities. The Channel Landscape Unit contains no unique visual resources. Local city and community plans do not designate any roads within or near the landscape unit as scenic or of special importance.

3.7.2.3.2 Wilmington Landscape Unit

3.7.2.3.2.1 Description and Visual Character

The Wilmington Landscape Unit encompasses the portion of the proposed project area immediately north of the Channel Landscape Unit. It follows Henry Ford Avenue north from the intersection of Anaheim Street to the point where Henry Ford Avenue intersects with Alameda Street and then follows the Alameda Street corridor to just north of Pacific Coast Highway.

This landscape unit has a mix of landscape character types, including heavy industry, light industry, commercial and scattered residential. This landscape unit is dominated by land uses such as oil refineries, container storage, recycling facilities, scattered commercial ventures, and utility and rail corridors. A pocket of residential properties and an elementary school are located immediately west of the intersection of Henry Ford Avenue and Alameda Street, west of an existing rail line, between approximately Grant Street to the south and Robidoux Street to the north. A representative view of the residential area and the various land uses that parallel Henry Ford Avenue are depicted in Figure 3.7-9, existing view. An above grade rail line runs parallel to and is located adjacent to the west of Alameda Street in this section of the project area.

3.7.2.3.2.2 Viewshed and Key View(s)

Viewsheds within the Wilmington Landscape Unit that would include areas where project components could be located generally occur along transportation routes, such as Henry Ford Avenue and Alameda Street, but also include the residential area west of Henry Ford Avenue and Alameda Street. The terrain in this landscape unit is generally flat, with no elevated views available to travelers or residents. Views within these viewsheds are dominated by local streets, rail and utility corridors, heavy industry, light industry, and commercial uses. Large-scale industrial and infrastructure facilities are sometimes visible in the middleground or background.

The key view that was selected to represent this landscape unit is located in a residential area located on Young Street. The view (to the east) from Key View 5 is toward the proposed project alignment, which is across the existing rail corridor right-of-way.

3.7.2.3.2.3 Visual Quality

The general visual quality of the Wilmington Landscape Unit is characterized as "low" because of the presence of heavy industrial and light industrial uses intermixed with commercial and residential uses. The industrial and commercial uses are similar in character within this landscape unit, but they lack visual vividness, intactness, or unity. There is very little vegetation, except for landscaping associated with commercial and residential properties and along a few roadways.

The visual quality of the residential area west of Henry Ford Avenue and Alameda Street is characterized as "moderate," although large-scale industrial and infrastructure facilities are sometimes visible in the middleground or background. The Wilmington Landscape Unit contains no unique visual resources. Local city and community plans do not designate any roads within or near the landscape unit as scenic or of special importance.

3.7.2.3.3 Long Beach Landscape Unit

3.7.2.3.3.1 Description and Visual Character

The Long Beach Landscape Unit encompasses the southern portion of the proposed project area along SR-103 from the area south of Hudson Park, north to the intersection at Willow Street/Sepulveda Boulevard. This landscape unit is divided generally east/west by the existing SR-103 alignment.

The area west of SR-103 in this landscape unit has an industrial character that is dominated by linear features such as the intermodal container transfer facility (ICTF), Union Pacific Railroad line, and an SCE electric transmission corridor. This area also contains areas of heavy and light industry. Most of the area east of the existing SR-103 alignment in this landscape unit has a residential character; it includes the single-family residential area located east of Hudson Park, Elizabeth Hudson Elementary School (440 Webster Street), and Cambodian Buddhist Temple (2100 West Willow Street).

3.7.2.3.3.2 Viewshed and Key View(s)

The terrain in the Long Beach Landscape Unit is essentially flat, and there are no elevated views. Primary viewsheds within the unit include the SR-103 corridor and the residential neighborhood to the east. The key view (Key View 6) selected for this landscape unit is located at Elizabeth Hudson Elementary School. The view (to the northwest) is toward the existing SR-103 alignment (Figure 3.7-10, existing view). It includes views of the SR-103 alignment, rail line, and electric transmission corridor west of SR-103. Additionally, the ICTF structures, container storage facilities, and heavy industrial facilities can be seen.

3.7.2.3.3.3 Visual Quality

Public views along and west of SR-103 are dominated by linear transportation and utility features along with heavy and light industry. Land uses west of SR-103 are similar in character, but lack visual vividness, intactness, or unity. The visual quality of these views is characterized as "low" to "moderately low" because of the presence of heavy industrial and transportation uses intermixed with commercial and residential uses. The visual quality of the foreground views of the residential neighborhood east of SR-103 is characterized as "moderate." Although the park, institutional facilities, and residences have a low degree of vividness and a moderately low level of intactness and unity, heavy industry and infrastructure features are visible in some locations in the middleground and background.

The Long Beach Landscape Unit contains no unique visual resources. Local city and community plans do not designate any roads within or near the landscape unit as scenic or of special visual importance.

Key View 5: Existing Young Street View - looking east toward Henry Ford Avenue

Key View 5: Simulation of Young Street View of elevated expressway - looking east toward Henry Ford Avenue

Figure 3.7-9a
Key View 5 (Young Street) - Elevated Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway Project

Key View 5: Existing Young Street View - looking east toward Henry Ford Avenue

Key View 5: Simulation of Young Street View of elevated expressway and sound walls - looking east toward Henry Ford Avenue

Figure 3.7-9b
Key View 5 (Young Street) - Elevated Expressway
Schuyler Heim Bridge Replacement and SR-47 Expressway Project

Key View 6: Existing Hudson School View - looking northwest toward SR-103

Key View 6: Simulation of Hudson School View of the elevated expressway and sound walls - looking northwest toward SR-103

Figure 3.7-10
Key View 6 (Hudson Elementary School) - SR-103 Extension
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

3.7.2.3.4 Carson Landscape Unit

3.7.2.3.4.1 Description and Visual Character

The Carson Landscape Unit encompasses the northern portion of the proposed project alignment along SR-103 from Sepulveda Boulevard, north-northwest to east of the Dominguez Channel, then north to Alameda Street to north of the 223rd Street on-/off-ramp. This landscape unit was defined to include the entry route into the City of Carson south along Alameda Street, south of I-405.

The majority of lands that are viewed by the public in this landscape unit have an industrial character. The unit has areas of heavy and light industry, along with scattered commercial land uses that are intersected by linear features such as streets, railroad lines, and utility corridors. The eastern portion of the landscape unit contains residential neighborhoods and has a residential visual character.

3.7.2.3.4.2 Viewshed and Key View(s)

The terrain in the Carson Landscape Unit is flat, and elevated views are generally limited to I-405. The primary viewsheds within this unit are along travel corridors. There is no view of the project alignment from the residences located in the eastern area of the landscape unit because of the presence of sound barriers installed between the residences and rail corridors and the heavy and light industrial facilities located between the residences and the project alignment. The key view (looking southerly) for this landscape unit is Key View 7, which is located on Alameda Street near the 223rd Street on- /off-ramp. Key View 7 offers a view of the proposed alignment from the intersection of the I-405/223rd Street off-ramps and includes a mix of light industrial and commercial developments, vacant lots, and utility and rail rights-of-way (Figure 3.7-11, existing view).

3.7.2.3.4.3 Visual Quality from Key View(s)

The general visual quality of the Carson Landscape Unit is characterized as “low” because of the concentration of heavy and light industry intermixed with commercial uses. The industrial and commercial uses are similar in visual character within this landscape unit, but they lack visual vividness, intactness, or unity. There is very little vegetation; some landscaping is associated with commercial properties and along Alameda Street. The residential neighborhoods in the eastern portion of this landscape unit do not have a view of the proposed alignment.

The Carson Landscape Unit contains no unique visual resources. Local city and community plans do not designate any roads within or near the landscape unit as scenic. However, the City of Carson General Plan contains policies that reflect an interest in creating visually attractive transportation corridors and major arterials (such as Alameda Street) that serve as gateways to the City of Carson, in addition to enhancing freeway corridors.

3.7.2.4 Viewers and Viewer Sensitivity

A variety of people have views of areas within the four landscape units and would have views of activities associated with the proposed project. There are four primary viewer types in the project area: people driving on roadways through the project area; residents; recreational and marina users; and people who work in the area. These groups vary in regard to their sensitivity to, and awareness of, the visual environment. Viewer awareness of the visual environment is related to factors such as how long a viewer sees a scene in the environment (people driving on a road would view a scene for a shorter period of time than a resident viewing the same scene) and whether or not a person lives in an area or recreates in it (local residents and recreationists would be expected to have greater awareness than vehicle drivers and workers).

Most people who view the project area do so while driving through it. Drivers and passengers traveling on routes that pass through the project area, such as SR-47, SR-103, Henry Ford Avenue, and Alameda Street, likely have a moderate to high awareness of the project visual environment and moderate concerns about changes to the environment. Drivers traveling on I-405 at normal freeway speeds usually focus attention on long-range, nonperipheral views. Travelers experiencing congested traffic conditions would tend to focus on views from the freeway. Daily commuters (between Los Angeles and Orange County) may have an increased awareness of views from the freeway due to the amount of time spent on the facility every day. Drivers and passengers on I-405 may have low awareness of the features of the proposed project and have a low concern about the effects of the project on their view, which is obstructed from the elevated roadway by landscaping, buildings, and other facilities.

Residents within the project area include people living in single-family structures, people living in multi-family structures, and people living on boats in the marinas. All of these people have long-duration views of parts of the project area from their homes, schools, or other places, and have a high awareness of their visual environment and changes to it.

Recreational users (boaters) on the open-water marine channels within the landscape units have foreground, middleground, and background views of areas of the project as they traverse the open water for short to long periods of time. They likely have moderate awareness of the features in the landscape and would have a moderate concern relative to changes in the visual environment.

Employees of businesses in the project area would have foreground, middleground, and background views of the project for short to long time periods, depending on the location and type of their employment. Employees working outside adjacent to the open-water channels are likely to have a moderate awareness of the project visual environment and similar concerns related to the effects of the project on their views. Other employees working outdoors would have moderate to high awareness of the project visual environment and moderate to high concern for changes to the environment. Employees working indoors would have low to moderate awareness of the project and low to moderate concern about the effects of the project on their view.

Key View 7: Existing Alameda Street View - looking south along the Alameda Transportation Corridor just south of I-405

Key View 7: Simulation of Alameda Street View of SR-103 Extension - looking south along the Alameda Transportation Corridor just south of I-405

Figure 3.7-11
Key View 7 (Alameda Street South of I-405) - SR-103 Extension
Schuyler Heim Bridge Replacement
and SR-47 Expressway Project

3.7.3 Environmental Consequences

3.7.3.1 Evaluation Criteria

In the FHWA visual analysis system, a project alternative could have a significant visual affect if it results in a substantial change in the overall visual character or quality has an adverse effect on viewer response.

Visual resource change is the sum of the changes in visual character and visual quality. The first step in determining visual resource change is to assess the compatibility of the project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the project is constructed.

The resulting visual effects level is determined by combining the severity of resource change with the degree to which people are likely to oppose the change. The four visual effects levels and their definitions are provided below.

Low – Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.

Moderate – Moderate adverse change to the visual resource with moderate viewer response. Effects can be mitigated within 5 years, using conventional practices.

Moderately High – Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required would generally take longer than 5 years to mitigate.

High – A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the effects. An alternative project design may be required to avoid adverse effects.

3.7.3.2 Methodology

The process used in the visual assessment for this document generally follows the guidelines outlined in the FHWA *Visual Impact Assessment for Highway Projects* (FHWA, 1981). The methodology includes ways to describe existing visual character and quality and how to assess changes to visual resources from transportation projects. Application of the FHWA methodology entailed six principal steps to assess the effects of the proposed alternatives on visual resources. They are as follows:

A. Define the project setting and viewshed
B. Identify key views for visual assessment
C. Analyze existing visual resources and viewer response
D. Depict the visual appearance of project alternatives
E. Assess the visual effects of project alternatives
F. Propose methods to mitigate adverse visual effects

An important element of the impact assessment process was the analysis of the visual changes that would occur in the key views identified as a part of the documentation of existing visual conditions. In step D., for each of the key views, photo simulations were prepared that provide an accurate and realistic-appearing rendering of how the view would appear after the project-related changes are in place. These changes include avoidance and minimization measures, as appropriate. Adherence to local land use and transportation policies and guidelines regarding aesthetic design including, but not limited to, landscaping, would be incorporated into the alternatives by project design. The avoidance and minimization measures that would be incorporated into project design to ensure compatibility with local policies and the surrounding visual environment are shown in Table 3.7-1.

Comparison of the simulated view with existing conditions provided the basis for a systematic assessment of the character and visual quality of the altered view using the FHWA evaluative criteria. This analysis then provided the basis for determining how the project would affect the view and the level of visual impact the project would have for the view.

Table 3.7-1
Potential Aesthetic Minimization Measures – By Alternative
Schuyler Heim Bridge Replacement and SR-47 Expressway Project

Aesthetic Detail	Project Component	Project Elements and Locations	Alternative
Surface/Color Treatment	Columns	**Schuyler Heim Bridge – Dominguez Channel Crossing; Elevated Expressway – south and north of Schuyler Heim Bridge and north to Pacific Coast Highway; SR-103 Extension from near Hudson Elementary north to Alameda Street; Ocean Boulevard Flyover**	Alternative 1 Alternative 1A Alternative 2 Alternative 3 Alternative 4 (no flyover under this alternative)
Surface/Color Treatment	Roadway Barriers	**Schuyler Heim Bridge – Dominguez Channel Crossing; Elevated Expressway – south and north of Schuyler Heim Bridge and north to Pacific Coast Highway; SR-103 Extension from near Hudson Elementary north to Alameda Street; Ocean Boulevard Flyover**	Alternative 1 Alternative 1A Alternative 2 Alternative 3 Alternative 4 (no flyover under this alternative)
Surface/Color Treatment	Ground-level Soundwall	**Existing SR 103** – west of and in the vicinity of Elizabeth Hudson Elementary School	**Existing SR 103:** Alternative 2

Table 3.7-1
Potential Aesthetic Minimization Measures – By Alternative
Schuyler Heim Bridge Replacement and SR-47 Expressway Project

Aesthetic Detail	Project Component	Project Elements and Locations	Alternative
Surface/Color Treatment	Elevated Soundwall	**Elevated Expressway over Consolidated Slip** – west of Leeward Bay Marina **Elevated Expressway–SR-103 Extension** – west of and in the vicinity of Elizabeth Hudson Elementary School	**Elevated Expressway over Consolidated Slip:** Alternative 1 Alternative 1A Alternative 3 **Elevated Expressway–SR-103 Extension:** Alternative 2
Surface/Color Treatment	Gore Points	**Northbund and southbund Schuyler Heim Approaches** – at off-ramps/ on-ramps **Elevated Expressway–Eastbund Ocean Boulevard Flyover** **Elevated Expressway–SR103 adjacent to Hudson Elementary School** **Elevated Expressway Return to Grade at Pacific Coast Highway** **Elevated Expressway–Return to grade south of I-405 on Alameda Street**	**Northbund and southbund Schuyler Heim Approaches:** Alternative 1 Alternative 1A Alternative 2 Alternative 3 Alternative 4 **Elevated Expressway–Eastbund Ocean Boulevard Flyover:** Alternative 1 Alternative 1A Alternative 2 Alternative 3 **Elevated Expressway–SR103 adjacent to Hudson Elementary School:** Alternative 2 **Elevated Expressway Return to Grade at Pacific Coast Highway:** Alternative 1 Alternative 1A Alternative 3 **Elevated Expressway–Return to grade south of I-405 on Alameda Street:** Alternative 2

Table 3.7-1
Potential Aesthetic Minimization Measures – By Alternative
Schuyler Heim Bridge Replacement and SR-47 Expressway Project

Aesthetic Detail	Project Component	Project Elements and Locations	Alternative
Plantings – Hedge/Shrubs	Elevated Expressway	Existing Henry Ford Avenue and Alameda Street – east of Wilmington residential neighborhood and west of existing rail corridor	**Existing Henry Ford Avenue and Alameda Street:** Alternative 1 Alternative 1A Alternative 3
Plantings – Trees	Elevated Expressway	Existing Henry Ford Avenue and Alameda Street – east of Wilmington residential neighborhood and west of existing rail corridor	**Existing Henry Ford Avenue and Alameda Street:** Alternative 1 Alternative 1A Alternative 3
Plantings – Vines	Ground-level Soundwall	**Existing SR103** – west of and in the vicinity of Elizabeth Hudson Elementary School	**Existing SR103:** Alternative 2
Plantings – Trees	Ground-level Soundwall	**Existing SR103** – west of and in the vicinity of Elizabeth Hudson Elementary School	**Existing SR103:** Alternative 2

Note:
Aesthetic details on and measures adjacent to project features (including architectural treatment and landscaping) would be designed and integrated into the project in coordination with and under the direction of a CaltransLicensed Landscape Architect to minimize visual impacts. The CaltransLicensed Landscape Architect would determine the location of specific applicable and feasible measures implemented to minimize visual impacts along the project alignment.

3.7.3.3 Evaluation of Alternatives

3.7.3.3.1 Alternative 1: Bridge Replacement and SR-47 Expressway

3.7.3.3.1.1 Construction Effects

Activities related to the dismantling of existing structures and the construction of new ones would add noise, dust, equipment (cranes, trucks, barges), light, and movement (from activities) to the visual environment. Construction related activities would be temporary in nature and impact. Construction activities at night have the potential to have greater effects because additional lighting that would be required to conduct the work could have temporary localized adverse effects.

Direct

Activities related to removal of the existing Schuyler Heim Bridge and construction of a new bridge would be seen and heard by viewers from Key Views 1, 2, 3, and 4. Most viewers from Key View 1 (Gerald Desmond Bridge) and Key View 2 (Eastbound Ocean Boulevard) would observe activities from their vehicles. The effects to these viewers would be "low." Viewers from Key View 3 (Anchorage Way Marinas) and Key View 4 (Leeward Bay Marina) would consist primarily of marina users and live-aboard residents. The east end of the Anchorage Way Marinas is within 250 feet of proposed construction activity areas. Demolition and construction activities would be apparent to varying degrees from many parts of the two marinas during various phases of demolition and construction. Dust related to these activities would create "moderate" effects depending upon proximity to the activities, wind, etc. Construction activities could occur at night, which would introduce additional light to the environment near the construction. Because industrial activities presently occur (and are visually and audibly apparent) in proximity of the marina, the temporary effects from demolition and construction activities associated with Alternative 1 would be considered "moderate."

Construction activities associated with the elevated portions of the proposed improvements to SR-47 (including the flyover) would be observed from Key View 2 (Eastbound Ocean Boulevard), Key View 4 (Leeward Bay Marina), and Key View 5 (Young Street). Night-time construction would result in more light in the vicinity of construction activities. Because the key views are located in areas that have a mix of industrial and other intensive land uses (and activities) and are near heavily used transportation routes, the temporary effects at each key view would be "low."

Indirect

The facilities that would be built under Alternative 1 (new fixed-span bridge, SR-47 Expressway, and Ocean Boulevard/SR-47 Flyover) would be located in areas that are associated with industrial activities and the movement of cargo and vehicles. Construction associated with Alternative 1 would have no indirect effects on the visual character of the project area.

3.7.3.3.1.2 Operations Effects

The dismantling of existing structures and construction of new transportation structures and features would result in permanent changes to the visual environment. The following describes the permanent effects that would occur with implementation of Alternative 1.

Direct

Changes to the Visual Environment

The proposed replacement of the existing Schuyler Heim Bridge with a fixed-span bridge would result in a change in the visual environment. The new bridge would not include the towers associated with the existing lift structure. The change would not alter the visual character of the area near the bridge, which would continue to be a highly industrialized, Port-dominated landscape. The proposed simpler design of the new bridge would slightly reduce the vertical visual clutter of the view over the Cerritos Channel from Key View 1 (Gerald Desmond Bridge) (Figure 3.7-3, simulation) and Key View 3 (Anchorage Way Marinas) (Figure 3.7-6, simulation). The Schuyler Heim Bridge towers, which would be removed, currently create a slight blockage of the view from the west toward the Badger Avenue Bridge from Key View 1 (Figure 3.7-2, simulation). The only demolition activities that would be seen from Key View 4 (Leeward Bay Marina) would be removal of the towers.

The proposed reconstruction of the northbound and southbound on-/off-ramps at New Dock Street would be seen from Key View 1 (Gerald Desmond Bridge) and Key View 3, (Anchorage Way Marinas), but would not affect the vividness, intactness, or unity of the visual environment seen from these two views. The on/off ramps at Henry Ford Avenue would not be seen from Key View 2 (Eastbound Ocean Boulevard) and Key View 4 (Leeward Bay Marina). Views from Key Views 1, 2, 3, and 4 would continue to include a modified SR-47 and a truck-dominated transportation corridor at approximately the same location as the current on-grade corridor. To accommodate the elevated SR-47 Expressway, a power transmission corridor near Key View 4 (Leeward Bay Marina) would be relocated to remain west of the new elevated expressway. Some docks and boats at the Leeward Bay Marina would be removed to accommodate the new viaduct. These actions would change the existing visual conditions, but would not change the visual character or quality of views in the area near the elevated expressway or the new transmission line corridor.

Modifications to the SR-103 transition ramps and the SR-47 elevated expressway north of the Schuyler Heim Bridge would not be visible from Key View 1 (Gerald Desmond Bridge), Key View 2 (Eastbound Ocean Boulevard), or Key View 3 (Anchorage Way Marinas). The SR-47 Expressway would be visible from Key View 4 (Leeward Bay Marina) and Key View 5 (Young Street). Construction of the SR-47 viaduct and the installation of soundwalls on the west side of the viaduct would create a change in the visual environment for the residents of Leeward Bay Marina (Figure 3.7-8, simulation), Young Street (Figure 3.7-9, simulation), and nearby areas of Wilmington.

Construction of only the SR-47 viaduct east of the Wilmington neighborhood would create a change in the visual environment for the residents of Young Street and nearby areas of Wilmington and nearby areas of Wilmington (Figure 9a, Simulation View). The presence of the viaduct would enclose the view and reduce the expansiveness of the view. Construction of Alternative 1 would reduce the visual character of the view from this area by interjecting a large, man-made feature in an already highly industrialized, mixed-use corridor of low quality along Henry Ford Avenue; that is, the large, man-made feature in the immediate foreground would encroach on the view, thereby reducing the intactness from this key view. Additionally, the overall unity would decrease due to the presence of the viaduct in the immediate foreground view. The visual quality of the view would remain low; the viewers in this area could have a high sensitivity to changes in the immediate foreground. Therefore, this alternative, when only the viaduct is constructed in this area, would generally reduce the visual character and quality of the view from this area.

Alternately, installation of an at-grade soundwall west of the existing rail line on the east side of the Wilmington Landscape Unit would also create an additional change in the visual environment for the residents of Young Street and nearby areas of Wilmington (Figure 9b, Simulation View). In these areas, the presence of the viaduct and the installation of soundwalls at grade and on the elevated expressway would enclose the view and reduce the amount of visible sky. Construction of the soundwall associated with Alternative 1 would improve the visual character of the view from Young Street by blocking the highly industrialized, mixed-use corridor of low visual quality along Alameda Street, including the heavy industrial facilities and associated signage. Implementation of this alternative would result in some degree of improvement of the intactness of the view by eliminating the visual encroachment of the mixed-use facilities and utility and transportation corridor. Therefore, this alternative would generally improve the visual character and visual quality of the view from this area.

The proposed construction of the Ocean Boulevard/SR-47 Flyover from eastbound Ocean Boulevard to the southern approach to the Schuyler Heim Bridge (Key View 2) would be a change in the visual environment. The change would not affect the character of the view, which would remain a view of a highly industrialized, Port-dominated landscape that would continue to include a Port-traffic dominated transportation corridor. Construction of the flyover, however, would afford eastbound Ocean Boulevard travelers a more expansive view to the east because the present security fencing between Ocean Boulevard and Pier T would be relocated, providing travelers with a view of the Long Beach city skyline.

Overall, establishment of the flyover, plus relocation of the fencing to the south, would create a slight improvement in the visual quality of this key view.

Viewer Response

Travelers using the westbound Gerald Desmond Bridge have middleground views of the Schuyler Heim Bridge, flyover, and SR-47 northbound and southbound approaches to the bridge. The view from Key View 1 (Gerald Desmond Bridge) is of a complex landscape with its visual character influenced by the presence of heavy industry and Port-related activities. Viewer awareness of the changes is likely to be low because duration of the view is short and, as shown in Figure 3.7-4 (simulation), the features proposed for modification do not stand out in the complex landscape. The level of viewer response to the proposed demolition of the existing Schuyler Heim Bridge and replacement with a fixed-span bridge, as well as the flyover and modification of SR-47 northbound and southbound approaches to the bridge, is anticipated to be low because there would be no overall change in the visual character or visual quality of the view.

Travelers using Ocean Boulevard eastbound from Navy Way are provided with background views of the Gerald Desmond Bridge and city of Long Beach skyline. The view from Key View 2 (Eastbound Ocean Boulevard) is of a truck-dominated transportation corridor with its visual character influenced by the presence of heavy industry and Port-related activities. Viewer awareness of the changes is likely to be moderate, because duration of the view is relatively long, and the flyover is a singular structure that stands out in the complex landscape as it crosses above Ocean Boulevard. The level of viewer response to the proposed flyover, is anticipated to be moderate, due to its visual prominence in middleground views. The flyover, however, will be consistent with the existing visual character quality of the view, which provides numerous transportation alignments.

Residents of the Anchorage Way Marinas (Key View 3) have a middleground view of the Schuyler Heim Bridge and the northbound and southbound approaches to the bridge. The view from Key View 3 is of a complex landscape due to the heavily industrialized nature of Port-related activities. Although the duration of view from this key view could be long for users of this area, viewer awareness of the changes is likely to be low because the features proposed for modification would not be located in the foreground and would not stand out in the complex landscape. Viewer response to the proposed demolition of the existing Schuyler Heim Bridge and replacement with a fixed-span bridge is anticipated to be low because there is no overall change in the visual character or visual quality of the view.

The view from the Key View 4 (Leeward Bay Marina) is of a complex landscape brought about by the heavily industrialized nature of Port-related activities. The view from this key view is of long duration for live-aboard residents, and viewers would have high awareness of the SR-47 viaduct over the east end of the Consolidated Slip. Viewer response to the SR-47 Expressway, however, is anticipated to be moderate because the changes, while visible, do not create a substantial alteration of the visual character or visual quality of the view.

The view from Key View 5 (Young Street) is of a complex, industrialized and mixed-use landscape heavily influenced by the presence of heavy and light industrial facilities and rail and utility corridors. Viewer awareness of the elevated expressway is likely to be high, as duration of the view is long. Viewer response to the sound walls may be high and positive because of the removal of visual clutter from the Young Street view, which could be interpreted as a beneficial effect of the project.

Resulting Visual Effect

The proposed replacement of the existing Schuyler Heim Bridge with a fixed-span bridge would result in no substantial change to the visual vividness, intactness, and unity of the visual environment of Key View 1 (Gerald Desmond Bridge) and Key View 3 (Anchorage Way Marinas). Viewer awareness of and response is anticipated to be low. The resulting visual effects from these two key views are not anticipated to be adverse, and the area would retain a visual quality rating of “low.”

The effect of the flyover would result in no substantial change to the visual vividness, intactness, and unity of the visual environment of Key View 1 (Gerald Desmond Bridge) or Key View 2 (Eastbound Ocean Boulevard). Therefore, viewer awareness of and response to implementation of the flyover is anticipated to be low to moderate. The resulting visual effects from these key views are not anticipated to be adverse, and the area would retain a visual quality rating of “low.” The flyover would not be visible from the other key views and would have no effect on the visual qualities of those areas.

The proposed reconstruction of SR-47 as an elevated expressway over the eastern end of Consolidated Slip would somewhat change the visual environment of Key View 4 (Leeward Bay Marina). Implementation of Alternative 1 would introduce a viaduct, on-structure sound wall, and power transmission lines into the foreground to middleground view from the marina. This alternative would introduce a long horizontal element into the middle region of the sky and provide a higher degree of spatial definition to the eastern end of the marina area. Although it would create a change, Alternative 1 would not affect the visual vividness, intactness, and unity of the visual environment of Key View 4 (Leeward Bay Marina). The visual quality of the area would remain “low.”

Under Alternative 1, a reduction in the visual character and visual quality of Key View 5 would occur if construction does not include soundwalls at grade west of the existing rail line and on the west side of the elevated SR 47 viaduct. It is anticipated that viewer awareness of and response to the changes is likely to be high. Much of the viewer response is likely to be negative because of the introduction of the large, human-made feature into the existing highly industrialized, mixed-use foreground view. As discussed in the project description, local general plan requirements for landscaping will be implemented as a part of the project, as applicable. If landscaping includes tall trees and hedge planting (west of the existing rail line right-of-way), where feasible, the landscaping would play a role in integrating the elevated expressway into the view and compensate for the negative visual effects that some viewers might ascribe to the view. Therefore, no adverse visual effect is anticipated.

Alternately, under Alternative 1, a beneficial change to the visual character and visual quality of Key View 5 would occur if construction includes soundwalls at grade west of the existing rail line and on the west side of the elevated SR 47 viaduct. It is anticipated that viewer awareness of and response to the changes is likely to be high. Although much of the viewer response is likely to be positive because of the screening the soundwalls would provide of views toward the industrial facilities to the east, some of the response to the sense of enclosure created may be negative. Implementation of landscaping along the sound walls, where feasible, could play a role in integrating the walls into the view and partially compensating for the negative visual effects that some viewers might ascribe to the view-blocking effects of the walls. Overall, impacts to visual resources would not be adverse, and no mitigation beyond the planned landscaping would be required.

The features associated with Alternative 1 would not be visible from Key View 6 (Hudson Elementary School) or Key View 7 (Alameda Street near the 223rd Street on- /off-ramp) and would have no effect on the visual quality of those areas.

Indirect

Alternative 1 operations would have little indirect affect on the visual environment of the general project area. The new transportation elements associated with Alternative 1 would be located in, and seen from, areas that are largely industrial and commercial in character, with scattered residential neighborhoods. Indirect visual effects from Alternative 1 would be non-existent to “low.”

3.7.3.3.2 Alternative 1A

3.7.3.3.2.1 Construction Effects

The types of direct and indirect construction effects under Alternative 1A would be the same as those described under Alternative 1.

3.7.3.3.2.2 Operations Effects

The dismantling of existing structures and construction of new structures and features would result in permanent changes to the visual environment. None of the operations effects associated with Alternative 1A would result in adverse effects to the visual environment.

Direct

As with Alternative 1, Alternative 1A would replace the existing Schuyler Heim Bridge with a new fixed-span bridge. The replacement bridge under this alternative would be a structural variation of the bridge described for Alternative 1 that would include an increased span length over the channel and different pier alignment (Figure 3.7-3, simulation, and Figure 3.7-7, simulation). Compared to the bridge proposed for Alternative 1, this Alternative 1A “haunch” design would have a more substantial appearance and would have more of an emphasis on architectural detailing.

The proposed Alternative 1A bridge replacement would result in a change in the visual environment. As with Alternative 1, the change would not affect the character of the area from which the bridge could be seen. It would remain a highly industrialized, Port-dominated landscape that would continue to include a bridge spanning the Cerritos Channel. The proposed bridge design would slightly reduce the visual clutter of the view over the Cerritos Channel from Key Views 1 and 3.

Under Alternative 1A, the SR-47 Expressway, flyover, and SR-103 connectivity features would be the same as described for Alternative 1.

The viewer responses and resulting visual effect would be the same as those described for Alternative 1.

Indirect

Under Alternative 1A, indirect effects would be the same as those described for Alternative 1.

3.7.3.3.3 Alternative 2: SR-103 Extension to Alameda Street

3.7.3.3.3.1 Construction Effects

Under Alternative 2, the types of construction effects would be the same as those described in Alternative 1.

Direct

Direct effects from construction activities related to replacement of the Schuyler Heim Bridge and construction of the flyover would be the same as those described under Alternative 1.

Construction activities associated with the proposed improvements to SR-103 would be observed in areas such as those near Key View 6 (Hudson Elementary School) and Key View 7 (Alameda Street south of I-405). If construction would occur at night, it would result in more light in the vicinity of construction activities. Both key views are located in areas that have a mix of industrial and other intensive land uses (and activities) and are near heavily used transportation routes. These areas currently have considerable night lighting because of the 24-hour nature of much of the work in the area, security lighting, and lighting related to roads and highways. The temporary effect to viewers at Key View 7 (Alameda Street south of I-405) related to construction would be "low." Temporary effects to viewers (residents) near Key View 6 (Hudson Elementary School) would be "low" to "moderate."

Indirect

The facilities that would be constructed under Alternative 2 would be located in areas that are associated with industrial activities and the movement of cargo and vehicles. Construction activities would have no indirect effects on the visual character of the project area.

3.7.3.3.3.2 Operations Effects

The permanent visual effects related to replacement of the Schuyler Heim Bridge and construction of the flyover described in Alternative 1 would apply to Alternative 2. Under Alternative 2, however, the SR-47 elevated expressway north of the bridge would not be constructed. Therefore, Alternative 2 would not change the existing visual environment along the route of the SR-47 Expressway associated with Alternative 1 (Key View 4 [Leeward Bay Marina] and Key View 5 [Young Street]). Operations effects associated with the extension of SR-103 are discussed below.

Direct

Changes to the Visual Environment

Under Alternative 2, the direct visual effects related to the replacement of the Schuyler Heim Bridge and construction of the flyover would be the same as those described in Alternative 1. Additionally, Alternative 2 would extend SR-103 to Alameda Street. This would result in changes to the visual environment along the extension route. The extension would require construction of an elevated expressway that would be visible from areas along the route, including views from Key View 6 (Hudson Elementary School) and Key View 7 (Alameda Street south of I-405). Sound walls would be constructed at grade and on the elevated roadway near Hudson Elementary School. The at-grade sound walls would not screen the elevated expressway from Key View 6 (Hudson Elementary School) (Figure 3.7-10, simulation). Construction of this viaduct near Hudson Elementary School would require the existing electric transmission towers visible west of SR-103 to be raised to provide clearance for the elevated expressway. The addition of a ramp on Alameda Street at the northern terminus of the SR-103 extension would be visible from Key View 7 (Alameda Street south of I-405), depicted in Figure 3.7-11, simulation.

Viewer Response

Viewers from Key View 6 (Hudson Elementary School) would have middleground views of the elevated SR-103 viaduct, sound walls, and modified transmission towers. The existing view is of a highly industrialized transportation, rail, and utility corridor. Viewer awareness would likely be moderate, as the view would be of moderate to long duration. Viewer response to this alternative is anticipated to be low because there would be no overall change in the visual character or visual quality of the view.

The users of Alameda Street near the location of Key View 7 (Alameda Street south of I-405) would have foreground to middleground views of the northern terminus of SR-103. Viewer awareness is likely to be high, although the view is of short duration because the viaduct would become a dominant element of the view. Viewer response to this alternative is anticipated to be low because there would be no overall change in the visual character or visual quality of the view.

Resulting Visual Effect

The extension of SR-103 to Alameda Street and the construction of a ramp to Alameda Street at the northern terminus would introduce new visual elements to areas near the extension (Figure 3.7-11, simulation). The elevated expressway would introduce a long, horizontal element into the middle region of the sky from many areas along the route, including from Key View 6 (Hudson Elementary School). However, the presence of the elevated expressway would not necessarily reduce visual quality due to the fact that existing visual elements have an industrial and transportation character. There will be no change in the visual quality of this view.

The addition of a ramp on Alameda Street at the northern terminus of the SR-103 Extension would be visible from Key View 7 (Alameda Street south of I-405) and would also result in a change in the visual environment (Figure 3.7-11, simulation). The introduction of a ramp to the viaduct would result in no overall change in the visual character or visual quality of the view from Key View 7. The ramp would be consistent with the character of Alameda Street as a transportation corridor that is used for Port-related traffic. It would also be consistent with nearby industrial and commercial facilities, as well as adjacent rail and utility corridors. Under this alternative, the visual quality of the view from Alameda Street south of I-405 would remain rated as "low."

Indirect

The facilities that would be constructed under Alternative 2 would be located in areas that are associated with industrial activities and the movement of cargo and vehicles. Construction activities would have no indirect effects on the visual character of the general project area.

3.7.3.3.4 Alternative 3: Bridge Demolition Avoidance

3.7.3.3.4.1 Construction Effects

With this alternative, the existing Schuyler Heim Bridge would not be removed. However, a new fixed-span bridge would be built on an alignment east of and adjacent to the existing bridge, and the effects related to bridge construction would be similar to those described under Alternative 1. In addition, effects of constructing the flyover and SR-47 Expressway would be the same as described under Alternative 1.

Under Alternative 3, the direct and indirect effects would be the same as those discussed for Alternative 1.

3.7.3.3.4.2 Operations Effects

Under Alternative 3, operations effects to the visual environment would be similar to those described in Alternative 1. There would be some differences, however, as described in the following sections.

Direct

Changes to the Visual Environment

Under this alternative, the existing Schuyler Heim Bridge would undergo seismic retrofit for safety purposes and would remain standing, but unused. This alternative would avoid demolition of an historic resource. A new fixed-span bridge, which would be constructed east of, and adjacent to, the existing bridge, would add a new horizontal element to the visual environment. The new bridge would be visible from Key View 1 (Gerald Desmond Bridge). It also would be visible from Key View 3 (Anchorage Way Marinas), although it would be screened to a certain extent by the existing Schuyler Heim Bridge and Badger Avenue/Henry Ford Bridge.

Retrofit of the existing Schuyler Heim Bridge would introduce additional structural integrity to the existing span. The elements of the retrofit would be mostly screened from Key View 1 (Gerald Desmond Bridge) by the new fixed-span bridge and from Key View 3 (Anchorage Way Marinas) by the Badger Avenue Railroad Bridge.

Under this alternative, the SR-47 elevated expressway would be constructed north of the new fixed-span bridge; the flyover would be constructed along Ocean Boulevard, and connectivity with SR-103 would be maintained as described under Alternative 1. The visual effects described under Alternative 1 would apply to the SR-47 Expressway and flyover portions of Alternative 3.

Viewer Response

Viewer response to construction of the new fixed-span bridge east of the existing Schuyler Heim Bridge would be similar to that described under Alternative 1. Viewer response to construction of the SR-47 Expressway, the flyover, and maintenance of the SR-103 connectivity would also be similar to the response that would occur under Alternative 1. Additionally, viewer response to the seismic retrofit of the existing bridge would likely be moderate, as the view would be of a short to long duration. Viewer response to this alternative is anticipated to be low because there would be no overall change in the visual character or visual quality of the view.

Resulting Visual Effect

The addition of a second vehicular bridge (fixed-span bridge) across the Cerritos Channel and retrofit of the existing bridge would slightly change the existing visual environment. The new bridge and retrofit would not affect the visual character of the areas near it, which would continue to reflect nearby industrial and transportation land uses. The visual effects of this alternative associated with construction of the new bridge, flyover, and SR-47 Expressway, along with maintaining connectivity with SR-103, would be similar to the effects described under Alternative 1. The visual quality of the view due to retrofit of the existing bridge from Key View 1 (Gerald Desmond Bridge) and Key View 3 (Anchorage Way Marinas) would remain "low" due to the number of other visual elements seen from these key views that have an industrial character.

Indirect

Under Alternative 3, indirect effects of project operations would be the same as those described for Alternative 1.

3.7.3.3.5 Alternative 4: Bridge Replacement Only

3.7.3.3.5.1 Construction Effects

Under Alternative 4, construction direct and indirect effects related to demolition and replacement of the Schuyler Heim Bridge, and modification to the bridge's northbound and southbound approaches, would be the same as those described for Alternative 1 for the bridge portion only. The flyover would not be constructed under this alternative.

3.7.3.3.5.2 Operations Effects

Under Alternative 4, direct and indirect operations effects related to demolition and replacement of the Schuyler Heim Bridge would be the same as those described for the bridge under Alternative 1.

3.7.3.3.6 Alternative 5: Transportation System Management

Under Alternative 5, there would be no changes to the existing Schuyler Heim Bridge, Cerritos Channel crossing, or local roadway system, and the flyover would not be constructed. As a result, there would be no change to the existing visual character and quality of the project area related to implementation of this alternative.

3.7.3.3.6.1 Construction Effects

Minor, localized effects associated with roadway and intersection improvements and minor roadway widening would occur under this alternative.

Direct
Direct construction effects would occur as a result of roadway and intersection improvements and minor roadway widening.

Indirect
The facilities that would be constructed under Alternative 5 would be located in areas that are associated with industrial activities and the movement of cargo and vehicles. There would be no indirect effects on the visual character of the general project area.

3.7.3.3.6.2 Operations Effects

Direct
Direct operations effects would occur as a result of roadway and intersection improvements and minor roadway widening.

Indirect
The facilities that would be constructed under Alternative 5 would be located in areas that are associated with industrial activities and the movement of cargo and vehicles. There would be no indirect effects on the visual character of the general project area.

3.7.3.3.7 Alternative 6: No Build
Under Alternative 6, there would be no changes to the existing visual environment and there would be no associated construction or operations effects.

3.7.3.3.8 CEQA Consequences
Based on the above analysis, in accordance with CEQA criteria, the project alternatives would not have the potential to have an adverse effect on a scenic vista or scenic resource, as none exist in the project area. Further, due to the existing developed industrial character of the project site, none of the proposed alternatives would substantially degrade the existing visual character or quality of the site and its surroundings or create a new source of substantial light or glare. Impacts to aesthetics would be less than significant for Alternatives 1, 2, 3, and 4. There would be no impact to aesthetics or visual resources under Alternatives 5 and 6.

Potential impacts of the proposed project alternatives to Visual Resources/Aesthetics are addressed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis. Also see Appendix A – CEQA Checklist (I, Aesthetics).

3.7.4 Avoidance, Minimization, and/or Mitigation Measures

3.7.4.1 Avoidance and Minimization Measures

3.7.4.1.1 Alternatives 1, 1A, 2, 3, and 4

VR-1 The surfaces of columns, roadway barriers, soundwalls, and gore points will receive surface color treatments at specified locations, as determined by a CaltransLicensed Landscape Architect.

VR-2 Elements of the design of the proposed bridge and expressways, such as color, line, texture, and style, would be aesthetically pleasing and as unobtrusive as possible. During final design, particular attention would be paid to the vertical columns and soundwalls.

VR-3 All visual design elements, including landscaping, would be designed and implemented with the concurrence of the Caltrans Licensed Landscape Architect and in compliance with local policies and guidelines.

VR-4 Trees and vines will be planted along soundwalls at specified locations, as determined by a Caltrans Licensed Landscape Architect.

VR-5 Design of the elevated expressway would be compatible (scale and massing) with the existing Schuyler Heim Bridge or future bridge and the Badger Avenue/ Henry Ford Railroad bridge.

3.7.4.1.2 Alternatives 5 and 6

No avoidance and minimization measures are required for Alternatives 5 and 6.

3.7.4.2 Mitigation Measures

Measures VR-1 through VR-5, above, would provide adequate mitigation for project Alternatives 1 through 4.

No mitigation measures would be required for Alternatives 5 and 6.

3.8 Cultural Resources

"Cultural resources" as used in this document refers to all historical and archaeological resources, regardless of significance.

3.8.1 Regulatory Setting

The State Route 47 (SR-47) Expressway and Schuyler Heim Bridge Replacement Project is regulated by the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act. Section 106 of the National Historic Preservation Act as amended (Section 106, 16 United States Code [USC] 470f) requires that effects on significant cultural resources be taken into consideration in any federal undertaking. NEPA requires that federal agencies integrate the NEPA process with other environmental laws, including Section 106. Although compliance with Section 106 is the responsibility of the lead federal agency, the work necessary to comply can be undertaken by others.

The project alternatives also are subject to compliance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC], Section 21084.1). As defined under state law in Title 14 California Code of Regulations (CCR) §4850, the term "historical resource" means "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or which is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural history of California." For the purposes of CEQA, "historical resource" is further defined under PRC §15064.5 as a "resource listed in, or determined eligible for listing in the California Register."

Properties listed in or determined eligible for listing in the National Register of Historic Places (NRHP), such as those identified in the Section 106 process, are automatically listed in the California Register of Historic Resources (CRHR). Therefore, all "historic properties" under federal preservation law are automatically "historical resources" under state preservation law. Historical resources are also presumed to be significant if they are included in a local register of historical resources (e.g., the list of City of Los Angeles Historic-Cultural Monuments) or identified as significant in a qualified historical resource survey. Section 15064.5 of the *State CEQA Guidelines* sets forth the criteria and procedures for determining significant historical resources and the potential effects of a project on such resources.

Significant paleontologic resources are defined as fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or important to define a particular time frame or geologic strata or that add to an existing body of knowledge in specific areas. Paleontologic remains are accepted as non-renewable resources significant to our culture and are protected under provisions of the Antiquities Act of 1906 and subsequent related legislation, including CEQA.

3.8.1.1 Federal Requirements

3.8.1.1.1 Section 106 of the National Historic Preservation Act

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) among the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA takes the place of the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans.

The Section 106 process entails the six primary steps listed below.

- Initiate consultation and public involvement.
- Identify and evaluate historic properties with the project Area of Potential Effects (APE).
- Assess effects of the project on historic properties.
- Consult with the State Historic Preservation Officer (SHPO) regarding adverse effects on historic properties, resulting in a memorandum of agreement (MOA).
- Submit the MOA to the Advisory Council on Historic Preservation (ACHP).
- Proceed in accordance with the MOA.

3.8.1.1.2 The Area of Potential Effects

As defined in the Section 106 regulations, the area of potential effects (APE) means:

> *"…the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects cause by the undertaking" [36 CFR §800.16(d)].*

The APE for the combined proposed projects includes the maximum existing or proposed right-of-way for all alternatives currently under consideration, easements (temporary and permanent), all improved properties subject to temporary or permanent changes in access (ingress and egress), and areas where visual or audible changes could occur outside the required right-of-way (as shown in the *Historic Property Survey Report* [Myra L. Frank & Associates, 2002]). The APE for all the alternatives of the combined projects was defined by Jessica Feldman (architectural historian, Jones & Stokes), coordinated by Ron Kosinski (Chief, Environmental Services, Caltrans District 7), and signed on October 9, 2002. The APE map was approved by FHWA on October 9, 2002. Subsequently, another alternative for the project, the SR-103 Extension to Alameda Street Alternative, was proposed, and that alternative required additional supporting studies. The APE for the SR-103 Extension to Alameda Street was defined by Jessica Feldman, architectural historian with Jones & Stokes, and coordinated by Kelly Ewing-Toledo, associate architectural historian with Caltrans District 7 (Caltrans, 2005). The APE was approved by Caltrans on March 9, 2005, and by FHWA on March 10, 2005. A Supplemental Archaeological Survey Report (ASR) was prepared for the proposed Ocean Boulevard/SR 47 Flyover addition to the project alternatives. The APE for the flyover was defined by Mark C. Robinson, senior archeologist with Jones & Stokes and was approved by Caltrans on March 15, 2007.

3.8.1.1.3 Historic Properties

Section 106 requires federal agencies, or those they fund or permit, to consider the effects of their actions on "historic properties." As defined by ACHP regulations (36 CFR Part 800) for implementing Section 106:

> *"Historic property" means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria [36 CFR §800.16(l)].*

To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP.

Historic properties also may be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties.

Historical resources are considered under CEQA, as well as California PRC Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

3.8.1.2 State Requirements

3.8.1.2.1 California Environmental Quality Act

In the State of California, fossil remains are considered to be limited, nonrenewable, and sensitive scientific resources. These resources are afforded protection under the following State of California legislation (California Office of Historic Preservation 1983):

- California Environmental Quality Act of 1970 (CEQA)
- Title 13 Public Resources Code, 21000 et seq., requires public agencies and private interests to identify the potential adverse impacts and/or environmental consequences of their proposed project(s) to any object or site important to the scientific annals of California (Division 1, Public Resources Code: 5020.1 [b])
- Guidelines for the Implementation of CEQA (as amended 1 January 1999)

In addition to the above, the *California CEQA Guidelines* Section 15064.5(a)(3) provides protection for paleontologic resources by requiring that they be identified and mitigated as historical resources under CEQA.

3.8.1.2.2 California Health and Safety Code

Human remains are also sometimes associated with archaeological sites. According to CEQA, "archaeological sites known to contain human remains shall be treated in accordance with the provisions of State Health and Safety Code Section 7050.5." The protection of human remains is also ensured by California Public Resources Codes, Section 5097.94, 5097.98, and 5097.99.

If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made the necessary findings as to origin and disposition pursuant to PRC 5097.98. Construction must halt in the area of the discovery of human remains, the project proponent must assure that the area is protected, and consultation and treatment shall occur as prescribed by law.

3.8.2 Affected Environment

3.8.2.1 Natural Setting

The project area is located on the margins of San Pedro Bay, at the southern edge of the Los Angeles Plain. San Pedro Bay in prehistoric times was a saltmarsh and estuary habitat interspersed with sandbars and mud flats (McCawley, 1996). The beach and coastal strand zone was home to a variety of sea mammals, sea birds, fish, and shell fish as well as seaweed and kelp beds. Prior to modern development, the Los Angeles-Long Beach Harbor was a low-lying coastal marsh called Wilmington Lagoon or San Pedro Creek (Schell et al., 2003). The lagoon had a complex network of estuaries, stream channels, tidal channels, sand spits, beaches, and marshy inlands (Schell et al., 2003). However, modern port development has transformed the project area into an urban industrial environment, and much of the project area has been filled. None of the natural environmental setting of the project region remains intact.

The Los Angeles region has a Mediterranean climate characterized by warm, dry summers and mild winters with most annual rainfall occurring between the months of November and April. Elevation in the project area is about 1.5 meters (m) to 3.0 m (5 to 10 feet [ft]) above mean sea level (AMSL).

3.8.2.2 Prehistoric Setting

3.8.2.2.1 Early Man

A few archaeologists and nonprofessionals working in Southern California have claimed that cultural remains of great antiquity, in excess of 15,000 to 50,000 years old, have been found in the region. Most of these sites are centered in the Mojave and Colorado deserts or in coastal Southern California. The most widely publicized of these sites is the Calico Early Man Site (Schuiling, 1979; Simpson, 1980). Thus far, however, none of these "Early Man" sites have withstood scientific scrutiny, and most archaeological researchers in California dismiss this purported "Early Man" period as unsubstantiated by scientific evidence.

3.8.2.2.2 12000 to 7500 B.P. Interval (Terminal Pleistocene/Early Holocene Period)

This interval is characterized by the arrival of humans in Southern California and subsequent adaptation to environmental changes brought about by the end of the Ice Age.

The early occupants of Southern California were nomadic large-game hunters whose tool assemblage included percussion-flaked scrapers and knives; large, well-made stemmed, fluted, or leaf-shaped projectile points (e.g., Lake Mojave, Silver Lake); crescentics; heavy core/cobble tools; hammer stones; bifacial cores; and choppers and scraper planes.

Between 13,000 and 10,000 B.P., climatic conditions became warmer and more arid, and large Pleistocene animals such as mammoths and mastodons gradually disappeared. This warming trend resulted in a rise in sea levels. During the Early Holocene (10,000 to 6,600 years ago), rapid sea level rise markedly altered the California coast. As a result of marine encroachment, large portions of the continental shelf were submerged, and it is likely that most archaeological sites associated with the Early Holocene along the southern mainland coast were destroyed by this sea level advance and sedimentation (Carbone, 1991).

As sea levels began to rise, the environment transitioned to estuarine and lagoon configurations that fostered an increase in marine, avian, and small terrestrial species. The peak of alteration of both biotic and physical variables occurred approximately 8,000 to 7,300 years ago (Carbone, 1991).

3.8.2.2.3 The 7500 to 5000 B.P. Interval (Middle Holocene Period)

In Southern California, this period is marked by two technologies designed to expand food sources: seed grinding and the use of marine resources. General settlement-subsistence patterns of the Middle Holocene were exemplified by a greater emphasis on seed gathering, adaptation to various ecological niches, further population growth, and an increase in sedentism. The artifact assemblage of this period is similar to that of the previous period and includes large leaf-shaped points and knives, manos and milling stones used for grinding hard seeds, crude hammer stones, scraper planes, choppers, large drills, crescents, and large flake tools, as well as non-utilitarian artifacts, such as beads, pendants, charm stones, discoidals, and cogged stones (Kowta, 1969; True, 1958; Warren et al., 1961).

The Topanga Complex is perhaps the best-known component from this period; aside from sites in Topanga Canyon, the only evidence of prehistoric occupation of the Los Angeles Basin dating to this interval is recovery of an occasional discoidal or cogged stone from sites dating to more recent periods of prehistory.

3.8.2.2.4 The 5000 to 1500 B.P. Interval (Middle to Late Holocene)

In general, cultural patterns remained similar to those of the preceding interval. However, cultural material at many coastal sites became more elaborate, reflecting an increase in sociopolitical complexity and efficiency in subsistence strategies. Later components of the Topanga Complex date to this period. In addition, several sites south of Ballona Lagoon on the Del Rey bluffs confirm a rather well-developed Middle to Late Holocene presence (Van Horn, 1987; Van Horn and Murray, 1985). Projectile points for the Ballona Bluffs sites are, in some cases, similar to those found at sites in the southeastern California deserts, specifically in the Pinto Basin and at Gypsum Cave. This suggests that the coastal occupants of this period were in close contact with cultures occupying the eastern deserts.

3.8.2.2.5 The 1500 B.P. to A.D. 1769 Interval (Late Holocene)

Los Angeles County is within the Late Prehistoric Canaliño cultural area (Rogers, 1929), which later evolved into the protohistoric Gabrielino and Chumash cultures. It is believed that Late Prehistoric/Canaliño occupations first occurred approximately 2,000 years ago and persisted until the Mission Period (c. A.D. 1769 to 1830).

Reliance on the bow and arrow for hunting, along with the use of bedrock mortars and milling slicks, mark the beginning of this period. Diagnostic artifacts include small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, and numerous and varied bone tools, as well as bone and shell ornamentation. Elaborate mortuary customs along with generous use of asphaltum and the development of extensive trade networks are also characteristic of this period. The Late Horizon shows increases in population size, economic and social complexity, and the appearance of social ranking.

Late prehistoric coastal sites are numerous. Probably one of the richest sites in coastal Southern California, the Malibu Site (CA-LAN-264) at the mouth of Malibu Creek, was occupied during this period. It has yielded stratified midden deposits and prehistoric tools such as large mortars and long pestles, *Haliotis* shell fishhooks, tarring pebbles, and steatite vessels (Walker, 1951).

3.8.2.3 Ethnohistoric Setting

During the prehistoric period, the Los Angeles region was inhabited by the Gabrielino people. The Gabrielino had access to a broad and diverse resource base, and this wealth of resources, coupled with an effective subsistence technology, well developed trade network, and ritual system, resulted in a society that was among one of the most materially wealthy and culturally sophisticated cultural groups in California at the time of contact (Bean and Smith, 1978:538; Kroeber, 1925:621).

The Gabrielino, a Uto-Aztecan or Shoshonean group, may have entered the Los Angeles Basin as recently as 1500 B.P. or may have migrated into the Los Angeles region in successive waves over a lengthy period of time beginning as early as 4000 B.P. (Moratto, 1984). In early protohistoric times, the Gabrielino occupied a large territory that included the entire Los Angeles Basin, the coast from Malibu to Aliso Creek, parts of the Santa Monica Mountains, the San Fernando Valley, the San Gabriel Valley, the San Bernardino Valley, the northern parts of the Santa Ana Mountains, and much of the middle to lower Santa Ana River. They also occupied the islands of Santa Catalina, San Clemente, and San Nicolas.

Within this large territory were more than 50 residential communities with populations ranging from 50 to 150 individuals. Generally, Gabrielino settlements were created at the intersection of several ecozones. The majority of the population drifted as families to temporary hillside or coastal camps throughout the year, returning to the central location on ritual occasions or when resources were low and it was necessary to live on stored foods.

Subsistence was based on a composite hunting and gathering strategy that included large and small land animals, sea mammals, river and ocean fish, and a variety of vegetal resources. Offshore fishing was accomplished from boats made of pine planks sewn together and sealed with asphaltum or bitumen. Much of the fishing, shellfish harvesting, and fowling took place along the ocean shoreline or along freshwater courses. Sea mammals were taken with harpoons, spears, and clubs. River and ocean fishing was undertaken with the use of line and hook, nets, basket traps, spears, and poisons (Hudson and Blackburn, 1982). Technological and artistic items included shell set in asphaltum, carvings, painting, an extensive steatite industry, baskets, and a wide range of stone, shell, and bone objects that were both utilitarian and decorative.

The Gabrielino were apparently first contacted by Europeans in 1542 when Juan Rodríguez Cabrillo explored the California coast. Following subsequent Spanish visits to the region, colonization began in 1769, followed by the establishment of Missions San Gabriel (1771) and San Fernando (1797). Due in part to the introduction of EuroAmerican diseases and the harsh effects of mission life, Gabrielino population and culture suffered a gradual deterioration. Following the secularization of the missions in 1834, most surviving Gabrielino became wage laborers on the ranchos of Mexican California. In the early 1860s, a smallpox epidemic nearly wiped out the remaining Gabrielino. A combination of disease, harsh living conditions, and poor diet resulted in the disappearance of the Gabrielino as a culturally identifiable group in the 1900 federal census (Bean and Smith, 1978). However, persons of Gabrielino descent continued to live in the Los Angeles area to the present time.

3.8.2.4 Historic Setting

The affected environment is generally the area between the Commodore Schuyler Heim Bridge (Schuyler Heim Bridge) and the Pacific Coast Highway. The area is characterized by extremely large parcels with industrial buildings and equipment primarily related to oil production and shipping. Residential parcels are located east of North Alameda Street. There are undeveloped parcels in the southern portion of the project area that typically are used for shipping container storage.

Transportation is the defining theme in the immediate area of the proposed project. Since the mid-nineteenth century, various forms of transportation, from railroad and shipping, to industries related to the automobile, have shaped the area immediately to the east and west of North Alameda Street and North Henry Ford Avenue. The renaming of one of the major thoroughfares between the harbor areas and the Pacific Coast Highway in honor of the Ford factory once sited nearby is just one indication of the important role transportation has played in the neighborhood.

The discovery of oil beneath the region would bolster the local economy. By the 1920s, Sanborn Maps of the San Pedro-Wilmington District clearly show that numerous service stations, oil-related commercial structures and similar businesses that catered to the workers in these companies, had carved out their niche in the area to the east of North Alameda Street.

Related to the growth of the oil-producing industry, the automobile-industry and advantage of location, neighborhoods composed of modest Craftsman bungalows were being built for those who worked in these environments. These homes were constructed to the west of North Alameda Street, creating a clear demarcation between the industrial/commercial and the residential zones of the community.

3.8.2.4.1 The Ford Motor Company Assembly Plant

The Ford Motor Company Long Beach Assembly Plant was constructed in 1929-30 on the Cerritos Channel. The Long Beach Assembly Plant was located at 700 North Henry Ford Avenue (formerly known as Badger Avenue), and was in operation from 1930 until 1958. The workers at this plant, designed by Albert Kahn and was based on existing design used for the construction of five other Ford Assembly Plants, produced the Model A. This car replaced the popular and significant Ford Model T in 1927. It is estimated that up to 1,200 people were employed at the assembly plant. It was demolished in 1990-1991.

3.8.2.4.2 The Oil Industry in Wilmington

Industries related to oil production and refining have played a considerable part in the development of the project area. At various times, the Southern California region has been home to 28 separate oil fields. There are five nearby refineries, and the remnants of small-scale oil production are evident throughout the region with oil derricks and holding tanks in backyards, vacant parcels and alongside roadways. As it happens, the entire region is sited on the Wilmington Oil Fields, the third largest field in the United States, which remains in continual use today.

3.8.3 Environmental Consequences

3.8.3.1 Evaluation Criteria

3.8.3.1.1 National Register Significance Criteria

For federal projects, cultural resource significance is evaluated in terms of eligibility for listing in the NRHP. In order for a property to be considered for inclusion in the NRHP it must meet the criteria for evaluation set forth in 36 CFR Part 60.4, as follows:

> *The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of design, setting, materials, workmanship, feeling, and association and*
>
> *(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> *(b) that are associated with the lives of persons significant in our past; or*
>
> *(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> *(d) that have yielded, or may be likely to yield, information important in prehistory or history.*

Among other criteria considerations, a property that has achieved significance within the last 50 years is not considered eligible for inclusion in the NRHP unless certain exceptional conditions are met.

Further, for a historical resource to qualify for the NRHP under one or more of the four criteria listed above, it must possess what is called "integrity." Integrity is the degree to which a property has retained characteristics needed to convey its significance. The NRHP recognizes seven types of integrity: location, design, setting, materials, workmanship, feeling, and association.

With respect to the level of integrity for properties being evaluated under Criterion D, research potential, which is the most common criterion applied to prehistoric and historical archaeological sites, is defined as their ability to address important research questions outlined in a formal research design (National Park Service 1991). For archaeological sites, integrity of location, materials, and association are generally the most crucial. To address important research topics, archaeological deposits usually must be in their original location, retain depositional integrity, contain adequate quantities and types of materials in suitable condition to address important research topics, and have a clear association.

Deposits that have been disturbed by earth-moving activities such as grading, trenching, or looting often lack the ability to address important questions because depositional relationships have been lost, deposits from widely different periods and associations have been mixed, or the contents of the deposit have been skewed by selective removal of materials. However, disturbed deposits may still retain the ability to address specific types of research topics. For a historic property, including an archaeological site, to be eligible for the NRHP, it must both retain integrity and be significant.

3.8.3.1.2 State of California Criteria

3.8.3.1.2.1 CEQA Guidelines

Section 15064.5 of the *State CEQA Guidelines* sets forth the criteria and procedures for determining significant historical resources and the potential effects of a project on such resources.

Generally, a cultural resource shall be considered by the lead state agency to be "historically significant" if the resource meets any of the criteria for listing on the California Register, including the following:

(A) The resource is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) The resource is associated with the lives of persons important in our past;

(C) The resource embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values; or

(D) The resource has yielded, or may be likely to yield, information important in prehistory or history.

The cited statutes and guidelines specify how cultural resources are to be managed in the context of projects. Briefly, archival and field surveys must be conducted, and identified cultural resources must be inventoried and evaluated in prescribed ways. Prehistoric and historical resources deemed "historically significant" must be considered in project planning and development.

Paleontologically sensitive sedimentary units are those with a high potential for containing significant paleontologic resources, usually rock units within which significant vertebrate or invertebrate fossils have been determined to be present or likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontologic resources anywhere within their geographical extent, as well as sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Determinations of paleontologic sensitivity must therefore consider not only the potential to yield abundant vertebrate fossils but also the potential for production of a few significant fossils which may provide new and significant data on fossils types, species changes over time, or geologic strata. Areas that may contain datable organic remains older than the Recent era (less than

10,000 years in age) and areas that may contain unique, new vertebrate deposits, traces, and/or trackways must also be considered paleontologically sensitive.

Fossils are of scientific interest if one or more of the following criteria apply:

- The fossils provide data on the evolutionary relationships and developmental trends among organisms, both living and extinct;
- The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
- The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
- The fossils demonstrate unusual or spectacular circumstances in the history of life; or
- The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation and are not found in other geographic locations.

For the purpose of this cultural resources analysis, and in accordance with Appendix G of the CEQA Guidelines, a project would have a potentially significant effect on the environment if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- Disturb any human remains, including those interred outside of formal cemeteries.

3.8.3.1.2.2 Regulations Concerning the Discovery of Human Remains

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the Native American Heritage Commission (NAHC). The NAHC must then attempt to notify any descendants, and arrangements for appropriate treatment of the remains must be made in consultation with the descendants.

3.8.3.2 Methodology

3.8.3.2.1 Record Search

An archaeological records and literature search for all the alternatives for the combined State Route 47 Expressway and the Schuyler Heim Bridge Replacement Project was conducted by the South Central Coastal Information Center, California State University, Fullerton, on February 20, 2002. (This search encompassed the area of the proposed flyover.) A supplemental records search for the SR-103 Extension to Alameda Street was conducted by the same institution on October 4, 2004. In January 2007, the archaeological records and literature search for the SR-47 Expressway and SR-103 Extension portions of the project were reviewed for the flyover addition. Other sources consulted during this investigation included a review of the *National Register of Historic Places*, the *California State Historic Resources Inventory*, the *California Historical Landmarks*, the *California Register of Historic Places*, the *City of Los Angeles Cultural Monuments*, and the *California Points of Historical Interest*. In addition, historic maps, including Downey (1896 and 1943) 15'-series U.S. Geological Survey (USGS) quadrangle maps, were inspected.

No historical or prehistoric archaeological sites have been recorded within the combined project APE. One recorded historic built environment, 19-180784, is located within the project study area. This resource consists of a complex of wood-frame storage and office buildings built to accommodate oil production workers and machinery for the Tidelands Oil production facility; see the historic section for further analysis.

The results of the records and literature search indicate 19 cultural resources studies within a 0.8 kilometer (km) (0.5-mile [mi]) radius of the project APE; of those studies, six transect portions of the APE. Records indicate two prehistoric archaeological sites within a 0.5-mile radius of the project study area, CA-LAN-2788 and 19-002682. Site CA-LAN-2788 consists of a Native American burial, while 19-002682 is a Native American cemetery with 25 human interments with associated artifacts and a midden deposit located west of the Southern Pacific railroad and Dominguez Channel. Five historic archaeological sites also are within the 0.5-mile radius of the APE and include CA-LAN-2850H, a box culvert and headwall constructed of steel-reinforced concrete; a late-19th-century to early-20th-century refuse deposit (19-002943); a brick septic tank, most likely associated with the Dolores Yard and built circa 1940 (19-003045); a wood box culvert that houses one 8-inch 1920s oil pipeline (19-003063); and a cylindrical brick and mortar septic tank associated with a 1920s Pacific Electric Railway freight and passenger station (19-003064).

Two built-environment resources have also been recorded within the 0.5-mile radius; these resources are a 100-acre storage tank facility constructed in the 1920s (19-86868) and a one-story frame building constructed circa 1905 as part of the Pacific Electric Railway (19-180783).

3.8.3.2.2 Archaeological Field Methods

An archaeological survey of the project APE was conducted by two archaeologists on March 19, 2002, with additional survey for the SR-103 extension APE on October 7, 2004 (Applied EarthWorks, 2002; 2004). The APE for the flyover was surveyed by an archaeologist on February 18, 2007 (Jones and Stokes, 2007). Most of the project APE is located in a built, industrial environment; asphalt pavement, concrete sidewalks, standing buildings, and paved driveways and parking areas cover approximately 87 percent of the ground surface. In these areas, only a cursory archaeological survey was completed. In portions of the APE where the ground surface was exposed (<10 percent), an intensive survey was completed using 1- to 2-m (3.2 to 6.5 ft) survey transects. No archaeological resources were identified as a result of the archaeological survey of the project APE.

Background research for the APE indicates the area was a large marshy wetland before the beginning of the 20th century. The cities of Los Angeles and Long Beach began filling and dredging the delta to expand the port for higher capacity and larger ships. In addition, oil production from the Wilmington oil field, with seven producing zones, has caused approximately 9 m (29 ft) of subsidence in the Long Beach area. Subsequently, the City of Long Beach has routinely imported fill to bring the subsided areas back to grade. As such, the project's APE is located in a very industrialized area that has been disturbed by development for more than 100 years. Artificial fill has been placed throughout the project APE to maintain the ground elevation. As well, many areas in and adjacent to the project APE have been graded to unknown depths periodically though the years, and large portions of the channel areas have been dredged.

The high degree of ground disturbance and the importation of artificial fill were the basis of the determination that it is highly unlikely that intact archaeological deposits will be encountered during project construction. Additionally, the elevation of the project APE of 1.5 m to 3 m (5 to 10 ft) AMSL and the fact that the project APE was formerly a very marshy wetland that likely was not suitable for human habitation, coupled with the fact that the project study area has undergone tremendous alterations throughout the past 100 years, was the basis of the determination that it is unlikely that significant prehistoric or historical archaeological resources will be encountered during project construction.

3.8.3.2.3 Native American Consultation

In accordance with Section 106 of the National Historic Preservation Act, a request was made to the NAHC for a review of the *Sacred Lands Inventory* to determine if any known cultural properties are present within or adjacent to the project APE. The NAHC responded, stating that no Native American cultural resources are known to exist within or adjacent to the project APE and provided a list of Native American groups and individuals for further consultation.

During the period of May through June 2002, the project solicited information and comments regarding cultural resources in the Schuyler Heim Bridge project area from local governments, public and private organizations, and other parties likely to have knowledge of or concerns about such resources, as described in the *Negative Archaeological Survey Report* (NASR, 2002). Letters requesting information were sent to the following:

- The Gabrielino/Tongva Tribal Council of the Gabrielino Tongva Nation
- The Los Angeles City/County Native American Indian Commission
- Ms. Cindi Alvitre, Ti'At Society
- Mr. John Jeffredo, Island Gabrielino Group
- Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council
- Mr. Anthony Morales, Gabrielino/Tongva Tribal Council
- Mr. Jim Velasques
- Mr. Samuel Dunlap
- Mr. John Valenzuela
- Mr. Craig Torres
- Mr. Alfred Valenzuela
- Ms. Angela Louise Lassos-Sanchez

A second round of consultation with the NAHC for the SR-103 Extension to Alameda Street was conducted in 2004; the NAHC again responded stating that no Native American cultural resources are known to exist within or adjacent to the project APE. On October 19, 2004, the following groups and individuals were again contacted regarding the SR-103 portion of the project:

- The Gabrielino/Tongva Tribal Council of the Gabrielino Tongva Nation
- The Los Angeles City/County Native American Indian Commission
- Ms. Cindi Alvitre, Ti'At Society
- Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council
- Mr. Anthony Morales, Gabrielino/Tongva Tribal Council
- Mr. Jim Velasques
- Mr. Samuel Dunlap
- Mr. Craig Torres
- Mr. John Tomy Rosas, Gabrielino Tongva Indians of California Tribal Council
- Ms. Susan Frank, Gabrielino Band of Mission Indians of California
- Mercedes Dorame, Gabrielino Tongva Indians of California Tribal Council

No response from these individuals or organizations was received following consultation.

3.8.3.2.4 SR-47 Architectural/Historical Resources Identified

The APE for the SR-47 Expressway alignment, in the southern portion of the project area was developed in coordination with Caltrans and the APE map was approved by FHWA on October 9, 2002. The APE for the flyover was developed in coordination with Caltrans, and the APE map was approved on March 15, 2007.

An architectural field survey of all properties within the SR-47 APE was undertaken according to standard Caltrans guidelines and procedures by a qualified architectural historian on February 11 and 28, 2002. Fifty-two (52) properties were identified within the proposed project's APE. Twenty-five (25) properties were identified as built in 1957 or earlier. Twenty-five (25) pre-1957 properties were identified within the APE, none of which are currently listed in, previously determined eligible or were found to appear eligible for listing in the NRHP or the CRHR. No historic districts, no historic landscapes, and no locally designated landmarks are located within or immediately adjacent to the APE. This information was recorded in the State Route 47 Expressway and Schuyler Heim Replacement Project Combined Historic Property Survey Report (Myra L. Frank & Associates, 2002).

No archaeological resources were identified as a result of the 2007 survey within the flyover APE. The area is extensively developed as part of the Port of Long Beach, and there is little potential to encounter undiscovered archaeological resources. The Schuyler Heim Bridge has been previously evaluated for eligibility for listing on the *National Register of Historic Places* (National Register). The bridge was first evaluated by Caltrans in its 1986 *Historic Bridge Inventory*; however, at that time, it was determined to be ineligible for listing on the National Register because it was less than 50 years old.

In 1998, the bridge was re-evaluated as part of a proposed seismic retrofit project (Kane, 1998). At that time, the Schuyler Heim Bridge was determined to be eligible for listing on the NRHP under Criterion C in engineering as the highest vertical lift bridge in the Western

United States and one of the most significant vertical bridges in the state of California. The bridge was also found to meet the eligibility criteria for inclusion in the CRHR under Criterion 3 and is considered an historical resource for the purposes of CEQA.

The State Historic Preservation Officer (SHPO) concurred with these findings in a letter dated June 18, 2003 (SHPO, 2003).

In March 2002, Myra L. Frank & Associates (MFA) solicited information and comments regarding cultural resources in the SR-47 project area from the following:

- Art Alameda, President, San Pedro Bay Historical Archives
- Tom Andrews, Executive Director, Historical Society of Southern California
- Christy Johnson McAvoy, President, Los Angeles Conservancy
- Daniel Munoz, President, Los Angeles City Historical Society
- Susan Totaro, Project Manager, Los Angeles Harbor/Wilmington Community Redevelopment Agency
- David Esparza, President, Wilmington Historical Society
- Con Howe, Director of Planning, Planning Department City of Los Angeles
- Jay M. Oren, Architect-Historic Preservation Officer, Cultural Affairs Department City of Los Angeles
- Councilwoman Janice Hahn

As of December 12, 2005, MFA/Jones & Stokes (JS) had received no responses indicating knowledge of previously unidentified cultural resources in the project area.

3.8.3.2.5 SR-103 Architectural/Historical Resources Identified

The SR-103 Extension Alternative APE was defined in coordination with Caltrans and FHWA approved the APE map on March 10, 2005. The previous SR-47 APE map required no changes.

An architectural field survey of all properties within the SR-103 Extension Alternative was undertaken by a qualified architectural historian according to standard Caltrans guidelines and procedures on October 6 and 19, 2004. Of the 16 total developed properties within the SR-103 Extension Alternative APE, eight have post-1958 buildings with no overriding significance that required no further study. The remaining eight properties were developed with pre-1958 properties and were formally evaluated in the SR-103 *Final Supplemental Historic Property Survey Report* (Myra L. Frank/Jones & Stokes, 2005).

In October 2004, MFA/JS re-sent these letters with information about the proposed SR-103 Extension Alternative to the following parties, which include all of the original receivers of the 2002 correspondence, plus the following:

- Art Alameda, President, San Pedro Bay Historical Archives;
- Tom Andrews, Executive Director, Historical Society of Southern California;

- Daniel Munoz, President, Los Angeles City Historical Society;
- Con Howe, Director of Planning, City of Los Angeles Planning Department;
- Louis Skelton, Los Angeles County Historic Landmarks and Records Commission;
- Councilwoman Janice Hahn;
- Susan Totaro, Project Manager, Los Angeles Harbor/Wilmington Community Redevelopment Agency;
- Ken Bernstein, Director of Preservation Issues, Los Angeles Conservancy;
- Roberta Deering, Executive Director, California Preservation Foundation;
- Banning Residence Museum;
- Los Angeles Maritime Museum; and
- Historical Society of Long Beach.

As of December 12, 2005, no responses had been received from these parties.

3.8.3.2.6 SHPO Consultation

An HPSR that evaluated the potential historic properties within the APE for the original alternatives was prepared in September 2002. As described in the 2002 HPSR, one historic property, the Schuyler Heim Bridge, was determined eligible for the NRHP. The SHPO concurred with the findings of the 2002 HPSR on June 18, 2003, that 27 historic properties identified within the APE were not eligible to the NRHP. However, SHPO stated that it could not concur on the Finding of Adverse Effect at that time because additional information was needed regarding the potential for buried deposits within the Area of Potential Effects. Subsequently, additional archaeological information was provided to SHPO, who concurred with the Finding of Adverse Effect in a letter dated July 27, 2005. A revised Finding of Adverse Effect document, dated September 2006, was prepared as new alternatives had slightly altered the project description since the November 2002 document. SHPO concurred with the revised adverse effect finding in a letter dated March 6, 2007. These letters from SHPO are included at the end of this section.

In addition to the original project described in the 2002 HPSR, an alternative to the SR-47 Expressway, the SR-103 Extension, was subsequently proposed, and that alternative required a Supplemental HPSR and supporting studies. No additional historic properties were identified in the SR-103 Extension Supplemental HPSR, dated June 2005. Caltrans requested SHPO concurrence in a letter dated August 4, 2005. The SHPO did not respond to this request for concurrence, and the review time passed so, on October 25, 2005, Caltrans notified SHPO that it would proceed based on its findings, per Stipulation VIII.C.5a of the January 2004 Programmatic Agreement between FHWA, the Advisory Council on Historic Preservation, SHPO, and Caltrans.

3.8.3.3 Evaluation of Alternatives

No archaeological resources were identified in the project APE, and no archaeological sites are known to be within the APE. If archaeological resources should be discovered, the appropriate avoidance and minimization measures would be implemented in compliance with 36 CFR800.

The only historic property that was identified within the APE is the Schuyler Heim Bridge. The Criteria of Adverse Effect is applied to each of the alternatives below, analyzing their potential effect on the Schuyler Heim Bridge.

3.8.3.3.1 Alternatives 1, 1A, 2, and 4

3.8.3.3.1.1 Construction Effects

Direct

These alternatives propose to demolish the existing Schuyler Heim Bridge, and replace it with a new span. This would constitute an Adverse Effect on the Schuyler Heim Bridge under Adverse Effect Criterion 2(i) (36 CFR 800.5(a)]. In addition, demolition of the Schuyler Heim Bridge would be considered an adverse effect under Significance Criterion 2(A), Section 15064.5 of the CEQA Guidelines.

Indirect

Because the only historic property identified would be demolished during the construction phase, there would be no additional indirect effects on historic properties under this alternative.

3.8.3.3.1.2 Operations Effects

Under Alternatives 1, 1A, 2, and 4, the loss of the Schuyler Heim Bridge would be a permanent adverse effect on historic properties. With these alternatives, there will be no operational effects to archaeological resources.

3.8.3.3.2 Alternative 3: Bridge Demolition Avoidance

3.8.3.3.2.1 Construction Effects

Direct

No archaeological resources were identified, and no archaeological sites are known to exist within the APE. If, during construction, unknown cultural materials are found, appropriate measures will be taken, as detailed in Section 3.8.4.1 – Avoidance and Minimization Measures. There are no known temporary direct effects to historical resources under this alternative, as construction would not impact the existing Schuyler Heim Bridge. However, according to the U.S. Coast Guard (USCG), when a bridge is no longer used for its permitted purpose of providing land transportation, the bridge shall be removed from the waterway. Therefore, removal of the existing Schuyler Heim Bridge would be included as a condition of the federal permit for the replacement bridge.

Indirect

There will be no indirect construction indirect effects.

3.8.3.3.2.2 Operations Effects

Direct

There will be no direct operational effects to archaeological resources.

This alternative is the only one to propose the preservation of the historic property. Nevertheless, the bridge approaches would be removed and the bridge no longer used for vehicular traffic. While this alternative retains the historic property in place, it would change the character of the bridge's original use. Therefore, Alternative 3 would be an adverse effect on the Schuyler Heim Bridge under Adverse Effect Criteria 2(ii) and 2(iv).

Indirect

There will be no indirect operations effects to cultural resources.

The Schuyler Heim Bridge spans the Cerritos Channel, which is administered by the USCG. Under USCG regulations, FHWA cannot let Schuyler Heim Bridge remain in place after the new bridge is constructed, because it is a condition of the permit issued by the USCG. Therefore, if the USCG requires the demolition of the bridge in order for FHWA to meet USCG regulations for a permit, then Alternative 3 would be considered an adverse effect on the Schuyler Heim Bridge under Adverse Effect Criterion 2(i).

3.8.3.3.3 Alternatives 5 and 6

3.8.3.3.3.1 Construction Effects

Direct

Alternatives 5 and 6 would not involve ground disturbance in undeveloped areas. Therefore, there will be no construction-related direct or indirect effects to archaeological resources.

3.8.3.3.3.2 Operations Effects

Direct

Under Alternative 5, there may be minor ground disturbance in previously developed portions of the project area. Therefore, there is no potential for discovery of archeological resources. Alternative 6 is the No Build alternative. Therefore, there will be no direct operations effects to archaeological resources.

These alternatives would not demolish, alter, or otherwise physically damage the Schuyler Heim Bridge. The bridge would remain in its original location and setting. None of the Adverse Effect Criteria would apply; therefore there would be no effect on historic properties under Alternatives 5 and 6.

Indirect

Alternatives 5 and 6 will not involve ground disturbance in undeveloped portions of the project area. Therefore, there will be no indirect operational effects to archaeological resources.

The No Build alternative would leave the existing Schuyler Heim Bridge in place, unaltered except through routine maintenance and upkeep. However, the bridge's overall condition would be expected to continue to deteriorate. This could be considered an indirect effect under Adverse Effect Criteria 2(iv) and 2(vi) (36 CFR 800.5(a).

3.8.3.3.4 CEQA Consequences

When potential impacts of the proposed project alternatives are assessed in the context of the CEQA criteria for Cultural Resources, the above analysis demonstrates that, under Alternatives 1, 2, and 4, impacts to a historical resource (Schuyler Heim Bridge) would be significant and, under Alternative 3, impacts to the Schuyler Heim Bridge would be less than significant. Under Alternatives 1, 2, 3, 4, and 5, impacts to archaeological and paleontological resources would be less than significant, as would impacts to human remains, should any be unearthed. Under Alternative 6, there would be no impact to Cultural Resources.

Discussion of impacts related to Cultural Resources in accordance with CEQA criteria are provided in Chapter 4.0 – CEQA Evaluation, Appendix A – CEQA Checklist (V, Cultural Resources). Significant impacts are addressed in Section 4.3 – Mandatory Findings of Significance, Section 4.4 – Significant Environmental Effects of the Proposed Project, Section 4.5 – CEQA Analysis of Alternatives, Table 4-1 - Significant Environmental Impacts and Mitigation Measures, and Table 4-2 - CEQA Unavoidable Adverse Impacts.

3.8.4 Avoidance, Minimization, and/or Mitigation Measures

3.8.4.1 Avoidance and Minimization Measures

3.8.4.1.1 Construction

3.8.4.1.1.1 Alternatives 1, 1A, 2, and 4

CR-1 Measures for Unknown Archaeological Resources

If any archaeological properties are discovered during construction, FHWA and SHPO shall be consulted, in accordance with 36 CFR 800.13(b).

CR-2 Discovery of Human Remains

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Mr. Gary Iverson, District Heritage Resource Coordinator, Caltrans District 7, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed, as applicable.

3.8.4.1.1.2 Alternative 3

If the U.S. Coast Guard requires demolition of the Schuyler Heim Bridge following implementation of Alternative 3, CR-1 and CR-2 would be implemented.

3.8.4.1.1.3 Alternatives 5 and 6

No avoidance and minimization measures are proposed during construction of Alternatives 5 and 6.

3.8.4.1.2 Operations

No avoidance and minimization measures are proposed for project operations.

3.8.4.2 Mitigation Measures

3.8.4.2.1 Construction

3.8.4.2.1.1 Alternatives 1, 1A, 2 and 4

Under compliance with federal historic preservation laws, mitigation measures will be presented in a Memorandum of Agreement (MOA) that will be submitted to SHPO pursuant to Section 106 PA Stipulation XI, 36 CFR 800.6(a) and 800.6(b)(1). The final suite of mitigation would be determined by the SHPO and incorporated into a Final MOA that is signed by Caltrans and FHWA. The FHWA shall ensure that some or all of the following measures are implemented.

CR-3 The bridge shall be offered for sale for reuse in an alternate location to interested public agencies and non-profits. A marketing plan shall be prepared for the sale of the bridge including: a notification letter, fact sheet, list of intended recipients, as well as provisions for the salvage of smaller components in the case that there is no interest in re-use of the bridge. Advertisements shall be placed in appropriate newspapers of record. The offer shall run for 6 months. If no acceptable bids are received after 6 months this stipulation shall be deeded to have been met. The above shall be done in accordance with the U.S. Department of Transportation Historic Bridge Program 23USC144(o)(4)(A) and (B).

CR-4 Informative permanent metal plaques shall be installed at both ends of the new bridge at public locations that provide a brief history of the original bridge, its engineering features and characteristics, the reasons for its demolition, and a statement of the characteristics of the replacement structure.

CR-5 Pursuant to Section 110(b) of the NHPA, before the Bridge is demolished, the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) shall be contacted to determine what level and kind of recordation is required for the property. All documentation shall be completed and accepted by HABS/HAER before the Bridge is demolished.

CR-6 Copies of the HABS/HAER report shall be disseminated to the City of Los Angeles Public Library and the City of Long Beach Public Library.

CR-7 Information from the HABS/HAER report available to the public for 10 years on an appropriate internet website.

CR-8 A documentary (motion picture or video) shall be produced and shall address the history of the Bridge, its importance and use within the history of the Port of Long Beach and Port of Los Angeles, and demonstrate its operation and function. The motion picture or video will be of broadcast quality, of sufficient length for a standard 30-minute time period and will be made available for local broadcast stations to public access channels in local cable systems and to schools/libraries.

CR-9 Traveling museum exhibits shall be prepared and shall address the history of the Bridge, its importance and use within the history of the Port of Long Beach and the Port of Los Angeles, and demonstrate its operation and function, appropriate for display in small museums, or for use in schools.

CR-10 Artifacts removed from the Bridge during preliminary stages of the demolition process shall be offered to local museums, and provide for their delivery to accepting institutions. Examples of such artifacts may include, but not be limited to, control panels, instruments, structural members, railings, signage, plaques or other identifying ornamentation, street lights, navigation lights, etc.

CR-11 Measures CR-3, CR-5, CR-8, and CR-10, above, shall be completed prior to demolition of the Bridge. All stipulations shall be completed within 1 year of demolition, unless an extension of time is agreed upon.

3.8.4.2.1.2 Alternative 3: Bridge Demolition Avoidance

See **CR-3** through **CR-11**, above.

Under Alternative 3, if the USCG requires demolition of the Schuyler Heim Bridge following implementation of this alternative, measures **CR-3** through **CR-11** would be implemented.

3.8.4.2.1.3 Alternatives 5 and 6

Under Alternatives 5 and 6, no significant effects are anticipated to archaeological or historical resources, and no mitigation measures would be required.

3.8.4.2.2 Operation

No mitigation measures are proposed for project operations.

STATE OF CALIFORNIA Gray Davis, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

February 28, 2002

Ronald Kosinski
Department of Transportation
120 South Spring Street (MS 16 A)
Los Angeles, CA 90012

RE: SCH# 2002021009 – Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project

Dear Mr. Kosinski:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

✓ Contact the appropriate Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.

✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check.
  - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.

✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

ACU 7

Sincerely,

Rob Wood

Rob Wood
Environmental Specialist III
(916) 653-4040

CC: State Clearinghouse

STATE OF CALIFORNIA – THE RESOURCES AGENCY

GRAY DAVIS, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov

June 18, 2003

Reply To: FHWA030424A

Gary N. Hamby, Division Administrator
U.S. Department of Transportation
Federal Highway Administration
California Division
980 Ninth Street, Suite 400
Sacramento, CA 95814-2724

Re: Determinations of Eligibility and Effect for the Proposed State Route 47 Truck Expressway and the Commodore Schuyler Heim Bridge Replacement Project, Los Angeles, CA [HDA-CA, FILE NO. 07-LA-47, DOCUMENT NO. P44486]

Dear Mr. Hamby:

You have provided me with the results of your efforts to determine whether the above undertaking will affect historic properties. You have done this, and are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act and implementing regulations codified at 36 CFR Part 800.

The Federal Highway Administration (FHWA) has determined that the Commodore Schuyler Heim Bridge was previously determined eligible in 1998. The FHWA has also found that 29 properties qualify for treatment under the Caltrans Interim Policy for the Treatment of post-1957 Buildings. In addition the FHWA has determined that the following properties are not eligible for the National Register of Historic Places (NRHP):

- Oil Wells, south side of the Cerritos Channel and east of the Commodore Schuyler Heim Bridge
- SR 47, north and south of the Commodore Schuyler Heim Bridge
- 1050 N Alameda Street, Wilmington, CA
- 1260 N Alameda Street, Wilmington, CA
- 1230 N Alameda Street, Wilmington, CA
- 1601 E Anaheim Street, Wilmington, CA
- 1625 E Anaheim Street, Wilmington, CA
- 1539 E Denni Street, Wilmington, CA
- 1634 E Denni Street, Wilmington, CA
- 1609 E Grant Street, Wilmington, CA
- 1023-27 N Henry Ford Avenue, Wilmington, CA
- 1120 N Henry Ford Avenue, Wilmington, CA
- 1041 N Henry Ford Avenue, Wilmington, CA
- 1563 E L Street, Wilmington, CA
- 1559 E L Street, Wilmington, CA
- 1538 E L Street, Wilmington, CA
- 1725-31 E M Street, Wilmington, CA
- 1710 E Mauretania Street, Wilmington, CA
- 1714 E Mauretania Street, Wilmington, CA
- 1674 E Mauretania Street, Wilmington, CA

Oct 25 04 11:42a JONES & STOKES LA 2136275376 p.2

Mr. Hamby
June 18, 2003
Page 2 of 2

FHWA980317A

- 1733 E Robidoux Street, Wilmington, CA
- 1621 E Robidoux Street, Wilmington, CA
- 1617 E Robidoux Street, Wilmington, CA
- 1619 E Robidoux Street, Wilmington, CA
- 1702 E Robidoux Street, Wilmington, CA
- 1544 E Young Street, Wilmington, CA
- 1539-41 E Young Street, Wilmington, CA

I concur with the above determinations.

To better inform my review of the FHWA's effort to identify historic properties in the undertaking's APE, I would appreciate knowing

(1) where and to what horizontal and vertical extent the undertaking will disturb the ground in the APE,

(2) whether and where portions of the APE consist of artificial landforms, and to what approximate depth the portions of the APE that consist of natural landforms have been graded or otherwise disturbed,

(3) the record search evidence that indicates where on the landscape of the record search area prior research has found prehistoric shell middens, lithic scatters, village ruins, and a cemetery (*VI. Remarks* section of 6 October 2002 Negative ASR for the State Route 47 Truck Expressway).

I have elected not to address FHWA's finding of "adverse effect" for this undertaking pending my receipt of the additional information requested under items (1) - (3), above.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist at (916) 654-0631 and e-mail at nlind@ohp.parks.ca.gov or Michael McGuirt at (916) 653-8920 and e-mail at mmcgu@ohp.parks.ca.gov.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

Oct 25 04 11:42a JONES & STOKES LA 2136275376 p.3

STATE OF CALIFORNIA – THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
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calshpo@ohp.parks.ca.gov

July 27, 2005

In Reply Refer To: FHWA030424A

Gene K. Fong
Division Administrator
U.S. Department of Transportation
Federal Highway Administration, California Division
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Dear Mr. Fong:

Re: State Route 47 (SR47) Truck Expressway City of Los Angeles, Los Angeles County, California 07-LA-47-KP 4.5/8.5 (PM 2.8/5.3) EA987903 and the Commodore Schuyler Heim Bridge Replacement Project City of Los Angeles, Los Angeles County, California 07-LA-47-KP 5.6/6.9 (PM 3.5/4.3) EA199900.

You are continuing consultation with SHPO regarding the subject undertaking pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act. Previous consultation on this undertaking between the U.S. Department of Transportation (FHWA) (letter of April 18, 2003) and SHPO (letter of June 18, 2003) resulted in SHPO concurring that 27 historic properties identified by Caltrans in the project Area of Potential Effect (APE) were not eligible to the National Register of Historic Places (NRHP).

At that time, SHPO could not concur on the proposed finding of Adverse Effect as there were several areas of concern involving the APE and Efforts to Identify Historic Properties within the APE. Those areas of concern were identified in our letter of June 18, 2003. In addition to the earlier consultation letter from FHWA, the following documents have been submitted in support of this undertaking:

- *Historic Property Survey Report for the State Route 47 (SR47) Truck Expressway City of Los Angeles, Los Angeles County, California 07-LA-47-KP 4.5/8.5 (PM 2.8/5.3) EA987903 and the Commodore Schuyler Heim Bridge Replacement Project City of Los Angeles, Los Angeles County, California 07-LA-47-KP 5.6/6.9 (PM 3.5/4.3) EA199900* (Feldman, Horne, and Herbert: September 2002).

- *Finding of Adverse Effect Schuyler Heim Bridge (53-2618) Replacement EA 199900 07-LA-47-K.P. 5.6/6.9 (PM 3.5/4.3)* (JRP Historical Consulting Services: November 22, 2002).

Caltrans District 07 has responded to the request by SHPO for additional information on this undertaking in a letter dated April 14, 2005. Based on the additional information provided in that letter I have the following comments:

1) I concur that the Area of Potential Effects is appropriate as per 36 CFR §§ 800.4(a) (1) and 800.16(d) and that the efforts made to identify historic properties have been appropriate as per 36 CFR § 800.4(b).

2) I further concur that the Finding of Adverse Effect is appropriate as per 36 CFR § 800.5(a)(1) and that the supporting documentation has been provided as per 36 CFR § 800.11(d).

In the letter (FHWA letter HAD-CA File # 07-LA-47 Document #P44486 dated April 18, 2003) initiating consultation on this undertaking, FHWA stated that "An executed Memorandum of Agreement to address identified adverse effects associated with the Schuyler Heim Bridge replacement proposal will be forwarded under separate cover for further consultation." I look forward to continuing consultation on this undertaking at that time.

Thank you for seeking my comments and for considering historic properties in planning your project. If you require further information, please contact William Soule at phone 916-654-4614 or email wsoule@parks.ca.gov or Natalie Lindquist at phone 916-654-0631 or email nlindquist@parks.ca.gov.

Sincerely,

Stephen D. Mikesell for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Cc:

Gary Iverson
Office Chief, Cultural Studies
Department of Transportation
District 07, Division of Environmental Planning
100 S. Main Street, Suite 100
Los Angeles, CA 90012

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
DIVISION OF ENVIRONMENTAL PLANNING
100 S. Main St.
Los Angeles, CA 90012
PHONE (213) 897-0702
FAX (213) 897-1060

August 4, 2005

Mr. Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks & Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Re: Supplemental Historic Property Survey Report for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project in the Ports of Long Beach and Los Angeles, Los Angeles County, California

Dear Mr. Donaldson:

The California Department of Transportation (Caltrans), under the authority of the Federal Highway Administration (FHWA), is initiating consultation with the State Historic Preservation Officer (SHPO) regarding the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project. This consultation is undertaken in accordance with the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation (PA).*

Enclosed you will find a *Supplemental Historic Property Survey Report* (SHPSR) for the proposed undertaking, prepared by Jessica B. Feldman, Architectural Historian of Myra L. Frank/Jones & Stokes, initially prepared prior to the PA going into effect, but now dated June 2005. As a result the report contains some use of pre-PA terminology and procedures. This does not affect the validity of the SHPSR's conclusions, and Caltrans District 7 PQS have properly addressed other issues relevant to PA consistency. 0The SHPSR is intended to document three of Caltrans' actions under the PA for Section 106 of the National Historic Preservation Act: determination of the Area of Potential Effects (APE); identification of potential historic properties located within the undertaking's APE; and evaluation of potential historic properties for eligibility to the National Register of Historic Places (NRHP). Under the PA, Caltrans is responsible for ensuring the appropriateness of the APE (Stipulation VIII.A) and the adequacy of historic property identification efforts (Stipulation VIII.B). We are consulting with you at the present time under Stipulation VIII.C.5 of the PA, which requires that we seek your concurrence on Caltrans' determinations of eligibility for potential historic properties.

In cooperation with FHWA and Caltrans, the Alameda Corridor Transportation Authority (ACTA) has proposed constructing an expressway between the Commodore Schuyler Heim Bridge and Alameda Street, north of Pacific Coast Highway (SR-1), as a way to alleviate traffic in a congested area. Also, Caltrans had proposed replacing the Schuyler Heim Bridge. Those two actions comprised one project, which was addressed in the *Historic Property Survey Report for the State Route 47 (SR-47) Truck Expressway and the Commodore Schuyler Heim Bridge Replacement Project (2002 HPSR)* prepared by Myra L. Frank & Associates, Inc., and JRP Historical Consulting Services in October 2002 (final SHPO concurrence July 27, 2005). The same project is now called the Schuyler Heim Bridge Replacement and SR-47 Expressway Project. Subsequent to receiving SHPO concurrence, an alternative to the SR-47 Expressway was proposed, and the alternative now requires a supplemental HPSR. The alternative would extend State Route 103 (SR-103) to the northwest on an elevated viaduct. Because two years have passed since the 2002 HPSR was prepared, this SR-103 SHPSR also addresses properties within the SR-47 Expressway APE for their potential to qualify as historic properties that now meet the age criteria. A full project description and depiction of the APE can be found on page 2 and Exhibit 3 of the SHPSR.

Consultation and identification efforts for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project (summarized in pages 1-2 of the attached SHPSR) resulted in the identification of ten (10) properties requiring formal evaluation within the APE, including:

- 916 N. Henry Ford Ave., Wilmington (within the SR-47 Expressway APE)
- 1622 E. Robidoux St., Wilmington (within the SR-47 Expressway APE)
- 2100 W. Willow St., Long Beach
- Hudson Park, Long Beach
- 2365 Sepulveda Blvd., Los Angeles
- 22440 S. Alameda St., Carson
- 22500 S. Alameda St., Carson
- 22606 S. Alameda St., Carson
- 22422 S. Alameda St., Carson
- 2430 E. 223rd St., Carson

None of these properties requiring formal evaluation have been previously determined eligible for the NRHP. Pursuant to Stipulation VIII.C of the PA, these properties were formally evaluated for NRHP eligibility for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project; these evaluations are documented in Appendix A (Supplemental Historical Resources Evaluation Report) of the SHPSR.

All resources identified within the APE without any potential for NRHP eligibility were exempted from formal evaluation pursuant to Stipulation VIII.C.1 and Attachment 4 of the PA ("Properties Exempt from Evaluation").

Pursuant to Stipulation VIII.C.5 of the PA, Caltrans is requesting your concurrence with the following eligibility determinations:

- None of the ten (10) properties listed above have been determined eligible for the NRHP as they are typical examples of a style of architecture of which many are extant, and they lack an overall architectural quality and distinction. Furthermore, there are no known associations with important historic events, personages, or movements.

We look forward to receiving your response within 30 days of your receipt of this submittal, in accordance with Stipulation VIII.C.5.a of the PA. Pending you concurrence regarding Caltrans' eligibility determinations, Caltrans' finding for this portion of the undertaking (pursuant to Stipulation IX.A.2) is "No Historic Properties Affected," due to the absence of identified historic properties with this undertaking's APE.

If you need additional information, please do not hesitate to contact Caltrans Architectural Historian Kelly Ewing-Toledo at 213.897.4095 (fax 213.897.9572; e-mail Kelly_Ewing-Toledo@dot.ca.gov) or myself at 213.897.3818. Finally, thank you for your assistance with this undertaking.

Sincerely,

Kelly Ewing Toledo

for Gary Iverson
Office Chief, Cultural Studies
Caltrans District 7
Los Angeles

Attachment: Supplemental Historic Property Survey Report for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project in the Ports of Long Beach and Los Angeles, Los Angeles County, California

Cc: Gene Fong, FHWA Division Administrator

"Caltrans improves mobility across California"

Gary Iverson
10/25/2005 03:28 PM

To: mmcguirt@parks.ca.gov, smikesell@parks.ca.gov, Steve.Healow@fhwa.dot.gov, Kelly Ewing-Toledo/D07/Caltrans/CAGov@DOT, Jill Hupp/HQ/Caltrans/CAGov@DOT
cc:
cc:
Subject: 30 days past notice: Route 103 extension and Truck Expressway

The following project was sent by Caltrans District 7 Division of Environmental Planning to SHPO:

Supplemental Historic Property Survey Report for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge replacement and SR-47 Truck Expressway Project in the Ports of Long Beach and Los Angeles, Los Angeles County, California, PM 2.8/5.3.

SHPO received this documentation on August 8, 2005 per certified return receipt #7004 2510 0007 2264 7539.

The 30 day review period ended on September 7, 2005

Since 30 days for comment has now passed, Caltrans is hereby informing all concerned that we are proceeding forward per stipulation VIII.C.5.a of the PA.

3.9 Hydrology, Floodplains, and Oceanography

The information for this section is derived in part from the *Berth 206-209 Interim Container Terminal Reuse Project Draft Environmental Effect Report* (LAHD, 2005), and from the *Water Quality Impacts Technical Study* (Caltrans, 2007). The technical study is herein incorporated by reference. This section addresses the physical parameters involved with hydrology and oceanography. Section 3.10 addresses the water quality properties of oceanography.

3.9.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The 100-year floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the 100-year floodplain."

3.9.1.1 Federal

The federal Water Pollution Control Act (also known as the Clean Water Act of 1997 [CWA]) (33 U.S.C. 1251 et seq.) is the principal statute governing water quality. The statute's goal is to end all discharges entirely and to restore, maintain, and preserve the integrity of the nation's waters. The act regulates both the direct and indirect discharge of pollutants into the nation's waters. It mandates permits for wastewater and stormwater discharges, requires states to establish site-specific water quality standards for navigable bodies of water, and regulates other activities that affect water quality, such as dredging and the filling of wetlands.

For stormwater or industrial-related discharges into an existing waterway, water quality control is governed by a National Pollutant Discharge Elimination System (NPDES) Permit. Originally, NPDES focused on reducing pollutants from discharges from industrial process wastewater and municipal sewage treatment plants. In 1987, CWA was amended to require the U.S. Environmental Protection Agency (EPA) to establish requirements for regulating stormwater discharges through use of NPDES stormwater permits. In 1990, Section 402(p) was added to CWA to regulate Municipal Separate Storm Sewer System (MS4) discharges into existing waterways. The MS4 systems are now required to obtain an NPDES permit, and local jurisdictions are also required to adopt programs that control discharges for new and redevelopment areas.

The major CWA section that applies to activities potentially occurring as part of the proposed action is NPDES Section 402:

> *Section 402 (33 U.S.C. 1342 and 40 CFR 122): This section of CWA establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. An NPDES permit is required for all point source discharges of pollutants to surface waters. A point source is a discernible, confined, and discrete conveyance, such as by pipe, ditch, or channel.*

3.9.1.2 State

The Porter-Cologne Water Quality Act (Water Code Sections 13000 et seq.) is the basic water quality control law for California. Under this act, the State Water Resources Board (SWRB) has ultimate control over state water rights and water quality policy. The act also established nine regional water quality boards to oversee water quality issues on a day-to-day basis at the regional level. Each regional board is required to adopt a water quality control plan or basin plan that reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The proposed project site is located within the Los Angeles Region (Region 4) that is addressed by the Los Angeles Regional Basin Plan for the Coastal Watersheds of Los Angeles and Ventura counties.

The boards implement the permit provisions (Section 402) and certain planning provisions (Sections 205, 208, and 303) of CWA. This means that the state issues one discharge permit for purposes of both state and federal law. Under state law, the permit is officially called Waste Discharge Requirements. Under federal law, the permit is officially called an NPDES General Permit.

Beginning March 10, 2003, EPA and SWRB regulations began regulating discharges from projects with soil disturbance of 1 acre or more by amending the NPDES General Permit that originally regulated soil disturbances of 5 acres or more. SWRB Resolution No. 2001-46 also modified provisions of the general permit to require permittees to prepare a specific water quality sampling and analysis plan, including analytical procedures for covered construction sites.

In addition, Section 303 (d) of CWA requires the state to develop a list of "impaired" water bodies that may require additional protection (beyond traditional short-term and long-term control) to ensure established water quality standards are achieved and maintained. For these water bodies, states are required to develop appropriate total maximum daily loads (TMDLs). TMDLs are the sum of the individual pollutant load allocations for point sources, nonpoint sources, and natural background conditions, with an appropriate margin of safety for a designated water body.

3.9.1.3 Local

Both the NPDES General Permit for construction activities and MS4 are enforced at the regional level by regional water boards. Specific local requirements, however, are defined at the local jurisdiction level. The determining factor whether the proposed project is subject to the California Department of Transportation (Caltrans) MS4 Permit or the Los Angeles County MS4 Permit is whether the project is being constructed on property under Caltrans jurisdiction or Los Angeles County/City jurisdiction. If it is both, the proposed project is potentially subject to requirements of both permits. At the time of preparation of this Draft EIS/EIR, it is anticipated that project proponents will file for State General Construction NPDES Permit coverage (a Notice of Intent will be filed) or have Caltrans file for a Notice of Construction. A redundant application may also occur for the MS4 Permit (Caltrans and Los Angeles County).

3.9.1.3.1 National Pollutant Discharge Elimination System Permit

In 1996, Caltrans requested that SWRB consider adopting a single NPDES permit for all activities, properties, and facilities that would cover both MS4 requirements and the statewide Construction General Permit requirements. The permit is intended to cover all Caltrans activities that require a current MS4 permit and construction activities that require a federal permit.

In its request for a single NPDES permit, Caltrans created a stormwater management program (SWMP). The intent of SWMP is to reduce or prevent pollutants in stormwater discharge and authorized non-stormwater discharges through development and implementation of best management practices (BMPs). The SWMP must also comply with the local Municipal MS4 Storm Water Permit for the region in which the project is located. The BMPs chosen must comply with either maximum extent practicable or best available technology economically achievable/best conventional technology standards, whichever is applicable. There are three categories of BMPs in SWMPs:

- Technology-based and pollution prevention controls, including maintenance and design BMPs
- Construction controls
- Treatment controls.

The intent of the combined permit is to assure consistency with state construction-related requirements and municipal MS4 requirements. Following is an overview of the requirements for each of these components:

3.9.1.3.1.1 General Permit for Construction Requirements

The General Permit requires all dischargers where construction activity disturbs 1 acre or more to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that specifies BMPs to prevent construction pollutants from contacting stormwater and with the intent of keeping all products of erosion moving offsite into receiving waters.
- Eliminate or reduce non-stormwater discharges to MS4s and other waters.
- Perform inspections of all BMPs.

It is the responsibility of the discharger to obtain a General Permit before any soil disturbance. The discharger must submit a notice of intent (NOI) to SWRB. Coverage under this permit shall not commence until the discharger develops an adequate SWPPP for the project.

The SWPPP must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. The major objectives of a SWPPP are to:

- Identify all pollutant sources, including sources of sediment, from the construction site
- Identify non-stormwater discharges
- Construct and implement BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges
- Develop a maintenance schedule for all post-construction BMPs designed to reduce or eliminate pollutants.

The General Permit requires development and implementation of a monitoring program. The program must be implemented at the start of construction activity. The monitoring program must include inspections that obtain these goals:

- Identify areas contributing to stormwater discharge
- Evaluate whether BMPs identified in the SWPPP are adequate and functioning properly
- Evaluate whether additional control practices or corrective maintenance activities are needed
- Develop a sampling and analysis plan that accurately identifies potential sources of pollutants and the locations where these pollutants have the potential to discharge offsite.

3.9.1.3.1.2 Los Angeles County MS4 Permit Requirements

Los Angeles County Municipal Storm Water Permit requirements fall under NPDES No. CAS614001. The primary objectives of the local stormwater program requirements are to:

- Effectively prohibit non-stormwater discharges, and
- Reduce the discharge of pollutants from stormwater conveyance systems to the maximum extent practicable (MEP statutory standard).

The primary goal of the permit is to stop polluted discharges from entering the storm drain system and local receiving and coastal waters. A requirement of the Los Angeles County Municipal Storm Water Permit is implementation of standard urban stormwater mitigation plans (SUSMPs) and numerical design standards for BMPs, which municipalities began implementing in February 2001. The general requirements of the SUSMP include:

- Controlling peak stormwater runoff discharge rates
- Conserving natural areas
- Minimizing stormwater pollutants of concern
- Protecting slopes and channels
- Providing storm drain stenciling and signage
- Properly designing outdoor material storage areas
- Properly designing trash storage areas
- Providing proof of ongoing BMP maintenance.

The City of Los Angeles is covered under the Permit for Municipal Storm Water and Urban Runoff Discharges within Los Angeles County (Los Angeles Regional Water Control Board [Regional Board] Order No. 01-182) and is obligated to incorporate provisions of this document in city permitting actions. The municipal permit incorporates SUSMP requirements, and these include a treatment control BMP for projects falling within certain development and redevelopment categories.

3.9.1.3.1.3 Drainage and Flood Control Improvements

Drainage and flood control structures and improvements in Los Angeles County are subject to review and approval by the Los Angeles County Department of Public Works (LACDPW), while structures and improvements in the City of Los Angeles are subject to review and approval by the City of Los Angeles Department of Public Works (DPW), Bureau of Engineering. In general, the county maintains the large regional channels, and smaller storm sewers are maintained by the city.

Both agencies utilize design standards to provide a specified level of protection against flooding for different types of land use. Both LACDPW and DPW regulate drainage-related improvements through plan approvals and permits. Both agencies require project proponents to design stormwater collection and conveyance systems using specifications and procedures set forth in their respective storm drain design manuals. The project plans and specifications are submitted to the appropriate jurisdictional agency for review and approval. The agency review includes an evaluation of the effects of the project's discharge on the agency's jurisdictional drain system. Projects resulting in stormwater flows that exceed the drainage system's capacity are not approved. In such cases, methods for reducing effects to the storm drain system can include controlling peak and total discharge through stormwater detention or increasing site perviousness.

3.9.2 Affected Environment

3.9.2.1 Hydrology

The Schuyler Heim Bridge is located in the East Basin of the Los Angeles Harbor where it crosses the Cerritos Channel. The Cerritos Channel is part of the Inner Harbor (channels, basins, and slips north of the Vincent Thomas Bridge) and connects to the Outer Harbor (south of Reservation Point to the San Pedro and Middle breakwaters) via the Main Channel. The Los Angeles Harbor is physically connected to the Long Beach Harbor by the Cerritos Channel. Since the 1900s, dredge and fill projects have considerably altered the natural marine, bay, and shoreline environment to create the present harbor. Offshore, construction of the San Pedro, Middle, and Long Beach breakwaters and other structures has altered the historic pattern of currents and sediment transport. The breakwaters from the harbor protection system segregate the harbor from oceanic conditions.

Near-shore oceanic conditions dominate the marine environment of the Los Angeles Harbor and are primarily influenced by the Southern California coastal marine environment known as the Southern California Bight, which extends from Point Conception south to San Diego and on to Ensenada, Mexico. The main freshwater influx into the Los Angeles Harbor is through the Dominguez Channel, which drains approximately 80 square miles of urban and industrial areas. Other freshwater contributors are the discharge of treated sewage from the

Terminal Island Treatment Plant into the Outer Harbor, and discharges from several major storm drains that enter the harbor at different locations.

The area surrounding the project is highly developed and industrialized because of its proximity to the Ports of Long Beach and Los Angeles. Surrounding land uses include industrial shipyards and refineries, container terminal and storage facilities, as well as the former Long Beach Naval Shipyard. Three marinas are located in the vicinity of the Schuyler Heim Bridge within the project area.

The Schuyler Heim Bridge is the crossing means for State Route (SR) -47 over the Cerritos Channel in the Port of Long Beach. The Cerritos Channel is used primarily as a deep water path for the transport of cargo between the Los Angeles and Long Beach Harbors. Within the project limits, the navigable portion of the Cerritos Channel is approximately 99 meters (m) (325 feet [ft]) wide, contains depths ranging up to 15.2 m (50 ft) at its center, and is lined with concrete and riprap. The existing navigable width of the channel beneath the bridge is 55 m (180 ft) between columns. The Consolidated Slip/Dominguez Channel within the project limits is a narrow, riprap-lined channel ranging from approximately 38 m (125 ft) to less than 106.6 m (350 ft) in total width. Mean water depths within the channel are shallow, less than 4 to 6 m (<20 ft), and bottom sediments consist of more than 90 percent clay.

3.9.2.2 Floodplain

Historically, the Port of Los Angeles was a tidal marsh and terminus for the Dominguez Channel, San Gabriel River, and Los Angeles River. Flooding in the area occurred frequently, produced either by tidal influence or as a result of storm events overflowing the Los Angeles River. Before the beginning of the 20th century, the area was a large wetland, composed of sedimentary silt and sand from the rivers, forming tidal flats, and saturated soils from the ocean. The City of Los Angeles began filling and dredging the delta to expand the port for higher capacity and larger ships. Due to the area's natural base as a tidal marsh with a high water table, major portions of the project area had previously been mapped as a 100-year floodplain.

3.9.2.2.1 Bridge Area

A review of the applicable Flood Insurance Rate Maps (FIRMs) for the project area was conducted, which included the City of Los Angeles (panel 107 of 112, community Panel Number 060137 0107 E, map revision date July 6, 1998), and the City of Long Beach (Panel 20 of 25, Community Panel Number 060136 0020 C, revision date February 25, 2000, through a Letter of Map Revision [LOMR]). FIRMs are produced by the Federal Emergency Management Agency (FEMA), as are all revisions to regulatory flood zones, and are based on hydrologic and hydraulic analyses of potential flooding conditions in the drainage basins in the area.

The FIRMs for the area indicate that the northern approaches to the Schuyler Heim Bridge (within the City of Los Angeles corporate limits) are zoned as AR with a base flood elevation of 11 (anticipated depth of the floodwater above the land surface). The "AR" designation indicates that "the area is of a special flood hazard, which results from the decertification of a previously accredited flood protection system, but that is in the process of being restored. The AR designation mapped by FEMA in 1998 was due to potential overtopping of the existing Los Angeles River levees. A short floodwall was constructed on top of the levees; the project area was then removed from the 100-year floodplain on February 25, 2000.

3.9.2.2.2 Expressway Area

According to FIRM Panel Number 060137-0107 E (1998), the project area (from the southern extent to Anaheim Street) is delineated as Zone AR. Zone AR is the flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as levees, that are being restored. In the case of the proposed action, the 100-year floodplain (Zone AR) mapped by FEMA in 1998 was due to potential overtopping of the existing Los Angeles River levees. A short floodwall was constructed on top of the levees; and the project area was then removed from the 100-year floodplain on February 25, 2000.

According to the Federal Highway Administration (FHWA), an encroachment on a floodplain occurs when transportation improvements would be built within a base floodplain. As a result of the Zone AR declassification, the area in which the project would be located is now mapped as Zone X, which is a 500-year floodplain. Zone X is defined as an area with a 0.2 percent annual chance of inundation by flooding. Therefore, the project would not require a Location Hydraulic Study, a Summary Floodplain Encroachment Report, or a Floodplain Evaluation Report.

3.9.2.3 Oceanography

Los Angeles Harbor is a southern extension of the relatively flat coastal plain, bounded on the west by the Palos Verdes Hills. The Palos Verdes Hills offer protection to the bay from prevailing westerly winds and ocean currents. The Los Angeles Harbor was originally an estuary that received freshwater from the Dominguez Channel, San Gabriel River, and Los Angeles River. Over the past 80 to 100 years, development of the Los Angeles/ Long Beach Harbor complex, through dredging, filling, and channelization, has completely altered the local estuarine physiography.

3.9.2.3.1 Tides

Sea level variations (tides) are the result of astronomical and meteorological conditions. Tidal variations along the coast of Southern California are caused by the passage of two harmonic tide waves, one with a period of 12.5 hours and the other with a period of 25 hours. This combination of harmonic tide waves usually produces two high and two low tides each day. The twice-daily (semidiurnal) tide of 12.5 hours predominates over the daily (diurnal) tide of 25 hours in Los Angeles Harbor, generating a diurnal inequality, or mixed semidiurnal tide. This causes a difference in height between successive high and low waters ("water" is commonly used in this context instead of "tide"). The result is two high waters and two low waters each day, consisting of a higher high water and a lower high water, and a higher low water and a lower low water, respectively referred to as HHW, LHW, HLW, and LLW (LAHD, 2005).

A greater-than-average range between HHW and LLW occurs when the moon, sun, and earth are aligned with each other to create a large gravitational effect, also known as a spring tide, and corresponds to the phenomenon of a new or full moon. Neap tides, which occur during the first and third quarters of the moon, have a narrower range between HHW and LLW. In this situation, the moon, sun, and earth are perpendicular to each other, thereby reducing the gravitational effect on the water levels (LAHD, 2005).

The mean tidal range for the Outer Harbor, calculated by averaging the difference between all high and low waters, is 1.15 m (3.76 ft); and the mean diurnal range, calculated by averaging the difference between all the HHW and LLW, is approximately 1.71 m (5.6 ft) (LAHD, 2005). The extreme tidal range (between maximum high and maximum low waters) is about 3.2 m (10.5 ft); the highest and lowest tides reported are 2.43 m (7.96 ft) above mean lower low water (MLLW) and -0.78 m (-2.56 ft) below MLLW, respectively (written as 7.96 MLLW and -2.56 MLLW) (LAHD, 2005). MLLW is the mean of all lower low waters, equal to 0.85 m (2.8 ft) below mean sea level. It is the datum from which Southern California tides are measured.

Available Los Angeles Harbor tide data indicate that the highest water elevations usually occur from November through March. The more severe offshore storms usually occur along the California coast during this same period. These higher water elevations typically range from +2.13 to +2.29 m (+7 to +7.5 ft) MLLW (LAHD, 2005).

3.9.2.3.2 Waves

Ocean waves impinging on the Southern California coast can be divided into three primary categories, according to origin: Southern Hemisphere swell, Northern Hemisphere swell, and seas generated by local winds. Los Angeles Harbor is directly exposed to ocean swells entering from two main exposure windows to the south and southeast, regardless of swell origin. The more severe waves from extra-tropical storms (Hawaiian storms) enter from the south to southeast direction. The Channel Islands, particularly Santa Catalina Island, provide some sheltering from these larger waves, depending on the direction of approach. The other major exposure window opens to the south, allowing swells to enter from storms in the Southern Hemisphere, tropical storms (chubascos), and southerly waves from extra-tropical storms. Waves and seas entering Los Angeles Harbor are greatly diminished by the time they reach the Inner Harbor. Most swells from the Southern Hemisphere arrive at Los Angeles from May through October. Southern Hemisphere swells characteristically have low heights and long wave periods (wave period is a measurement of the time between two consecutive peaks as they pass a stationary location). Typical swells rarely exceed 1.22 m (4 ft) in height in deep water. However, with periods as long as 18 to 21 seconds, they can break at over twice their deepwater wave height. Northern Hemisphere swells occur primarily from November through April. Deepwater significant wave heights have ranged up to 6.1 m (20 ft), but are typically less than 3.66 m (12 ft). Northern Hemisphere wave periods generally range from 12 to 18 seconds (LAHD, 2005).

Local wind-generated waves are predominantly from the west and southwest. However, they can occur from all offshore directions throughout the year, as can waves generated by diurnal sea breezes. Local waves are usually less than 1.33 m (6 ft) in height, with wave periods of less than 10 seconds (LAHD, 2005).

3.9.2.3.3 Circulation and Flushing

Circulation patterns are established and maintained by tidal currents. Flood tides in Los Angeles Harbor flow into the harbor and up the channels, while ebb tides flow down the channels and out of the harbor. In the Outer Harbor, near Angel's Gate and Queen's Gate, maximum surface tidal velocities reach approximately 0.8 feet per second (fps), while minimum tidal velocities of 0.088 fps occur in the Inner Harbor area since the construction of the Pier 400 landfill (LAHD, 2005).

Circulation patterns in the Los Angeles Harbor are determined by a combination of tide, wind, thermal structure, and local topography. A large clockwise gyre is found in the surface waters of Outer Los Angeles and Long Beach Harbors during both rising and falling tides (LAHD, 2005). The net tidal exchange is inward through Angel's Gate, and outward through Queen's Gate and the gap between the eastern end of Long Beach Breakwater and Alamitos Bay. Thus, there is a net eastward flow within the harbor (LAHD, 2005).

Mixing is less in the Inner Harbor than in the Outer Harbor. Tidal-induced water exchange in the Inner Los Angeles Harbor is 22 percent of the total harbor water volume per day (LAHD, 2005). Neglecting discharges, flushing efficiency of the harbor has been determined using the tidal prism method. Overall tidal exchange rates fluctuate between 8 and 25 percent, with the flushing rate estimated at 90 tidal cycles (LAHD, 2005).

3.9.3 Environmental Consequences

3.9.3.1 Evaluation Criteria

For the purposes of the analyses in this Draft EIS/EIR, the proposed alternatives were evaluated with respect to hydrology, floodplains, and oceanography to determine if they would:

- Result in permanent adverse effects to water circulation.
- Result in exposure of people or property to water-related hazards, such as flooding.
- Substantially reduce or increase the amount of surface water in Los Angeles Harbor.

3.9.3.2 Methodology

The following hydrology, floodplains, and oceanography analysis is based on review of the *Berth 206-209 Interim Container Terminal Reuse Project Draft Environmental Effect Report* (LAHD, 2005) and *Water Quality Impacts Technical Study* (Caltrans, 2007). Effects to hydrology, floodplains, and oceanography are evaluated based on knowledge of the proposed type, intensity, and duration of project construction activities and qualitative assessments of Project-related effects in the context of the existing setting of the Ports of Los Angeles and Long Beach.

3.9.3.3 Evaluation of Alternatives

3.9.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.9.3.3.1.1 Construction Effects

Construction of Alternative 1 would directly affect both the Cerritos Channel and the Consolidated Slip/Dominguez Channel. The construction effects for pile construction and falsework would be similar for the two areas.

Alternative 1 would not change the course and direction of offsite drainage, and drainage would not exceed the capacity of existing or planned stormwater systems. Alternative 1 also would not affect water surface elevation, and there would be no additional flood risk to life or property. Alternative 1 would not result in changes to water circulation within the harbor. There will be no effect to circulation patterns, which are established and maintained by tidal currents. Although Alternative 1 would replace the Schuyler Heim Bridge within the Cerritos Channel, the new bridge would not result in a substantial reduction or increase in the amount of surface water in the Los Angeles Harbor because there would not be any loss of water area due to construction of Alternative 1 (i.e., no dredging, no fill).

In accordance with the City's municipal code and other applicable regulations, Alternative 1 would implement applicable stormwater pollution prevention measures as specified under NPDES permit requirements for the control of stormwater pollution during construction. Specific requirements include, at a minimum, BMPs for sediment control, construction materials control, site management, and erosion control. In addition, an SWPPP would be developed for construction materials and waste management, as Alternative 1 would require disturbance of more than 1 acre of land. In the event construction of Alternative 1 requires the disturbance of soil during the rainy season, defined as October 1 until May 1, a wet weather erosion control plan (WWECP) would also be developed. Adherence to these requirements would be enforced through plan check reviews and site inspection upon and following the issuance of a building permit or grading permit.

Implementation of the above-mentioned measures would reduce sediment-laden runoff, prevent the migration of contaminants from construction areas to surface waters, and ensure stormwater discharges do not violate applicable water quality standards. As such, potential construction effects to water quality from polluted runoff would not be adverse.

Construction of the new fixed-span bridge would require excavation and other soil disturbance activities, promoting surface runoff of construction pollutants (i.e. trash and petroleum compounds from construction equipment) and erosion of channel banks. These pollutants would be collected by surface runoff and discharged into Cerritos Channel. This would be considered an adverse effect.

There are also potential adverse effects associated with groundwater that may be encountered during pile driving and excavation activities. Groundwater in the project area does not meet NPDES permit limits, would require onsite storage and treatment, and offsite disposal. Additional degradation to Cerritos Channel and/or Consolidated Slip/ Dominguez Channel water quality could be attributed to construction activities associated with pile placement that would disturb sediment, causing resuspension and dispersal into the water column, also considered an adverse effect.

Construction of the replacement bridge under Alternative 1 would extend into the rainy season. There is a potential for worker exposure to flood-related hazards. This situation is considered remote because, during heavy rainstorms, construction is generally halted for safety reasons. Flooding that occurs as a result of continuous heavy rains is not expected to endanger workers, as there would be ample time for workers to leave the worksite, if necessary.

A floodplain evaluation estimates a level of risk or environmental effect with respect to encroachment on a "base floodplain," which is the area subject to flooding by the base flood. In most floodplain evaluations, the base flood used to determine effects is the precipitation event corresponding to a 100-year return period (the 100-year flood). A 100-year flood is defined as a precipitation event and flood that retains a 1 percent chance of being exceeded (in depth of the floodwater) in any given year. An encroachment is any action implemented within the limits of a base floodplain and typically includes construction activities or permanent structures. The following items also are generally considered in the evaluation of floodplain effects:

- Risks to human life or property due to flooding
- Compatibility of floodplain development
- Effects on natural and beneficial floodplain value
- Measures to restore and preserve the natural and beneficial floodplain values

Risks to Human Life or Property

Construction of the replacement bridge would occur largely in the same footprint as the existing bridge; therefore, there would be no new encroachments into the regulatory floodplain. The width of the replacement bridge would be slightly wider than the existing bridge, but would result in only a slight increase in peak flows when compared to existing conditions. The replacement bridge also would be an elevated structure, with a vertical clearance of about 14.32 m (47 ft) above the high water level of the Cerritos Channel, which would minimize any flood risk and safety hazards of users. Risks to human life or property would not increase.

Compatibility of Floodplain Development

The project would replace a similar structure in a 500-year floodplain and would, therefore, be a compatible development.

Effects on Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values are natural resource attributes that are uniquely associated with a floodplain, including fish, wildlife, plants, open space, natural beauty, and agriculture. The banks of Cerritos Channel, as well as much of the floodplain in the project area, are heavily urbanized, with very limited natural area to support natural and beneficial floodplain values. Since minimal wildlife and vegetation are located in the project area, natural and beneficial floodplain values would not be affected.

Measures to Restore and Preserve Floodplain Values

Alternative 1 would not involve measures to restore and preserve the natural and beneficial floodplain values of the area. Alternative 1 would not require temporary use of any areas designated as a 100-year floodplain and, therefore, would not create any temporary effects on floodplains.

As discussed above, Alternative 1 is within the 100-year floodplain of the Los Angeles River and Inner Harbor Area, as designated by FEMA. However, the new replacement bridge would be constructed so as not to impede or redirect flood flows. There are no impediments to sheet flows moving to the channel.

3.9.3.3.1.2 Operations Effects

Construction of the new bridge would not create more impervious areas than currently exist within the project area. The new fixed-span bridge would introduce a similar sized impervious surface, resulting in similar surface runoff during project operations. The bridge runoff contribution is considered negligible compared to overland drainage that enters the channel from other impervious surfaces in the project vicinity.

The new bridge would be designed so that stormwater runoff would flow along gutters toward the ends of the bridge and discharge into detention basins connected to the existing storm drainage system. Existing drainage patterns are not expected to be substantially altered by Alternative 1. With the new bridge, there would be no overall increase in surface area, and no increase to the amount of runoff that is currently discharged to the existing storm drain system. There would be no requirement for construction of a new storm drainage facility or expansion of existing drainage facilities.

Although the bridge footprint extends beyond impervious surfaces in some areas, the groundwater beneath the project area is of poor quality due to contamination, and the project area is not used for groundwater recharge. Operations effects to hydrology, floodplains, and oceanography would not be considered adverse.

Stormwater runoff from the expressway would be collected and receive some level of treatment prior to release. Groundwater resources would not be affected because the project area is not used for groundwater recharge. Therefore, Alternative 1 operations would not result in adverse effects to hydrology, floodplains, and oceanography.

3.9.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.9.3.3.2.1 Construction Effects

Potential effects to oceanography and groundwater would be the same as described for Alternative 1.

3.9.3.3.2.2 Operations Effects

Alternative 2 would be constructed and operated within a 500-year floodplain. The proposed expressway included in Alternative 2 would be constructed so as not to impede or redirect flood flows. Therefore, Alternative 2 would have no operations effects to hydrology, floodplains, and oceanography.

3.9.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.9.3.3.3.1 Construction Effects

Construction effects under Alternative 3 would be comparable to those described for Alternative 1.

3.9.3.3.3.2 Operations Effects

Alternative 3 would create a new bridge to the east of the existing Schuyler Heim Bridge. This alternative would result in an additional 17.8 cfs of runoff to the Cerritos Channel. This amount is negligible when compared to existing drainage to the Cerritos Channel. Pollutant loading effects are also expected to be minimal. Continued maintenance of the existing bridge would have potential effects to water quality, involving the introduction of abrasives, paints, and dust into Cerritos Channel waters. However, these maintenance activities would be infrequent, and BMPs would be followed to minimize introduction of these materials. The small quantities of materials potentially introduced would represent a less than adverse effect to water quality parameters. An additional 14.8 acres of impervious surface area would be created by this alternative. However, the project area is not used for groundwater recharge, and groundwater effects would not occur. Therefore, Alternative 3 would have no operations effects to hydrology, floodplains, and oceanography.

3.9.3.3.4 Alternative 4: Bridge Replacement Only
Construction and operations effects under Alternative 4 would be the same as those described for Alternative 1 only as related to the replacement of the Schuyler Heim Bridge.

3.9.3.3.5 Alternative 5: Transportation System Management
3.9.3.3.5.1 Construction Effects
Alternative 5 would not include any major capital improvements. Therefore, there would be negligible effects to hydrology, floodplains, and oceanography.

3.9.3.3.5.2 Operations Effects
No operations effects under Alternative 5 are anticipated.

3.9.3.3.6 Alternative 6: No Build
3.9.3.3.6.1 Construction Effects
Since no construction would occur under Alternative 6, no temporary effects are anticipated.

3.9.3.3.6.2 Operations Effects
Under the No Build Alternative, the replacement bridge and proposed expressway would not be built, and no additional storm drainage, improvements, or water quality measures would be built. Existing drainage patterns and runoff quantities would remain the same. In addition, the quality of urban runoff pollutants would remain unchanged. Low levels of contamination would continue to be introduced into Cerritos Channel from surface runoff and lead paint flaking from the existing bridge. Also under this alternative, the existing flood conditions would not be affected.

3.9.3.3.7 CEQA Consequences
Based on the information provided above, in accordance with CEQA criteria, impacts related to Alternatives 1, 2, 3, 4, and 5 would be less than significant. Under Alternative 6, no impacts would occur.

Potential impacts of the proposed project alternatives to hydrology, floodplains, and oceanography are assessed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis and Appendix A – CEQA Checklist (VIII, Hydrology and Water Quality).

3.9.4 Avoidance, Minimization, and/or Mitigation Measures
Stormwater runoff would be controlled along the project alignment to minimize effects to the Cerritos Channel or Consolidated Slip/Dominguez Channel. Guidelines for stormwater management would be followed as prescribed in the District 7 Directive No. DD20, dated October 10, 2000. Additionally, mitigation would be guided by the *Caltrans Statewide Storm Water Management Plan (SWMP).*

Construction would conform to two Caltrans NPDES permits: Caltrans Permit (Order No. 99-06-DWQ) and Construction General Permit (Order No. 99-08-DWQ). No mitigation measures would be required.

Additionally, the contractor will be required to submit a construction BMP plan for approval before construction begins.

3.9.4.1 Avoidance and Minimization Measures

3.9.4.1.1 Construction

3.9.4.1.1.1 Alternatives 1, 1A, 2, 3, and 4

HY-1 Surface Runoff Measures. Construction would require the adoption of the following BMPs for protection of water quality during construction. The following BMPs will limit soil erosion, implement water conservation practices, and maintain water quality of the receiving water during construction:

- Tires on construction equipment that leaves a contaminated work site will be washed before the equipment leaves the site.
- Within a contaminated work area, construction equipment will be cleaned only as necessary (e.g. moved to a non-contaminated area) to minimize the volume of decontamination wash water and prevent transport of contaminants from work site areas.
- Designated locations will be provided for servicing, washing, and refueling equipment, away from temporary channels or swales that would quickly convey runoff to the drainage system and into the Cerritos Channel or Consolidated Slip/Dominguez Channel.
- Contaminated material (e.g. oil, lubricants) will be kept at a safe distance (a minimum of 30.5 m (100 ft) from an entry into a receiving water body. Temporary barriers and containers will be used to confine any contaminated materials. Upon completion of construction, all contaminated material on the construction site will be removed and disposed of in accordance with federal, regional, and local regulations.
- Use of marine construction equipment will not involve fuel transfers onsite.
- A temporary spill containment system will be installed and maintained on either side of a water crossing. The contractor will be responsible for the containment plan and the execution of spill containment during the course of construction. The containment plan will be reviewed and approved by a resident engineer.
- To prevent potential introduction of any lead-based paint into receiving waters, the contractor(s) will take appropriate measures to eliminate lead-based paint from reaching the receiving waters. If paint removal is necessary during the bridge dismantling process, the contractor will comply with all applicable laws and regulations relative to this process to ensure protection of receiving waters.
- At project construction sites, as appropriate, the contractor will:
  - Provide stabilized entrances and exits
  - Regularly water the non-paved surfaces
  - Regularly sweep and vacuum paved surfaces
  - Install silt fences at the toe of excavation and embankment slopes
  - Install sand or gravel bag berms along the top of slopes

- Install slope protection such as geotextiles, plastic covers, soil binders and erosion control blankets/mats
- Install slope interruption devices such as fiber rolls and slope drains
- Install permanent erosion control seeding, landscape planting or slope/rock paving
- Protect storm drain inlets with inserts or linear interrupters such as gravel bag and/or sand bag berms
- Manage stockpiles against wind and water erosion

- Monitor and report BMP performance and conditions before and immediately after the completion of work, in accordance with SWPPP specifications.

HY-2 Sediment Measures. Construction activities that would produce sediment transport of pollutants through the Cerritos Channel or Consolidated Slip/Dominguez Channel will be minimized through strict adherence to construction BMPs, which include, but are not limited to, the following:

- Channel bank work will include bank protection (riprap, concrete walls, and sheet piling) to eliminate the possibility of enhanced bank erosion.
- Cofferdams will be used during blasting or other bank or sediment disturbing construction activities.
- Turbidity curtains will be used in lieu of silt curtains. Silt curtains generally refer to impermeable barriers built to hold water and thus provide control of suspended sediment. Silt curtains are generally not used in tidal channels due to the elevated water velocities. An alternative solution is the use of turbidity curtains, which are deployed in a manner similar to silt curtains, but are constructed of a permeable material that allows water to flow through the membrane while trapping suspended sediment. Use of these permeable membrane curtains allows for the barrier to extend from the water surface to the bottom, which provides greater sediment containment over the use of silt curtains.

HY-3 Groundwater Measures. Groundwater encountered during construction will be temporarily stored onsite, tested, transported, treated, and disposed offsite. A dewatering permit will be obtained from the Los Angeles RWQCB.

Based on results of the groundwater assessment and recommendations from the RWQCB, there are three alternatives for disposing of groundwater: Onsite Treatment, Treatment and Disposal Offsite, or Disposal into Local Sewer System.

Onsite Treatment

This alternative would entail designing and constructing a temporary water treatment plant for treating water generated from dewatering operations to reduce the concentrations of pollutants of concern below NPDES limits.

Treatment and Disposal Offsite

This alternative would entail temporary storage of water on the project site, waste profiling, and then transporting the water to a regulated facility for treatment and disposal. Based on results of the groundwater investigation, the groundwater could be profiled as either hazardous waste or nonhazardous waste.

Disposal into Local Sewer System

This alternative would entail disposal of the groundwater into the City of Los Angeles sewage treatment system, which is connected to the Terminal Island Treatment Plant. The groundwater can be disposed by connecting the dewatering operation to a local sewer line adjacent to the project site or to a trunk line. The type of sewer line connection is dependent upon the rate of flow of the groundwater from the dewatering operation and would be determined by the permitting agency. Information obtained from the City of Los Angeles Department of Public Works, Bureau of Sanitation, indicates that the treatment plant has an average daily capacity of 16 million gallons per day (mgd), with a daily peak capacity of 30 mgd.

To dispose of groundwater into the City of Los Angeles sewer system, an Industrial Wastewater Discharge Permit is required, which is issued by the City of Los Angeles Department of Public Works, Bureau of Sanitation, Industrial Waste Management Division (IWMD). To satisfy permit conditions, treatment of discharge water could be required.

3.9.4.1.1.2 Alternatives 5 and 6

No avoidance and minimization measures would be required for construction of Alternatives 5 and 6.

3.9.4.1.2 Operations

No avoidance and minimization measures would be required for project operations.

3.9.4.2 Mitigation Measures

Based on the above, mitigation measures are not required for construction or operation of the project alternatives.

3.10 Water Quality and Stormwater Runoff

The information for this section is derived entirely from the *Water Quality Impacts Technical Study* (Caltrans, 2007), which is herein incorporated by reference.

3.10.1 Regulatory Setting

The Federal Water Pollution Control Act of 1972, also referred to as the Clean Water Act (CWA) of 1972 (33 U.S. Code [U.S.C.] Section 1251 *et. seq.*) is the primary federal law regulating water quality. The CWA was passed to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Specific sections of the CWA control the discharge of pollutants and wastes into the aquatic and marine environment.

Section 401 of the CWA requires water quality certification from the state board or regional board when a project (1) requires a federal license or permit (Section 404 is the most common federal permit for Caltrans projects) and (2) will cause discharge into waters of the United States. Section 402 of the CWA establishes the National Pollutant Discharge Elimination System permit system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. To ensure compliance with Section 402, the State Water Resources Control Board has developed and issued a National Pollutant Discharge Elimination System, Statewide Storm Water Permit, to regulate storm water discharges from all of Caltrans right-of-way, properties, and facilities. The permit regulates both storm and non-stormwater water discharges during and after construction.

Responsibility for the protection of water quality in California rests with the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards). The State Water Board sets statewide policies and develops regulations for the implementation of water quality control programs mandated by state and federal regulations. Each Regional Water Board is responsible for developing and assigning standards for surface waters, publishing reports, providing water quality education, and implementing programs that address surface water quality. The Los Angeles Water Board retains jurisdiction over the project area addressed in this Draft EIS/EIR.

The Regional Water Boards develop and implement Water Quality Control Plans, also known as Basin Plans. Water quality objectives defined in the basin plans serve as guidelines for all point source and nonpoint source discharges to California receiving waters. On June 13, 1994, the Los Angeles Water Board adopted a Basin Plan for the Los Angeles Region that includes water quality objectives and designates beneficial uses for surface and groundwater resources within the Los Angeles Basin, including coastal water resources.

Section 401 of the CWA requires certification that a permitted project complies with state water quality standards for proposed actions within state waters. The Los Angeles Water Board administers the Water Quality Certification program addressed in this EIS/EIR.

The CWA and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) establish a program to regulate the discharge of dredge and fill materials into the navigable Waters of the U.S. Under this provision, the U.S. Army Corps of Engineers (USACE) must issue permits for deposit of fill in waterways and wetland areas on both private and public lands.

Other federal agencies, such as the U.S. Fish and Wildlife Service (USFWS) and the U.S. Environmental Protection Agency (EPA), provide recommendations concerning the issuance of permits and identify conditions to include in the permit.

In addition, the State Water Resources Control Board issues the Statewide Permit for all Caltrans construction activities of 0.4 hectare (1 acre) or greater, or a number of smaller projects that are part of a common plan of development with the total area exceeding 0.4 hectares (1 acres), or projects that have the potential to significantly impair water quality. Caltrans projects subject to the Statewide Storm Water Permit require a Storm Water Pollution Prevention Plan; projects smaller than 0.4 hectares require a Water Pollution Control Program.

Subject to Caltrans review and approval, the contractor prepares both the Storm Water Pollution Prevention Plan and the Water Pollution Control Program. These identify construction activities that may cause pollutants in storm water and specify measures to control these pollutants. Because neither the Water Pollution Control Program nor the Storm Water Pollution Prevention Plan has been prepared at this time, the discussions in this section of the EIS/EIR focus on anticipated pollution sources or activities that may cause pollutants in the storm water discharges.

3.10.1.1 Regulation of Stormwater Discharges

3.10.1.1.1 Federal Requirements

In 1972, the CWA was amended to prohibit the discharge of pollutants to Waters of the U.S. from any point source unless the discharge is in compliance with the NPDES permit. The 1987 amendments to CWA added Section 402(p), which directs that stormwater discharges are point source discharges and establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program.

On November 16, 1999, the federal regulations for controlling pollutants in stormwater discharges were promulgated by EPA into the Code of Federal Regulations (CFR) (40 CFR Parts 122, 123 and 124.) Pursuant to these regulations, Municipal Separate Storm Sewer Systems (MS4) stormwater permits are required for discharges from a municipal stormwater sewer system serving a population of 100,000 or more. EPA defined MS4 to include state-owned road systems; in California, the MS4s were issued individual NPDES permits by the Regional Water Boards. The California Department of Transportation (Caltrans) obtained an MS4 permit for all areas of the areas where they are required.

Caltrans has coverage under the NPDES Permit and Statewide Stormwater Permit and Waste Discharge Requirements, which reference and incorporate by reference the current NPDES General Permit for discharges of stormwater runoff associated with construction activities. These permits directly regulate construction and stormwater discharges from facilities owned and operated by Caltrans. The Statewide Construction General Permit is issued by the State Water Resources Control Board (Order No. 99-08-DWQ, NPDES General Permit No. CAS000002). The provisions of the Construction General Permit are implemented by each of the Regional Water Boards. The Construction General Permit requires a Storm Water Pollution Prevention Plan (SWPPP) that includes Best Management Practices (BMPs) to control erosion and discharge of wastes at the construction site.

3.10.1.1.2 Local Requirements

The City of Los Angeles, City of Long Beach, and California Coastal Commission have put forth requirements for stormwater quality control during and following construction, which also must be incorporated into the project, depending on the alternative selected.

The City of Los Angeles maintains a pollution abatement program, which would be followed in accordance with the selected alternative. This program follows NPDES guidelines and deals with assuring that public agencies are abiding by SWPPP requirements. Additionally, the program seeks to optimize beneficial uses of receiving waters by reducing pollutant loads. BMPs that have been established in the past by the City of Los Angeles include catch basins, oil and grease separators, and sediment separators.

The Port of Long Beach retains additional requirements that would be followed during project construction. The Port works with the Los Angeles Water Board to implement the Long Beach Storm Water Management Program (LBSWMP), which consists of several elements, including the following:

- Program management
- Geographic characterization
- Development/construction program
- Illicit connection and discharges elimination program
- Education/public information program
- Annual reporting program

Additionally, and as required under the City of Long Beach Municipal Storm Water and Urban Runoff Discharge Permit (SWRCB Order No. 99-060, NPDES No. CAS004003), the permittee must adhere to a Long Beach Monitoring Program, which requires mass emissions monitoring, multispecies toxicity testing, toxicity identification evaluations, BMP effectiveness evaluation, and cooperative monitoring of the Cerritos Channel. The requirements of this permit include receiving water limitations, discharge prohibitions, storm water management, monitoring and reporting, and special provisions. Monitoring requirements applicable to the project would be determined upon construction of the project alternative and acquisition of the storm water permit.

The California Coastal Commission also has requirements in its *Plan for Controlling Polluted Runoff* (California Coastal Commission, 2000), which outlines strategies for addressing polluted runoff and identifies actions that will achieve the commission's objectives. A listing of strategies and background is available in their Procedural Guidance Manual. California Coastal Commission policies include the following:

- Maintain, enhance, and, where feasible, restore marine resources
- Protect against spillage
- Control effects of dredging in specified port areas

3.10.1.1.3 Beneficial Uses

Beneficial uses form the cornerstone of water quality protection under the basin plan. Appropriate water quality objectives are identified in the Basin Plan to ensure the protection of these uses. The designated beneficial uses, together with water quality objectives, form the water quality standards. Existing beneficial uses for the Cerritos Channel and the estuarine portion of the Dominguez Channel are presented in Table 3.10-1. To preserve the beneficial uses at their current level, water quality objectives have been developed and published in the basin plans.

Table 3.10-1
Beneficial Uses of Inland Surface Waters and Coastal Waters
Los Angeles Region Water Quality Control Plan

Surface Water Feature	Existing Beneficial Uses	Potential Beneficial Uses
Inner Los Angeles – Long Beach Harbor	• Industrial Service Supply • Navigation • Noncontact Water Recreation • Commercial and Sport Fishing • Marine Habitat • Rare, Threatened or Endangered Species	• Water Contact Recreation • Shellfish Harvesting
Dominguez Channel (in estuary)	• Contact and Noncontact water recreation • Preservation of Rare, Threatened or Endangered Species • Commercial and Sport Fishing • Marine, Estuarine, and Wildlife Habitat • Migratory and Spawning habitat	• Navigation

Note:
From Basin Plan, Adopted by California Regional Water Quality Control Board, Los Angeles Region, June 13, 1994 (Caltrans, 2005)

3.10.1.1.4 Water Quality Objectives

The Basin Plan contains both numeric and narrative surface water quality objectives. The discharge of waste into surface waters must not violate either of these objectives. Table 3.10-2 lists the various narrative water quality objectives applicable to all inland surface waters and enclosed bays and estuaries.

The Los Angeles Water Board has developed numeric water quality objectives for various constituents in inland surface waters of California, including TDS, sulfate, chloride, boron, and nitrogen. However, no specific objectives are listed for the Dominguez Channel Watershed at this time. Nevertheless, it can be assumed that the water quality components presented in the basin plans for other watersheds are applicable to the surface runoff analysis.

Because harbors usually contain a limited amount of potential for mixing and dispersion of contaminants with the open ocean, the contamination input is likely to concentrate over time. The water quality of the Los Angeles and Long Beach Harbors can be impacted by climate changes, seasonal overturns in the water, biological activity, effluent discharges, and surface runoff, all of which influence the Los Angeles Water Board water quality objectives and standards.

Table 3.10-2
Narrative Water Quality Objectives for Surface Waters
Los Angeles Region Water Quality Control Plan

Parameter	Objective
Ammonia	Ammonia concentrations in receiving waters shall not exceed values listed in the Basin Plan (Tables 3-1 to 3-4, calculated for specific pH and temperature).
Bacteria	In waters designated for noncontact water recreation (REC-2), the fecal coliform concentration shall not exceed 200/100 mL, based on a minimum of not less than four samples for any 30-day period, nor shall more than 10 percent of total samples during any 30-day period exceed 4000/10 mL.
Bioaccumulation	Toxic pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels that are harmful to aquatic life or human health.
Biostimulatory Substances	No biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.
Biochemical Oxygen Demand (BOD)	No substances that result in increases in the biochemical oxygen demand that adversely affect beneficial uses.
Chemical Constituents	No concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.
Chlorine	Chlorine residual shall not be present in surface water discharges at concentrations that exceed 1.0 mg/L or impair beneficial uses.
Color	No coloration that causes nuisance or adversely affects beneficial uses.
Exotic Vegetation	Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes nuisance or adversely affects beneficial uses.
Floating Material	No floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affects beneficial uses.
Dissolved Oxygen	Waters shall be free of substances that result in increases in the BOD, which adversely affect beneficial uses.
MBAS	No Methylene Blue Activated Substances (MBAS) in concentrations greater than 0.5-mg/L in waters designated municipal water use (MUN). Note: Municipal and Domestic Use is identified as a 'potential' use for this watershed.
Mineral Quality	There are no waterbody specific mineral quality objectives identified for this watershed in the Basin Plan.
Nitrogen	Nitrogen levels shall not exceed 10 mg/L (nitrate-nitrogen plus nitrate-nitrogen), 45 mg/L (as nitrate), 10 mg/L (as nitrate-nitrogen), or 1 mg/L (as nitrite-nitrogen).
Oil and Grease	No oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, cause nuisance, or otherwise adversely affect beneficial uses.
PCBs	The purposeful discharge of PCBs to waters of the Region, or at locations where the waste can subsequently reach waters of the Region, is prohibited.
Pesticides	Waters designated as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limiting concentrations contained in Title 22 of the California Code of Regulations, listed in Table 3-7 of the Basin Plan. Note: Municipal and Domestic Use is identified as a 'potential' use for this watershed.

Table 3.10-2
Narrative Water Quality Objectives for Surface Waters
Los Angeles Region Water Quality Control Plan

Parameter	Objective
pH	Not less than 6.5 or more than 8.5. No changes in normal ambient pH levels to exceed 0.2 units from natural conditions as a result of waste discharge.
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
Suspended Material	No suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable Material	No settleable material that causes nuisance or adversely affects beneficial uses.
Tastes and Odors	No taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible aquatic resources, cause nuisance, or adversely affect beneficial uses.
Temperature	The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperatures does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to or produce detrimental physiological responses to human, plant, or aquatic life.
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10 percent. Note: The Los Angeles Water Board may issue specific Waste Discharge Requirements (WDRs) permit allowing higher concentrations within zones of dilution.

Additionally, these events can impact other water quality indexes, such as the temperature and pH of the receiving water. The specific water quality indexes historically linked to the contents of surface runoff include total suspended solids (TSS), TDS, and salinity.

An increase in TSS will reduce the transparency (measured as the depth to which one can discern black and white colored objects) of the receiving water. A study performed in the Henry Ford (Badger Avenue) Bridge Replacement Project noted that the transparency in the harbor between 1980 and 1984 ranged from 0 m to 12 m (0 ft to 40 ft), with mean values ranging between 2.3 m and 3.2 m (7.7 ft and 10.7 ft). The study also noted that the inner harbor (where the Cerritos Channel lies) generally contained a greater transparency than the main channel during the winter, summer, and fall. The study concluded that mean values in all areas of the harbor were adequate to safeguard the existing and proposed beneficial uses of the harbor as a marine and fish habitat, as defined by the Los Angeles Water Board.

Total dissolved solids can increase when poor quality surface runoff reaches the receiving water, as fine particulate matter can be easily transmitted off roadways and through sheet flow into receiving waters. Dissolved solids also can increase the salinity of the surface water. Los Angeles Harbor salinities usually range between 30.0 and 34.2 parts per thousand. Salinity, however, has been noted to be lower in the inner harbor, and in the Consolidated Slip/Dominguez Channel in the project vicinity.

Other contaminants that can be carried into receiving waters in surface runoff include heavy metals, oil and grease, and chlorinated hydrocarbons. The heavy metals (mostly cadmium, chromium, copper, mercury, lead, nickel, silver, and zinc), oil, and grease likely result from runoff from a roadway or bridge structure. Historically, the main concern with respect to these contaminants is their tendency to become suspended in the harbor sediments, where they can smother bottom-dwelling animals and promote anaerobic conditions in the water column. These types of contaminants tend to be most prevalent during construction activities associated with roadways and bridges.

3.10.2 Affected Environment

The project site is located within and along the southern boundary of the West Coast Groundwater Basin. This basin is bordered on the east by the Newport-Inglewood fault, on the west by the Santa Monica Bay, on the north by Ballona Gap (north of Los Angeles International Airport), and on the south by Palos Verdes Hills.

Five major aquifers have been identified within the West Coast Basin: the Silverado and Lynwood Aquifers, which are part of the San Pedro Formation; the Gage Aquifer, which is part of the Lakewood Formation; and the Gaspur and Semiperched Aquifers, which are part of the Holocene and latest Pleistocene deposits. The shallowest occurrence of regional groundwater underlying the project site is the Gaspur Aquifer. The Gaspur Aquifer typically consists of gravel and cobbles at its base and grades upward into medium to coarse sand. Along the northern edge of the project site, the Gaspur Aquifer ranges in thickness from 18.28 to 30.48 m (60 to 100 ft); and the top of it is reported to be 24.38 to 42.67 m (80 to 140 ft) below ground surface (bgs).

The shallow aquifers (Gaspur, Semiperched, and Gage) are not currently used for drinking water purposes because of low yield and/or generally poor quality. The Lynwood and Silverado Aquifers are currently used as drinking water sources. There are no drinking water wells within a 1,609.34-m (1-mi) radius of the project site. There are three active municipal-supply groundwater wells located within 8.05 km (5 mi) of the project site, but these are situated inland of the Dominguez Gap Barrier Injection (located north of the project site). Two of these wells are operated by the Dominguez Water Corporation (DWC) and reportedly produce drinking water from the Silverado Aquifer. The third drinking water supply well is operated by the City of Lomita.

The Gaspur Aquifer is the shallowest occurrence of regional groundwater underlying the area. There is a semiperched, water-bearing zone, however, that is first encountered between 0.30 and 3.05 m (1 and 10 ft) bgs, slightly varying within the five properties surrounding the project site. This shallow, semiperched water-bearing unit is separated from the Gaspur Aquifer by thick sequences of bay muds and clays.

The Gaspur Aquifer ranges in thickness from 18.28 to 30.48 m (60 to 100 ft) and is reported to be encountered between 24.38 to 42.67 m (80 and 140 ft) bgs. The aquifer runs in a north-south direction and is approximately 4 km (2.5 mi) wide within the Terminal Island area. The direction of regional groundwater flow in the Gaspur Aquifer is toward the north. There has been extensive intrusion of seawater into the Gaspur Aquifer indicating that, at some point, it is in contact with the ocean. There are lenses of sandy and/or gravelly clays that permit water to move vertically from the semiperched aquifers to the Gaspur Aquifer.

The project site also is within the Dominguez Channel Watershed, within the Los Angeles-San Gabriel Hydrologic Unit. This hydrologic unit is further divided into a hydrologic subarea (HSA), which is delineated principally on the basis of topography and watershed divides. Groundwater elevations generally descend from the Dominguez Channel toward the south to the Cerritos Channel where groundwater is near sea level. Tidal fluctuations, rainfall, and local pumping of groundwater result in variations of the ground water level. In general, south of Opp Street, groundwater is approximately 0 to 3 m (0 to 9.8 ft) below ground surface; north of Opp Street, groundwater is approximately 3 to 6 m (9.8 to 19.6 ft) below ground surface. The project lies within the Central HSA Split. The Cerritos Channel connects the Los Angeles Harbor on the southeast with the Inner Long Beach Harbor on the west. The Dominguez Channel connects to the East Basin of the Port of Los Angeles via the Consolidated Slip.

The area surrounding the project is highly developed and industrialized because of its proximity to the Ports of Long Beach and Los Angeles. Surrounding land uses include industrial shipyards and refineries, container terminal and storage facilities, as well as the former Long Beach Naval Shipyard. Three marinas are located in the vicinity of the Schuyler Heim Bridge within the project area.

The Schuyler Heim Bridge is the crossing means for SR-47 over the Cerritos Channel in the Port of Long Beach. The Cerritos Channel is used primarily as a deep water path for the transport of cargo between the Los Angeles and Long Beach Harbors. Within the project limits, the navigable portion of the Cerritos Channel is approximately 99 meters (m) (325 feet [ft]) wide, contains depths ranging up to 15.2 m (50 ft) at its center, and is lined with concrete and riprap. The existing navigable width of the channel beneath the bridge is 54.9 m (180 ft) between columns. The Dominguez Channel/Consolidated Slip within the project limits is a narrow riprap-lined channel ranging from approximately 38 m (125 ft) to less than 106.6 m (350 ft) in total width. Mean water depths within the channel are shallow, less than 4 to 6 m (<20 ft), and bottom sediments consist of more than 90 percent clay.

3.10.2.1 Historical Background

3.10.2.1.1 Area 1 (Pier A)

Area 1 is located east of the project site, on the north side of Cerritos Channel. Groundwater beneath Area 1 is first encountered between 0.30 m and 3.05 m (1 ft and 10 ft) below ground surface (bgs). The semiperched groundwater flow direction in the northern portion of Area 1 is generally toward the southwest, with varying groundwater flow directions toward the north and west in the southern portion of Area 1, as shown in Figure 3.10-1.

The former TCL Corporation (TCL) operated a disposal facility in Area 1 that reportedly accepted primarily oil field waste and tank bottom sludge from 1951 to 1972. Benzene concentrations (60 to 152 micrograms per liter [μg/L]) historically have been detected at higher concentrations in the northeastern portion of Area 1.

3.10.2.1.2 Area 2

Area 2 is located north and west of the project site (Figure 3.10-1). This property is partially vacant and is currently being developed by the Port of Long Beach. Groundwater beneath Area 2 is first encountered between 0.30 m and 3.05 m (1 ft and 10 ft) bgs. The semiperched groundwater flow direction is generally to the east, toward the project site.

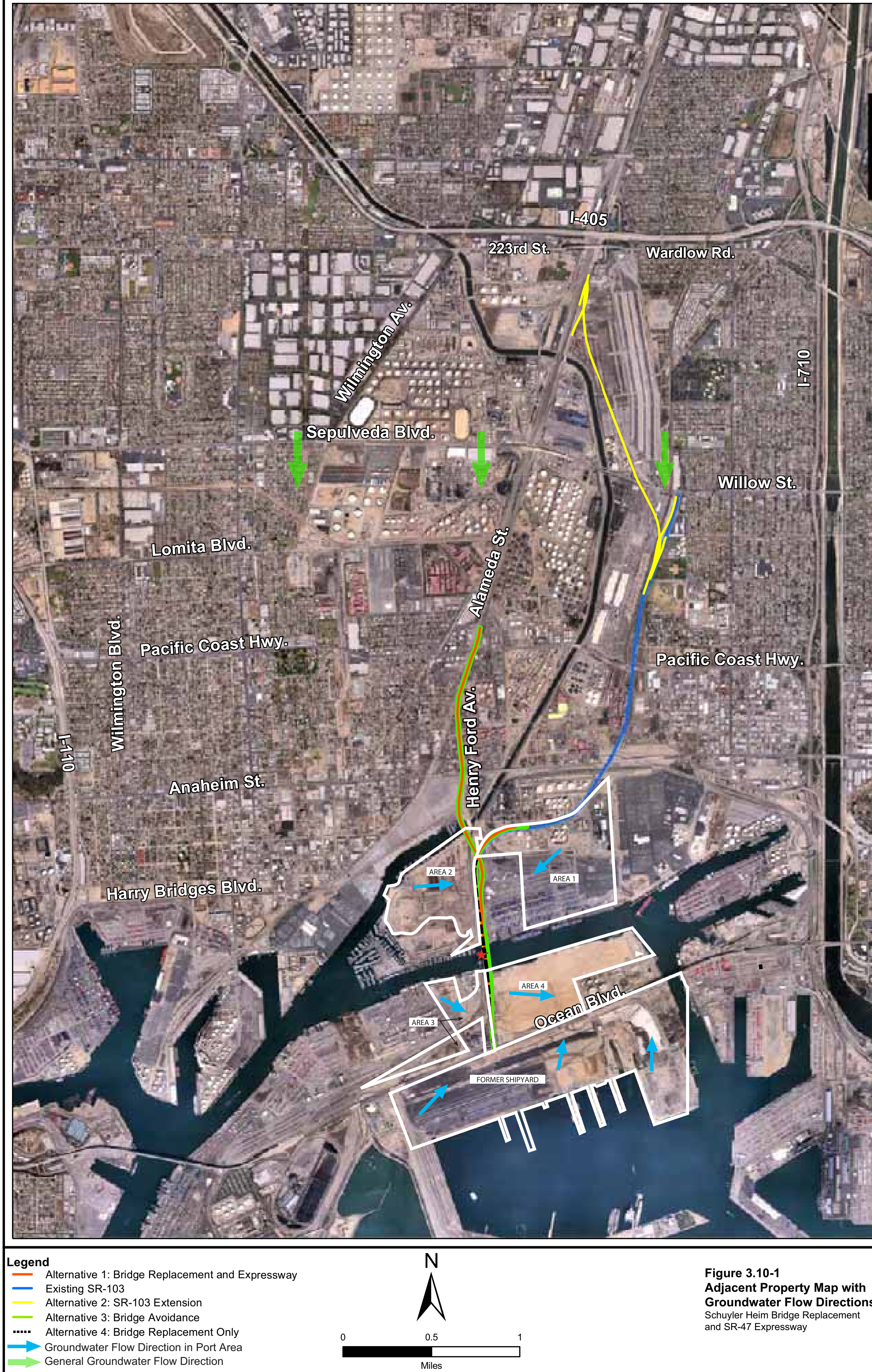


Figure 3.10-1
Adjacent Property Map with Groundwater Flow Directions
Schuyler Heim Bridge Replacement and SR-47 Expressway

As part of an initial Phase II Environmental Site Investigation for the Henry Ford Avenue Grade Separation Project (Grade Separation Project), six groundwater samples were collected from the semiperched groundwater zone in Area 2. Total recoverable petroleum hydrocarbons (TRPH) was detected at concentrations (ranging from 1,000 to 52,000 μg/L) in excess of National Pollutant Discharge Elimination System (NPDES) daily maximum limits. Volatile organic compounds (VOCs) were also detected; however, the concentrations were all below the NPDES daily maximum limits with the exception of benzene (5 μg/L in one sample). Total dissolved solids (TDS) levels (ranging from 1,750 to 21,500 milligrams per liter [mg/L]) exceeded the NPDES daily maximum limit and indicated brackish water underlying Area 2.

In the Supplemental Phase II Environmental Site Investigation for the Grade Separation Project, two groundwater samples were collected from the semiperched zone 3.05 m (10 ft) bgs in Area 2. Concentrations of VOCs (benzene and ethylbenzene), total petroleum hydrocarbon-diesel (TPH-d), TRPH, oil and grease, and metals were detected during this investigation. The following TPH-d, TRPH, and benzene concentrations were detected in excess of the NPDES daily maximum limits during this supplemental investigation:

- TPH-diesel (18,200 μg/L)
- TRPH (1,100 μg/L)
- Benzene (66.2 μg/L)

Four metals also were detected at concentrations exceeding NPDES daily maximum limits, including:

- Arsenic (114 and 125 μg/L)
- Total chromium (346 and 797 μg/L)
- Copper (1,040 μg/L)
- Lead (142 and 440 μg/L)

The following water quality parameters also exceeded NPDES daily maximum limits during this supplemental investigation:

- Total suspended solids (6,300 mg/L)
- Settleable solids (40 milliliters [mL]/L/hour)
- Turbidity (5,290 nephelometric turbidity units [NTU])

3.10.2.1.3 Area 3

Area 3 is located directly west of the project site, on the south side of Cerritos Channel, and is divided into two parcels. One parcel is located west of the Dow Chemical Company and north of New Dock Street, and the second parcel is located south of New Dock Street. Groundwater beneath Area 3 is first encountered between 2.13 m and 4.27 m (7 ft and 14 ft) bgs. The semiperched groundwater flow direction is south to southeast in the northern portion of the property, and southeast to east in the southern portion of the property, as shown in Figure 3.10-1.

In 1990, some metals, VOCs, and semivolatile organic compounds (SVOCs) were detected above reporting limits (RLs) in soil and groundwater at Area 3. Concentrations of some metals (cadmium, chromium, lead, and silver) and VOCs (benzene and vinyl chloride) were detected in shallow groundwater samples in excess of NPDES daily maximum limits.

3.10.2.1.4 Area 4 (Pier S)

Area 4 is located on the south side of the Cerritos Channel, directly east of the Schuyler Heim Bridge. This area is currently being developed by the Port of Long Beach as Pier S. Groundwater beneath Area 4 is first encountered between 0.61 m and 1.83 m (2 ft and 6 ft) bgs. The semiperched groundwater flow direction is generally to the southeast, away from the project site, as shown in Figure 3.10-1.

A Remedial Action/Record of Decision was completed in April 1999, and a Remedial Investigation/Feasibility Study was completed in October 1999. Area 4 was originally part of the quarterly groundwater monitoring program conducted by the Port of Long Beach. All the monitoring wells, however, were abandoned in December 1999 due to construction activities in this area.

During the last quarterly groundwater monitoring event at Area 4 (December 1999), TDS was measured at levels ranging from 12,000 to 34,000 mg/L, which are in excess of the NPDES daily maximum limit. Metals (barium, molybdenum, and vanadium) were detected in the groundwater; however, no metals were detected at levels in excess of the NPDES maximum daily limits. No VOCs or SVOCs were present during the December 1999 quarterly groundwater monitoring event at Area 4.

3.10.2.1.5 Former United States Navy Long Beach Shipyard (Former Shipyard)

This property is located directly south of the project site on the southern side of Terminal Island within the Los Angeles and Long Beach Harbor districts. The former shipyard is bordered on the north by oil fields, on the east by salt water injection wells and the Long Beach Harbor, and on the west by Los Angeles Harbor. Sites 8, 9, 10, and 12 (considered areas of concern) lie along Ocean Boulevard in the northeastern portion of the former shipyard.

In 1992, the following constituents were reported at these sites:

- Site 8 – metals (arsenic)
- Site 9 – metals (arsenic); TRPH; and VOCs (1,1-dichloroethane [1, 1-DCA], 1,2-dichloroethane [1,2-DCA], tetrachloroethylene, and trichloroethene)
- Site 10 – metals (arsenic); TRPH; and VOCs (1,2-DCE and trichloroethene)
- Site 12 – metals (arsenic) and TRPH

Groundwater beneath the former shipyard is first encountered between 0.30 m and 3.05 m (1 ft and 10 ft) bgs. The semiperched groundwater flow direction is generally to the northeast, in the direction of the Cerritos Channel.

3.10.2.1.6 Existing Schuyler Heim Bridge

In 1997, Geocon Environmental Consultants, Inc. performed environmental engineering services to evaluate groundwater beneath the Schuyler Heim Bridge right-of-way. Three VOCs (toluene, ethylbenzene, and xylenes) were detected at concentrations above RLs during this investigation; however, no VOCs were detected in excess of the NPDES daily maximum limits. Six metals (arsenic, chromium, copper, lead, selenium, and silver) were detected at concentrations above RLs during this investigation; however, no metals were detected in excess of the NPDES daily maximum limits. TRPH concentrations were detected above RLs. The average concentration of TRPH detected during this investigation was 290 μg/L.

3.10.2.2 Groundwater Quality

3.10.2.2.1 Area 1 (Pier A)

Area 1 is currently undergoing quarterly groundwater monitoring by the Port of Long Beach. The September 2001 quarterly groundwater monitoring event indicated that VOCs, SVOCs, and metals are present in the groundwater at Area 1. TDS and turbidity were detected at levels in excess of NPDES daily maximum limits (1,000 mg/L and 150 NTU, respectively). TDS levels ranged from 6,790 to 120,000 mg/L; turbidity levels ranged from 17 to 360 NTUs during the quarterly monitoring event.

Seven metals were detected above RLs during the quarterly monitoring event, including arsenic, barium, cadmium, copper, silver, vanadium, and zinc. Only concentrations of cadmium (30 μg/L) and silver (110 μg/L), however, exceeded NPDES daily maximum limits.

Three groundwater monitoring wells (WSWAT-33, -34, and -40) contained free product during the quarterly monitoring event and, therefore, were not sampled. None of the groundwater monitoring wells sampled contained purgeable, extractable, or TRPH at levels above the RLs. One SVOC (benzoic acid) and several VOCs (benzene; 1, 1-DCA; 1,2-DCA; trans-1,2-dichloroethylene [trans-1,2-DCE]; cis-1,2-dichloroethylene [cis-1,2-DCE]; and vinyl chloride) were also detected above RLs during the quarterly monitoring event. The following VOCs exceeded NPDES daily maximum limits:

- 1,1-DCA (8.9 μg/L) in one sample
- 1,2-DCA (9.4 μg/L) in one sample
- Benzene (3.5 μg/L) in one sample
- Vinyl chloride (10.8 and 210 μg/L) in two samples

Based on the September 2001 quarterly groundwater monitoring event, the following constituents are present in groundwater beneath Area 1 at concentrations in excess of NPDES daily maximum limits: TDS, turbidity, cadmium, silver, 1,1-DCA, 1,2-DCA, benzene, and vinyl chloride.

3.10.2.2.2 Area 2

Area 2 is also undergoing quarterly groundwater monitoring by the Port of Long Beach. TDS (ranging from 12,400 to 63,600 mg/L) and turbidity (240 NTUs) were detected at levels in excess of NPDES daily maximum limits (1,000 mg/L and 150 NTU, respectively) during the September 2001 quarterly groundwater monitoring event. Concentrations of some metals (barium and copper) were detected above RLs; however, no metals detected were in excess of NPDES maximum daily limits. No purgeable, extractable, or total TRPHs were detected above RLs during the quarterly monitoring event. No VOCs or SVOCs were detected. Based on the September 2001 quarterly groundwater monitoring event, TDS and turbidity are present in groundwater at Area 2 at levels in excess of NPDES daily maximum limits.

3.10.2.2.3 Area 3

Area 3 is also undergoing quarterly groundwater monitoring by the Port of Long Beach. TDS levels (ranging from 27,000 to 31,300 mg/L) exceeded NPDES daily maximum limits (1,000 mg/L) during the September 2001 quarterly groundwater monitoring event. Concentrations of two metals, barium (110 and 100 μg/L) and copper (160 μg/L), were detected above RLs. No metals were detected, however, at concentrations in excess of the NPDES daily maximum limits. No purgeable, extractable, or total TRPH were detected above RLs. No VOCs or SVOCs were detected. The September 2001 quarterly groundwater monitoring event at Area 3 indicated only TDS at levels in excess of the NPDES daily maximum limit.

3.10.2.2.4 Area 4 (Pier S)

In April 2000, Harding Lawson and Associates (HLA) performed an Expanded Groundwater Investigation and Risk Assessment of the Terminal Island Deep Benzene Plume (at Pier S) for the Port of Long Beach. Benzene was detected at depths ranging from approximately 15 m to 40 m (50 ft to 130 ft) bgs in the majority of groundwater samples collected during this investigation. The highest concentrations generally were detected between 15 m to 31 m (50 ft and 102 ft) bgs. Benzene concentrations ranged from 2.6 to 1,050 μg/L, which exceed the NPDES daily maximum limit.

Although benzene was detected beneath Area 4, the direction of groundwater flow at Area 4 is to the southeast, away from the project site.

3.10.2.2.5 Former United States Navy Long Beach Shipyard

The following constituents were detected at concentrations in excess of the NPDES daily maximum limits in the former Naval Shipyard:

- Arsenic (55.1 μg/L)
- TRPH (ranging from 110 to 9,330 μg/L)
- 1,1-DCA (ranging from 6 to 15 μg/L)
- 1,2-DCA (ranging from 5 to 190 μg/L)
- Tetrachloroethylene (ranging from 10 to 26 μg/L)

3.10.2.2.6 Existing Schuyler Heim Bridge Right-of-Way (ROW)

Only TRPH concentrations were detected within the existing Schuyler Heim ROW in excess of the NPDES daily maximum limits during this investigation.

3.10.2.3 Surface Water Quality

The Dominguez Watershed is comprised of approximately 110 square miles of land in the southern portion of Los Angeles County. The Dominguez Watershed boundary is defined by a complex network of storm drains and smaller flood control channels terminating at the Consolidated Slip in Los Angeles Harbor. The Dominguez Channel extends from the Los Angeles International Airport to the Los Angeles Harbor and drains large, if not all, portions of the Cities of Inglewood, Hawthorne, El Segundo, Gardena, Lawndale, Redondo Beach, Torrance, Carson, and Los Angeles. The remaining land areas within the watershed drain to several debris basins and lakes or directly to the Los Angeles and Long Beach Harbors. Tributaries to Dominguez Channel include several storm drains and minor channels. Approximately 96 percent of the watershed area is developed; and the overall land uses are transportation, commercial, industrial, and residential. From the 1910s until today, millions of gallons per day of industrial wastewater have been discharged into the Dominguez Channel. All current discharges are monitored and regulated as part of the NPDES permit system, as administered by the Regional Water Quality Control Board (Regional Board).

The Cerritos Channel flows through the Inner Long Beach Harbor into the Pacific Ocean and is highly impacted by tidal fluctuations, although Terminal Island tends to diminish this effect. During neap tides (occurring at the first and the third quarters of the moon), water flows west and southwest from the Cerritos Channel into the East Basin. There are no surface bodies of water used as drinking water sources within a 6.43-km (4-mi) radius of the project site.

Selected aspects of the water quality of the Los Angeles and Long Beach Harbors were evaluated in a recent (2000) survey by MEC Analytical Systems Inc. Quarterly monitoring was conducted to assess spatial and temporal changes in water temperature, salinity, dissolved oxygen, pH, and water clarity (transmissivity). Results of this survey suggested that the water quality in the Los Angeles and Long Beach Harbors and Consolidated Slip was within the normal ranges expected for estuarine and near-coastal waters throughout the survey.

3.10.2.4 Oceanography

3.10.2.4.1 Cerritos Channel

The quality of the Cerritos Channel sediment in the vicinity of the Schuyler Heim Bridge has been recently characterized using collections from deep and shallow cores. Surface samples of the top 6 inches of sediment were collected on January 8, 2002, and are representative of current surface conditions around the Schuyler Heim Bridge.

Sediment cores to 5.5 m (18 ft) deep were collected in 1994 during the Henry Ford (Badger Avenue) bridge replacement project. These sediment cores were collected for the railroad bridge less than 30.5 m (100 ft) immediately to the west of the Schuyler Heim Bridge. Although older, the 1994 core samples are appropriate for characterizing the current deeper sediments of the Schuyler Heim Bridge site. Compared to surface sediments, deeper sediments are much less likely to change in quality over time.

Both sets of sediment samples are representative of the quality of sediment that may be expected to be resuspended during project construction. The depth of sediment disturbance is currently unknown; however, it is reasonable to expect that sediments must be penetrated at least as deep as these samples in setting piles or installing and removing sheet pile cofferdams.

The 1994 deep samples were collected using vibracores, and the 2002 surface sediment samples were collected by hand by divers. Table 3.10-3 presents the results of the recent sampling of surface sediments near the Schuyler Heim Bridge, along with the deeper strata of the 1994 cores.

A full range of pesticides, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) were examined from the sediment samples; but only those constituents with detected values are shown in Table 3.10-3. In general, there is a pattern of the highest contaminant concentrations occurring in the four surface samples, followed by the three 1.2-m to 3.0-m (4-ft to 10-ft) deep samples, followed by the single deeper sample from 2.7 m to 5.3 m (9 ft to 17.5 ft). This same pattern was apparent in the 1994 deep core samples. The exception was that many of the top section samples (top 1.5 m to 3 m [5 ft to 10 ft]) were higher in concentrations of metals, dichlorodiphenyl dichloroethylene (DDE), and PAHs than the current surface samples shown in Table 3.10-3. Although surface sediments appear to be more contaminated than the deeper sediments (as was also noticed in the 1994 study), they also appear to be variably less contaminated than surface layers that were sampled in the 1994 study.

Table 3.10-3
Sediment Chemistry for Detected Chemicals in the Vicinity of the Schuyler Heim Bridge
Cerritos Channel, Port of Long Beach

		Average Concentrations		
Sediment Constituent	**Units**	**4 Samples (Surface)[a]**	**3 Samples (4-10 feet)[b]**	**1 Sample (9-17.5 feet)[b]**
Percent solids	%	43	63	68
Total organic carbon (TOC)	%	2.0	1.3	0.5
Aluminum	mg/kg	28,450	NS	NS
Arsenic	mg/kg	NS	6.4	5.5
Cadmium	mg/kg	NS	0.4	ND
Chromium	mg/kg	67	57	31
Copper	mg/kg	122	39	18
Lead	mg/kg	54	31	10
Mercury	mg/kg	0.12	0.23	0.2
Nickel	mg/kg	40	23	14
Zinc	mg/kg	227	96	52
4,4'-DDE	µg/kg	23.25	0.65	8.50
Anthracene	µg/kg	129	83	ND
Benzo(a)anthracene	µg/kg	485	82	90
Benzo(a)pyrene	µg/kg	595	67	70
Benzo(b)fluoranthene	µg/kg	660	157	160
Benzo(g,h,i)perylene	µg/kg	323	ND to 53	ND
Benzo(k)fluoranthene	µg/kg	315	54	60
Chrysene	µg/kg	563	127	110
Fluoranthene	µg/kg	695	463	240
Indeno(1,2,3-cd)pyrene	µg/kg	355	ND to 27	ND
Phenanthrene	µg/kg	268	92	75
Pyrene	µg/kg	783	520	460

Table 3.10-3
Sediment Chemistry for Detected Chemicals in the Vicinity of the Schuyler Heim Bridge
Cerritos Channel, Port of Long Beach

		Average Concentrations		
Sediment Constituent	**Units**	**4 Samples (Surface)[a]**	**3 Samples (4-10 feet)[b]**	**1 Sample (9-17.5 feet)[b]**
Naphthalene	µg/kg	ND	ND to 27	34
Total PAHs	µg/kg	5,169	1,645	1,299

[a]Surface sediment samples from January 9, 2002.
[b]Vibracore samples from 1994 Badger Avenue Bridge Study.
ND below method detection limit (If ND is greater than 50 percent of values, then range is shown instead of average)
NS not sampled
mg/kg milligrams per kilogram
µg/kg micrograms per kilogram

3.10.2.4.2 Consolidated Slip/Dominguez Channel

Based on sediment concentrations of dichlorodiphenyl trichloroethane (DDT), PCB, cadmium, copper, lead, mercury, zinc, dieldrin, chlordane (all exceed sediment quality guidelines), sediment toxicity, and degraded benthic infaunal community, the Consolidated Slip/Dominguez Channel is considered to be a toxic hot spot by the State Water Quality Control Board (SWQCB) Bay Protection and Toxic Cleanup Program (BPTCP). Numerous sediment characterization studies have identified elevated levels of inorganic and organic contaminates in sediment and resident organisms from this area. The contaminants of concern (COC) in the Consolidated Slip/Dominguez Channel have been identified as:

3.10.2.4.2.1 Inorganics

- Copper
- Lead
- Mercury
- Zinc

3.10.2.4.2.2 Organics

- DDT and derivatives (DDE and dichlorodiphenyl dichloroethane [DDD])
- PAH
- PCB

DDT and its metabolites were determined to be primary chemicals of ecological concern. The Consolidated Slip currently is listed as a Clean Water Act Section 303(d) impaired water body. In sediment samples obtained in 2002, concentrations of total DDT (tDDT) and benzene hexachloride (BHC) isomers, were determined from shallow surface sediments collected within the Consolidated Slip downstream of the Dominguez Channel. These concentrations are shown in Table 3.10-4.

Comparisons of sediment concentrations of tDDT and BHC data from samples collected in 1994 and 2002 indicated that sediment contaminant loads in the Dominguez Channel have moved downgradient, indicating a buildup of sediment contaminants in the Consolidated Slip.

Concentrations of COCs collected from stations immediately downstream of Henry Ford Avenue (Stations CS-1 through CS-3) during October 2002 studies of deeper sediments (to 6 m [20 ft]) from the Consolidated Slip are shown in Table 3.10-5 (AMEC, 2003).

The results of sediment sampling for several chemical constituents indicate that the maximum concentrations observed in Consolidated Slip sediments exceed the effect range median (Environmental Effects-Moderate [ERM]) values established by the National Oceanic and Atmospheric Administration (NOAA).

Table 3.10-4
Concentrations of tDDT and BHC Isomers Detected in Sediments Within the Consolidated Slip in 2002

	Geometric Mean Concentrations (µg/kg Dry Weight [DW])					
Sediment Parameter	**Surface (<0.5 feet)**	**N**	**0.5 to 3.0 feet**	**N**	**>3.0 feet**	**N**
α-BHC	14.96	5	9.49	6	15.26	6
β-BHC	18.28	5	8.67	6	9.5	6
δ-BHC	25.56	5	9.59	6	10.37	6
γ-BHC (Lindane)	8.68	5	6.61	6	12.46	6
tDDT	475.37	5	142.40	6	106.96	6

µg/kg micrograms per kilogram

Table 3.10-5
Range of Concentration of Contaminants of Concern Measured From Sediments Collected From the First Three Sampling Stations Within the Consolidated Slip Downstream of Henry Ford Avenue From Depths of 0-20 feet

Sediment Constituent	Copper	Lead	Mercury	Zinc	Total DDTs	Total PAHs	Total PCBs
Units	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**µg/kg**	**µg /kg**	**µg /kg**
Station CS-1	25 to 49	6.8 to 21	0.059 to 0.18	57 to 100	ND to 3.8	ND to 1,300	20.7 to 27.2
Station CS-2	12 to 3,600	4.1 to 2,700	0.038 to 4.3	42 to 5,400	ND to 1,209	63 to 680,000	20.3 to 160.7
Station CS-3	19 to 1,800	7.1 to 2,900	0.039 to 8.8	64 to 4,000	ND to 1,922	19 to 180,000	18.8 to 1,645

ND below detection limit
mg/kg milligrams per kilogram
µg/kg micrograms per kilogram

Average concentrations (based on data collected over the past 10 years) were close to or greater than the NOAA ERM values for copper, lead, mercury, DDT, PCB, and chlordane. Sediment samples were compared to effect range median quotients (ERMQs).

Results indicated that high concentrations of chlordane and total PCBs were causing high ERMQ values in the Consolidated Slip.

3.10.2.4.3 Sediment Distribution and Settling Characteristics

Sediment samples taken from the project site in Cerritos Channel also have been analyzed for grain size distribution and settling characteristics. Particle size analyses were conducted on four samples according to standard methods (American Society for Testing and Materials [ASTM] D-422). Results of these analyses are summarized in Table 3.10-6. The results indicate that the sediment taken in January 2002 contains a significant percentage (greater than 80 percent) of coarse silt (0.0625 millimeter [mm]) and finer material.

The sediment grain size distribution for sediments collected within the Consolidated Slip are shown in Table 3.10-7. Results indicate that the sediment taken in January 2000 from the Consolidated Slip contains a significant percentage of silt (52+ percent) and clay (27+ percent) and finer materials (combined greater than 80 percent).

Table 3.10-6
Cumulative Percent Passing Standard Sieves
Cerritos Channel, Port of Long Beach

STD Sieve (mm)	Sample 1 %	Sample 2 %	Sample 3 %	Sample 4 %
0.85	97.2	97.3	98.4	98.7
0.425	93.8	95.4	97.3	96.4
0.18	90.6	92.4	95.1	94.2
0.15	89.7	90.8	94.1	93.3
0.075	85.6	81.9	85.7	87.9
<0.075	85.4	81.1	85.1	87.4

mm millimeter

Table 3.10-7
Sediment Grain Size Characteristics for Consolidated Slip, January 2002

Depth (m)	18
Median Size (phi)	5.90
Median Size (microns)	16.74
Dispersion	2.98
Skewness	0.28
% gravel	0.00
% sand	19.88
% silt	52.36
% clay	27.77
% coarse	0.01
% fines (silt + clay)	80.12

The extent of transport of a turbidity plume is a function of the settling velocity of the particles contained in the plume. Table 3.10-8 presents settling velocities for a full range of sediment sizes for saltwater. The settling velocities were calculated with standard equations adjusted for the viscosity of saltwater.

As shown in Table 3.10-8, settling velocities of silt and clay-sized particles are exceedingly small. Silt particles can remain in suspension for several hours or days. Clay particles, with settling velocities of less than 1 m (3.2 ft) per day, can remain in suspension for weeks, months, or longer. Table 3.10-9 shows the time required for sediment at the lower end of the size range to settle through a 13.4-m (44-ft) water column (the approximate depth of the Cerritos Channel at the project site).

Hydrometer studies were also performed on the four sediment samples collected at the project site in Cerritos Channel. These studies involved placing a known amount of sediment in a vertical column of water, and measuring the change in density of the sediment/water mixture over time. As some material settles out of suspension, the density of the mixture decreases. The measured density can be converted into the weight of material remaining in suspension.

Table 3.10-8
Settling Velocities for Various Sediments in Saltwater

Sediment Description	Size Range (μm)		Settling Velocity (cm/s)
	Upper	Lower	
Sand, Coarse	1000	500	1.88E+01
Sand, Medium	500	250	8.92E+00
Sand, Fine	250	125	3.65E+00
Sand, Very Fine	125	62.5	6.54E-01
Silt, Coarse	62.5	31.25	3.93E-01
Silt, Medium	31.25	15.625	1.05E-01
Silt, Fine	15.625	7.813	2.50E-02
Silt, Very Fine	7.813	3.906	5.44E-03
Clay, Coarse	3.906	1.953	1.12E-03
Clay, Medium	1.953	0.977	2.26E-04
Clay, Fine	0.977	0.488	4.71E-05
Clay, Very Fine	0.488	0.244	1.06E-05

μm micron
cm/s centimeters per second

Table 3.10-9
Time Required for Various Sediments to Settle to the Bottom of the Cerritos Channel
Port of Long Beach (44 feet, total depth)

Sediment Description	Sediment Fraction (%)	Settling Time	Units
Sand, Very Coarse	2.1[a]	18	Seconds
Sand, Coarse		1.2	Minutes
Sand, Medium	2.2	2.5	Minutes
Sand, Fine	2.6	6.1	Minutes
Sand, Very Fine	7.8	34.2	Minutes
Silt, Coarse	84.8[b]	57.0	Minutes
Silt, Medium		3.6	Hours
Silt, Fine		14.9	Hours
Silt, Very Fine		2.9	Days
Clay, Coarse		13.5	Days
Clay, Medium		2.3	Months
Clay, Fine		11.0	Months
Clay, Very Fine		4.0	Years

[a]Estimated % fraction for very coarse and coarse sand sediment fractions combined.
[b]Estimated % fractions for silt and clay sediment fractions combined.

The results of the hydrometer investigations show the percent of original material remaining in suspension for various times up to one day. These results are the average of the four samples. Note that almost 30 percent of the sediment is still in suspension after one day. Because the hydrometer is approximately 0.3 m (1 ft) tall, the results indicate that approximately 30 percent of the material has a settling velocity of less than 0.3 m (1 ft) per day. This settling speed corresponds to a medium clay-sized particle. The hydrometer studies confirm that the silt and clay-sized particles present in the sediment will remain in suspension for periods on the order of days and longer (see Table 3.10-9).

3.10.3 Environmental Consequences

3.10.3.1 Evaluation Criteria

Project alternatives effects to water quality and stormwater runoff were evaluated to determine if they would:

- Substantially reduce ability to achieve water quality standards and objectives.
- Cause a degradation in water quality from on-site stormwater discharges due to project construction and operation.

3.10.3.2 Methodology

Evaluations in this section were based on professional standards and results from technical reports prepared for the project alternatives. This analysis assumes that the project proponent will conform to City of Los Angeles building standards, grading permit requirements, and erosion control requirements. This analysis also assumes that all disclosed project effects apply to construction at both the interchange and bridge sites unless otherwise indicated.

This evaluation was based on the *Water Quality Impacts Technical Study* (Caltrans, 2007). The key project-related hydrologic and water quality effects were identified and evaluated based on the physical characteristics of the study area and the magnitude, intensity, and duration of activities. Additional information was obtained from the *Storm Water Data Report* prepared by Caltrans (2007).

3.10.3.3 Evaluation of Alternatives

3.10.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.10.3.3.1.1 Construction Effects

Construction impacts focus on the effects on the water quality of increased stormwater runoff from combinations of the removal of the old Schuyler Heim Bridge, buildout of a new, fixed-span bridge, and construction of the SR-47 Expressway and the Ocean Boulevard/SR-47 Flyover (flyover).

Water quality in the Cerritos Channel and Consolidated Slip/Dominguez Channel are likely to be affected during project construction. Construction would occur in phases, including: earthwork; foundation laying; and installation of columns, false work, superstructure, and sound walls/retaining walls. Construction would include dredging, dewatering, concrete pouring, welding, paint removal, and other activities that have the potential to affect water quality. Complete prevention of these effects may be difficult due to complex site conditions that include limited space and other constraints. In general, the potential for construction effects would correspond to the type, location, and duration of activities in each construction stage. Construction of Alternative 1 includes BMPs, which will minimize effects to water quality and control runoff.

Surface Runoff

Surface runoff will occur during construction of the new expressway and flyover and, if not controlled, could affect water quality in local receiving waters. Construction will include implementation of BMPs, which will control surface runoff and, therefore, minimize effects to water quality.

Erosion

Construction sites tend to disturb soil and promote erosion. The bed of the Cerritos Channel would be modified during construction of a replacement bridge, with the addition of fill material adjacent to abutments and/or new piers. Additionally, soil erosion from nearby areas dedicated to construction of the bridge approaches might allow surface runoff into the channel, which would transport solids material and increase TSS levels in the channel.

Pollutants

During construction of the bridge, in the worst-case scenario, runoff would not be contained on the structure itself but would be allowed free discharge into the Cerritos Channel. Any contaminant compounds in the runoff would be immediately discharged into the water. Pollutants could range from trash left on the constructed bridge span to fuels and oils that might have spilled onto it. Equipment that is operated in the construction area might leak petroleum compounds, which would contaminate the work site. Staging areas utilized for fueling equipment also are subject to this risk. Other concerns for discharge of materials that could degrade water quality include areas set aside for cleaning equipment. Elevated levels of phosphates, as well as suspended and dissolved solids, are additional potential consequences related to the construction of Alternative 1.

Lead-Based Paint

For the Los Angeles Harbor Department Henry Ford (Badger Avenue) Bridge Replacement Project (adjacent to the Schuyler Heim Bridge), an analysis was performed on potential effects of demolition activities surrounding removal of the existing bridge. The major concerns were paint, rust debris, and particulate matter being deposited in the channel. A chemical analysis of the paint chips on that bridge indicated high concentrations of lead (6,925 milligrams per kilogram [mg/kg]) and chromium (1,397 mg/kg). Both were well in excess of the total threshold limit concentration (TTLC) set by the CCR Title 22 (0.1 mg/kg and 0.5 mg/kg, respectively). The Schuyler Heim Bridge is expected to have similar characteristics, as it was built and maintained during the same approximate time period.

For Alternatives 1 and 1A, the contractor(s) will take appropriate measures to eliminate lead-based paint from reaching the receiving waters during the dismantling of the Schuyler Heim Bridge. If paint removal is necessary during the dismantling process, the contractor will comply with all applicable laws and regulations relative to its process to ensure protection of receiving waters.

Sediment

Alternative 1 requires demolition of the existing Schuyler Heim Bridge, construction of new structures over the Cerritos Channel and Consolidated Slip/Dominguez Channel, and on Terminal Island and along the SR-47 Expressway alignment on the mainland.

Along the SR-47 Expressway alignment, soil disturbances will occur with substructure excavation for cast-in-drilled-hole (CIDH) piles and for construction of several MSE ramps. Additional soil disturbances will occur at New Dock Street, Ocean Boulevard, Alameda Street, and Henry Ford Avenue. The disturbances will include, but not be limited to, 10 access ramps and side slopes, Alameda Street and 223rd Street widening, three laydown areas with stockpiles, and four BMP areas. Overall, soil stabilization and erosion control will be constructed on 2:1 slopes with concrete slope paving. The estimated total disturbed area for completion of the project is 12.8 hectares (31.6 acres). An estimated 5.4 hectares (13.3 acres) will be within Caltrans right of way.

Soil stabilization and sediment control practices will be provided throughout the rainy season (from October 1 until May 1). During the rainy season, the total active disturbed area of the project site will not be more than 12.8 hectares (31.6 acres); 5.4 hectares (13.3 acres) will be within Caltrans right of way. In addition, in accordance with the required NPDES permit, a Standard Urban Stormwater Mitigation Plan (SUSMP) will be implemented.

Measures provided in the SUSMP will be used to control peak storm water runoff rates, conserve natural areas, minimize pollutants of concern, protect slopes and channels, provide storm drain stenciling and signage, provide for appropriate trash storage, provide proof of ongoing BMPs, and meet design standards for treatment control BMPs.

Construction of new bridge footings would require disturbance of existing sediments on the channel bottom. The sediments on the channel bottom in the immediate area of the bridge are extremely light and unconsolidated (Table 3.10-10). Any construction work would result in some sediment resuspension and dispersal into the water column of the channel.

Two primary levels of construction would occur; heavy construction that would disturb sediment (such as excavation of the channel bottom or foundation demolition), and light construction with minimal sediment resuspension effects (such as driving cast-in-steel-shell [CISS] piles).

Table 3.10-10
Sediment Grain Size Characteristics for Consolidated Slip, January 2002

Depth (m)	18
Median Size (phi)	5.90
Median Size (microns)	16.74
Dispersion	2.98
Skewness	0.28
% gravel	0.00
% sand	19.88
% silt	52.36
% clay	27.77
% coarse	0.01
% fines (silt + clay)	80.12

To relate the surface and deeper sediment quality to eventual construction-related effects and water quality, the amount of resuspended sediment in the water column must be estimated, as well as the extent of the channel exposed to the resuspended sediment. The following discussion presents an analysis of sediment material suspended during construction activities within the Cerritos Channel.

Turbidity Plume Analysis

The farfield dilution model River Diffusion Farfield (RDIFF) was used to predict the dilution due to turbulent diffusion downstream of the project site. At least 80 percent of the surface sediment in Cerritos Channel is composed of silt and clay, similar to the Consolidated Slip/Dominguez Channel (Table 3.10-10). Small silt- and clay-sized particles are assumed to act as nonsettleable solids. Therefore, these particles would not settle while they are carried down the channel; their concentration would decrease due to turbulent diffusion.

Currents

Ambient currents at the project site govern the distance that the turbidity plume would be carried from the project site. Flow measurements taken in Cerritos Channel and channel geometry taken from nautical charts were used to calculate representative velocities in the channel. Flow measurements for three tidal conditions (spring tide, mean tide, and neap tide) were converted to current velocities by dividing the measured flow by the cross-sectional area of the channel. Results of the ambient current calculations are summarized in Table 3.10-11.

Table 3.10-11
Calculation of Peak Velocities in the Cerritos Channel for Various Tidal Conditions

Measured Peak Flow of Tide (cfs)	Channel Area in Ebb Direction (ft^2)	Channel Area in Flood Direction (ft^2)	Ebb Velocity		Flood Velocity	
			Ft/s	m/s	ft/s	m/s
6,839 (Spring)	33,000	22,000	0.194	0.059	0.290	0.089
5,167 (Mean)	33,000	22,000	0.157	0.048	0.235	0.072
2,792 (Neap)	33,000	22,000	0.085	0.026	0.127	0.039

cfs cubic feet per second
ft^2 square feet
ft/s foot per second
m/s meter per second

Table 3.10-12 depicts the distance that a plume would travel over the duration of a tidal cycle at various speeds. These calculations assume a flood tide duration of 6 hours and an ebb tide duration of 7 hours (ebb currents routinely persist longer than flood currents). For the maximum flood current, the plume would travel a distance of approximately 1,250 m (4,101 ft) upstream before the tide turns. The length of the Cerritos Channel between the Schuyler Heim Bridge and the western end is approximately 1,200 m (3,937 ft). This indicates that the turbidity plume would begin to turn back into the channel on the ebb tide once it reaches the end of the channel.

Table 3.10-12
Travel Distances for Given Current Speeds in Cerritos Channel

Maximum Ambient Current (m/s)[a]	Average Ambient Current (m/s)[a]	Flood Direction (W) Distance Traveled in 6 hours at Average Current Speed (m)	Ebb Direction (E) Distance Traveled in 7 hours at Average Current Speed (m)
0.09	0.058	1,244	1,452
0.08	0.051	1,106	1,290
0.07	0.045	968	1,129
0.06	0.038	829	968
0.05	0.032	691	806
0.04	0.026	553	645
0.03	0.019	415	484

[a] Based on velocities presented in Table 3.10-11.

These calculations are for the center of the plume. Dispersion in the direction of travel likely would bring a small fraction of the material beyond the confines of Cerritos Channel. However, the majority of the plume would be expected to remain within the channel, reversing direction with the tides until the particles disperse across the channel and eventually settle.

Model Predictions

The RDIFF model was used to investigate the impact of a variety of ambient current speeds and initial plume widths on sediment transport.

The fastest currents in Cerritos Channel are associated with flood tides during spring tide conditions. These currents move east to west in the channel and, because the channel west of the bridge is narrower than it is east of the bridge, the currents increase slightly in magnitude west of the bridge. Model results were presented for runs using the spring tide currents in the flood direction and are representative of worst-case conditions. The results are presented for a variety of initial plume widths, ranging from 3.1 m to 30.5 m (10 ft to 100 ft). Plumes with larger initial width would experience less dilution because there would be lesser opportunity for the plume to disperse laterally.

Figures 3.10-2 and 3.10-3 contain RDIFF model predictions for initial plume widths of 30.5 m, 15.2 m, and 3.1 m (100 ft, 50 ft, and 10 ft). These figures show contours of concentration as the plume is carried away from the project site by the ambient currents. The total width of the channel is 152.4 m (500 ft), and the approximate length of channel is 1,524 m (5,000 ft). The color scale shows percent of initial concentration as the plume disperses throughout the channel.

Resuspended Sediment Effects on Water Quality

The quality of surface sediment (Table 3.10-3) was multiplied by an assumed volume of resuspended sediment to yield an estimate of the initial concentration of total resuspended constituents in the water column under worst-case conditions. Those initial concentrations can be taken as the 100 percent initial concentration, as shown with the modeled channel dilutions in Figures 3.10-2 and 3.10-3.

Tables 3.10-13 and 3.1-14 indicate the estimated range of initial resuspended sediment concentrations of metals and organic compounds from each of the three layers tested (Table 3.10-3), compared to specific state of California water quality criteria (WQC) for those constituents. The WQC for metals and DDE are levels for the protection of aquatic life for acute exposure (acute exposure is considered due only to the temporary nature of the sediment plume). The WQC for organic compounds are for the protection of human health upon consumption of organisms. There are no comparable aquatic life protection criteria. Where an exceedance of a WQC is noted, there is a potential adverse impact with respect to water quality.

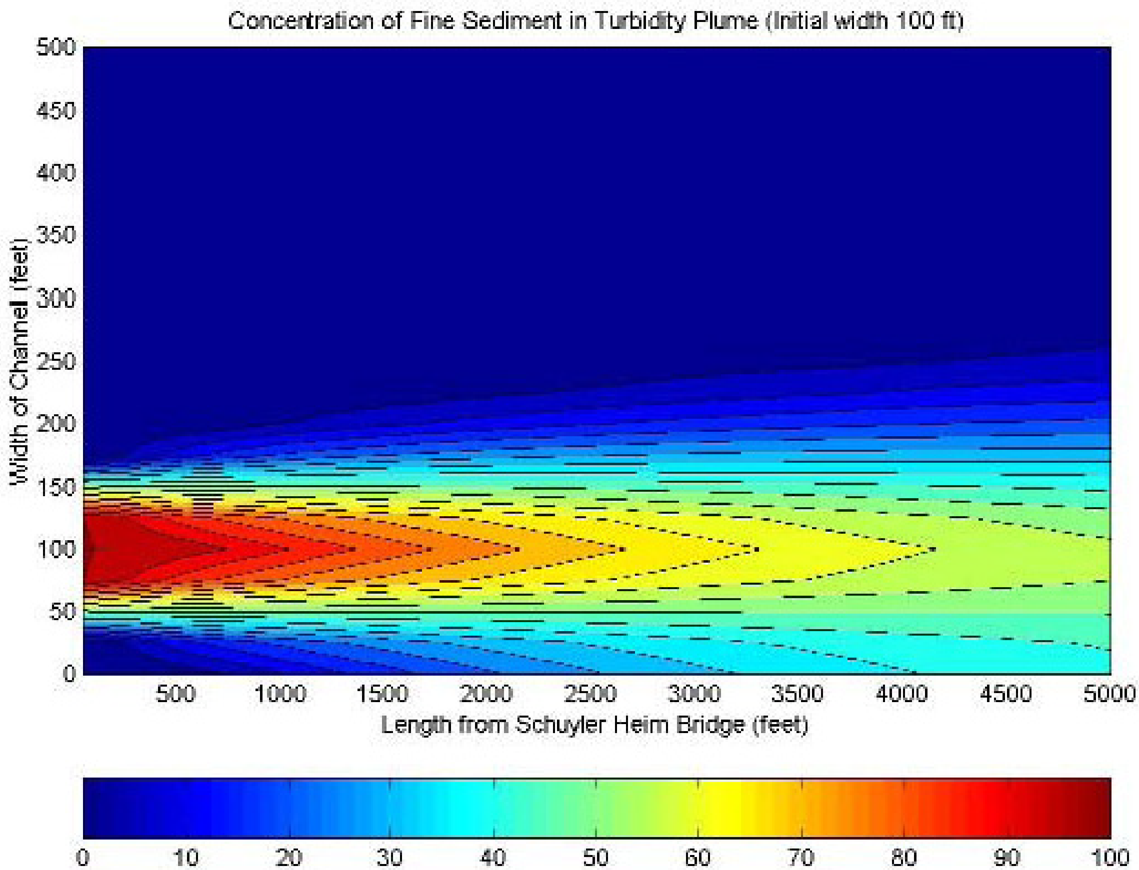


Figure 3.10-2
Predicted Spread of Turbidity Plume in Cerritos Channel with Initial Width of 100 feet
Schuyler Heim Bridge Replacement and SR-47 Expressway

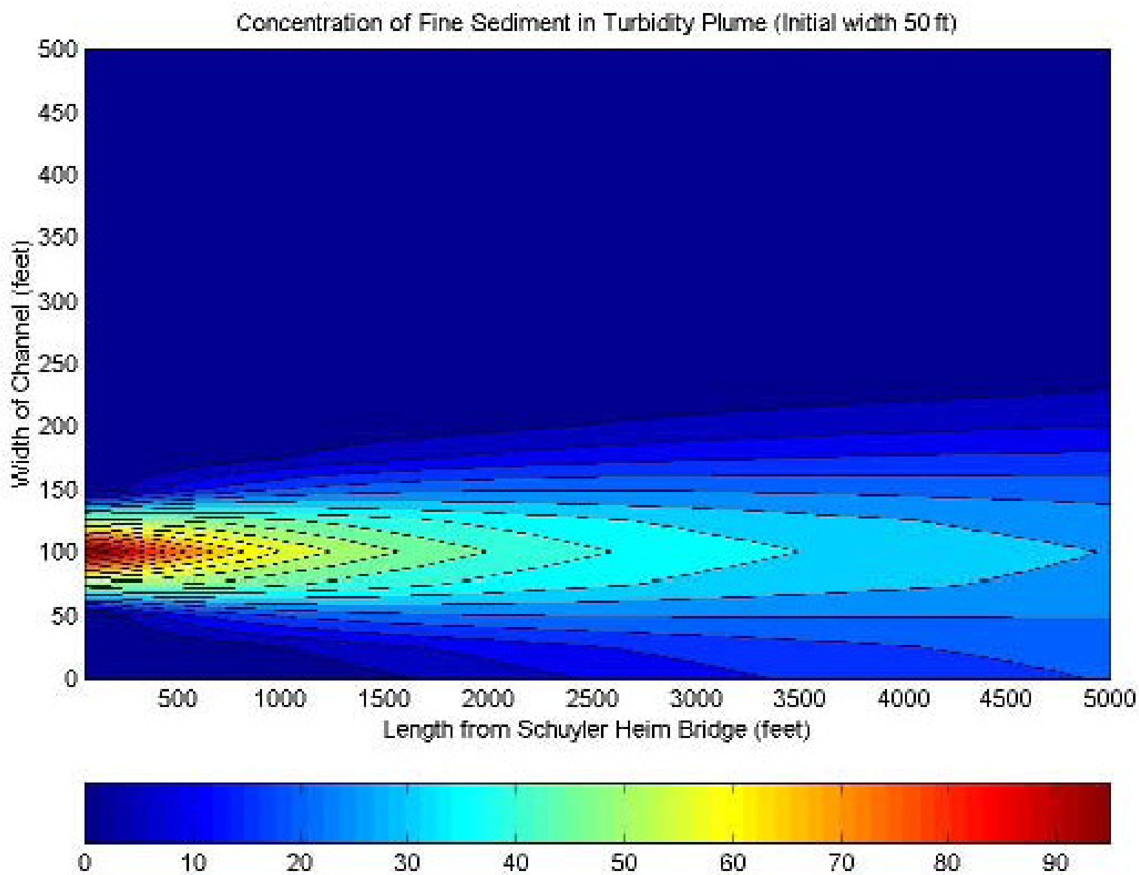


Figure 3.10-3
Predicted Spread of Turbidity Plume in Cerritos Channel with Initial Width of 50 feet
Schuyler Heim Bridge Replacement and SR-47 Expressway

Table 3.10-13
Resuspended Sediment Concentrations for Metals in Cerritos Channel

Sediment Constituent	Initial Resuspended Sediment Concentrations[a] (Total Recoverable)	Average Resuspended Sediment Concentrations[a,b] (Dissolved)	WQC[c]	Dilutions to Achieve WQC
Aluminum	790	NA	NC	NR
Arsenic	0.24 to 0.26	0.24 to 0.26	0.069	3.5 to 3.7
Cadmium	ND to 0.016	ND to 0.016	0.042	NR to 0.4
Chromium	1.36 to 2.32	1.35 to 2.30	1.1	1.23 to 2.09
Copper	0.79 to 3.38	0.66 to 2.81	0.0048	137 to 585
Lead	0.44 to 1.51	0.42 to 1.44	0.210	2.0 to 6.8
Mercury	0.003 to 0.009	0.003 to 0.008	0.0018	1.4 to 4.25
Nickel	0.61 to 1.11	0.60 to 1.10	0.074	8.2 to 14.9
Zinc	2.28 to 6.29	2.16 to 5.95	0.090	24 to 66

NA not available
ND below detection limit
NC no criteria
NR no dilution required
WQC Water Quality Criteria
[a]Concentration in milligrams/liter.
[b]Concentrations have been converted from Total Recoverable to Dissolved.
[c]From California Toxics Rule
Source: Caltrans, 2005

The estimated resuspended sediment volumes shown in Tables 3.10-13 and 3.10-14 correspond to a 1.5 cubic-meter (52.9 cubic-feet) volume of sediment (1 m by 3 m by 0.5 m [3.2 ft by 9.8 ft by 1.6 ft]). To acquire the sediment concentration of each constituent, that volume was multiplied by the percent solids fraction and the dry-weight density of the sediment to yield total weight (in kilograms [kg]) of material suspended. The total weight was then multiplied by the constituent concentration to yield the weight of the given suspended chemical (in milligrams [mg] or micrograms [μg]). Finally, that weight was divided by the volume of water in the water column, which measured 1 m by 3 m by 13.4 m (3.2 ft by 9.8 ft by 43.9 ft) (40.2 cubic [cu] meters [1,420 cu ft] equals 40,200 liters [10,620 gallons]), to yield estimated initial concentrations in the plume.

Table 3.10-14
Resuspended Sediment Concentrations for Organics in Cerritos Channel

Sediment Constituent	Initial Resuspended Sediment Concentrations[a] (Total Recoverable)	Average Resuspended Sediment Concentrations[a,b,c] (30-Day Avg.)	WQC[d]	Dilutions to Achieve WQC
4,4'-DDE	0.026 to 0.645	0.008 to 0.194	0.130	NR to 5
Anthracene	3.37 to 3.59	1.01 to 1.08	110,000	NR
Benzo(a)anthracene	3.32 to 13.46	1.0 to 4.0	0.049	68 to 275
Benzo(a)pyrene	2.69 to 16.52	0.81 to 4.96	0.049	55 to 337
Benzo(b)fluoranthene	6.34 to 18.32	1.9 to 5.5	0.049	129 to 374
Benzo(g,h,i)perylene	ND to 8.95	ND to 2.69	NC	NR
Benzo(k)fluoranthene	2.18 to 8.74	0.65 to 2.62	0.049	45 to 178
Chrysene	4.83 to 15.62	1.45 to 4.69	0.049	99 to 319
Fluoranthene	10.53 to 19.29	3.16 to 5.79	370	NR
Indeno(1,2,3-cd)pyrene	ND to 9.85	ND to 2.96	0.049	NR to 201
Phenanthrene	3.29 to 7.43	0.99 to 2.23	NC	NR
Pyrene	20.19 to 21.72	6.06 to 6.52	11,000	NR
Naphthalene	ND to 1.49	ND to 0.045	NC	NR

WQC is for DDT in water
ND below detection limit
NC no criteria
NR no dilution required
[a]Concentration in micrograms/liter.
[b]Concentrations have been converted from Total Recoverable to Dissolved.
[c]Concentrations are average daily values, based on the initial concentrations, for nine distinct channel construction activities into the channel bottom within a 30-day period.
[d]From California Toxics Rule
Source: Caltrans, 2005.

With the ebb and flow of the tide, a sediment plume would be developed. Given the distance to the ends of the Cerritos Channel, settlement of sediment, and the back and forth flow of tidal action, the sediment plume is expected to be largely confined to the channel. The worst-case sediment resuspension would occur if uncontrolled active construction occurred on the channel bottom.

For the expected initial plume of 3 m (10 ft) (corresponding to a localized source of sediment resuspension under uncontrolled heavy construction in the channel), the maximum ambient currents would carry the plume to the end of the Cerritos Channel before the tide and the plume reverse directions. A dilution of approximately 16 to 1 would be expected during a single trip from the project location to the end of the channel. Subsequent passes in following tides would increase the dilution. These calculations were performed assuming worst-case ambient currents associated with spring tide conditions. More commonly experienced tide conditions would produce smaller currents and would allow for more dispersion across the width of the channel before the plume would reach the end of the channel.

The initial suspended sediment concentration in the Cerritos Channel, listed in Table 3.10-13 and Table 3.10-14, would occur in the immediate zone of uncontrolled heavy construction, such as demolition of existing bridge foundations or excavations for new foundations. Other construction in the channel, such as driving steel sleeves for piles, would result in minimal sediment resuspension because active soil excavation would not occur. Rather, minimal sediment resuspension would occur at the sleeve-sediment interface as the sleeve is driven. It is estimated that pile driving in the Cerritos Channel for about 18 piles would occur over an estimated period of 2 months.

The results of the sediment resuspension analysis indicate that certain constituents would be suspended in concentrations in excess of the WQC for a short time before being diluted. Copper, zinc, and a number of the organic compounds (PAHs) fall into this category. Uncontrolled heavy construction in the channel would result in exceedances of the WQC for some metals and organic compounds. The WQC exceedances from uncontrolled heavy construction would result in acute temporary exposure to organisms. Activities such as pile driving would not be expected to result in substantial sediment resuspension or exceedances of WQCs.

Groundwater

Groundwater is not anticipated to be affected by surface construction activities for the SR-47 Expressway or the Ocean Boulevard/SR-47 Flyover, as Caltrans-owned right of way cannot discharge directly into municipal or domestic water supply reservoirs or groundwater percolation facilities. Also, the project site does not contain any City of Los Angeles, City of Long Beach, or Los Angeles County domestic water supply reservoirs or groundwater percolation facilities. Therefore, potential effects to groundwater from Alternative 1 construction activities are expected to be limited to construction of the replacement bridge over the Cerritos Channel and SR-47 Expressway bridge over the Consolidated Slip/Dominguez Channel.

The major effects of Alternative 1 construction would occur with removal and disposal of groundwater that has passively seeped into the channels. Construction of support structures on the south approach of a new bridge across the Cerritos Channel would use either the CIDH method or the CISS method for the support structure on the south approach. Similar methods would be used for construction of support structures for the elevated viaduct crossing the Consolidated Slip/Dominguez Channel. In the CIDH method, a hole is drilled, filled with slurry to prevent cave-ins, and then pumped with concrete (which displaces the slurry and is reused). The hole is expected to passively fill with groundwater, which would be removed prior to filling with slurry and concrete. The removed groundwater would then be disposed of properly. CIDH is not expected to affect groundwater movement because the slurry would prevent movement, and there would not be active dewatering aside from emptying the hole prior to filling with slurry.

In the CISS method, a steel sleeve is driven into the ground, the soil in the middle is excavated, and the shell filled with concrete. There would be minimal groundwater extraction with this method.

Because active dewatering is not anticipated during construction, groundwater movement is not expected to be adversely affected.

Additional discussion of groundwater effects may be found in Section 3.9 – Hydrology/Floodplains/Oceanography.

3.10.3.3.1.2 Operations Effects

Surface Runoff

Operational effects to water quality as a result of expressway operations are not expected to substantially differ from existing conditions, as the existing project area is largely covered by impervious surface. Stormwater runoff from the expressway and flyover would be collected and, as necessary, treated prior to release to remove oil and grease and other hazardous materials. Stormwater runoff will be conveyed through a series of new and existing drainage facilities into the Dominguez Channel and Cerritos Channel, which discharge into the San Pedro Bay near Long Beach.

Large tributary areas will catch substantial amounts of rainfall, requiring drainage from the elevated highway structure to the surface below using concrete curbs and gutters, drainage inlets, and an underground network of reinforced concrete pipes that connect to existing outfalls that drain into the Consolidated Slip/Dominguez Channel and Cerritos Channel. Collected stormwater will be directed to the existing underground drainage system via new column down drains. The new drainage system does not create or modify existing outlets to the channels.

Upon completion, Alternative 1 will result in little increase in the impervious surface of the project area, while maintaining total storm water runoff volumes at their existing levels. The amount of storm water collected in the southern portion of the project area is expected to increase slightly, as the flyover will widen Ocean Boulevard; the surface of the replacement bridge will not be significantly greater than the existing bridge. In the northern portion of the project area, the impervious area will remain constant. Water previously collected on Henry Ford Avenue will now fall on and be collected on the elevated expressway above, thereby eliminating rainfall on that portion of Henry Ford Avenue.

Because runoff volumes for the area will not increase, sediment loading also is not expected to increase. Therefore, adherence to the regulatory requirements and standard BMP control methods would reduce the likelihood of a reduction in local water quality, and operational effects on water quality would be minimal.

The drainage system described above for Alternative 1 will distribute the collected runoff into five separate BMP areas for water quality treatment. After treatment, the stormwater will drain into the exiting storm drain system and ultimately into the local channels. Surface run-on from offsite is not anticipated. However, any that may be collected in the drainage system will combine with the runoff and be treated accordingly.

The water quality treatment areas will have four biofiltration swales and four detention devices within approximately 12,900 square meters along the Alternative 1 right of way. The biofiltration swales will treat approximately 44 percent of the water flows, capturing metals, PAHs, pesticides sediment, and other toxic contaminants. After flowing through the swales, the treated stormwater will flow into the existing storm drain system and be pumped into San Pedro Bay.

The swales will be located along the Alternative 1 alignment as follows:

- Between New Dock Street, the SR-47 exit ramp at New Dock Street, and the Industrial Tracks
- Between Pier A Plaza Way and the SR-47 exit ramp at Henry Ford Avenue
- West of Henry Ford Avenue, north of the Dominguez Channel, south of the West Basin Lead Track, and east of the ACTA 1 and ACTA 2 Tracks.

The detention devices will treat approximately 40 percent of the water flows, with energy dissipaters at the inlets and impermeable basin liners to collect and sore runoff while pollutants are allowed to settle. After 60 hours, the detention devices will be drained to avoid vector breeding and propagation. After draining, the treated runoff will be pumped into the existing storm drain system and then into San Pedro Bay. The detention devices will be located along the Alternative 1 alignment as follows:

- Between New Dock Street, the SR-47 exit ramp at New Dock Street, and the Industrial Tracks
- Between Pier A Plaza Way and the SR-47 exit ramp at Henry Ford Avenue
- West of Henry Ford Avenue, north of the Dominguez Channel, south of the West Basin Lead Track, and east of the ACTA 1 and ACTA 2 Tracks
- Between Henry Ford Avenue on the west, Young Street on the south and east, and the Wilmington Wye Tracks on the north and east.

Surface runoff effects from the bridge structures on the water quality of the Cerritos Channel and Consolidated Slip/Dominguez Channel are expected to vary depending on:

- Incidental drippings from vehicles and accidental spills that introduce contaminant material or waste discharge from the bridge and its approach structures
- Bridge maintenance activities (i.e., bridge painting, surface treatments and surface cleaning, substructure repair, joint repair, repairing drainage structures and pavement repair, and repaving)
- Potential redirection of stormwater runoff (necessitated by channelization or grading of the terrain)

Surface runoff from Alternative 1 would flow into the Cerritos Channel and Consolidated Slip/Dominguez Channel. Pollutants that may be in the runoff include:

- Particulates from pavement wear and vehicles
- Metals such as zinc, lead, iron, copper, cadmium, chromium, nickel, and manganese
- Bromide (from leaded gasoline exhaust)
- Diesel fuel
- Tire wear
- Auto body rusting
- Metal plating
- Break lining wear

- Greases and lubricating oils from automobiles and trucks
- Trash discarded from vehicles and along the roadside
- Pathogenic bacteria (indicators) from soil, litter, bird droppings, and stockyard waste hauled by vehicles on the new bridge

The catchment areas were estimated for Alternative 1 based on the anticipated buildout of the bridge replacement itself, as well as the approach roadway on either side of the Cerritos Channel crossing. Inclusion of the approaches allows for the runoff estimate to be a conservative value, since it is likely that a large amount of the surface runoff produced at the approaches would not be deposited directly into the channel.

Table 3.10-15 presents the runoff estimates for the new fixed-span bridge that would be constructed under Alternative 1 (also Alternatives 1A, 2, 3, and 4).

Table 3.10-15
Calculation of Approximate Surface Runoff Flow Rates From New Bridge

Alternative	Catchment Area (acres)	Approximate Runoff Peak Flow (cfs)
Alternatives 1, 1A, 2, and 4 (Existing Alignment)	14.4	17.3
Alternative 3 (Realignment and existing Schuyler Heim Bridge)	26.4	31.7
Alternative 6 (No Build)	11.6	13.9
Cerritos Channel Basin	**1,500**	**1,800**

Note: Runoff peak flow determined using the Rational Method for alternatives
cfs: cubic feet per second

The flows presented in Table 3.10-15 are for a 25-year return-period storm. Alternative 1 would result in total of 0.49 cu m/s (17.3 cfs) of peak flow to the Cerritos Channel. In comparing the estimated runoff amount with the maximum design discharge for a 25-year storm for the entire Cerritos Channel, also presented in the table, it can be seen that the surface runoff from the bridge would represent a negligible portion of the overall drainage into the Cerritos Channel. Due to the minimal runoff contribution, pollutant loadings from the new bridge are expected to have a minimal effect on water quality in the Cerritos Channel.

Because the existing lift bridge would be replaced with an unpainted concrete structure, there would be no ongoing painting and maintenance and no sloughing of paint or release of contaminants into the Cerritos Channel.

In addition, the following are included in project design to protect water quality:

- Vegetated swales where pollutants are removed as the water sheet flows across
- Basins for detaining storm water for up to 48 hours as pollutants settle out
- Filtration system where the first chamber settles out the larger solids and the second changer traps hydrocarbons and metals as they pass through the filter media.

Groundwater
Permanent effects to the quality of the groundwater within Cerritos Channel and Consolidated Slip/Dominguez Channel would be minimal upon completion of the new bridge structures because there would not be any increase in the transport of pollutants into the groundwater through infiltration during the operational life of the new structures. For example, the sediment surface over which the Schuyler Heim Bridge is located is considered impervious, and the replacement bridge would not substantially change the nature or extent of the impervious surface. In addition, the new bridge would extend slightly onto the unpaved area east of the existing bridge. Although there would be a slight increase in impervious surfaces, the project area is not used for groundwater recharge. Therefore, effects to groundwater resources are not anticipated.

3.10.3.3.2 Alternative 2: SR-103 Extension to Alameda Street
3.10.3.3.2.1 Construction Effects
Under Alternative 2, potential construction effects to surface runoff, sediment, and groundwater during replacement of the Schuyler Heim Bridge would be the same as those described for Alternative 1.

Surface Runoff
Potential adverse effects on water quality of the Dominguez Channel could occur during construction of the expressway for the SR-103 Extension. These could include runoff from construction facilities, erosion of exposed soils, and runoff from nearby roads. However, due to the distance between the Dominguez Channel and the SR-103 Extension alignment, as well as the application of BMP to control surface runoff, these effects are expected to be minimal.

There also could be adverse effects on water quality of the Cerritos Channel during construction of the flyover. These could include runoff from construction facilities, erosion of exposed soils, and runoff from nearby roads. However, due to the application of BMP to control surface runoff, these effects are expected to be minimal

Groundwater
Existing contaminated groundwater in the project area could be encountered during excavation activities for pier foundations and footings for the new fixed-span bridge and SR-103 Extension. The contaminated water would require treatment prior to disposal.

3.10.3.3.2.2 Operations Effects
Surface Runoff
Operational effects to water quality as a result of expressway operations are not expected to substantially differ from existing conditions, as the project area is largely covered by impervious surface. Stormwater runoff from the expressway would be collected and, as necessary, treated prior to release to remove oil and grease and other potentially hazardous materials. Adherence to the regulatory requirements and standard BMP control methods would reduce the likelihood of a reduction in local water quality. Therefore, it is anticipated that operational effects on water quality would be minimal.

Groundwater

Alternative 2 would construct an elevated viaduct largely over existing rights of way. Because the project area is not used for groundwater recharge, effects to groundwater resources are not anticipated.

3.10.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.10.3.3.3.1 Construction Effects

Construction effects under Alternative 3 would be comparable to those for Alternative 1.

3.10.3.3.3.2 Operations Effects

Surface Runoff

Alternative 3 would create a new bridge to the east of the existing Schuyler Heim Bridge. This alternative would result in an additional 17.8 cfs of runoff to the Cerritos Channel. This amount of runoff is considered to be negligible when compared to existing drainage to the Cerritos Channel. Pollutant loading effects to water quality also are expected to be minimal.

Operations effects as a result of expressway operations would be the same as those described under Alternative 1.

Groundwater

As can be seen in Table 3.10-15, Alternative 3 would result in an additional 12 acres of impervious surface area. Because the project area is not used for groundwater recharge, effects to groundwater resources related to an increase in impervious area are not anticipated.

3.10.3.3.4 Alternative 4: Bridge Replacement Only

Construction and Operations effects under Alternative 4 would be the same as those related to replacement of the existing Schuyler Heim Bridge under Alternative 1.

3.10.3.3.5 Alternative 5: Transportation System Management

3.10.3.3.5.1 Construction Effects

Since the TSM Alternative would not include any major capital improvements, there would be negligible effects related to water quality and stormwater runoff.

3.10.3.3.5.2 Operations Effects

Under this alternative, the replacement bridge would not be constructed, and the existing Schuyler Heim Bridge would continue to operate. There also would not be a new expressway or flyover. Effects related to contaminated groundwater or surface runoff would not occur. Low levels of pollutants from current surface runoff from the existing bridge surface, painting of the steel truss members, and periodic introduction of paint material flaking from the bridge during the operational life of the bridge would continue.

3.10.3.3.6 Alternative 6: No Build

3.10.3.3.6.1 Construction Effects

Since no construction would occur under Alternative 6, no effects are anticipated.

3.10.3.3.6.2 Operations Effects

Under the No Build alternative, the operations effects would be the same as described above for Alternative 5.

3.10.3.3.7 CEQA Consequences

Based on the information provided in the above analysis, in accordance with CEQA criteria, impacts related to Water Quality and Stormwater Runoff under Alternatives 1, 2, 3, 4, and 5 would be less than significant. Under Alternative 6, no impacts would occur.

Potential impacts of the proposed project alternatives related to Water Quality and Stormwater Runoff are assessed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis, Appendix A – CEQA Checklist (VIII, Hydrology and Water Quality).

3.10.4 Avoidance, Minimization, and/or Mitigation Measures

3.10.4.1 Avoidance and Minimization Measures

3.10.4.1.1 Construction

3.10.4.1.1.1 Alternatives 1, 1A, 2, 3, and 4

Surface Runoff Measures

For Alternative 1, the final suite of surface runoff measures is expected to include those listed in the Hydrology, Floodplains, and Oceanography section of this document. Please see Section 3.9.4, **HY-1**.

Sediment Measures

Please see Section 3.9.4, **HY-2**.

Groundwater Measures

Please see Section 3.9.4, **HY-3**.

3.10.4.1.1.2 Alternatives 5 and 6

No avoidance and minimization measures would be required for Alternatives 5 and 6.

3.10.4.1.2 Operations

3.10.4.1.2.1 Alternatives 1, 1A, 2, 3, and 4

WQ-1 BMPs for surface runoff include construction of barriers at entry points to receiving waters to prevent large debris from entering the receiving water, and continuous monitoring of the new bridge structures for excessive buildup of debris that could be discharged in a precipitation event.

3.10.4.1.2.2 Alternatives 3, 5, and 6

Under Alternatives 3, 5, and 6, the Schuyler Heim Bridge would remain in place and would require ongoing maintenance. The following avoidance and minimization measures would apply.

WQ-2 Maintenance Activities. A Federal Highway Administration (FHWA) study concluded that most highway maintenance practices that could adversely affect water quality can be effectively minimized or reduced through readily available control practices or BMPs. An NCHRP report notes that fully enclosed containment structures are capable of recovering 85 to 90 percent of abrasives, paint particles, and dust for simple spans. However, this may not be feasible for bridges with high trusses or other complex structures.

The following BMPs will be continued as related to ongoing maintenance for existing Schuyler Heim Bridge:

- Remove excess grease from moving parts of bridges manually and collect it for disposal.
- Degrease prior to painting, and hydro-blast to remove old paint with additive-free water, where possible.
- Erect shrouds around working areas and suspend nets and tarps below bridges to catch debris from abrasive removal of old paint and over-spray from painting, where wind conditions permit.
- Anchor tarps to barges below and enclose the bridge above to confine debris, where the bridge deck is not too far above water level.
- Use barges and booms to capture fugitive floating paint chips and custom-built enclosures to confine and capture the abrasives, old paint chips, and paint.
- Use vacuum or suction shrouds on blast heads to capture grit and old paint.
- Carry out storing, mixing, and cleaning operations on land.
- Keep all materials securely locked up, to avoid vandalism and accidental spills into the watercourse.
- Schedule bridge maintenance to avoid egg incubation, juvenile rearing, and downstream migration periods of fish.

3.10.4.2 Mitigation Measures

Mitigation measures are not required for construction and/or operation of the project alternatives.

3 GSSPTb MRe

3 RSg

3 Fe

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

For paleontological resources, a number of federal statutes specifically address the treatment of these resources and funding for mitigation as a part of federally authorized or funded projects (e.g., Antiquities Act of 1906 [16 USC 431-433], Federal-Aid Highway Act of 1935 [20 USC 78]).

The National Environmental Policy Act of 1969 as amended (NEPA) requires the federal government to use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 US Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs final decisions for projects be made in the best overall public interest, taking into account adverse environmental effects, including the destruction or disruption of the natural environment, including soils, geology, and mineral resources.

NEPA implies the protection of significant paleontological resources under its mandate to "enrich the understanding of the ecological systems and natural resources important to the Nation"(Title 42 USC § 4321) and to "preserve important historic, cultural, and natural aspects of our national heritage" (Title 42 USC § 4331(b)(4).

3 Sa

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "…enjoyment of aesthetic, natural scenic, and historic environmental qualities" (California Public Resources Code Section 21001[b]). CEQA requires analysis of significant environmental effects of a project on the environment, including effects related to soils, erosion, topography, and geological hazards.

The state of California has adopted the International Building Code (IBC), based in large part on the older Uniform Building Code (UBC), for implementation in 2007. The IBC includes regulations for construction to avoid geotechnical hazards such as expansive soil, settlement, and slope instability. The code also includes standards and general parameters for seismic design.

In addition to the guidance provided by these codes, the California Geologic Survey (CGS) defines zones in which special engineering geologic studies are required. The Alquist-Priolo Act of 1972 was enacted to address the hazard and damage caused by surface fault rupture during an earthquake. The Act requires the State Geologist to identify and map the trace of active faults in California and to establish "earthquake fault zones" along these faults. Proposed development/ construction projects that will be implemented within one of these state-defined AP-Special-Studies Zones must address the potential for surface rupture from earthquake faulting.

In recognition of the effects of the Northridge earthquake, the legislature passed the Hazards Mapping Act that requires the CGS to prepare guidelines and maps for evaluation of seismic hazards other than surface fault-rupture, and to recommend mitigation measures. Special Publication 117 ([CDMG], 1997) provides guidelines for evaluation of seismic hazards, especially liquefaction and landslides.

The California Department of Occupation and Health promulgates regulations regarding earthwork safety, such as shoring in trenches, height and gradient of temporary excavation slopes, and tunnel construction safety procedures.

In the State of California, fossil remains are considered to be limited, nonrenewable, and sensitive scientific resources. These resources are afforded protection under the following State of California legislation (California Office of Historic Preservation 1983):

- California Environmental Quality Act of 1970 (CEQA)
- 13 Public Resources Code, 21000 et seq., requires public agencies and private interests to identify the potential adverse effects and/or environmental consequences of their proposed project(s) to any object or site important to the scientific annals of California (Division 1, Public Resources Code: 5020.1 [b])

Paleontological resources are protected under California law by CEQA, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5 (see Section 3.8 – Cultural Resources).

3 Lb

Geologic resources and geotechnical hazards in the project vicinity are governed primarily by local jurisdictions. The conservation and safety elements of the City of Los Angeles General Plan contain policies for the protection of geologic features and avoidance of geologic hazards (City of Los Angeles, 1996; 2001). Local grading ordinances establish detailed procedures for excavation and earthwork required during construction. In addition, building codes and building design standards establish requirements for construction of aboveground structures. Most local jurisdictions rely on the 1997 California Uniform Building Code (UBC) as a basis of seismic design. All local jurisdictions must comply with regulations of the Alquist-Priolo Act.

2 AfEbn

2 Pbg

Paleontological resources of the project area include rock units that underlie the ground surface and have a potential for yielding fossil remains. Some of these rock units are not exposed at the surface in the project area, but might occur at depths shallow enough that they would be encountered by earth-moving activities associated with project construction.

Fossils, the remains or indications of once-living organisms, are important scientific resources because of their use in: 1) documenting the evolution of particular groups of organisms; 2) reconstructing the environments in which they lived; 3) and determining the ages of the rock units in which they occur and of the geologic events that resulted in the deposition of the sediments constituting these rock units. Identifiable fossil remains recovered from the rock units present in the project area would be particularly important if they represented a new or rare species; geologic (temporal) or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; or a skeletal element different from, or a specimen more complete than, those now available for its respective species.

1 RgLGy

The project area lies at the southern margin of the Los Angeles coastal plain, a flat-lying alluvial plain underlain by comparatively unconsolidated, undisturbed, and undissected continental strata of Pleistocene and Holocene age (Jennings, 1962; Poland et al., 1956). The coastal plain, in turn, lies in the northwestern Peninsular Ranges Province, where major linear geographic features (mountains, valleys) and the underlying geologic structures (faults, folds) trend in a dominantly northwesterly direction (Jahns, 1954; Jennings, 1962). Regional surficial geologic mapping of the project area and vicinity is provided by Jennings (1958) at a scale of 1:250,000, and by Poland et al. (1956) at a scale of 31,680. These sources indicate that the entire project area is immediately underlain by Holocene alluvial and coastal deposits, which consist of silt, sand, and gravel in steam channels and beneath flood plains, and clay, silt, sand, and gravel along and near the coast (Poland et al., 1956). However, much of the area in and around the Los Angeles and Long Beach Harbors is covered by unmapped historic artificial fill.

The project site is located between the Transverse Range and Peninsular Range Geomorphic Provinces along the southwestern block of the Los Angeles Basin, which is approximately 80 kilometers (km) long, 32 km wide (50 miles [mi] long and 20 mi wide), and slopes gently to the southwest. The basin is bounded to the east by the Newport-Inglewood structural zone and to the west by the Pacific Ocean. The Port of Los Angeles is located adjacent to the east side of the Palos Verdes Hills, a structural block elevated along the Palos Verdes Fault.

Thick sequences of unconsolidated and semi-consolidated Quaternary marine and continental sediments are located within the Los Angeles Basin. These deposits are underlain by volcanic rocks and marine sedimentary rocks of early Pleistocene, Pliocene, and Miocene age over Jurassic to Late Cretaceous basement rocks. The approximate age of the various geologic units within the basin is shown in Table 3.11-1.

The basement complex is comprised of the metamorphic Catalina Schist facies of the Franciscan Formation (possibly Jurassic to Late Cretaceous), which is composed primarily of green chlorite and blue glaucophane schists and may underlie most of Southern California. In certain areas, up to 6,100 meters (m) (20,000 feet [ft]) of Miocene and younger sedimentary and volcanic rocks overlay the Catalina Schist. The metamorphic basement in the Palos Verdes Hills area is overlain by the Monterey Formation (Miocene). The basement rocks have no known base and are in fault contact with other basement rocks (undetermined age). The Newport-Inglewood Fault Zone is thought to separate the Franciscan Formation from an eastern granitic facies (LAHD/USCG, 1994).

T81
GgTiSe

Era	Period	Epoch	Approximate Age (Millions of Years)
Cenozoic	Quaternary	Holocene (Recent)	0-0.008
		Pleistocene	0.008-1.8
	Tertiary	Pliocene	1.82-5.3
		Miocene	5.3-23.8
		Oligocene	23.8-33.7
		Eocene	33.7-55.5
		Paleocene	55.5-65
Mesozoic	Cretaceous		65-145
	Jurassic		145-213
	Triassic		213-248
Paleozoic	Permian		248-286
	Carboniferous	Pennsylvania	286-325
		Mississippian	325-360
	Devonian		360-410
	Silurian		410-440
	Ordovician		440-505
	Cambrian		505-544
Precambrian			544-4500

Source: USGS, 1999

In the general harbor area, the Repetto and Pico Formations represent Pliocene deposits. The lower Pliocene Repetto Formation is found at a depth of approximately 116 m (380 ft) below ground surface (bgs) in the area of the project site and is represented primarily by massive siltstone. The Pliocene Pico Formation unconformably overlies the Repetto Formation to a depth of approximately 67 m (220 ft) bgs and is represented by siltstone and sandstone (LAHD/USCG, 1994).

The lower to middle Pleistocene San Pedro Formation is present within the project area from approximately 67 m (220 ft) bgs to 15 m (50 ft) bgs and consists of marine gravels, sands, silts, and clays. Unnamed upper Pleistocene marine deposits, possibly equivalent to the Palos Verdes Sands, unconformably overlie the San Pedro formation. The Palos Verde Sands deposits consist of shallow marine sands and silts up to 6 m (20 ft) thick (LAHD/USCG, 1994).

More recent alluvial deposits were deposited in the project area by the Los Angeles River and are composed of sands and gravels. During the last major worldwide drop in sea level (Pleistocene glacial period), the ancestral Los Angeles River incised upper Pleistocene marine deposits, downcutting to a depth of approximately 46 m (150 ft). With the end of the glacial period, sea levels rose and filled the incised trench with marine and estuarine sediments. The basal portions of the marine and estuarine sediments are coarse sands and gravels; while the upper portion consists of fine sands, silts, and clays (LAHD/USCG, 1994).

No active or potentially active volcanoes are located in or near to the project site.

2 Sb

Soils found on the exposed land portions of the project area evaluated for the Henry Ford (Badger Avenue) Bridge Replacement Project, which includes the Schuyler Heim Bridge, are comprised of fine sand and silt, with clay layers and shells also represented in the hydraulic fill material used in the creation of Terminal Island and extension of the mainland (LAHD/USCG, 1994).

2 SbEp

Expansive soils are generally the result of the presence of specific clay minerals that expand in volume when wet and shrink in volume when dry. Clays associated with expansive soils are present in the geologic units that occur in the project area. Additionally, imported fill material may contain clays associated with expansive soils.

2 SbCi

Soil electrical resistivity indicates the relative capability of a soil to carry electrical current. This is generally recognized as the most significant soil characteristic with regard to corrosivity of the soil. Soil resistivity can change dramatically with moisture content. Soil, which has a high resistivity when it is dry, can have substantially lower resistivity when it is wet or saturated depending on factors such as pH and chemical content (Corrocont, 2006). Corrosive soils could occur within the project area due to presence of seawater/brackish groundwater (see Section 3.9, Hydrology, Floodplains, and Oceanography).

2 Fg

The Los Angeles Basin is located south of the intersection of the northwest-trending San Andreas Fault System and the east-west-trending Transverse Ranges Fault System. Both fault systems are responding to strain produced by the relative motions of the Pacific and North American Tectonic Plates. The strain is relieved by displacement on the San Andreas and related faults, and by displacement on faults in the Transverse Ranges through an earthquake (abrupt movement) or creep along the fault surface.

An earthquake is classified by the magnitude of wave movement (related to the amount of energy released), which traditionally has been quantified using the Richter scale. This is a logarithmic scale wherein each whole number increase in Richter magnitude (M) represents a tenfold increase in the wave magnitude generated by an earthquake. Earthquakes of M 6.0 to 6.9 are classified as moderate, those between M 7.0 and 7.9 are classified as major, and those of M 8.0 or greater are classified as great.

Seismic analyses generally include discussions of maximum credible and maximum probable earthquakes. A maximum credible earthquake (MCE) is the largest event a fault is believed to be capable of generating. The probability of occurrence is not considered in this characterization. The maximum probable earthquake (MPE) is either theoretically determined or is the largest earthquake to have occurred on a given fault within the last 200 years, or it is an earthquake that ruptures one-tenth of the total fault length.

Both the Transverse Ranges and Los Angeles basin are characterized by numerous geologically young faults. These faults are classified as historically active, active, potentially active, or inactive, based on the following criteria:

- Historically Active: Faults that have generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years), and faults that exhibit creep.
- Active: Faults that show geologic evidence of movement within Holocene time (approximately the last 11,000 years).
- Potentially Active: Faults that show geologic evidence of movement during the Quaternary period (approximately the last 2,000,000 years).
- Inactive: Faults that do not show evidence of movement during all of Quaternary time or longer.

Active faults within approximately 80 km (50 mi) of the project area include, but are not limited to, the Palos Verdes Fault Zone, Newport-Inglewood Structural Zone, Whittier-Elsinore Fault Zone, San Jacinto Fault Zone, San Andreas Fault Zone, Malibu-Santa Monica-Hollywood-Raymond Hill Fault System, and Elysian Park Thrust Fault. The location of the active faults in the project area are shown in Figure 3.11-1. Details about each are presented in Table 3.11-2 and discussed below.

Table 3.11-2
Active Faults in the Project Area

Fault Name	Approximate Distance From Project Area (Miles)	Activity Classification	MCE Magnitude (Richter)	MPE Magnitude (Richter)
Palos Verdes Fault Zone	0.2	Potentially Active	7.0[1]	6.75
Newport-Inglewood Structural Zone	4 to 6	Historically Active	7.6	6.6
Whittier-Elsinore Fault Zone	21 to 25	Active	7.7	6.8
San Jacinto Fault Zone	50	Historically Active	8.2	7.5
San Andreas Fault Zone	53	Historically Active	8.4	7.7
Malibu-Santa Monica-Hollywood-Raymond Hill Fault System	24	Historically Active	7.5[2]	6.6 [3]
Elysian Park [2] Thrust Fault	20	Historically Active	7.0	5.75

MCE = Maximum Credible Earthquake
MPE = Maximum Probable Earthquake
[1] Caltrans, 2001
[2] City of Los Angeles, FHWA, and Caltrans. 2005; City of Los Angeles, 2000
[3] City of Oxnard, 2004.
Source: Los Angeles Harbor Department/U.S. Coast Guard, 1994

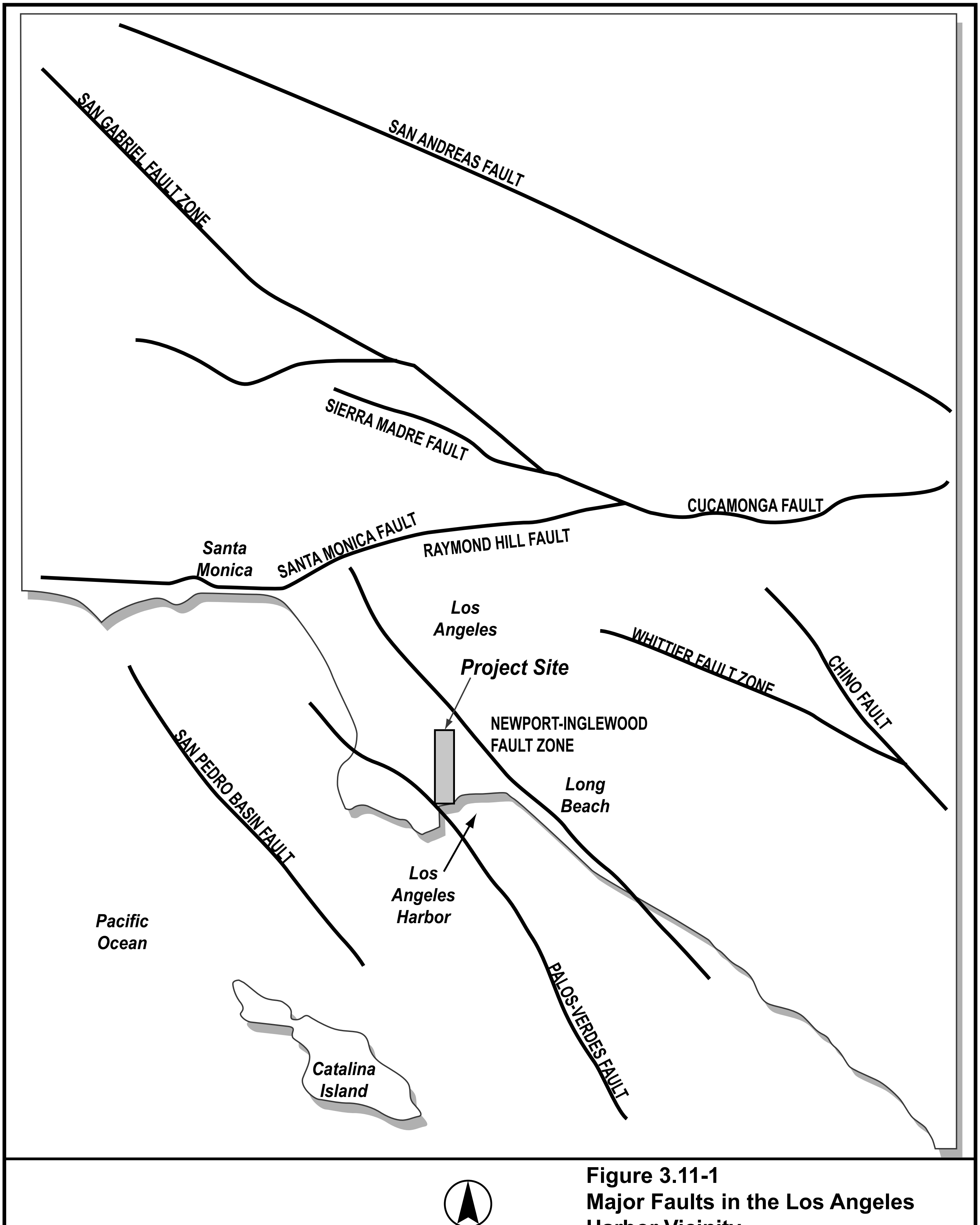


Figure 3.11-1
Major Faults in the Los Angeles Harbor Vicinity
Schuyler Heim Bridge Replacement and SR-47 Expressway

Sources: Los Angeles Harbor Department, 1994
U.S.G.S., 2005

2 PaVeFtZe

The Palos Verdes Fault Zone is located along the northeast edge of the Palos Verdes Hills. It is presumed that this fault zone crosses within about 0.3 km (0.2 mi) of the Schuyler Heim Bridge. No damaging historic earthquakes are associated with the Palos Verdes Fault, but minor seismic activity has been measured near offshore segments of this fault (LAHD/USCG, 1994).

2 NpIgStZe

This structural zone is located about 6 to 10 km (4 to 6 mi) northeast of the Schuyler Heim Bridge. It runs in a northwesterly direction from Newport Beach through Signal Hill, the Dominguez, Rosecrans, Baldwin, and Cheviot Hills, and terminates against the Santa Monica Fault. The Newport-Inglewood Structural Zone exhibits continuous seismic activity. The 1933 Long Beach earthquake (M 6.3) is the most notable recent earthquake to occur along this fault zone (LAHD/USCG, 1994).

2 WtEFtZe

This fault zone is located approximately 32 km (20 mi) northeast of the project site. It is a major northwest-trending fault system extending from the San Gabriel Valley to the Mexican border. It is a zone of moderate seismic activity which has produced numerous earthquakes of M 4 and 5 (LAHD/USCG, 1994).

2 SaJFtZe

The San Jacinto Fault Zone is located approximately 80 km (50 mi) east of the project site. This fault zone is comprised of a northwest-trending series of faults extending from the eastern San Gabriel Mountains, south through the Borrego Valley on the southwest side of the Salton Sea. Seismicity along this fault zone is moderately high. It is one of the most active fault zones in Southern California, producing numerous small to moderately large historic earthquakes. Three large earthquakes that have occurred along this fault zone are the 1923 earthquake (M 6.3), the 1918 earthquake (M 6.8), and the 1899 earthquake (M 6.6). The high level of seismic activity exhibited by this fault zone indicates continuous releases of strain along this zone (LAHD/USCG, 1994).

2 SaAeFtZe

The San Andreas Fault Zone is located approximately 85 km (53 mi) northeast of the project site. This fault system is considered the boundary between two major crustal plates (North American and Pacific) that are moving in opposite directions. Two of California's three great earthquakes, the 1906 San Francisco (M 8.3) and the 1857 Fort Tejon (believed to be greater than M 8.3) earthquakes, occurred on the San Andreas Fault. There is a high probability that Southern California will experience another great earthquake similar in magnitude to the 1857 event early in the 21st century (LAHD/USCG, 1994).

2 EyPkTsFt

The Elysian Park Thrust Fault, located approximately 32 km (20 mi) northeast of the project site, is part of the Puente Hills blind-thrust system, which extends from downtown Los Angeles south to the City of Brea. The 1987 Whittier Narrows earthquake occurred on the Puente Hills blind-thrust system. This system is capable of generating earthquakes on the order M 6.5 to 7.1 (City of Los Angeles, FHWA, and Caltrans, 2005).

MlsStMiHly RghlIFtSyn

This system is known as the Frontal Fault System and is comprised of several individual faults located within 39 km (24 mi) of the harbor area. Faults within this system have been active during Quaternary, and probably Holocene, time. The most notable recent earthquake along this system was the Point Mugu earthquake (M 5.9) of February 21, 1973 (LAHD/USCG, 1994).

Syn

SfRp

Surface fault rupture can occur where earthquakes are large or where hypocenters (locations) of the actual fault failure are shallow. Surface rupture is more likely on active faults. The state of California, through the Alquist-Priolo Earthquake Zoning Fault Act, has created special studies zones around active faults to restrict development (CDMG, 1999). The project site is not located within an Alquist-Priolo Special Studies Zone.

GdSg

The amount of ground shaking resulting from an earthquake depends on the magnitude of the earthquake, the distance from the fault generating the seismic event, and local geologic conditions.

Two important characteristics of local geologic conditions that affect the magnitude of ground shaking are ground softness at a site and total thickness of sediments beneath a site. Seismic waves travel faster through hard rocks (more consolidated rocks) than through softer rocks (less consolidated rocks) and sediments. As the waves pass from harder to softer rocks and slow down, the amplitude of the waves must increase to carry the same amount of energy. Thus, shaking tends to be stronger at sites with softer surface layers where seismic waves move more slowly (Southern California Earthquake Center [SCEC], 2000).

Lfq

Liquefaction describes the phenomena whereby soil shearing resistance is lost as a result of ground shaking. Saturated granular soils (sands) develop increased pore pressures when shaken. These excess pressures can become significant if the intensity and duration of the ground shaking is great enough. The result of the shaking is that the soil temporarily takes on liquid-like characteristics and loses shear resistance. Consequently, structures built on these soils can sink. For a given level of ground shaking, the increase of pore pressures depends on the density of the granular soils and their fines content. Liquefaction generally occurs in areas of high groundwater levels.

The groundwater table at the project site was measured in 1998 and found to be 3 to 8 ft bgs adjacent to the Cerritos Channel. Further tests conducted in 1998 indicated loose to medium dense sandy soils in the upper 6.1 to 10.7 m (20 to 30 ft) of the ground along the bridge (Caltrans, 2001). More than 80 percent of the project site is located in an area where historic occurrence of liquefaction, and/or local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in California Public Resources Code 2693(c) would be required (Department of Conservation [DOC], 1999).

SH

The Long Beach and Wilmington areas have undergone significant subsidence related to large scale oil production from the Wilmington field. Subsidence was first noted in 1941 at the Long Beach Naval shipyard during construction of Dry Dock No. 1 when surveyors found that they could not check elevations of established bench marks. During the 1950s and early 1960s, the shipyard was threatened with inundation by the sea due to subsidence. A bowl-shaped depression of the ground developed and was centered at the east end of Terminal Island just north of Dry Dock No. 1. By 1970, maximum subsidence at the center of the bowl exceeded 9 m (29 ft).

From 1928 to 1970, maximum subsidence in the project area ranged from 4 to 5 m (14 to 18 ft). To reduce this subsidence, pilot water flooding was begun in 1953, and full-scale repressurization was underway by 1960. Survey data by the Long Beach Division of Oil Properties indicate that rates of subsidence were greatly reduced, and direction of movement was reversed. Total rebound of more than 1 foot has been recorded in the Schuyler Heim Bridge area. The repressurization program is adjusted annually to minimize elevation changes (LAHD/USCG, 1994).

2 TisSh

All low-lying areas along the California coast are subject to potentially hazardous tsunamis. Tsunamis are long period waves generated from distant and local offshore earthquakes, onshore and offshore landslides, or volcanic eruptions. The magnitude of the potential hazard from a tsunami is a function of the coastline configuration, sea floor topography, individual wave characteristics, and distance and direction from the source. Two tsunamis generated by the 1960 Chile earthquake caused damage in the Los Angeles and Long Beach harbors in 1960. Waves up to 1.5 m (5 ft) in height occurred in the Cerritos Channel, and currents up to 12 knots were reported. A 6.5-foot run-up for a 100-year tsunami and an 11-foot run-up for a 500-year tsunami are predicted near the Long Beach Harbor Entrance (LAHD/USCG, 1994).

A seiche is an oscillatory wave in an enclosed body of water. Seiches have caused extensive damage and/or erosion in the harbor. Most of the damage to boats and harbor facilities caused by the tsunami associated with the 1960 Chilean earthquake resulted from seiching within the Cerritos Channel (LAHD/USCG, 1994).

3 Tg

The project is situated in the northern portion of the physiographic basin known as the Coastal Plain of Los Angeles or the Los Angeles Basin. Dominguez Hills, Signal Hill, and the Palos Verdes Hills are the most prominent landforms in the region. The project is located within the Dominguez Gap, part of the Downey Plain, which is the primary landform feature along the project alignment. The prominent physiographic features in the vicinity of the project are shown in (Figure 3.11-2).

3 DgHlsSgHl

The northern portion of the project area approaches the Dominguez Hills and the northwesterly extension of Signal Hill, which are evidence of the Newport-Inglewood uplift. The Dominguez Hills consist of an elliptical, northwest-trending anticlinal dome that ranges in elevation from 6 to 59 m (20 to 195 ft) above mean sea level (msl). Signal Hill lies east of the project area and is the central feature of the Newport-Inglewood uplift (ACTA, 1992).

3 PlVdHls

The southern end of the project area is adjacent to the eastern flank of the Palos Verdes Hills. In this area, the hills consists of low-lying, wave-cut terraces that gradually rise from about 15 m (50 ft) above msl near San Pedro to approximately 122 m (400 ft) above msl on the eastern and northern flanks of the hills (ACTA, 1992).

DigGp

The project would be located within the Dominguez Gap, which consists of the portion of the Downey Plain lying between the Dominguez Hills and the northwestern extension of Signal Hill. The gap is approximately 2.5 km (1.6 mi) wide at its narrowest point and approximately 11 km (7 mi) long. The Dominguez Gap was mainly entrenched by an ancestral San Gabriel River. An estimated 46 m (150 ft) of Holocene sediment has been deposited into the Dominguez Gap (ACTA, 1992).

DyPh

The majority of the Downey Plain is located north of the project area. The Downey Plain is a Holocene-age plain formed by the coalescing of the Los Angeles and San Gabriel-Rio Hondo River systems alluvial fans. The elevation of the Downey Plain ranges from sea level to 84 m (275 ft) above msl; the slope of the plain is generally less than 5.5 m (18 ft) per mi (ACTA, 1992).

LH

Generally, a landslide is defined as the downward and outward movement of loosened rock or earth down a hillside or slope. Landslides can occur either slowly or very suddenly, and frequently accompany other natural hazards, such as earthquakes, floods, or wildfires. More than one third of landslides are associated with heavy rains or the melting of winter snows. Additionally, landslides can be triggered by ocean wave action or induced by the undercutting of slopes during construction, improper artificial compaction, or saturation from sprinkler systems or broken water lines. In areas on hillsides where the ground cover has been destroyed, landslides are probable because there is nothing to hold the soil. Immediate dangers from landslides are the destruction of property and danger from rocks, mulch, and water sliding downhill or downstream. Other potential dangers include broken electrical, water, gas, and sewage lines.

The project site is not located where previous occurrence of landslide movement, or local topographic, geological, geotechnical, or subsurface water conditions indicate a potential for permanent ground movement (DOC, 2005).

MRe

The Los Angeles Basin is a major oil-producing region in Southern California. The project site is located within the Wilmington Oil Field, but not within the active drilling area. The ultimate recovery of the field is estimated at 3 billion barrels of oil. The field is approximately 17.7 km (11 mi) long and 4.8 km (3 mi) wide (California Department of Conservation, 2003), located on the Wilmington Anticline, which extends from onshore San Pedro to offshore Seal Beach. Oil is produced from five major sand intervals ranging in depths from 610 m (2,000 ft) to 3,353 m (11,000 ft), where over two and one-half billion barrels of oil have been recovered (City of Long Beach, 2000). The field produced 84.4 million barrels of oil from January 1998 through October 2002, making it the sixth largest producing oil field in California (California Department of Conservation, 2003).

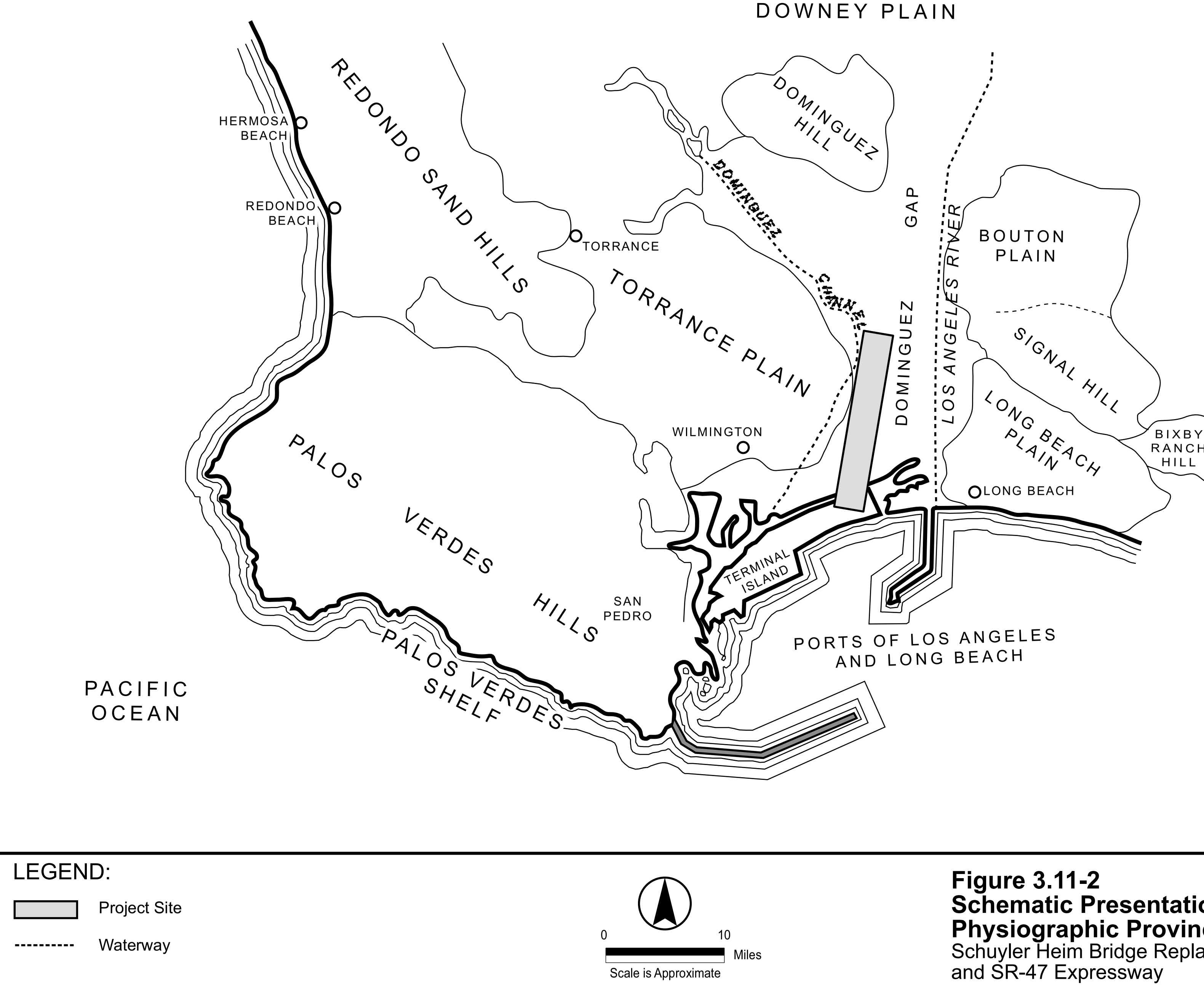


Figure 3.11-2
Schematic Presentation
Physiographic Provinces
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Source: ACTA, 1992

3 EtGq

This section discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to design structures to withstand a major earthquake.

3 EtCh

The California Geological Survey is currently revising its guidance for preparing geologic input to environmental reports. The "Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports" (Note 46), as prepared by the California Division of Mines and Geology (1975) and summarized in the EIS/SEIR for the South Orange County Transportation Infrastructure Improvement Project (FHWA et al., 2004), was used to evaluate the potential effects of geotechnical, geology, and soil issues for this Draft EIS/EIR. A summary of the checklist of issues related to geologic resources use to evaluate the potential effects to geotechnical, geology, and soil issues is provided in Table 3.11-3.

Paleontologically sensitive sedimentary units are those with a high potential for containing significant paleontologic resources, usually rock units within which significant vertebrate or invertebrate fossils have been determined to be present or likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontologic resources anywhere within their geographical extent, as well as sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Determinations of paleontologic sensitivity must therefore consider not only the potential to yield abundant vertebrate fossils but also the potential for production of a few significant fossils which may provide new and significant data on fossils types, species changes over time, or geologic strata. Areas that may contain datable organic remains older than the Recent era (less than 10,000 years in age) and areas that may contain unique, new vertebrate deposits, traces, and/or trackways must also be considered paleontologically sensitive.

Fossils are of scientific interest if one or more of the following criteria apply:

- The fossils provide data on the evolutionary relationships and developmental trends among organisms, both living and extinct.
- The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein.
- The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas.
- The fossils demonstrate unusual or spectacular circumstances in the history of life.
- The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation and are not found in other geographic locations.

[illegible]
[illegible]

Geologic Resource	Issue	Evaluation Criteria
Earthquake Damage	Fault Movement (including ground rupture, tsunami, and seiche)	Would project development substantially alter the local/regional stress regime and possibly trigger fault movement?
	Liquefaction	Would project development alter subsurface conditions and result in a potential for liquefaction?
	Landslides	Would project development create or induce a potential for landsliding?
	Differential Compactions/ Seismic Settlement	Would project development alter subsurface conditions and create a potential for settlement during seismic shaking?
	Ground Shaking	Would project development alter the local/regional stress regime and possibly trigger seismicity?
	Seismically Induced Flooding (failure of dams or levees)	Does the project include the construction of a dam or levee that would have the potential to undergo an uncontrolled release as a result of seismic shaking, or would the project alter conditions at an existing reservoir and result in a potential for an uncontrolled release as a result of seismic shaking?
Slope and/or Foundation Instability	Landslides and Mudflows	Would project development promote the occurrence of landslides or mudflows?
	Unstable Cut and Fill Slopes (including trench wall instability)	Would project development adversely alter existing cut and/or fill slopes, making them potentially unstable?
	Collapsible and Expansive Soil	Would project development trigger collapse or expansive soil behavior that would lead to a structural collapse or hazardous release?
Erosion, Sedimentation, and Flooding	Erosion of Graded Areas	Would project development expose areas to erosion, and create potential impacts to other areas/projects?
	Alteration of Runoff	Would project development negatively alter existing runoff patterns?
	Unprotected Drainage Ways	Would project development include the creation of unprotected drainage ways?
	Increased Impervious Surfaces	Would project development result in a significant increase in impervious surfaces?
Land Subsidence	Extraction of Groundwater, Gas, Oil, Geothermal Energy	Could the project cause significant settlement?
	Hydrocompaction, Peat Oxidation	Would project development induce collapse behavior in peat-bearing soils or soils or soils subject to hydrocollapse?
Volcanic Hazards	Lava Flow	Could the project trigger a lava flow?
	Ash Fall	Could the project trigger an ash fall?

Source: FHWA and Foothill/Eastern Transportation Corridor Agencies, 2004.

According to CEQA, a project that may cause a substantial adverse change in the significance of a paleontological resource is a project that may have a significant effect on the environment (CEQA rev. 1998, Section 15064.5[b]). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance would be materially impaired. Therefore, for purposes of the analyses in this EIS/EIR, and in accordance with Appendix G of the *State CEQA Guidelines*, a project would have a potentially significant effect on the environment if it:

- Directly or indirectly destroys a unique paleontological resource or site.

2 Mg

2 GgRs

Geologic resources were identified and assessed based on published reports and maps and knowledge of the general geologic setting.

Geologic effects were evaluated in two ways: (1) effects of the proposed alternative on the local geologic environment; and (2) effects of geologic hazards on the proposed alternative. Geologic effects may result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury. Effects were evaluated in accordance with the evaluation criteria shown in Table 3.11-3.

The following project features, engineering practices, and standard design and construction requirements would be incorporated into final design and were considered when assessing potential environmental effects of each of the alternatives:

- Design criteria, standards, and procedures contained in state and local jurisdiction standards and specifications (e.g., IBC) would be applied during final design of the proposed project, including earthquake-resistant standards to reduce potential effects from a major earthquake.

- A geotechnical study would be completed for all areas associated with load-bearing features, and areas with potential for slope failure (e.g., trenches) and soil subsidence, and a geotechnical report would be prepared. The geotechnical report would include project-specific recommendations consistent with standards established by state and local jurisdictions. Geotechnical report recommendations would be incorporated into the final project design.

- Monitoring during construction would be performed by a licensed geologist or engineer to verify construction occurs in compliance with features, standards, and practices included in final design to reduce potential effects from earthquake damage; slope and/or foundation instability; erosion, sedimentation, and flooding; land subsidence; and volcanic hazards.

2 Pg

The tasks discussed below were conducted to develop a baseline paleontological resource inventory of the project area, and to assess the potential paleontological productivity and paleontological importance of each rock unit. Information was gathered on the number and density of fossil sites and the abundance and types of fossil remains previously recorded from each rock unit in the project area and vicinity, including those present in the shallow subsurface. These tasks were completed in compliance with Society of Vertebrate Paleontology (SVP, 1995) guidelines for assessing the scientific importance of paleontological resources in an area of potential environmental effect.

3.11.3.2.2.1 Stratigraphic Inventory
Geologic maps and reports covering the surficial geology of the project area were reviewed to determine the rock units exposed in the project area, particularly those rock units known to be fossiliferous, and to delineate their respective areal distributions.

3.11.3.2.2.2 Paleontological Resource Inventory
Published and unpublished geologic and paleontological literature was reviewed to document the number, locations, and depths of previously recorded fossil sites in and near the project area from each rock unit that is exposed in the project area or presumed to be present in the shallow subsurface. This literature review was supplemented by an archival search at the Natural History Museum of Los Angeles County (LACM) Vertebrate Paleontology Department for additional information regarding the occurrences of fossil sites and remains from the project area and vicinity. No field survey of the project area was conducted because the area is fully developed, and is underlain by artificial fill and by strata that are too young to contain fossilized remains.

3.11.3.2.2.3 Paleontological Resource Assessment Criteria
The paleontological importance—high, low, none, or undetermined—of a rock unit reflects its potential paleontological productivity and the scientific importance of the fossils it has produced locally. The paleontological importance of each rock unit exposed in the project area was assessed using the following criteria:

1) High importance: rock unit has comparatively high potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains in project area.
2) Low importance: rock unit has comparatively low potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains in project area.
3) Undetermined importance: rock unit for which too few data are available to allow an accurate assessment of its potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains in project area.
4) No importance: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units having no potential for containing any fossil remains.

Note, however, that any fossil site containing identifiable fossil remains and the fossil-bearing stratum are considered paleontologically important, regardless of the overall paleontological or scientific importance of the rock unit in which the site and stratum occur. For example, a fossiliferous soil horizon in an otherwise unfossiliferous rock unit would be considered scientifically important, even though the remainder of the rock unit was considered to be of low scientific importance.

The following tasks were completed to establish the paleontological importance of each rock unit exposed in the project area:

1) The scientific importance of the fossil remains recorded from the rock unit was assessed.

2) The potential paleontological productivity of the rock unit was assessed, based on the number or density of fossil sites it contains and the number of fossil specimens it has yielded in the project area and vicinity.

3) The paleontological importance of the rock unit was assessed, based on its documented or potential fossil content in the project area.

3.11.3.2.2.4 Paleontological Resource Assessment by Rock Unit

HsAEFI

The ground surface in most, if not all, of the project area probably is underlain by unmapped historic artificial fill. Sediment dredged from the Los Angeles Harbor subsequently was spread as artificial fill across the southern part of Wilmington (City of Los Angeles Department of Public Works, Bureau of Engineering et al., 1997; Lander and Slawson, 1997; Dibblee, 1999), and presumably, along with sediment dredged from Long Beach Harbor, also was spread across much of the remaining area surrounding the harbors and on Terminal Island (Dibblee 1999).

The fossilized shells of shallow-water marine mollusks have been found in the artificial fill (City of Los Angeles Department of Public Works, Bureau of Engineering et al. 1997). However, these remains lack geographic and geologic provenance data; any fossil remains that might be encountered in artificial fill during project-related earth-moving also would lack such provenance data. Therefore, the artificial fill is considered to have no paleontological importance.

AbcCtDpatPsVsSd

No fossil site is definitely recorded as being in the alluvial and coastal deposits. The apparent absence of fossil remains and previously recorded fossil sites from these deposits in and near the project area and their presumed Holocene age indicate that there probably is no more than a low potential for scientifically important fossil remains being encountered in the alluvial and coastal deposits by shallow earth-moving activities.

However, a number of previously recorded LACM fossil sites (1163, 1919, 3319, 4129, 6664) have been found in geographic areas mapped by Poland et al. (1956) as being immediately underlain by alluvial and coastal deposits. These sites, which occur in the immediate vicinity of the project area, were encountered at depths 1.5 meters (m) to 9 m (5 to 30 feet [ft]) below the surface. It is possible that some, if not all of these sites, particularly those at greater depths, actually were encountered in the Palos Verdes Sand, which immediately underlies the alluvial and coastal deposits stratigraphically (Poland et al., 1956). These sites, like others definitely recorded from the Palos Verdes Sand, have yielded fossils of extinct species of Ice Age (middle to late Pleistocene) land mammals, including mammoth, camel, and bison (Miller 1971; Jefferson, 1991). Further, a ground sloth jaw was dredged from the Northwest Slip in the West Basin of Los Angeles Harbor at LACM fossil site 6705. In addition, the remains of marine vertebrate species (shark and seal) last occur with camel remains at a depth of 48 feet at LACM fossil site 3550.

These fossil remains from the deeper portions of the alluvial and coastal deposits or from the Palos Verdes Sand are scientifically important, and the occurrence of a number of previously recorded fossil localities in the immediate vicinity of the project area suggests that there is a high potential for similar fossil remains being encountered in these deposits by earth-moving activities in the project area at depths greater than 1.5 m (5 ft) below the ground surface.

3 EtfAt

Gg

This section describes effects of each of the alternatives related to geologic resources, soils, seismicity, topography, and mineral resources. The effects of project-related geologic issues related to hazards and hazards materials are discussed in Section 3.12 – Hazardous Waste/ Hazardous Materials. The effects of geologic issues related to hydrology and water quality, including groundwater levels, are discussed in Sections 3.9 – Hydrology, Floodplains, and Oceanography and 3.10 – Water Quality and Stormwater Runoff.

Pg

Paleontological resources such as unrecorded fossil sites and fossil-bearing strata, could be adversely affected by direct and indirect effects resulting from earth-moving activities where the project area is underlain by alluvial and coastal deposits and perhaps the Palos Verdes Sand.

Direct effects on the paleontological resources of the project area would result mostly from earth-moving activities, particularly excavation for bridge column footings, in previously undisturbed strata. The accompanying loss of any fossil specimen and fossil site would be an adverse effect.

Indirect effects might result from unauthorized fossil collecting by construction personnel, and amateur and commercial fossil collectors who would be afforded easier access to fossiliferous exposures or debris piles created by these earth-moving activities. Unauthorized fossil collecting would be temporary, but also might result in the permanent loss of fossil remains and sites. The loss of these additional paleontological resources would be an adverse effect.

3 AtA,23

3.11.3.3.1.1 Construction Effects

Gg

Direct

Fault Movement (Ground Rupture, Tsunami, Seiche). No active faults are known to cross the project area, and no earthquake fault zones have been mapped in the project area (CDMG, 1999). Incorporation of applicable regulations and practices will reduce the potential for ground rupture. The bridge and flyover area of the project site is located where tsunamis and seiches have historically occurred. However, construction of the new fixed-span bridge, flyover, and SR-47 Expressway would not significantly alter the local or regional stress regime; therefore, the project would not trigger fault movement that could result in ground rupture, tsunami, or seiche in the area.

Liquefaction. More than 80 percent of the project site is located in an area where historic occurrence of liquefaction, and/or local geological, geotechnical and groundwater conditions indicates a potential for permanent ground displacements such that measures as defined in California Public Resources Code 2693(c) would be required (DOC, 1999). The existing surface of the project area is consolidated geologic units overlain by unconsolidated sediment and artificial fill. Temporary dewatering may be required locally during construction; however, no long-term groundwater pumping is anticipated for the project. The project would meet current engineering standards for cut and fill and would not affect groundwater levels; therefore, the project would not alter subsurface conditions that would result in a potential for liquefaction.

Landslides. The project area is not located in an area identified as having potential for landslides, as it is on a gentle coastal plain with minimal elevation change between the southern and northern portions. Development of Alternatives 1, 1A, 2, and 3 would not significantly alter the existing topography; therefore, construction would not create or induce the potential for landsliding.

Differential Compactions/Seismic Settlement. Temporary dewatering may be required locally during construction; however, no long-term groundwater pumping is anticipated for these alternatives. The project would meet current engineering standards for cut and fill and would not affect groundwater levels. Therefore, construction of these alternatives would not alter subsurface conditions that would result in a potential for differential compaction or seismic settlement in the event of seismic shaking.

Ground Shaking. Although no active faults are known to cross the project area, and no earthquake fault zones have been mapped in the project area, the potential for strong ground shaking from faults located within the region cannot be reduced. However, the damage potential would be substantially reduced through project design, which would incorporate geotechnical recommendations and current codes and practices relative to the potential for ground motion. Construction of the fixed-span bridge, flyover, and SR-47 Expressway would not significantly alter the local or regional stress regime; therefore, the construction of these alternatives would not trigger fault movement that could result in ground shaking in the area.

Seismically Induced Flooding (Failure of Dams or Levees). Alternatives 1, 1A, 2, and 3 do not include construction of a dam or levee. They may include construction adjacent to existing levees on the Cerritos Channel and Dominguez Channel/Consolidated Slip. Construction adjacent to levees would be consistent with existing engineering standards; therefore, these alternatives would not be anticipated to result in an uncontrolled release as a result of seismic shaking.

Landslides and Mudflows. The project area is not located in an area identified as having potential for landslides or mudflows. Additionally, it is located on a gentle coastal plain with minimal elevation change between the southern and northern portions. Alternatives 1, 1A, 2, and 3 would not significantly alter the existing topography and, therefore, would not promote the occurrence of landslides or mudflows.

Unstable Cut and Fill Slopes (including Trench Wall Instability). Alternatives 1, 1A, 2, and 3 would be constructed to existing engineering standards and meet California Occupational Safety and Health Administration (Cal-OSHA) safety requirements for cut and fill slopes, including trench walls. Therefore, project development would not adversely alter existing cut or fill slopes that the slopes would become potentially unstable.

Collapsible and Expansive Soil. A geotechnical study would be completed prior to completion of final design to identify the presence of expansive soil. If identified, engineering standards would be met to address the presence of the expansive soil. Therefore, Alternatives 1, 1A, 2, and 3 would not trigger collapse or expansive soil behavior that would lead to a structural collapse or hazardous release.

Erosion of Graded Areas. Alternatives 1, 1A, 2, and 3 would create new graded areas that would be subject to erosion if not adequately managed and controlled. Project construction methods would include features to protect areas from erosion (from wind and water) (see Sections 3.9 and 3.10). Therefore, potential adverse effects to areas exposed to erosion and potential erosion effects to other areas would be reduced.

Alteration of Runoff. Alternatives 1, 1A, 2, and 3 would not alter existing runoff patterns (see Sections 3.9 and 3.10). Therefore, adverse effects due to alteration of existing runoff patterns would not occur.

Unprotected Drainage. Alternatives 1, 1A, 2, and 3 would not include the creation of unprotected drainage ways. Therefore, there would be no effects related to unprotected drainage ways.

Increased Impervious Surfaces. Alternatives 1, 1A, 2, and 3 would result in new impervious surface. However, the majority of the new impervious surface would be on the elevated expressway or bridge, which would not significantly affect the existing ground surface and associated infiltration of surface water (see Sections 3.9 and 3.10). Therefore, these alternatives would not result in an adverse effect due to an increased area of impervious surface.

Extraction of Groundwater, Gas, Oil, and Geothermal Energy. Temporary dewatering may be required locally during construction; however, no long-term groundwater pumping is anticipated. Because Alternatives 1, 1A, 2, and 3 do not include extraction of gas, oil, or geothermal energy, there would be no settlement related to construction activities.

Hydrocompaction, Peat Oxidation. A geotechnical study will be conducted prior to completion of final design to identify peat-bearing soils or soils subject to hydrocollapse, If these soils are identified within the project area, applicable engineering standards would be implemented during construction. Therefore, Alternatives 1, 1A, 2, or 3 would not induce collapse behavior in peat-bearing soils or soils subject to hydrocollapse.

Volcanic Hazards. The project area does not include active or potentially active volcanoes. Therefore, Alternatives 1, 1A, 2, and 3 would not trigger a lava flow or an ash fall.

MlRe

Project construction activities will be located outside the active drilling area of the Wilmington Oil Field. Therefore, existing oil wells will not be relocated or otherwise affected. Also, excavation for bridge and expressway piers will extend to maximum depths of approximately 46 m (150 ft), while oil producing zones begin at depths of approximately 610 m (2,000 ft). Therefore, Alternatives 1, 1A, 2, and 3 will have no direct or indirect impacts to mineral resources.

Indirect

No indirect effects related to geology or geologic resources would occur as a result of construction activities for Alternatives 1, 1A, 2, or 3.

Plg

Direct

Excavation for bridge column footings and, at depths greater then 1.5 m (5 ft) below the current ground surface, any footing for elevated roadways, including on-ramps, off-ramps, and bridge approaches, would have a high potential for encountering fossil remains at previously unrecorded fossil sites. Therefore, Alternatives 1, 1A, 2, or 3 could affect paleontological resources if any such resources were encountered during construction.

Historic Artificial Fill

There would be no significant effect on paleontological resources as a result of earth-moving activities in those parts of the project area underlain by artificial fill. Any fossil remains encountered in the artificial fill would lack any information regarding their provenance and, therefore, would be of no scientific importance.

Alluvial and Coastal Deposits and Palos Verdes Sand

Earth-moving activities at depths less than 1.5 m (5 ft) below the present ground surface in those parts of the project area underlain by alluvial and coastal deposits would be insignificant because, at such shallow depths, this rock unit probably is too young to contain fossils.

On the other hand, a number of previously recorded fossil localities in the alluvial and coastal deposits at depths greater than 1.5 m (5 ft) below the ground surface, possibly in the Palos Verdes Sand, have yielded the fossilized remains of Pleistocene land mammals in the immediate vicinity of the project area. Therefore, earth-moving activities at depths greater than 1.5 m (5 ft) in any area of the project could have an adverse effect on paleontological resources if any such resources were encountered during construction. Effects in these areas would result primarily from excavation for bridge column footings.

Indirect

No indirect effects related to paleontological resources would occur as a result of construction activities for Alternatives 1, 1A, 2, or 3.

3.11.3.3.1.2 Operations Effects

There would be no direct or indirect effects from project operations to geological or paleontological resources as a result of implementing Alternatives 1, 1A, 2, or 3.

2 AlBiRlOh

3.11.3.3.2.1 Construction Effects

Construction effects of Alternative 4 related to geology or geologic resources would be the same as those described for demolition and construction of a new fixed-span bridge under Alternative 1.

Earth-moving activities at depths greater than 1.5 m (5 ft) in any area of Alternative 4 could have an adverse effect on paleontological resources if any such resources were encountered during construction. Effects in these areas would result primarily from excavation for bridge column footings.

3.11.3.3.2.2 Operations Effects

Operational effects of Alternative 4 related to geology or geologic resources would be the same as those described for Alternative 1.

Under Alternative 4, there would be no direct or indirect effect to paleontological resources.

3 AtbTpSyMgn

3.11.3.3.3.1 Construction Effects

Implementation of the measures associated with the Transportation System Management (TSM) alternative would require either no construction or construction on a smaller scale than Alternative 1. Therefore, construction effects of this alternative related to geologic or paleontological resources would be less than those described for Alternative 1.

3.11.3.3.3.2 Operations Effects

Under Alternative 5, there would be no operational effects to geological or paleontological resources as a result of project operations.

4 AtNcBl

3.11.3.3.4.1 Construction Effects

Under the No Build alternative, there would be no change to the existing environment. Therefore, Alternative 6 would not result in construction effects related to geological or paleontological resources.

3.11.3.3.4.2 Operations Effects

Under the No Build alternative, there would be no change to the existing environment. Therefore, the alternative would not result in effects related to geological or paleontological resources.

However, under this alternative, the existing Schuyler Heim Bridge would continue to be seismically inadequate and subject to damage or collapse under strong seismic conditions. The existing bridge is expected to continue to deteriorate over time as its useful life is eroded further and as various magnitude earthquakes are experienced. At some point in the future, it could be necessary for the bridge to be demolished and replaced solely to avoid safety hazards. Replacement of the bridge under this alternative would result in effects to geological and paleontological resources as described for replacement of the Schuyler Heim Bridge under Alternatives 1, 2, and 4.

4 CEQ Cq

Based on the information provided in the above analyses, in accordance with CEQA criteria, impacts related to geology, soils, seismicity, topography, and mineral resources would be less than significant under Alternatives 1, 2, 3, 4, and 5. Under Alternative 6, no impacts would occur. Potential impacts to paleontological resources would be considered significant, but with mitigation would be reduced to less than significant.

Potential impacts of the proposed project alternatives related to geology, soils, seismicity, paleontology, topography, and mineral resources are assessed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis, Appendix A – CEQA Checklist Discussion. Geology, soils, seismicity, and topography are addressed under VI, Geology and Soils; Paleontology is addressed under V, Cultural Resources; and Mineral Resources are addressed under X, Mineral Resources. Potentially significant impacts are addressed in Section 4.4 – Significant Environmental Effects of the Proposed Project, Section 4.5 – CEQA Analysis of Alternatives, and Table 4-1 - Significant Environmental Impacts and Mitigation Measures.

[illegible]

[illegible]

[illegible]

3.11.4.1.1.1 Avoidance and Minimization Measures

The following project features, engineering practices, and standard design and construction requirements would be incorporated into final design and were considered when assessing potential environmental effects of each of the build alternatives:

GEO-1 Design criteria, standards, and procedures contained in state and local jurisdiction standards and specifications (e.g., Uniform Building Code) would be applied during final design of the project, including earthquake-resistant standards to reduce potential effects from a major earthquake.

GEO-2 A geotechnical study would be completed for all areas associated with load-bearing features, and areas with potential for slope failure (e.g., trenches) and soil subsidence, and a geotechnical report would be prepared. The geotechnical report would include project-specific recommendations consistent with standards established by state and local jurisdictions. Geotechnical report recommendations would be incorporated into final project design.

GEO-3 Monitoring during construction would be performed by a licensed geologist or engineer to verify construction occurs in compliance with features, standards, and practices included in final design to reduce potential effects from earthquake damage; slope and/or foundation instability; erosion, sedimentation, and flooding; land subsidence; and volcanic hazards.

3.11.4.1.1.2 Mitigation Measures

No mitigation measures would be required.

[illegible]

3.11.4.1.2.1 Avoidance and Minimization

Avoidance and minimization measures would be implemented in accordance with the paleontological resource impact mitigation program set forth in the Paleontological Resources technical report (Jones & Stokes, 2005) and summarized below.

Compliance with the mitigation program would occur to minimize construction effects on paleontological resources that might occur during earth-moving activities, particularly excavation, in the project area. These measures would be required under any alternative involving new bridge construction (Alternatives 1, 1A, 2, 3, and 4.) These measures would be implemented in those parts of the project area that are underlain by alluvial and coastal deposits, and possibly the Palos Verdes Sand, and where excavation and other earth-moving activities would extend to depths at least 1.5 m (5 ft) below the present ground surface. This program would allow for recovery of some scientifically important fossil remains, should any be encountered; their preservation in a recognized museum repository; the recording of associated fossil specimen data and corresponding geologic and geographic site data, and their archiving at the repository; and the availability of these specimens and data for future study by qualified scientific investigators.

PALEO-1 Implement Paleontological Resource Impact Mitigation Program which includes, but is not limited to, the tasks shown below. Additional detail is provided in the Paleontological Resources EIS/EIR Technical Section (Jones & Stokes, 2005).

- Program will be directed by a paleontologist or paleontological consulting firm approved by Caltrans.
- Conduct program in compliance with lead agency and professional society guidelines.
- Develop and obtain museum storage agreement
- Coordinate with construction contractor to provide information regarding lead agency requirements for the protection of Paleontological resources.
- Conduct paleontological monitoring, as appropriate.
- Treat any specimens collected in accordance with museum repository requirements.
- Transfer any collected fossils to museum repository.
- Maintain daily monitoring logs.
- Prepare final report.

3.11.4.1.2.2 Mitigation Measures

No Mitigation measures would be required.

[illegible]

No avoidance, minimization, or mitigation measures would be required for Alternatives 5 and 6.

3.12 Hazardous Waste/Hazardous Materials

This section describes the existing conditions for hazardous waste and materials at or in the vicinity of the proposed project alternatives and evaluates the potential impacts that could result from implementing each of the alternatives. Measures to reduce impacts of the alternatives are provided where applicable.

Hazardous waste and hazardous materials include those actions and materials that affect the health and safety of the public and release of hazardous materials into the environment. Hazards discussed in this section include both hazardous waste and naturally occurring and man-made contamination in soil.

The information in this section is based primarily on the *Final Initial Site Assessment (ISA) for the Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, 2005) and the *Supplemental ISA* (Caltrans, 2007), which are hereby incorporated in their entirety. The risk of upset assessment is based on the Final EIR for the Berth 206-209 Interim Container Terminal Reuse Project (LAHD, 2005).

3.12.1 Regulatory Setting

Hazardous substances are defined by state and federal regulations as substances that must be regulated in order to protect the public health and the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. The term "hazardous substances" encompasses every chemical regulated by the United States Department of Transportation (DOT), including emergency response. Hazardous materials generally are chemicals that have the capacity to cause a health hazard or harm to the environment during an accidental release or mishap. The California Code of Regulations (CCR) Title 22, Chapter 11, Article 2, Section 66261, provides the following definition:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed.*

According to CCR Title 22 (Chapter 11, Article 3), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous. Hazardous wastes are hazardous substances that no longer have a practical use, such as materials that have been abandoned, discarded, spilled, or contaminated, or that are being stored prior to disposal. They are by-products of processes and/or activities that can pose a substantial or potential hazard to human health or the environment when improperly managed.

Toxic substances may cause short-term or long-term health effects, ranging from temporary effects to permanent disability or death. Examples of toxic substances include most heavy metals, pesticides, benzene, gasoline, hexane, sulfuric acid, lye, explosives, pressurized canisters, and radioactive and biohazardous materials. Soils may also be toxic because of accidental spilling of toxic substances.

Hazardous waste and hazardous materials are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

3.12.1.1 Federal

3.12.1.1.1 Hazardous Waste Regulations

In 1976, Congress enacted the Resource Conservation and Recovery Act (RCRA) (42 United States Code [USC] Sections 6901-6992K) to regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA provides the basic framework for the federal regulation of hazardous waste.

3.12.1.1.2 Emergency Planning and Community Right-To-Know

The Emergency Planning and Community Right-To-Know Act of 1986 (42 USC Sections 11001-11050), also known as SARA Title III, requires businesses and local emergency planning and response agencies to report information about the amounts of materials that businesses use, release, and/or spill. The act also provides the public with information about potential hazards in their communities.

3.12.1.1.3 Occupational Safety

Federal occupational safety and health regulations contain provisions with respect to hazardous materials management. The applicable federal law is the Occupational Safety and Health Act (OSHA) of 1970 as amended (29 USC, Sections 651-678; 29 CFR 1910). Federal OSHA requirements are designed to promote worker safety, worker training, and worker right-to-know. OSHA establishes regulatory requirements primarily by promulgating occupational safety and health standards. These standards establish permissible exposure limits (PELs) for a number of air contaminants (29 CFR sec. 1910.1000). These PELs define the amount of hazardous airborne chemicals to which an employee safely could be exposed over specific periods of time. When administrative or engineering controls cannot achieve compliance with PELs, protective equipment or other protective measures must be used.

Employers are required to train a team of employees to applicable federal OSHA-defined (29 CFR 1910.120, Hazardous Waste Operations and Emergency Response [HAZWOPER] Standards) levels to respond to accidental releases of hazardous materials and, as appropriate, to retain on-call contractors to respond to accidental releases of hazardous materials.

3.12.1.1.4 Other Federal Laws

- EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPS) relative to lead-based paint (LBP) and asbestos-containing materials (ACM)
- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

3.12.1.2 State

3.12.1.2.1 Hazardous Waste Regulations

RCRA allows individual states to develop their own programs for the regulation of hazardous waste, provided the state program is at least as stringent as RCRA. The state of California has developed the California Hazardous Waste Control Law (Health and Safety Code sec. 25100 et seq.; 22 CCR sec. 66260.1 et seq.), which is modeled closely after RCRA. The EPA granted final authorization to California for RCRA enforcement on August 1, 1992. These regulations identify standards for the classification, management, transportation, and disposal of hazardous waste.

3.12.1.2.2 Emergency Planning and Community Right-To-Know

In California, many of the requirements of SARA Title III overlap with state regulations. The Waters Bill (Assembly Bill 2185; Health and Safety Code sec. 25500 et seq.) was adopted by the California Legislature in 1985. This bill requires any facility that meets minimum reporting requirements for the use and storage of hazardous materials to initiate emergency response planning, including development of a Business Emergency Plan (BEP). Basic requirements of hazardous materials planning under the Waters Bill include the development of detailed hazardous materials inventories for all materials used and stored onsite, a program of employee training for hazardous materials release response, and the identification of emergency contacts and response procedures.

In 1996, the federal Accidental Release Prevention (ARP) Program (40 CFR 68) was promulgated. California added certain provisions specific to the state, which created the California Accidental Release Prevention (CalARP) Program. CalARP requires that any owner or operator of a stationary source that has more than a threshold quantity of regulated substances to submit a Risk Management Plan (RMP).

CalARP defines three program levels with different requirements, depending upon the complexity, accident history, and potential impact of releases of regulated substances. In general, facilities must identify potential receptors and assess the risks to the public from potential releases. The RMP must include an emergency response plan.

Under OSHA, the U.S. Department of Labor, Occupational Safety and Health Administration, can delegate its authority to administer the act to states that have developed a state plan with provisions at least as stringent as those provided by OSHA. California is a delegated state for federal OSHA purposes. The CalOSHA program (codified in CCR, Title 8, and in the Labor Code, Secs. 6300-6711) is administered and enforced by the Division of Occupational Safety and Health, a unit of the California Department of Industrial Relations.

3.12.1.2.3 State Health and Safety Code

Section 2002(j) of the State Health and Safety Code, for the purposes of vector control and prevention, defines a public nuisance. Section 2060 enables the Greater Los Angeles County Vector Control District to abate a public nuisance pursuant to “the person … who controls the diversion, delivery, conveyance, or flow of water shall be responsible for the abatement of a public nuisance that is caused by, or as a result of, that property or the diversion, delivery, conveyance, or control of that water" (County Vector Control District, 2004).

3.12.1.3 Local and Regional

3.12.1.3.1 South Coast Air Quality Management District (SCAQMD)

The SCAQMD is the local agency responsible for ensuring that federal and state ambient air quality standards are attained and maintained in the greater Los Angeles area, which includes all or portions of Los Angeles, Orange, Riverside, and San Bernardino counties. This includes SCAQMD Rule 1403 relative to LBP and ACM.

3.12.1.3.2 City of Los Angeles Fire Code

Additional requirements pertaining to hazardous materials management are set forth in the City of Los Angeles Fire Code (LAFC). The LAFC regulates the types, configurations, and quantities of hazardous materials that can be managed at a facility. Also, LAFC specifies design standards for the storage and management of hazardous materials.

Citywide emergency response planning and emergency evacuation plans are coordinated by the Emergency Preparedness Department and the Emergency Operations Board of the City of Los Angeles. These plans are documented in the Emergency Operations Master Plan and Master Plan Procedures and Annexes of the City of Los Angeles. Operational units of the City of Los Angeles (e.g., departments) maintain emergency plans for their operations and facilities within the framework of the Citywide plan. These plans are updated annually or when appropriate due to changed conditions.

3.12.1.3.3 City of Los Angeles Municipal Code

In 2004, the City of Los Angeles approved Ordinance No. 175,790 amending Section 91.106.4.1 and Division 71 of Article 1, Chapter IX of the Los Angeles Municipal Code to establish Citywide methane mitigation requirements and to include more current construction standards to control methane intrusion into buildings.

3.12.1.3.4 City of Long Beach Fire Code

Additional requirements pertaining to hazardous materials management are set forth in the City of Long Beach Fire Code. The City of Long Beach Fire Code regulates the types, configuration, and quantities of hazardous materials that can be managed at a facility. It also specifies design standards for the storage and management of hazardous materials.

Citywide emergency response planning and emergency evacuation plans are coordinated by the Emergency Preparedness Department.

3.12.1.3.5 City of Long Beach Municipal Code

Additional requirements such as compliance, cleanup, delegation of administrative responsibility related to hazardous materials are set forth in the Chapters 8.86, 8.87, and 8.88 of the City of Long Beach Municipal Code. The Long Beach Certified Unified Program Agency has now been in effect since July 1, 1997. This Unified Program combines both Fire Department and Health Department programs related to hazardous materials management into one Agency function in the City of Long Beach, encompassing two cities; Long Beach and Signal Hill.

3.12.1.3.6 Port of Los Angeles

Potential health and safety effects are associated with activities in the Port area involving the transfer, handling, and storage of hazardous materials in liquid bulk form. Hazards presented by these materials during an accidental release include possible fire and explosion, and the possible release of toxic materials to the atmosphere. To minimize the effects of accidents on vulnerable resources in the Port area, the California Coastal Commission and LAHD have developed a Risk Management Plan (RMP), which is an element of the Port Master Plan (PMP). The RMP contains policies to guide future development in the Port in an effort to eliminate the danger of such accidents to vulnerable resources. This is to be achieved mainly through physical separation, as well as through facility design factors, fire protection, and other risk management methods.

3.12.2 Affected Environment

In support of the proposed Schuyler Heim Bridge Replacement and SR-47 Expressway Project, hazardous waste and hazardous materials issues were evaluated within the right-of-way (ROW) associated with the four build alternatives. The four build alternatives are as follows:

- Alternative 1: Bridge Replacement and SR-47 Expressway
- Alternative 2: SR-103 Extension to Alameda Street
- Alternative 3: Bridge Demolition Avoidance
- Alternative 4: Bridge Replacement Only

The ROW for Alternatives 1, 2, and 3 consists of an approximately 4.9-kilometer (km) (3.1-mile [mi]) section from the Ocean Boulevard/SR-47 Flyover (flyover) in the south, across the Schuyler Heim Bridge and over the Cerritos Channel, continuing to the point where the SR-47 Expressway would merge with Alameda Street. The ROW for Alternative 4 consists of the bridge alignment, plus the bridge approaches on the north and south banks of the Cerritos Channel. The ROW parcels associated with the build alternatives are located within the Los Angeles Coastal Plain approximately 32.2 km (20 mi) southwest of downtown Los Angeles, at the north end of Long Beach Harbor. Surface water in the area includes the Dominguez Channel, the Cerritos Channel and, to the west, the Los Angeles River. There are no bodies of surface water used as sources of drinking water within a 6.4 km- (4 mi-) radius of the project site.

The project area is historically industrial in use, and that use continues to the present. The area is closely connected with activities at the Ports of Los Angeles and Long Beach; therefore, it contains land uses that either directly serve or are ancillary to port activities. The area has predominately heavy industrial zoning that permits the handling of hazardous materials in the course of normal business activities for heavy industrial operations such as oil refinery operations, heavy equipment repair, auto body repair, and auto dismantling. The ROW for the alternatives passes through heavily industrial areas that have the potential to affect the ROW parcels, based on their historical and current activities.

Properties within the project ROW and adjacent properties that have potential to adversely impact the project ROW are discussed in Section 3.12.3.3 – Evaluation of Alternatives. The soil and groundwater within the project ROW has the potential to be impacted.

Therefore, during construction activities, there is the potential for encountering hazardous materials as a result of excavating subsurface soil, disturbing groundwater, or removing underground structures. If hazardous materials are encountered, measures will be taken so as not to cause migration of contamination, create a conduit for migration of contamination, or drag down of contamination construction activities.

3.12.2.1 Roadway Safety

The Ports of Long Beach and Los Angeles form the largest port complex in the United States, based on container cargo volume. Ocean Boulevard in the City of Long Beach is the major east-west route serving Terminal Island and other areas of the Ports of Los Angeles and Long Beach. The SR-47 provides a four-lane, limited access roadway between Terminal Island and Alameda Street north of Pacific Coast Highway. To connect from Terminal Island to Alameda Street, vehicles must travel 1.5 km (0.93 mi) north from Ocean Boulevard, exit at the Henry Ford Avenue off-ramp, travel north through local streets, three signalized intersections, and five railroad crossings for about 2.0 km (1.24 mi); then join Alameda Street, just south of Pacific Coast Highway.

The Caltrans Traffic Accident Surveillance and Analysis System (TASAS) accident records for the 3-year period from April 1, 2002, to March 31, 2005, are summarized in Table 3.12-1.

Table 3.12-1
Traffic Accident Surveillance and Analysis System Accident Rate Summary: SR-47 and SR-103

			Actual Rates Per MVM			California Average Rates Per MVM		
Location	**Post Miles**	**MVM**	**Fatal**	**Fatal + Inj.**	**Total**	**Fatal**	**Fatal + Inj.**	**Total**
Alternatives 1, 3, and 4								
SR-47	PM 3.49 to 4.56	26.39	0	0.11	1.06	0.004	0.21	0.66
SR-103	PM 0.00 to 1.69	27.42	0	0.26	0.77	0.004	0.16	0.50
Alternative 2								
SR-47	PM 3.49 to 4.56	26.39	0	0.11	1.06	0.004	0.21	0.66
SR-103	PM 2.0 to 4.0	26.39	0	0.11	1.06	0.004	0.21	0.66

Reference: TASAS District 7 Table B rates for the period 04/01/2002 to 03/31/2005

Notes: Accident rates indicate the number of accidents per million vehicle miles (MVM)

Fatal: Fatalities

Fatal + Inj.: Fatalities plus injuries

Total: All reported accidents

The Caltrans TASAS Selective Accident Retrieval (TSAR) database reports 14 accidents occurring on Alternatives 1, 3, and 4 (SR-47), and 14 accidents occurring on Alternative 2 (SR-103) during the same time period.

3.12.3 Environmental Consequences

3.12.3.1 Evaluation Criteria

There are no set evaluation criteria for determining what is considered an adverse impact from risk of upset and health hazards associated with the proposed project. However, in an attempt to identify criteria for evaluating impacts, the following factors were considered:

- Regulatory framework.
- Probable frequency and severity of consequences to people or property as a result of a potential accidental release or explosion of a hazardous substance.
- Degree to which the project could require a new, or interfere with an existing, emergency response or evacuation plan, and the severity of the consequences.
- Degree to which a project design will reduce the frequency or severity of a potential accidental release or explosion of a hazardous substance.

Based on these factors, an alternative would have an adverse impact if it would:

- Substantially interfere with implementation of emergency response plans or emergency evacuation plans, thereby increasing risk of injury or death.
- Create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Result in the exposure of people or the environment to hazardous materials during or after construction.

3.12.3.2 Methodology

NEPA requires an analysis and detailed statement of the environmental effect of any proposed federal action adversely affecting the quality of the human environment. Potential effects were evaluated in terms of direct effects associated with physical contact by the project with existing or historic activities. These activities were evaluated within the project site and immediate surrounding area and are believed or known to involve the use, discharge, or disposal of hazardous substances. This includes the transportation or use of any hazardous materials that may be used in conjunction with the proposed project alternatives and the level of protection afforded residents of the affected environment from construction and operation of the project alternatives.

The initial evaluation of environmental conditions within the project right-of-way (Alternatives 1 through 4) was conducted using the ISA framework. The ISA was completed in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E 1527-00, -05, Phase I Assessment Standard Process. The ASTM process is defined as good commercial and customary practice for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and of petroleum products.

This ISA does not include the ASTM Standard "nonscope considerations" for lead in drinking water, radon, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, or high-voltage power lines. The ISA also does not include any physical sampling of the affected media within the project right-of-way.

The ISA includes the following main elements; records review, historical research (aerial photos, historical topography maps, oil and gas maps, flood control maps, Sanborn fire insurance maps), and site reconnaissance.

On-site reconnaissance and interviews were not conducted for most of the parcels associated with the project right-of-way due to potential hostile property owners and the risk of initiation of inverse condemnation claims. Most of the site reconnaissance was conducted from public access roads. However, access and interviews were conducted at the ICTF property relative to Alternative 2.

The Final EIR for the Berth 206-209 Interim Container Terminal Reuse Project analyzed accident probabilities for risk of upset (LAHD, 2005). The Federal Emergency Management Agency (FEMA) partitions potential accident scenarios into five categories based on the annual probabilities of occurrence. For example, on an annual basis, FEMA defines a "Common Accident" as one that would be expected to occur at a facility an average of one or more times each year (LAHD, 2005). On this basis, assuming an accident frequency equal to or greater than (≥) one incident per 365 operational days yields a daily probability of occurrence of 1/365 or approximately $\geq 2.7 \times 10^{-3}$. Accordingly, the following daily probabilities of occurrence may be derived from and assigned to the five FEMA accident categories:

- Common Accidents – Events expected to occur one or more times each year on average (daily probabilities of occurrence greater than [>] 2.7×10^{-3}).
- Likely Accidents – Events expected to occur at least once every 10 years on average (daily probabilities of occurrence 2.7×10^{-3} to 2.7×10^{-4}).
- Reasonably Likely Accidents – Events predicted to occur between once every 10 years and once every 100 years on average (daily probabilities of occurrence 2.7×10^{-4} to 2.7×10^{-5}).
- Unlikely Accidents – Events predicted to occur between once every 100 years and once every 1,000 years on average in a specific locale (daily probabilities of occurrence 2.7×10^{-5} to 2.7×10^{-6}).
- Very Unlikely Accidents – Events predicted to occur less than once in 1,000 years (daily probabilities of occurrence less than 2.7×10^{-6}).

This is roughly equivalent to the accidental spill or release probability categories established by the Los Angeles County Fire Department and summarized in Table 3.12-2 (Los Angeles Harbor Department [LAHD], 2005).

FEMA further notes that, for a qualitative evaluation of the type represented by this risk of upset assessment, "Common" and "Likely" accidents may be equated to high probability; "Reasonably Likely" and "Unlikely" accidents to medium probability; and "Very Unlikely" accidents to low probability categories. The present analysis adopts the following qualitative definitions of probability of occurrence (LAHD, 2005):

- *Low Probability of Occurrence* – Considered unlikely during the expected lifetime of the facility, assuming normal operation and maintenance.
- *Medium Probability of Occurrence* – Considered possible during the expected lifetime of the facility.
- *High Probability of Occurrence* – Considered sufficiently high to assume event will occur at least once during the expected lifetime of the facility.

Table 3.12-2
Accident Probabilities Established by the Los Angeles County Fire Department

Category	Occurrence
A – Frequent	0 to 1 year More than once per year
B – Periodical	Every 1 to 10 years At least once each decade
C – Occasional	Every 10 to 100 years Probably during the lifetime of the facility
D – Possible	Every 100 to 10,000 years Not expected, but could occur
E – Improbable	Not for 10,000 or more years Not expected likely to occur at all

Source: LAHD, 2005.

Table 3.12-3 provides a comparison of these accident scenario probabilities and frequencies.

Table 3.12-3
Accident Scenario Probabilities/Frequencies

Probability of Occurrence	Accident Frequency[1]
Low – unlikely during the expected lifetime of the facility	Very Unlikely/Improbable – less than once in 1,000 years ($< 2.7 \times 10^{-6}$)
Medium – possible during expected facility lifetime	Unlikely/Possible – between 100-1,000 years (2.7 x 10-5 to 2.7×10^{-6})
	Reasonably Likely/Occasional – between 10 to 100 years (2.7 x 10-4 to 2.7×10^{-5})
High – likely at least once during expected facility lifetime	Likely/Periodical – at least once every 10 years (2.7 x 10-3 to 2.7×10^{-4})
	Common/Frequent – one or more times each year ($> 2.7 \times 10^{-3}$)

Source: LAHD, 2005.
(1) Likelihood of event per operational day.
< less than
> greater than

3.12.3.3 Evaluation of Alternatives

3.12.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.12.3.3.1.1 Construction Effects

Construction effects associated with Alternatives 1 and 1A would be the potential for construction activities to encounter hazardous materials (and thereby have the potential for release of such materials) as a result of excavating subsurface soil, disturbing groundwater, or removing aboveground structures. Once construction is complete, the disturbance creating these potential exposures would cease. The construction activities most likely to result in exposure to hazardous materials would include drilling or excavating for foundations or pile caps, excavating in areas of shallow groundwater, dewatering, utility relocation, earth movement for purposes of producing roadway grades, and demolition of aboveground structures to create the right-of-way needed for the project.

If hazardous materials are encountered in the field, the potential effects that could occur would include exposure of construction workers to the hazardous materials, exposure of the public to such materials, exposure of the ecological receptors to hazardous substances in the sediments (see Section 3.16 for discussion), the potential for disturbance to or onsite handling of materials to contaminate either the groundwater or surface water near the exposure, or the risk of releasing hazardous materials in such a way as to promote or allow migration beyond the construction site, through either the air, soil, groundwater, or surface water (e.g., Consolidated Slip/Dominguez Channel). The extent of potential effects would depend upon the nature of the hazardous material encountered and the extent to which exposure and/or offsite migration might occur. If hazardous materials are encountered in the field, they would be managed in accordance with existing local, state, and federal regulations, as appropriate.

For all materials encountered in the field during the construction period, standard engineering management practices would be followed, including sampling and analysis (health risk, threat to ground water, and waste characterization), field engineering monitoring, compliance with locally required measures prescribed by the appropriate agencies (i.e., Department of Toxic Substances Control [DTSC], LAFD, Regional Water Board), worker safety, and industrial hygiene compliance services for waste management and oversight. In addition, all contaminated soils will be appropriately transported and disposed offsite as RCRA hazardous, non-RCRA-hazardous, or non-hazardous waste (as defined by the state of California).

Historical commercial and industrial activities within 0.4 km (0.25 mi) of the project right-of-way have resulted in groundwater and soil contamination. In addition, there are several sites that may require remediation. For some of the sites, environmental investigations and/or remediation activities either have been conducted or are currently being conducted. Other sites have institutional controls such as Land Use Covenants, which restrict use of or disturbance of the land and protect remedial alternatives imposed on the site. Work performed on these sites will be conducted with appropriate regulatory agency oversight. Table 3.12-4 shows sites currently under investigation.

Table 3.12-4
List of Environmentally Significant Sites

	Environmentally Significant Sites	Distance to Project ROW	Media Impacted	Source of Impact	Current Status
Alternatives 1, 1A, 2, 3, and 4					
1	LA Refining Company, 1926 Pacific Coast Highway Wilmington, California 90744	Adjacent to property	Groundwater	Leaking UST	Remedial action initiated
2	Texaco, 1625 Anaheim Street Wilmington, California 90774	Adjacent to property	Groundwater	Leaking UST	Undergoing remedial action
3	TCL Corporation (TCL), 420 Henry Ford Avenue Wilmington, California 90744	East of Property, just north of Cerritos Channel	Soil/ Groundwater	Former disposal facility for oil field waste and tank-bottom sludge	Has three units; TCL1, TCL2, and TCL3. TCL1 and TCL2 have completed remedial actions. Status of TCL3 is unknown. In addition, POLB conducting groundwater monitoring at TCL site and the results indicate presence of VOCs, SVOCs, and metals.
4	Dow Chemical Company, 305 Henry Ford Avenue Long Beach, California 90822	Adjacent to property on the west, south of the Cerritos Channel	Groundwater	Spills	Ongoing groundwater monitoring for chlorinated chemicals.
5	Former Long Beach Naval Shipyard Terminal Island Complex	Adjacent to property on north and south of Ocean Boulevard	Soil/ Groundwater	Spills, LUSTs, and historical activities	Land Use Controls (LUCs) are in place for soil at Installation Restoration (IR) Program Site 6A, because diesel, arsenic, cobalt, Benzo(a)pyrene, benzo(a)anthracene, Benzo(b)flouranthene, Dibenzo(a,h)anthracene, pentachlorophenol, and PCBs Aroclor-154, and Aroclor-1260 exceed statistical background concentrations and preliminary remediation goals. LUCs for groundwater are in place at IR Site 6A, because 1,4-dichlorobenzene, arsenic, vinyl chloride, benzene, chloroform, perchloroethene (PCE), and trichloroethene (TCE) exceed statistical background concentrations and risk-based screening criteria . The next five-year review at IR 6A is scheduled for December of 2009. At IR Site 14, long-term monitoring (LTM) is underway. Groundwater contamination comprised of cis-1,2-DCE; trans-1,2-DCE; and VC extends northeasterly beneath portions of the Ocean Boulevard.

Table 3.12-4
List of Environmentally Significant Sites

	Environmentally Significant Sites	Distance to Project ROW	Media Impacted	Source of Impact	Current Status
6	Sunshine Truck Stop, 1800 Pacific Coast Highway Wilmington, CA 90744	Adjacent to property on the east site on Pacific Coast Highway	Soil/ Groundwater	Spills, LUSTs, and historical activities	Site assessment and remediation
7	Hugo Neu-Proler	1.18 km (0.73 mile) west and northwest	Soil and groundwater	Chlorinated solvents, metals and petroleum hydrocarbons in soil and groundwater	
Alternative 2 (SR-103 Extension only)					
1	Alameda Street Landfill, 22700 South Alameda Carson, CA 90801	Within Subject Property	Soil/ Groundwater	Former landfill	Further site assessment recommended. Currently the site is leased to ICTF by the Watson Land Company to be used for shipping container storage. The surface is unpaved.

Demolition and construction activities are proposed under Alternative 1. The existing bridge has the potential to contain regulated and/or potentially hazardous materials, including lead-based paint and asbestos. The SCAQMD requires asbestos-containing materials ACM to be removed prior to demolition. The SCAQMD has identified specific asbestos abatement procedures to remove asbestos material and requires safety features to prevent asbestos releases. Asbestos removal will be conducted in conformance with Rule 1403 of the SCAQMD and with EPA NESHAPS. Because ACM will be removed prior to demolition and in conformance with state and federal regulations, release of asbestos into the surrounding environment will not occur. The steel members of the existing bridge are coated with LBP. If steel is reused, LBP would be removed prior to reuse. As described in Section 3.10, Water Quality and Stormwater Runoff, LBP could then enter the Cerritos Channel and adversely affect surface water quality. As a result, mitigation measures have been proposed to prevent water quality effects. LBP removed from steel members would be handled and disposed of in accordance with all applicable laws and regulations, adverse effects are not anticipated.

Construction of the new fixed-span bridge would require excavation of unpaved substrate on land and excavation of soils beneath the Cerritos Channel for placement of piles. Soil at the project site is considered a recognized environmental condition (REC), and excavation activities could encounter hazardous substances during construction. Measures will be taken to seal off the contaminated zone during drilling so as not to drag down contamination or create a conduit for migration of contamination. All hazardous material encountered would be managed, transported, and disposed of in accordance with all applicable laws and regulations, and effects are not anticipated.

Alternative 1 would require the right-of-way for the new bridge to encroach onto the Pier S Terminal in the Port of Long Beach. This terminal has undergone soil remediation, and remediation cells are located on the property. Although the right-of-way would not extend into the former remediation site on Pier S, it could affect the two existing oil wells adjacent to the east of the existing bridge. If this should occur, the wells would either be moved to a new location or capped below the surface and closed, in accordance with requirements of the well owner, the Division of Oil and Gas, and the Port of Long Beach. Because this alternative would require minimal right-of-way acquisition and encroachment onto Pier S, adverse effects are not anticipated.

Alternative 1 includes improvements that will occur over a period of approximately 2 to 3 years. Diesel-powered construction equipment utilized for the project is expected to be in good working order. However, equipment could spill oil, gas, or fluids during normal usage or during refueling or maintenance activities. Construction of Alternative 1 would most likely involve the use of solvents, biocides, and fuels that can be considered hazardous if not used, stored, or disposed of properly. However, all storage, transport, disposal, and use of hazardous materials at construction sites would be subject to federal, state, and local regulations, and as long as these requirements are met, potential effects would not be considered adverse.

Construction activities would be conducted using Best Management Practices (BMPs) in accordance with the Caltrans NPDES and SWPPP. Applicable BMPs include, but are not limited to, vehicle and equipment fueling and maintenance; material delivery, storage, and use; spill prevention and control; solid and hazardous waste management; and contaminated soil management. The application of BMPs would limit the potential for accidents involving hazardous materials. In the event an accidental release occurs, work will stop, and emergency spill, containment, and cleanup procedures will be implemented as specified in the Emergency/Contingency Plan. As a result, adverse environmental effects or involving injury to workers or to the general public are not anticipated.

3.12.3.3.1.2 Operations Effects

Operation of the new fixed-span bridge would not affect identified recognized environmental conditions or present a material risk of harm to public health or the environment because the replacement bridge would be an inert structure and would not involve ongoing operations such as dewatering. No adverse effects related to hazardous materials are anticipated.

The project is within an urban area adjacent to Los Angeles Harbor surrounded by built and paved areas, and areas containing limited non-native irrigated landscaping that is not prone to fire. No wildlands that could be adversely affected are adjacent to the project site, and there is no potential for wildfires to affect the project site.

Alternative 1 would provide roadway extensions with standard lane and shoulder widths to improve traffic operations. Alternative 1 would improve SR-47, which is a major arterial route for truck traffic to and from the ports, and construct a flyover at the Ocean Boulevard/ SR-47 intersection. The SR-47 Expressway would eliminate a number of railroad grade crossings, which would enhance safety for both railroad and roadway traffic. It also would allow the truck traffic to bypass a number of city streets, thereby improving the efficiency of the roadway network and improve roadway safety. The flyover would divert traffic bound for northbound SR-47 directly onto the new bridge from eastbound Ocean Boulevard, thereby avoiding the signalized Ocean Boulevard/SR-47 intersection. These proposed improvements are expected to reduce traffic accidents.

Operation of Alternative 1 is not expected to generate long-term hazardous material-related effects to the environment, other than providing an improved transportation facility for possible shipment of hazardous materials/cargo similar to other existing and planned roads and in accordance with current regulations regarding the transport of hazardous materials and wastes. The shipment and transport of hazardous materials is strictly regulated by the United States Department of Transportation (DOT). Should such shipment take place, the potential exists for accidents involving the spill/release of hazardous materials. The actual accident itself, however, would be a short-term event, unless substantial contamination occurred that would require extended clean-up and remediation measures. The effects associated with such an accident or release could range from localized and confined events to catastrophic events involving fires and/or toxic releases near populated areas. Operation of Alternative 1 is not expected to result in either an increase or decrease in the shipment of hazardous waste within the project area. Any accidental release of hazardous materials or wastes, the same as occurs under existing conditions, would be subject to the requirements of a wide range of laws and regulations.

Based on the methodology described above for accident probabilities, the likelihood of an accident involving a truck resulting in the release of hazardous materials was calculated. Table 3.12-5 provides calculation results for trucks. Based on the calculated accident rates probability, project-related truck trips during operations have a medium probability (once every 10 to 100 years) of resulting in the accidental release of hazardous materials. However, this is similar to the risk associated with the existing use of SR-47 because Alternative 1 does not increase/decrease the transport or volume of cargo. The same number of trucks will continue to use SR-47 to ingress/egress Terminal Island, as well as other Port areas. As discussed in the traffic analysis (Section 3.5.3 – Environmental Consequences), the traffic model predicts that, during peak hours, Alternative 1 would result in a reduction of port truck volumes on I-110 by as much as 5 percent, or 70 trucks (AM peak hour) and on I-710 by as much as 10 percent, or 430 trucks (MD peak hour). Therefore, implementation of Alternative 1 would not result in an adverse risk of upset effect.

Table 3.12-5
Truck Accident Probability

	Construction	Operations
Trucks per day	59	29
Accidents per mile	0.0000023	0.0000023
One-way distance	20 miles	20 miles
Probability of release during accident	20%	20%
Annual probability of accident resulting in release	13.5%	6.7%
Probability of accident with hazardous material release (one time per number of years)	7.41	14.84
Frequency of occurrence	Likely/Periodical	Reasonably Likely/ Occasional
Probability of occurrence	High	Medium

Source: LAHD, 2005.

The severity of an accidental release and the potential for public health effects is dependent upon the timing, location, and type of material involved and cannot be predicted accurately. However, emergency response to an accidental release of hazardous material will be coordinated in compliance with Caltrans procedures and in accordance with the Standardized Emergency Management System proscribed under Section 8607 of the California Government Code. This emergency response process will serve to limit potential adverse effects to public health through the expedited containment and removal of the hazardous substance released to the soil and/or waterways, surface waters, or ocean. Compliance with other federal, state, and local laws and regulations (e.g., driver training and licensing or DOT packaging requirements) would further serve to limit potential adverse public health effects.

Flyover design would entail drainage facilities that would channel any drainage or spill into collection systems and prevent spillage onto the roadway below.

Operation of Alternative 1 would involve a volume of cargo that is equal to the baseline condition and, therefore, would not increase the potential for accidents involving hazardous material releases resulting from fire or explosion. Any potential for risks associated with fire or explosion will be minimized by adherence to existing laws, regulations, and safety procedures. This would also minimize the risk of releases of hazardous materials to the environment from such accidents.

As noted above, a major objective of the response action would be cleanup and removal of the released materials and debris from the site of the incident. Because cleanup would be expected to happen quickly, the effect to the environment within the Alternative 1 area generally would be limited to effects to the ground surface or very shallow soils. The project area is already heavily disturbed and developed, and no sensitive species or habitats are present. With implementation of established response procedures, these effects to the environment would not be adverse.

In addition to the above, the project site is not within an airport land use plan, is not located within 3.3 km (2 mi) of a public airport, and is not in the vicinity of a private airstrip. The nearest public airport is Long Beach Airport, approximately 12.9 km (8 mi) northeast of the project site. Several heliports exist within the port area. A heliport is located at Slip 93 and is used by Island Express Helicopters for trips in conjunction with the Catalina Terminal. The heliport is located approximately 0.4 km (0.25 mi) north of the project area and is surrounded by a 1.8-m (6-ft) –high barrier. The project site is not within the typical flight path of helicopters using the heliport. A second heliport, one that is seldom used, is located approximately 4.8 km (3 mi) to the southwest, at Ports O'Call. A third heliport exists on the southwest corner of Pier F in the POLB. This heliport is for the new Security Command and Control Center (SCCC) to serve security operations and coordination needs of numerous government agencies, including the U.S. Coast Guard (USCG), U.S. Customs and Border Protection (CBP), federal and state Homeland Security offices, Long Beach Police Department (LBPD), POLB Harbor Patrol and Security Division, as well as the Port of Los Angeles (POLA). The SCCC heliport is located on the roof of the SCCC building, and is located approximately 2.4 km (1.5 mi) south of the project area. The heliport operations approach and departure flight paths are over the water, and are not anticipated to be affected by the project.

As a result of distance from the project site, there is minimal potential for a related hazard to affect air traffic patterns, increase air traffic levels, or cause a substantial safety risk to air operations in the project area.

3.12.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.12.3.3.2.1 Construction Effects

Construction effects under Alternative 2 would be similar to those described for Alternative 1 for the bridge replacement and flyover. In addition, Alternative 2 would include the property listed in Table 3.12-4. Portions of the alignment of the SR-103 Extension overlie two former landfills. One of these, the Alameda Street Landfill, is proposed to be included in the National Priority List (NPL). If soil excavation at this landfill occurs during construction of the SR-103 Extension, hazardous waste could be encountered. In such an event, Caltrans would coordinate with regulatory agencies to ensure safe management and disposal practices employed for hazardous waste removed during construction, that operation of highway and bridge are protective of human health and the environment, and obtain indemnification from the seller, require the seller to pay for clean-up costs, and enter into a prospective purchaser agreement with DTSC to limit Caltrans' liability.

3.12.3.3.2.2 Operations Effects

Under Alternative 2, operations effects related to the new bridge and flyover would be the same as those described for Alternative 1. Once the expressway facility is constructed and operational, no further involvement with hazardous materials on parcels within or adjacent to the corridor would occur. The expressway itself would permit the transport of such materials, which is governed by applicable federal and state laws, just as would be carried on any other state highway.

With the SR-103 Extension under Alternative 2, the chances of an accidental release of hazardous materials into the environment will be increased along the alignment, as there would be additional traffic along the route. All transport of hazardous materials is subject to federal, state and local regulations intended to minimize public safety risks. As required under law, the transportation of hazardous materials and wastes is monitored to ensure the notification of local jurisdictions in the event of a release.

There is the potential for spills of toxic and hazardous materials being transported on the facility proposed under Alternative 2. The potential for spills would be approximately the same as for spills on other existing roads and freeways in the project area. However, Alternative 2 would introduce the potential risk associated with highway transport of hazardous materials to areas not presently subject to this risk. There is the potential for a transportation accident involving hazardous materials to result in explosion, fire, physical contact by emergency response personnel, potential airborne exposure of the public to contaminants, and surface/groundwater contamination. The spill of a toxic and/or hazardous waste from a vehicle would be regulated and cleaned up in accordance with existing federal, state, and local regulations.

Flyover design would entail drainage facilities that would channel any drainage or spill into collection systems and prevent spillage onto the roadway below.

The number of hazardous materials shipments carried along the new SR-103 Extension generally would be a function of the production of (or the demand for) hazardous materials within the region, and is not directly related to the size or condition of the expressway. Any increase in the number of hazardous materials shipments could bring an increased risk of upset or accidents involving the release of hazardous materials into the environment, although such risk is independent of implementation of Alternative 2. However, implementation of Alternative 2 would be expected to reduce traffic congestion and enhance safety generally, thereby reducing the risk of an accident involving a hazardous materials shipment.

3.12.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.12.3.3.3.1 Construction Effects

Construction effects under Alternative 3 would be largely the same as those described for Alternative 1. However, Alternative 3 would involve greater encroachment onto Pier S than would Alternative 1 and could encounter the soil remediation cells on that site. In such an event, the DTSC would be contacted to determine the course of action that is most protective of human health and the environment prior to commencement of work. Although a Land Use Covenant has not been instituted on this site, the Port of Long Beach and DTSC will not allow disturbance of the soil without approval. Based on regulatory agency determination and test results, the soil either would be left in place or disposed of at an appropriate disposal site. In addition, this alternative will require the abandonment of two existing active oil wells on Pier S. The California Division of Oil, Gas, and Geothermal Resources (Division) supervises the drilling, operation, maintenance, plugging, and abandonment of onshore and offshore oil, gas, and geothermal wells in order to prevent damage to life, health, and property. The Division has procedures and requirements that must be followed to ensure such actions occur properly and to prevent future problems. The well abandonments would comply with Division requirements. Adverse effects related to hazardous materials releases are not anticipated.

3.12.3.3.3.2 Operations Effects

Operations effects under Alternative 3 would be the same as those described for Alternative 1.

3.12.3.3.4 Alternative 4: Bridge Replacement Only

3.12.3.3.4.1 Construction Effects

Construction effects under Alternative 4 would be the same as those described for Alternative 1 for the bridge replacement only, as this alternative would not include construction of an expressway or flyover.

3.12.3.3.4.2 Operations Effects

Operations effects under Alternative 4 would be the same as those described for Alternative 1 for the bridge replacement only.

3.12.3.3.5 Alternative 5: Transportation System Management

3.12.3.3.5.1 Construction Effects

Since the TSM alternative would not include any major capital improvements, there would be negligible effects related to hazardous materials and wastes as a result of the minor traffic improvements.

3.12.3.3.5.2 Operations Effects

With this alternative, the existing Schuyler Heim Bridge would remain in place and in use and, therefore, would require ongoing maintenance, as occurs under existing conditions. Bridge maintenance activities would include, but not be limited to, painting, surface treatments and surface cleaning, repaving, and repair of the substructure, joints, drainage structures, and pavement. As occurs under existing conditions, these activities include the potential for release of hazardous substances.

3.12.3.3.6 Alternative 6: No Build

3.12.3.3.6.1 Construction Effects

There are no construction effects associated with the No Build alternative.

3.12.3.3.6.2 Operations Effects

The operations effects under the No Build alternative are the same as those described above for Alternative 5. These effects include ongoing maintenance activities and the potential release of hazardous substances.

3.12.3.3.7 CEQA Consequences

Based on the information provided in the above analysis, in accordance with CEQA criteria, under Alternatives 1, 2, 3, 4, and 5, impacts would be less than significant or there would be no impact. Under Alternative 6, no impacts would occur related to hazardous waste and hazardous materials. Specifically, transport, use and disposal of hazardous materials, or accidental release of hazardous materials, would be less than significant under Alternatives 1 through 5. Under Alternatives 1 and 3, emissions within one-quarter mile of a school would be less than significant, and there would be no impact related to hazardous waste and hazardous materials under Alternatives 2, 4, 5, and 6.

Under Alternatives 1, 2, 3, and 4, impacts related to the project being located on a listed hazardous materials site, impacts would be less than significant. Under Alternatives 5 and 6, there would be no impact.

Under Alternatives 1 through 5, impacts related to project location within an airport land use plan, within 2 miles of an airport, or near a private airstrip would be less than significant, as would impacts related to emergency response or evacuation plans. There would be no impact under any of the six project alternatives to impacts related to wildland fires. For Alternative 6, there would be no impact.

Potential impacts of the proposed project alternatives related to Hazardous Waste/ Hazardous Materials are assessed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis. Also see Appendix A – CEQA Checklist (VII, Hazards and Hazardous Materials).

3.12.4 Avoidance, Minimization, and/or Mitigation Measures

During preparation of the Final EIS/EIR, a new EDR database search will be performed and incorporated into a "Revised Final" ISA for the project. When an alternative is selected, approved, and funded, an updated ISA and preliminary site investigation (PSI) will be performed in consultation with Caltrans staff during the Plans, Specifications, and Estimates (PS&E) phase of the project for all properties within the proposed alignment of the preferred alternative. This will identify sites that are environmentally adverse. If a build alternative is chosen, a parcel-by-parcel investigation will be performed for properties identified as environmentally adverse, with the potential to affect the alternative right-of-way.

3.12.4.1 Avoidance and Minimization Measures

3.12.4.1.1 Alternatives 1, 1A, and 4

3.12.4.1.1.1 Construction

HAZ-1 Conduct a soil investigation prior to any soil excavation for the build alternatives. The investigation would assess the potential presence of hazardous contaminants and determine disposal options if necessary for the contaminated soil. The soil investigation could consist of an ADL investigation and investigation for other contaminants of concern due to effects from adjoining properties.

HAZ-2 Evaluate soil and groundwater information for the adjoining Sunshine Truck Stop, LA Refining Company, Texaco Refining, TCL, Dow Chemical, Hugo Neu-Proler, Pier S, and former Long Beach Naval Shipyard property to assess potential effects related to the project. If the review indicates evidence of contamination or a lack of sufficient data, a soil and groundwater investigation will be conducted, and further measures will be implemented, as necessary.

HAZ-3 Inform demolition contractors of the potential presence of LBP in structures subject to demolition, and applicable Occupational Safety and Health Administration (OSHA) and other regulatory measures shall be adhered to in the demolition of such structures. If contamination is encountered during the construction process, implement appropriate health and safety measures to protect workers and the general public. Such measures may include engineering controls, requiring appropriate personal protective equipment, worker monitoring, and site-specific health and safety plans.

HAZ-4 A licensed professional will conduct a predemolition survey of the Schuyler Heim Bridge ACM and LBP. The purpose of the survey would be to determine the presence of regulated and/or potentially hazardous construction materials on the bridge. Any demolition activities that would remove or disturb these materials would implement measures in accordance with applicable regulations. As required by law, the abatement contractor shall be a licensed professional.

HAZ-5 Conduct asbestos removal in conformance with Rule 1403 of the South Coast Air Quality Management District (SCAQMD) and EPA's National Emissions Standards for Hazardous Air Pollutants regulation.

HAZ-6 Paint from the dismantled bridge sections would be chemically removed at a suitable offsite location in an upland area. This will be done to avoid the introduction of lead-based paint into the receiving waters. If paint removal is necessary during the dismantling process, the contractor would comply with all applicable laws and regulations to ensure protection of receiving waters.

3.12.4.1.2 Alternative 2

3.12.4.1.2.1 Construction

See **HAZ-1**, **HAZ-3**, **HAZ-4**, **HAZ-5**, and **HAZ-6**, above.

HAZ-7 Groundwater data for Alternative 2 currently are not available. However, considering the history and nature of activities conducted at some of the sites within the Alternative 2 right-of-way, it is recommended that a groundwater evaluation be conducted, to determine the measures necessary so as not to cause drag down of contamination during drilling/pile driving, migration of contamination, or create a conduit for migration of contamination, assess disposal alternatives for groundwater encountered during construction, and to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permitting process. If groundwater is found to be contaminated, it would be treated in place as allowed by a permit issued by the appropriate regulatory agency and/or transported for treatment and/or disposal at an appropriate facility, in accordance with applicable regulations.

HAZ-8 If soil excavation is necessary in the vicinity of the two former landfills along the Alternative 2 alignment, there is the potential to encounter hazardous waste, based on past activities. Therefore, it is recommended that a soil investigation be conducted. If soil is found to be contaminated, it would be treated in place and/or excavated and transported for treatment and/or disposal at an appropriate facility, in accordance with applicable regulations.

One of the former landfills, the Alameda Street Landfill, is proposed to be included in the National Priority List (NPL). Therefore, coordination with the U.S. Environmental Protection Agency and Department of Toxic Substances Control (DTSC) is recommended while evaluating the viability of Alternative 2.

3.12.4.1.3 Alternative 3

3.12.4.1.3.1 Construction

See **HAZ-1** and **HAZ-2**, above.

3.12.4.1.3.2 Operations

Under Alternative 3, the Schuyler Heim Bridge would remain in place and would require ongoing maintenance. The following would apply.

Maintenance Activities

A Federal Highway Administration (FHWA) study concluded that most highway maintenance practices that could adversely affect water quality can be effectively minimized or reduced through readily available control practices or BMPs. An NCHRP report notes that fully enclosed containment structures are capable of recovering 85 to 90 percent of abrasives, paint particles, and dust for simple spans. However, this may not be feasible for bridges with high trusses or other complex structures.

See **WQ-2** in Section 3.10, Water Quality and Stormwater Runoff.

3.12.4.1.4 Alternatives 5 and 6

Under Alternatives 5 and 6, the Schuyler Heim Bridge would remain in place and would require ongoing maintenance, as described above for Alternative 3.

See **WQ-2** in Section 3.10, Water Quality and Stormwater Runoff.

3.12.4.2 Mitigation Measures

No mitigation measures related to hazardous waste/hazardous materials are proposed for any of the project alternatives.

3.13 Air Quality

This chapter evaluates the potential air quality effects of the proposed action. The information contained in this section is based upon the *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Air Quality Impacts Technical Study* which is hereby incorporated by reference in its entirety (Caltrans, 2007).

3.13.1 Regulatory Setting

3.13.1.1 Federal Requirements

Federal air quality policies are regulated through the federal Clean Air Act (CAA). The United States Environmental Protection Agency (EPA) adopted the CAA in 1970 and its amendments in 1977 and 1990. Pursuant to the CAA, EPA has established nationwide air quality standards to protect public health and welfare with an adequate margin of safety. These federal standards, known as the national ambient air quality standards (NAAQS), represent the maximum allowable atmospheric concentrations and were developed for seven "criteria" pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter less than 10 microns in aerodynamic diameter, (PM_{10}) and $PM_{2.5}$, sulfur dioxide (SO_2), and lead (Pb). The State of California has also established maximum allowable concentrations for these pollutants. The federal (and California) ambient air quality standards are summarized in Table 3.13-1 and represent safe levels of each pollutant to avoid specific adverse effects to human health and the environment.

Table 3.13-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	Federal Standards[b]	
			Primary[c]	Secondary[d]
O_3	8 Hours	0.07 ppm	0.08 ppm	0.08 ppm
	1 Hour	0.09 ppm	—[e]	—[e]
CO	8 Hours	9.0 ppm	9 ppm	—
	1 Hour	20 ppm	35 ppm	—
NO_2	Annual Average	— (0.03 ppm)[h]	0.053 ppm	0.053 ppm
	1 Hour	0.25 (18) ppm[h]	—	—
$S0_2$	Annual Average	—	0.030 ppm	—
	24 Hours	0.04 ppm	0.14 ppm	—
	3 Hours	—	—	0.5 ppm
	1 Hour	0.25 ppm	—	—
$PM_{2.5}$	Annual Geometric Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	15 $\mu g/m^3$
	24 Hours	—	35 $\mu g/m^3$[f]	35 $\mu g/m^3$
PM_{10}	Annual Arithmetic Mean	20 $\mu g/m^3$	—[f]	—
	24 Hours	50 $\mu g/m^3$	150 $\mu g/m^3$	150 $\mu g/m^3$
Lead	30-Day Average	1.5 $\mu g/m^3$	—	—
	Calendar Quarter	—	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

Table 3.13-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	Federal Standards[b]	
			Primary[c]	Secondary[d]
Sulfates	24 Hours	25 $\mu g/m^3$	—	—
Hydrogen Sulfide	1 Hour	0.03 ppm	—	—
Vinyl Chloride	24 Hours	0.010 ppm	—	—
Visibility-Reducing Particles	8 Hours (10 AM to 6 PM, PST)	See Note [g]	—	—

Notes:

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5,}$ and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.

[b] National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1.

[c] National Primary Standards represent the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] National Secondary Standards represent the levels of air quality necessary to protect the environment, including public welfare, from any known or anticipated adverse effects of a pollutant.

[e] On June 15, 2005, the 1-hour ozone standard of 0.12 parts per million (ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. (Those areas do not yet have an effective date for their 8-hour designations.)

[f] On September 21, 2006, the EPA promulgated a new 24-hour $PM_{2.5}$ standard and revoked the annual PM_{10} standard. These changes were effective December 17, 2006. To attain the new $PM_{2.5}$ standard, the 3-year average of the 98th percentile 24-hour concentration at each population-oriented monitor within an area must not exceed 35 $\mu g/m^3$.

[g] A sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

[h] The California air quality standards for NO_2 were amended on February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.03 ppm. These changes will become effective after regulatory changes are submitted an approved by the Office of Administrative Law, expected late in 2007.

ppm parts per million by volume
PST Pacific Standard Time
$\mu g/m^3$ micrograms per cubic meter
Source: ARB, 2007 (http://www.arb.ca.gov/aqs/aqs.htm), updated 02/22/2007

The 1977 CAA amendment required each state to develop and maintain a State Implementation Plan (SIP) for each criteria pollutant that violates the applicable NAAQS. The SIP serves as a tool to avoid and minimize emissions of pollutants that exceed ambient threshold criteria and to achieve compliance with the NAAQS. In 1990, the CAA was amended to strengthen regulation of both stationary and mobile emission sources for criteria pollutants. Conformity to the SIP is defined under the 1990 CAA amendments as conformity with the plan's purpose in eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of these standards.

Under the 1990 CAA amendments, EPA has issued two types of SIP conformity guidelines: transportation conformity rules that apply to transportation plans and projects, and general conformity rules that apply to all other federal actions. Under transportation conformity, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the CAA requirements. Under general conformity, the EPA requires all federal agencies to ensure that any federal action resulting in nonattainment criteria pollutant emissions conforms to an approved or promulgated state or federal implementation plan. Transportation and general conformity, and how these requirements apply to the proposed project, are discussed below.

3.13.1.1.1 Transportation Conformity

Transportation conformity is an analytical process required for all federally funded transportation projects in California. The Southern California Association of Governments (SCAG) is the federally designated Metropolitan Planning Organization (MPO) responsible for transportation planning in the South Coast Air Basin (Basin). Air quality provisions in the CAA, transportation planning provisions of United States Code (USC) Title 23 and Title 49 and Code of Federal Regulations (CFR) Title 40 Parts 51 and 93 are intended to ensure that integrated transportation and air quality planning occurs in areas such as Los Angeles County, which are designated by EPA as nonattainment or maintenance areas for ambient levels of CO, O_3, PM_{10}, and $PM_{2.5}$.The transportation conformity process establishes the major connection between transportation planning and emission reductions from transportation sources. In addition, the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 (revised in 1998 as TEA-21) linked compliance with conformity requirements to continued Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding of transportation plans, programs, and projects. These requirements were not changed with enactment of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) on August 10, 2005.

Under the 1990 CAA Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the SIP for achieving the goals of the CAA requirements. Conformity with the CAA takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved. A brief outline of the regional and project-level conformity process follows.

3.13.1.1.1.1 Regional Conformity Determination

Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO_2, O_3, and PM. The South Coast Air Basin (SCAB) is currently designated as nonattainment for O_3, PM_{10}, and $PM_{2.5}$, and was recently re-designated as an attainment/maintenance area for CO (June 2007). The SCAB is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the regional planning organization, SCAG, and the appropriate federal agencies, such as the FHWA, make the determination that the RTP is in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

3.13.1.1.1.2 Project-Level Conformity

In addition to regional conformity, a project-level conformity determination is also required in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas. The following criteria are required to demonstrate project-level conformity:

- The project is listed in a conforming RTP and Regional Transportation Improvement Program (RTIP).
- The design concept and scope that were in place at the time of the conformity finding are maintained through implementation.
- The project design concept and scope must be defined sufficiently to determine emissions at the time of the conformity determination.
- The project must not cause a new local violation of the federal standards for CO, PM_{10}, or $PM_{2.5}$ or exacerbate an existing violation of the federal standards for CO, PM_{10}, or $PM_{2.5}$.

Project-level conformity for the final criteria listed above is demonstrated by performing "hot spot" analyses in areas designated as "nonattainment" or "maintenance" areas for CO, PM_{10}, and $PM_{2.5}$. A region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called maintenance areas. Further discussion of attainment status is provided in Section 3.13.2.3.

3.13.1.1.1.3 Applicability of Transportation Conformity to the Proposed Action

The proposed action of Schuyler Heim Bridge replacement and the expressway is subject to transportation conformity requirement, as well as National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) evaluation.

3.13.1.1.2 General Conformity

The EPA has issued regulations addressing the applicability and procedures for ensuring that federal activities comply with the amended CAA. The EPA Final Conformity Rule implements Section 176(c) of the CAA, as amended in 42 USC 7506(c). This rule was published in the *Federal Register* on November 30, 1993, and took effect on January 31, 1994.

- The EPA Final Conformity Rule requires all federal agencies to ensure that any federal action resulting in nonattainment or maintenance criteria pollutant emissions conforms to an approved or promulgated state or federal implementation plan. Conformity means compliance with the purpose of attaining or maintaining the NAAQS. Specifically, this means ensuring that the federal action will not: (1) cause a new violation of the NAAQS, (2) contribute to any increase in the frequency or severity of violations of existing NAAQS, or (3) delay the timely attainment of any NAAQS interim or other attainment milestones.

The current General Conformity Rule applies only to federal actions in NAAQS nonattainment and maintenance areas, such as Los Angeles County. Under the general conformity provisions of the federal CAA, no federal agency can approve a project unless the project has been demonstrated to conform to the applicable air quality management plan or SIP. Since replacement of the Schuyler Heim Bridge will include approval of a federal agency, the FHWA, general conformity rule applies to the project.

Replacing the current Schuyler Heim lift-span bridge with a fixed-span bridge would force taller marine vessels to take a longer route around Terminal Island and would delay vessels with adjustable height masts. In addition, marine traffic would be restricted during bridge construction. The increase in trip times for the marine vessels would result in increased emissions of criteria pollutants. These indirect emissions from marine vessels are subject to general conformity requirements as specified in the EPA Final Conformity Rule, 40 CFR 93, Subpart B, and 40 CFR 51, Subpart W. Other emissions, including emissions associated with construction equipment exhaust and fugitive dust during project construction, and vehicle emissions within the project area during project operation, were assumed to be covered under the transportation conformity requirements and, thus, are not subject to the general conformity rule.

3.13.1.1.3 Mobile Source Air Toxics (MSAT)

The CAA identified 188 air toxics, also known as hazardous air pollutants. EPA has assessed this expansive list of toxics and identified a group of 21 as mobile source air toxics (MSATs), which are set forth in an EPA final rule, *Control of Emissions of Hazardous Air Pollutants from Mobile Sources* (66 FR 17235). EPA also extracted a subset of this list of 21 that it now labels as the six priority MSATs. These MSATs are benzene, formaldehyde, acetaldehyde, diesel particulate matter (DPM)/diesel exhaust organic gases, acrolein, and 1,3-butadiene. FHWA has developed an interim guidance on how to analyze MSATs in the NEPA process for highways. The entire MSAT analysis is presented in an Appendix to the *Final Schuyler Heim Bridge Replacement and SR-47 Expressway Project Air Quality Impacts Technical Study* (Caltrans, 2007).

3.13.1.2 State Requirements

The California Air Resources Board (ARB) oversees California air quality policies. California ambient air quality standards (CAAQS), shown in Table 3.13-1, were established in 1969 pursuant to the Mulford-Carrell Act. These standards are generally more stringent than the NAAQS and include four additional pollutants: sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulates. The California CAA, which was approved in 1988, requires each local air district in the state to prepare an Air Quality Management Plan (AQMP) that complies with the CAAQS.

3.13.1.3 Regional and Local Requirements

The South Coast Air Quality Management District (SCAQMD) is the local agency responsible for ensuring that federal and state ambient air quality standards are attained and maintained in the Greater Los Angeles area, which includes all or portions of Los Angeles, Orange, Riverside, and San Bernardino counties. SCAG is the federally designated MPO responsible for transportation planning. As such, SCAG is required to ensure that all transportation plans, programs, and projects conform to the state and federal Clean Air Acts. The SCAQMDAQMP/SIP outlines policies and mitigation measures to achieve federal and state standards for healthful air quality in the South Coast Air Basin (Basin). The most recent EPA-approved South Coast SIPs are the 1997 Air Quality Management Plan (SCAQMD, 1997) and the *1999 Amendment to the 1997 Ozone AQMP Revision for the South Coast Air Basin and Settlement Agreement on the 1994 Ozone SIP Litigation* (SCAQMD, 1999).

The 2003 AQMP/SIP was approved by the SCAQMD Board of Directors and ARB in 2003 (SCAQMD, 2003). The 2003 AQMP was submitted to EPA for approval on January 9, 2004. On March 25, 2004, EPA found the South Coast SIP budgets in the 2003 AQMP for transportation projects to be adequate (Federal Register [FR] Vol. 69, No. 58, 15325). SCAQMD Rule 403 (Fugitive Dust) requires specific actions or measures to prevent, reduce, or mitigate particulate matter emissions generated from man-made fugitive dust sources. Required actions for each fugitive dust source within the active operation are listed in Rule 403 Table 1, Best Available Control Measures. Additional requirements for large operations with 50 acres or more of disturbed surface area, or with a daily earth-moving or throughput volume of 5,000 cubic yards are listed in Rule 403 Tables 2 and 3. However, the requirements for larger operations do not apply to this project.

SCAQMD Rule 1166 (Volatile Organic Compound Emissions from Decontamination of Soil) limits the emissions of volatile organic compounds (VOCs) from soil contaminated with VOC as a result of leakage from storage or transfer facilities, accidental spillage, or other deposition. Rule 1166 will apply during the construction phase of the proposed project and is addressed below in Section 3.13.3.5.1.1.

3.13.2 Affected Environment

3.13.2.1 Climate

The project site is located in the western-most portion of the Basin in Los Angeles County. The Basin experiences a mild and fairly dry climate, with mean average temperatures ranging from approximately 55 degrees Fahrenheit (°F) in the winter to approximately 83°F in the summer. Average wind speeds in the Basin are light and primarily from the west. The normal daily wind pattern is characterized by a daytime sea breeze and a weak nighttime land breeze. Region-wide elevated temperature inversions are common and can occur at any time of the year. The usually mild climatological pattern of the area is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. Elevated terrain to the north and east of the Basin, combined with temperature inversions and low wind speeds, often result in poor air circulation of the area and, consequently, poor air quality.

3.13.2.2 Ambient Air Quality

A network of ambient air quality monitoring stations located throughout the Basin characterize the air quality environment in the Basin. The North Long Beach monitoring station is located closest to the project area (approximately 5 miles northeast) and provides ambient air quality data representative of local conditions. The North Long Beach station monitors CO, O_3, SO_2, NO_2, PM_{10}, and $PM_{2.5}$. These six pollutants are called “criteria” pollutants. Federal and state standards that have been established represent the maximum allowable atmospheric concentrations of these pollutants. The state and federal ambient air quality standards are listed in Table 3.13.1.

Ambient air quality data from the North Long Beach monitoring station for the years 2004, 2005, and 2006 are summarized in Table 3.13-2, which lists maximum pollutant levels measured and the number of days each year the ambient concentrations were above federal and state standards. The state and federal CO, NO_2, and SO_2 standards for the years 2004 to 2006, inclusive, were not exceeded at the North Long Beach station. In the past 3 years, there were no violations of the federal 8-hour O_3 standard or the California 1-hour O_3 standard. The state annual arithmetic mean standard for PM_{10} has been exceeded in all 3 years, and a total of 13 days exceeded the state 24-hour PM_{10} standards. However, there have been no recorded exceedances of the federal 24-hour PM_{10} standard in the past 3 years. The federal 24-hour $PM_{2.5}$ standard was exceeded once in the past 3 years. The state standard for the annual average $PM_{2.5}$ concentration was exceeded in each of the past 3 years, while the federal standard for the annual average $PM_{2.5}$ concentration for the same time period was exceeded in 2 of the 3 years.

Table 3.13-2
Summary of Maximum Ambient Air Monitoring Levels

Pollutant	Averaging Time	2004	2005	2006
CO (ppm)	1-Hour	4.2	4.2	4.2
	Days of State Exceedances	0	0	0
	Days of Federal Exceedances	0	0	0
	8-Hour	3.37	3.51	4.66
	Days of State Exceedances	0	0	0
	Days of Federal Exceedances	0	0	0
O_3 (ppm)	1-Hour	0.090	0.091	0.081
	Days of State Exceedances	0	0	0
	8-Hour	0.074	0.069	0.058
	Days of State Exceedances	--	--	--
	Days of Federal Exceedances	0	0	0
NO_2 (ppm)	Annual Average	0.028	0.024	0.022
	Federal Exceedances	0	0	0
	1-Hour	0.121	0.136	0.102
	Days of State Exceedances	0	0	0
SO_2 (ppm)	Annual Average	0.005	0.002	0.001
	Federal Exceedances	0	0	0
	24-Hour	0.013	0.010	0.010
	Days of State Exceedances	0	0	0
	Days of Federal Exceedances	0	0	0
	3-Hour	0.026	0.033	0.023
	Days of Federal Exceedances	0	0	0
	1-Hour	0.042	0.041	0.027
	Days of State Exceedances	0	0	0
PM_{10} (µg/m^3)	Annual Arithmetic Mean	33	30	31
	State Exceedances	1	1	1
	24-Hour	72	66	78
	Days of State Exceedances	5	4	5
	Days of Federal Exceedances	0	0	0

Table 3.13-2
Summary of Maximum Ambient Air Monitoring Levels

$PM_{2.5}$ ($\mu g/m^3$)	Annual Arithmetic Mean	17.9	15.9	14.1
	State Exceedances	1	1	1
	Federal Exceedances	1	1	0
	24-Hour	66.6	53.8	58.5
	Days of Federal Exceedances	1	0	0

Notes:
1. Monitoring data from the North Long Beach Monitoring Station (060374002) monitor.
2. Hydrogen sulfide, vinyl chloride, and visibility-reducing particles are not monitored.

ppm parts per million
$\mu g/m^3$ micrograms per cubic meter
Source: CARB, 2007b, www.arb.ca.gov/adam/welcome, as of July 2007.
EPA, 2007, www.epa.gov/air/data, as of July 2007.

3.13.2.3 Attainment Status

The federal CAA requires the EPA to designate areas in the country as attainment or nonattainment with respect to each criteria pollutant, depending on whether the areas meet the national ambient air quality standards. Similarly, the California CAA requires the ARB to designate areas in the state as attainment or nonattainment, depending on whether the areas meet the California ambient air quality standards. (Section 3.13.1.1 provides a detailed discussion of the federal CAA.) Both the EPA and ARB have used counties as the areas to designate attainment/nonattainment status in California. Table 3.13-3 presents the current State and Federal designations for Los Angeles County, which includes the project area.

Table 3.13-3
State and Federal Air Quality Designations for Los Angeles County (as of December 6, 2006)

Pollutant	State Designation	Federal Designation
Ozone (8-hour)	Nonattainment	Severe Nonattainment
Ozone (1-hour)	Nonattainment	Revoked [70 FR 44470][1]
PM_{10}	Nonattainment	Serious Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance [2]
All Others	Attainment/Unclassified	Attainment/Unclassified

Notes:
1. On June 15, 2005, the 1-hour ozone standard of 0.12 parts per million (ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. (Those areas do not yet have an effective date for their 8-hour designations.)
2. EPA has re-designated South Coast Air Basin as attainment for CO, effective June 11, 2007.

Data sources:

CARB, 2006 State Area Designations, http://www.arb.ca.gov/desig/desig.htm, accessed in July 2007.

EPA, www.epa.gov/air/oaqps/greenbk/index.html, federal designation as of June 15, 2007.

3.13.2.4 Sensitive Receptors

Sensitive air quality receptors, as defined by the SCAMQD (2006), include receptors such as residences, schools, and hospitals. The ambient air concentrations shown in Table 3.13-2 are representative of the existing conditions experienced by sensitive receptors located near the project area. The immediate vicinity of the project area includes the Port of Long Beach and the community of Wilmington in Los Angeles. The community of Wilmington is just west of the proposed SR 47 Expressway and includes sensitive air quality receptors such as residences, schools, and hospitals. The nearest hospital is located about 1.4 miles northwest of the north end of the proposed SR-47 Expressway. The nearest residences are approximately 100 feet west of the SR 47 Expressway near Alameda Street and Henry Ford Avenue. The school nearest to the proposed project is the Wilmington Park School at 1140 Mahar Avenue, approximately 700 feet west of the connection of proposed SR-47 and Alameda Street. Other schools in the area include:

- Holy Family Grammar School (1122 Roubidoux)
- Phineas Banning High School (1527 Lakme Avenue)
- Bonita Street Elementary School (21929 Bonita Street)
- Webster Elementary School (1755 West 32 Way)
- Elizabeth Hudson Elementary School (2335 Webster Avenue)
- Muir Elementary School (3038 Delta Avenue)
- California Heights Parent Participation Nursery School (1500 East Carson Street)
- Reid High School (2152 West Hill Street)
- Mary McLeod Bethune Child Development Center (2041 San Gabriel Avenue)
- Stephens William Logan Middle School (1830 West Columbia Street)

Residences are also located aboard moored vessels in the marina to the west of the Schuyler Heim and Henry Ford bridges and the Long Beach Silverado Senior Center is located near the project area at 1545 West 31st Street.

3.13.3 Environmental Consequences

3.13.3.1 Federal Evaluation Criteria

3.13.3.1.1 Transportation Conformity

As stated above, the following items are required to demonstrate project-level conformity for the SR-47 Expressway:

- The project is listed in a conforming RTP and RTIP.
- The design concept and scope that were in place at the time of the conformity finding are maintained through implementation.
- The project design concept and scope must be defined sufficiently to determine emissions at the time of the conformity determination.
- The project must not cause a new local violation of the federal standards for CO, PM_{10}, or $PM_{2.5}$ or exacerbate an existing violation of the federal standards for CO, PM_{10}, or $PM_{2.5}$.

3.13.3.1.2 General Conformity

Increases in marine vessel emissions due to project construction and operation are subject to general conformity applicability analysis. The EPA Final Conformity Rule requires that total emissions of nonattainment and maintenance criteria pollutants, including O_3 precursors (VOCs or reactive organic gases [ROG], and nitrogen oxides [NO_x]), be considered in determining conformity. If a project meets the following requirements, detailed conformity analyses are not required pursuant to 40 CFR 93.153(c):

- The total direct and indirect emissions of nonattainment or maintenance pollutants are less than the applicable *de minimis* thresholds established in 40 CFR 93.153(b) and
- The total emissions of nonattainment or maintenance pollutants are not regionally significant. Emissions would be considered regionally significant if they were equal to or exceeded 10 percent of the air quality control area's emissions budget for the applicable pollutant.

Table 3.13-4 summarizes the *de minimis* levels and regional emissions for CO, ozone precursors (ROG and NO_x), PM_{10}, and $PM_{2.5}$ (including SO_2 as precursor), for which Los Angeles County has been federally designated nonattainment.

Table 3.13-4
General Conformity De Minimis Levels and Basin Inventory Emissions Applicable to the Proposed Action

	CO (ton/year)	NO_x (ton/year)	ROG (ton/year)	SO2 (ton/year)	PM10 (ton/year)	$PM_{2.5}$ (ton/year)
***De minimis* Levels**	100	25	25	100	70	100
Basin Emission Inventory[1]	1,219,465	254,405	281,050	25,550	168,995	--[2]
10% of Emission Inventory	121,946	25,441	28,105	2,555	16,899	--[2]

Notes:

1. Basin emissions inventory data were obtained from 1997 AQMP (SCAQMD, 1997) and 1999 Amendment to the 1997 Ozone AQMP Revision for the South Coast Air Basin and Settlement Agreement on the 1994 Ozone SIP Litigation (SCAQMD, 1999). Emissions inventory data for 2010 were used for the emissions comparisons.
2. The emission inventories in the 1997/1999 AQMPs did not include $PM_{2.5}$.

3.13.3.1.3 Mobile Source Air Toxics

Currently, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA context. FHWA has developed an interim guidance on how to analyze MSATs in the NEPA process for highways. Depending on the specific project circumstances, FHWA has identified three levels of analysis depending on a project's potential MSAT impacts: (1) no analysis for projects with no potential for meaningful MSAT effects; (2) qualitative analysis for projects with low potential MSAT effects; and (3) quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

3.13.3.2 State Evaluation Criteria

Potential impacts of the proposed project alternatives are assessed in the context of CEQA criteria for Air Quality in Chapter 4 – CEQA Analysis.

3.13.3.3 Regional and Local Evaluation Criteria

In addition to the CEQA criteria, the SCAQMD has recommendations for construction and operation significance thresholds. Air quality impacts resulting from construction were deemed significant if daily emission estimates were above the significance thresholds for construction emissions provided in the SCAQMD CEQA Air Quality Handbook (SCAQMD, 2006). The construction emission thresholds are provided below.

- 75 pounds per day ROG
- 100 pounds per day NO_X
- 550 pounds per day CO
- 55 pounds per day $PM_{2.5}$
- 150 pounds per day PM_{10}
- 150 pounds per day SO_X

Indirect impacts resulting from marine vessel emissions would be considered significant if the resulting increase would be above the significance thresholds for operational emissions provided in the SCAQMD CEQA Air Quality Handbook (SCAQMD, 2006). The operational emission thresholds are provided below.

- 55 pounds per day ROG
- 55 pounds per day NO_X
- 550 pounds per day CO
- 55 pounds per day $PM_{2.5}$
- 150 pounds per day PM_{10}
- 150 pounds per day SO_X

3.13.3.4 Methodology

3.13.3.4.1 Transportation Conformity

Project-level transportation conformity is demonstrated by inclusion of the project in the adopted RTP and approved RTIP. Both the regional-level and project–level CO, PM_{10}, and $PM_{2.5}$ hot spot analyses for the proposed build alternatives during project operations will have been addressed as required by the regional plan and program. The hot spot analyses were based on the Caltrans guidance document, *Transportation Project-Level Carbon Monoxide Protocol* (*CO Protocol*) (UCD, 1997), the *Technical Report: Particulate Matter and Transportation Project Analysis Protocol* (PM_{10} protocol) (UCD, Caltrans, FHWA; 2005), and the FHWA/EPA guidance document, *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (EPA, 2006). The CO hot spot modeling was performed using CAL3QHC according to the methodology outlined in the *CO Protocol*. CO emission factors were calculated with EMFAC2002, using default vehicle population data for the Basin. The modeled CO concentrations were combined with the predicted CO background concentrations and compared with the air quality standards. The CO hot spot analysis is summarized in Section 3.13.3.4.1.2. The PM_{10} and $PM_{2.5}$ hot spot analyses are summarized in Section 3.13.3.4.1.3. Detailed documentation of the CO and $PM_{2.5}$ hotspot analyses are available in appendixes to the Air Quality Technical Study (Caltrans, 2007).

The originally proposed Schuyler Heim Bridge Replacement and SR-47 Expressway (Project ID: LA0D45) was included in the approved SCAG 2006 RTIP and the 2004 RTP, as amended in 2006 by the Metropolitan Transportation Authority (MTA) and the Southern

California Association of Governments (SCAG). It is expected that changes to the project scope will be included in the draft 2008 RTP in October or November of 2007, with the final RTP approval in March 2008.

3.13.3.4.1.1 Vehicle Operations Emissions

The Schuyler Heim Bridge/SR-47 project is consistent with the proposed 2008 RTP that will be adopted by SCAG in March 2008 and with amendments to the 2006 RTIP anticipated in July/August 2008. The vehicle operations emissions were included in this section for illustration purposes only.

As shown in Table 3.13-5, criteria pollutant emissions from Alternatives 1 and 3 are lower than emissions from the No Build alternative due to a predicted decrease in vehicle miles traveled (VMT) in the study area for 2011, 2015, and 2030. Emissions for Alternative 4 are predicted to be the same as those for the No Build alternative because VMT in the project area is predicted to be the same. CO emissions from Alternative 2 in 2011 and 2015 are slightly higher than the No Build alternative because Alternative 2 has a higher passenger car VMT. Increased VMT for Alternative 2 is attributable to increased capacity from the extension of SR-103. All future year scenarios have emissions less than the baseline 2003 conditions. This decrease in emissions over time can be attributed to EPA and ARB regulations that would require cleaner fuels and cleaner engines in future years.

Table 3.13-5
Daily Vehicle Emissions for the Project Study Area

		CO (lb/day)	NO_X (lb/day)	ROG (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2003	**No Build**	56,891	24,491	2,822	254	753	549
2011	**No Build**	27,862	14,560	1,261	56	701	368
	Alternative 1	27,787	14,631	1,249	56	691	363
	Alternative 2	28,413	13,941	1,242	55	668	353
	Alternative 3	27,787	14,631	1,249	56	691	363
	Alternative 4	27,862	14,560	1,261	56	701	368
2015	**No Build**	21,007	9,822	938	62	541	346
	Alternative 1	20,879	9,841	928	61	536	342
	Alternative 2	21,081	9,983	939	62	543	346
	Alternative 3	20,879	9,841	928	61	536	342
	Alternative 4	21,007	9,822	938	62	541	346
2030	**No Build**	10,633	3,399	561	77	592	361
	Alternative 1	10,312	3,385	533	76	574	344
	Alternative 2	10,394	3,421	539	77	579	347
	Alternative 3	10,312	3,385	533	76	574	344
	Alternative 4	10,633	3,399	561	77	592	361

3.13.3.4.1.2 Localized CO Effects

The fourth criteria for demonstrating transportation conformity is an analysis of CO, PM_{10}, and $PM_{2.5}$ hot spots. Localized CO effects were assessed by estimating the maximum ambient CO concentrations near the intersections assumed to have the greatest potential effect for the buildout and planning horizon years of 2011 and 2030, respectively. The predicted concentrations were compared to the NAAQS and CAAQS for CO. Detailed input values and modeling files are available in the Air Quality Technical Study (Caltrans, 2007). Maximum 1-hour and 8-hour CO concentrations were estimated at each of the eight intersections for the build and the No Build alternatives. Potential effects were assessed for the base year, 2003, and multiple build alternatives for 2011 and 2030 using the respective PM peak-hour traffic projections (Caltrans, 2007). In addition, CO hotspot modeling was also performed for the two intersections that are affected by the flyover in 2015. The majority of the project will be complete by the opening year of 2011; however, the flyover at Ocean Boulevard and SR-47 will be complete in 2015.

Table 3.13-6 presents the peak 1-hour and 8-hour CO concentrations for the baseline conditions in 2003. Table 3.13-7 presents the peak 1-hour and 8-hour CO concentrations predicted under no build and buildout conditions (2011 and 2030). Table 3.13-8 presents the peak 1-hour and 8-hour CO concentrations predicted under no build and buildout conditions for the year 2015 when the flyover will be complete. Tables 3.13-6, 3.13-7, and 3.13-8 show that the maximum 1-hour CO concentrations and the maximum 8-hour CO concentrations would be well below both the state and federal standards. Based on the results of this analysis, the proposed project would not contribute to a violation of the CO standards.

Table 3.13-6
Maximum Predicted CO Concentrations, Base Conditions (2003)

Intersection	Maximum 1-Hour CO Concentration (ppm)	Maximum 8-Hour CO Concentration (ppm)
Henry Ford Avenue/Anaheim Street	9.3	6.1
Alameda Street/Anaheim Street	8.2	5.3
Alameda Street/Pacific Coast Highway north of Pacific Coast Highway	7.6	4.9
Alameda Street/Sepulveda Boulevard north of Sepulveda	8.4	5.4
Alameda Street/Sepulveda Boulevard east of Alameda	7.6	4.9
Alameda Street/223rd Street south of 223rd Street	7.3	4.7
Ocean Boulevard. Westbound/SR-47	N/A	N/A
Ocean Boulevard. Eastbound/SR-47	N/A	N/A
National Ambient Air Quality Standards	35	9
California Ambient Air Quality Standards	20	9

Notes:

1. Concentrations include a predicted 1-hour background concentration of 5.5 ppm and an 8-hour background concentration of 4.7 ppm, representing the measured CO concentrations from 2003 as shown in Table 3.13-2.
2. Ocean Boulevard ramps do not exist in Base 2003 scenario.
3. The maximum 8-hour CO concentration was calculated by multiplying the project level 1-hour CO concentration by the 8-hour persistence factor (0.7) and adding the 8-hour CO background concentration (4.7 ppm).

Table 3.13-7
Maximum Predicted CO Concentrations – 2011 and 2030

Intersection	Alternative	Maximum 1-Hour CO Concentration (ppm)		Maximum 8-Hour CO Concentration (ppm)	
		2011	2030	2011	2030
Henry Ford Avenue/Anaheim Street	No Build	6.6	5.7	5.0	4.3
	Alt 1 - PM Peak Hour	6.4	5.5	4.8	4.2
	Alt 2 - PM Peak Hour	6.2	5.5	4.7	4.2
	Alt 3 - PM Peak Hour	6.4	5.5	4.8	4.2
	Alt 4 - PM Peak Hour	6.6	5.7	5.0	4.3
Alameda Street/Anaheim Street	No Build	6.4	5.5	4.8	4.2
	Alt 1 - PM Peak Hour	6.3	5.6	4.7	4.3
	Alt 2 - PM Peak Hour	6.3	5.5	4.7	4.2
	Alt 3 - PM Peak Hour	6.3	5.6	4.7	4.3
	Alt 4 - PM Peak Hour	6.4	5.5	4.8	4.2
Alameda Street/PCH	No Build	6.1	5.4	4.6	4.1
	Alt 1 - PM Peak Hour	6.0	5.5	4.5	4.2
	Alt 2 - PM Peak Hour	5.9	5.3	4.5	4.0
	Alt 3 - PM Peak Hour	6.0	5.5	4.5	4.2
	Alt 4 - PM Peak Hour	6.1	5.4	4.6	4.1
Alameda Street North of Sepulveda Boulevard	No Build	6.6	5.8	5.0	4.4
	Alt 1 - PM Peak Hour	6.9	5.8	5.2	4.4
	Alt 2 - PM Peak Hour	6.6	5.6	5.0	4.3
	Alt 3 - PM Peak Hour	6.9	5.8	5.2	4.4
	Alt 4 - PM Peak Hour	6.6	5.8	5.0	4.4
Sepulveda Boulevard east of Alameda Street	No Build	6.2	5.6	4.7	4.3
	Alt 1 - PM Peak Hour	6.9	5.6	5.2	4.3
	Alt 2 - PM Peak Hour	6.3	5.6	4.7	4.3
	Alt 3 - PM Peak Hour	6.9	5.6	5.2	4.3
	Alt 4 - PM Peak Hour	6.2	5.6	4.7	4.3
Alameda Street/223rd Street	No Build	6.1	5.5	4.6	4.2
	Alt 1 - PM Peak Hour	6.0	5.5	4.5	4.1
	Alt 2 - PM Peak Hour	6.2	5.6	4.7	4.3
	Alt 3 - PM Peak Hour	6.0	5.5	4.5	4.1
	Alt 4 - PM Peak Hour	6.1	5.5	4.6	4.2
Ocean Boulevard Westbound/ SR-47	No Build	6.2	5.6	4.7	4.3
	Alt 1 - PM Peak Hour	6.4	5.4	4.8	4.1
	Alt 2 - PM Peak Hour	6.4	5.4	4.8	4.1
	Alt 3 - PM Peak Hour	6.4	5.4	4.8	4.1
	Alt 4 - PM Peak Hour	6.2	5.6	4.7	4.3
Ocean Boulevard Eastbound/ SR-47	No Build	6.2	5.5	4.7	4.2
	Alt 1 - PM Peak Hour	6.4	5.4	4.8	4.1
	Alt 2 - PM Peak Hour	6.4	5.4	4.8	4.1
	Alt 3 - PM Peak Hour	6.4	5.4	4.8	4.1
	Alt 4 - PM Peak Hour	6.2	5.5	4.7	4.2
National Ambient Air Quality Standards		35		9	
California Ambient Air Quality Standards		20		9	

Notes:

1. Concentrations include a predicted 1-hour background concentration of 5.1 ppm and an 8-hour background concentration of 3.9 ppm in 2011 and 2030. These are the predicted future concentrations for 2010 and 2020 from SCAQMD CO Concentrations, http://www.aqmd.gov/ceqa/handbook/CO/CO.html.
2. The maximum 8-hour CO concentration was calculated by multiplying the project level 1-hour CO concentration by the 8-hour persistence factor (0.7) and adding the 8-hour CO background concentration (3.9 ppm).

Table 3.13-8
Maximum Predicted CO Concentrations – 2015

Intersection	Alternative	Maximum 1-Hour CO Concentration (ppm)	Maximum 8-Hour CO Concentration (ppm)
		2015	2015
Ocean Blvd. Westbound/SR-47	No Build	6.1	4.6
	Alt 1 - PM Peak Hour	6.0	4.5
	Alt 2 - PM Peak Hour	5.9	4.5
	Alt 3 - PM Peak Hour	6.0	4.5
	Alt 4 - PM Peak Hour	6.1	4.6
Ocean Blvd. Eastbound/SR-47	No Build	6.1	4.6
	Alt 1 - PM Peak Hour	6.0	4.5
	Alt 2 - PM Peak Hour	5.9	4.4
	Alt 3 - PM Peak Hour	6.0	4.5
	Alt 4 - PM Peak Hour	6.1	4.6
National Ambient Air Quality Standards		35	9
California Ambient Air Quality Standards		20	9

Notes:
1. Concentrations include a predicted 1-hour background concentration of 5.1 ppm and an 8-hour background concentration of 3.9 ppm in 2015. These are the predicted future concentrations for 2015 (SCAQMD CO Concentrations, http://www.aqmd.gov/ceqa/handbook/CO/CO.html).
2. The maximum 8-hour CO concentration is calculated by multiplying the project level 1-hour CO contribution by the 8-hour persistence factor (0.7) and adding the 8-hour CO background concentration.
3. The NAAQS for CO are 35 ppm (1-hour) and 9 ppm (8-hour). The CAAQS for CO are 20 ppm (1-hour) and 9 ppm (8-hour).

3.13.3.4.1.3 Localized PM_{10} and $PM_{2.5}$

Localized PM_{10} and $PM_{2.5}$ effects were analyzed following the *Technical Report: Particulate Matter and Transportation Project Analysis Protocol* (PM_{10} protocol) (UCD, Caltrans, FHWA; 2005) and the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Area* (EPA, 2006) (PM Guide). On March 10, 2006, EPA issued amendments to the Transportation Conformity Rule to address localized impacts of particulate matter: "*$PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-level Transportation Conformity Determinations for the New PM2.5 and Existing PM10 National Ambient Air Quality Standards*" (71 FR 12468). As required by the amended transportation conformity rule, a qualitative $PM_{2.5}$ hot spot analysis is included as part of the project-level conformity analysis. Because the PM_{10} hot spot analysis for the proposed project was completed prior to the release of the March 2006 guidance, it was completed following the previous guidance (EPA, 2006). Therefore, PM_{10} hot spots were addressed following the *Technical Report: Particulate Matter and Transportation Project Analysis Protocol* (PM_{10} protocol) (UCD, Caltrans, FHWA; 2005). A more detailed description of the PM_{10} and$PM_{2.5}$ analyses are contained in the Air Quality Technical Study (Caltrans, 2007).

Localized PM_{10} Impacts

At the local scale, a qualitative PM_{10} hot spot analysis was performed for the project following the *Technical Report: Particulate Matter and Transportation Project Analysis Protocol* (PM_{10} protocol) (UCD, Caltrans, FHWA; 2005). The PM_{10} hot spot analysis was performed using the "threshold screening" method, which includes both 24-hour and annual screening tests. The annual PM_{10} standard was revoked effective on December 17, 2006. However, the 2004 RTP/2006 RTIP conformity determination for PM_{10} was made on October 2, 2006 and was based on the previous annual standard of 50 μg/m³. In order to maintain consistency with the conformity determination, the PM_{10} hot spot analysis includes an analysis of the annual PM_{10} standard.

24-hour PM_{10} Screening Test

The PM_{10} screening test is a conservative approach to evaluate the potential incremental PM_{10} contribution from a project. The first step of the screening test does not use any project specific data. This step conservatively assumes that the incremental increase in the PM_{10} ambient concentrations due to a project would be 29.6 μg/m³. This value is the highest PM_{10} contribution of all roadway type projects observed in the available literature (Ashbaugh et al., 1996; UCD, Caltrans, and FHWA, 2005). As shown in Table 3.13-2, no violations of the 24-hour federal PM_{10} standard have been recorded at the nearest PM_{10} monitoring station, North Long Beach Station, for the past 3 years (2003 to 2005). The data from 2003 through 2005 show that maximum 24-hour concentrations of PM_{10} during each year were 63, 72, and 66 μg/m³, respectively, or 42, 48, and 44 percent of the NAAQS. Because ambient concentrations are less than 120 μg/m³ or 80 percent of the NAAQS, and no unusual circumstances are expected with the project compared to existing conditions, the proposed action would be unlikely to contribute to a violation of the 24-hour PM_{10} NAAQS.

Annual PM_{10} Screening Test

General Screening Test. The approach of the annual PM_{10} screening test is similar to the 24-hour PM_{10} screening test, except that the field data were unavailable to directly estimate annual roadway incremental PM_{10} contributions. Consequently, the annual increment was estimated by applying a conversion ratio (CR=0.06) to convert the 24-hour increment value (29.6 μg/m³) to an annual value (17.8 μg/m³). Using the worst-case 24-hour PM_{10} increment of 29.6 μg/m³ and the worst-case CR, the worst-case annual PM_{10} incremental increase of a project would be 17.8 μg/m³. As shown in Table 3.13-2, the highest background annual PM_{10} concentration measured at the North Long Beach Station during the last 3 years was 33 μg/m³. This background concentration is greater than the 32 μg/m³ screening value (50 μg/m³ minus 17.8 μg/m³) and would result in a total concentration exceeding the NAAQS of 50 μg/m³, when added to the worst-case 17.8 μg/m³ increment. Based on these results, a refined screening analysis was performed using project-specific information.

Refined Screening Test. For this analysis, the project was considered a freeway because the build alternatives of the proposed action include construction of the SHB and the SR-47 or SR-103 Expressway. The estimated annual PM_{10} increment would be 2.9 μg/m³ due to the project. This increment was compared to the allowable annual increment threshold to determine if a PM_{10} hot spot would occur during project. The maximum allowable annual increment of PM_{10} was calculated as 17 μg/m³ (50 μg/m³ minus 33 μg/m³). Because the estimated project PM_{10} increment of 2.9 μg/m³ is less than the allowable annual PM_{10}

increment of 17 μg/m^3, it was concluded that a PM_{10} hot spot violation of the annual standard would not occur as a result of the proposed action.

Conclusion

Following the PM_{10} Protocol, the proposed action has passed the project-level transportation conformity screening tests. The project would be unlikely to cause or contribute to a violation of the 24-hour or annual PM_{10} NAAQS.

Localized $PM_{2.5}$ Impacts

A qualitative $PM_{2.5}$ hot-spot analysis was performed following the *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (EPA, 2006) [PM Guide]. The proposed project is located in Los Angeles County, which is designated as nonattainment for the federal $PM_{2.5}$ standards and is required to attain and maintain the NAAQS. The current $PM_{2.5}$ 24-hour standard (35 μg/m^3) became effective on December 17, 2006. However, the 2004 RTP/2006 RTIP conformity determination for $PM_{2.5}$ was made on October 2, 2006, and was based on the previous 24-hour standard of 65 μg/m^3. Therefore, $PM_{2.5}$ conformity for the proposed project is based on the 24-hour standard of 65 μg/m^3. Based on the project types listed in the PM Guide, the proposed project would be categorized as a new or expanded highway project that would have a significant number of diesel vehicles, and would affect intersections that are at LOS D, E, or F with a significant number of diesel vehicles. The proposed project would be considered a project of air quality concern based on the criteria listed in the final conformity rule (40 CFR 93.123 [b][1]). Therefore, a qualitative project-level hot spot assessment was conducted in order to assess whether the project would cause or contribute to any new localized $PM_{2.5}$ violations, or increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ NAAQS.

The hot spot analysis was based on directly emitted emissions, including, tailpipe, brake wear, and tire wear, because the direct emissions have the potential to cause nearby hot spots, or localized areas of elevated concentration. In addition, indirect emissions from marine vessel detours were included in the analysis. Construction-related $PM_{2.5}$ emissions were not included in this hot spot analysis because these emissions would be considered temporary since construction would last less than 5 years (40 CFR 93.123[c][5]). Secondary $PM_{2.5}$ emissions would be associated with regional impacts and, therefore, are not included in a hot spot analysis.

Traffic Condition Improvements

The purpose of building the SR-47 Expressway or the SR-103 Extension along with the Schuyler Heim Bridge replacement is to reduce traffic congestion on local surface streets between Terminal Island and Pacific Coast Highway or I-405, as well as on I-110 and I-710. The project would also improve traffic conditions by eliminating at-grade railroad crossings and signalized intersections.

An increase of $PM_{2.5}$ emissions would occur if the project significantly increased VMT in the project area, and at locations where there are more traffic delays. The traffic delays would occur at the intersections where vehicles are accumulating and idling. It is unlikely that $PM_{2.5}$ hot spots would be associated with the proposed project because local accumulation and delay of vehicles would be reduced by the project. LOS would improve with the build alternatives when compared to the No Build alternative. Potential localized $PM_{2.5}$ increases associated with the slight increase in VMT would be offset by the increase of vehicle speed in the project area, which is an indication of reduced congestion and idling of vehicles. Thus, the project is not expected to cause any concern with respect to localized concentrations of $PM_{2.5}$.

Vehicle Exhaust Emissions

Table 3.13-5 presents emissions, including $PM_{2.5}$, from vehicles traveling in the project study area for the years 2003, 2011, 2015, and 2030. As shown in Table 3.13-5, $PM_{2.5}$ emissions from Alternatives 1, 1A, 2, and 3 would be slightly lower than those from the No Build alternative. The emissions in Table 3.13-5 were conservatively estimated based on the average vehicle speed for the entire project area. The emissions decrease for Alternatives 1, 1A, and 3 are due to a predicted decrease in VMT in the study area and an increase in vehicle speed for 2011, 2015, and 2030. Although there would be a slight increase in VMT for Alternative 2, due to increased capacity from the extension of SR-103, the $PM_{2.5}$ emissions for Alternative 2 in 2011 and 2030 would still be less than the No Build alternative. Emissions for Alternative 4 are predicted to be the same as those for the No Build alternative because the VMT and vehicle mix in the project area is predicted to be the same. Emissions for Alternative 3 are predicted to be the same as those for Alternative 1 because Alternative 3 would have the same traffic conditions as Alternative 1. Emissions associated with Alternative 5 were not discussed in this analysis because there is no traffic information available for Alternative 5.

Marine Vessel Emissions

The replacement of the existing lift-span of the Schuyler Heim Bridge with a fixed-span bridge would have indirect impacts on local air quality by affecting the marine traffic. Replacing the lift-span bridge with a fixed-span bridge would force taller marine vessels to take a longer route around Terminal Island and would delay vessels with adjustable mast heights. The increased trip times for the marine vessels would result in increased PM_{10} and $PM_{2.5}$ emissions. Daily emissions resulting from marine vessel detours during operation of the proposed fixed-span Schuyler Heim Bridge are presented in Table 3.13-14 (see Section 3.13.3.5.1.2). The $PM_{2.5}$ emissions associated with the marine vessel detours are estimated to be 2.27 pounds per day. For Alternatives 1, 1A, 2, and 3, this emissions increase would be offset by the emissions decrease associated with the improved traffic conditions within the project area. Therefore, indirect emissions of $PM_{2.5}$ would not cause any new violation of the NAAQS at the project area.

For Alternative 4, the emissions increase would mostly occur at the outer harbor area where the ships would be rerouted, which would be further away from the harbor and any sensitive receptors. The emissions would also be offset at some level by eliminating the vehicle idling emissions at the bridge by building the fixed span bridge. In addition, the marine vessel emissions would be rapidly diluted and dispersed at this coastal area. This minimal emissions increase is not expected to significantly increase the ambient $PM_{2.5}$ concentrations in the project area to cause any new violations or to increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ NAAQS.

Conclusion

In summary, $PM_{2.5}$ emissions resulting from vehicle exhaust and marine vessels for the build alternatives would be the same or less than the No Build alternative. Based on the current ambient $PM_{2.5}$ concentrations in the project area (see Table 3.13-2), the project is not expected to have a significant localized $PM_{2.5}$ concentration increase when compared to the No Build alternative. Therefore, the project meets the conformity hot spot requirements in 40 CFR §93.116 and §93.123 for $PM_{2.5}$.

The project has demonstrated project-level conformity by its inclusion in the proposed 2008 RTP and the amended 2006 RTIP, and by the hot spot analyses showing the proposed project would not cause or contribute to a violation of the CO, PM_{10}, or $PM_{2.5}$ federal standards.

3.13.3.4.2 General Conformity

Increases in marine vessel emissions due to the construction and operation of the project are subject to general conformity applicability analysis. Closure and restrictions of the Schuyler Heim Bridge during demolition and construction would cause rerouting of automobile and marine traffic, with associated emissions increases. During project operation, for Alternatives 1, 2, 3, and 4, detours and delays for marine vessels that would no longer pass under the new, fixed-span bridge may result in increased emissions.

3.13.3.4.2.1 Indirect Emissions during Construction

Marine traffic around Terminal Island would be affected during the time of bridge construction. The best available information for marine traffic delays was used although actual delay times may vary. The following marine traffic delays were used for the construction emissions analysis:

- With the Cast-In-Place (CIP) method of construction, full closure of the channel would occur for a period of 25 days, intermittent closures for a total 40 days, and channel restrictions for a total of 240 days.
- With use of segmental construction for the main span of the new bridge, vertical clearance would be reduced to 12 meters (m) (39 feet [ft]) or less, resulting in channel restrictions for two periods of 90 days each (once during construction of the east side of the new bridge and once during construction of the west side). The channel would be closed completely for a period of 5 days when the mid-span truss of the old bridge would be removed.

As a result of the closures and restrictions to marine vessel traffic, ships that cannot pass would need to take a longer route outside the channel. The increased trip time of these ships would result in increased emissions of criteria pollutants and would cause an indirect effect to the ambient air quality.

Worst-case daily emissions from the marine vessel detour were calculated for the days when the channel is closed completely. Annual emissions during the construction period were calculated based on bridge closures and traffic restriction schedule. Emissions of CO, NO_X, ROG, SO_X, and PM_{10} from marine vessels were calculated using the *Analysis of Commercial Marine Vessels Emissions and Fuel Consumption Data* (EPA, 2000) in conjunction with forecasted detour travel times (CH2M HILL, 2005a). $PM_{2.5}$ emissions were calculated following the methodology recommended by SCAQMD and using the $PM_{2.5}$ fraction of PM_{10} (SCAQMD, 2006). The detoured ships primarily would be non-ocean-going ships, such as tugboats, fishing boats, yachts, and harbor operations vessels. It was assumed that ships would be slow cruising 50 percent of the time and maneuvering the rest of the time during the detour.

The projected increase in marine vessel emissions during bridge construction, and the summary of the general conformity applicability analysis results, are presented in Section 3.13.3.5.

3.13.3.4.2.2 Indirect Operations Emissions

Emissions of CO, NO_x, ROG, SO_x, and PM_{10} resulting from marine vessel detours and delays in 2011 and 2030 were calculated using the *Analysis of Commercial Marine Vessels Emissions and Fuel Consumption Data* (EPA, 2000) in conjunction with forecasted delay and detour travel times (CH2M HILL, 2005a). $PM_{2.5}$ emissions were calculated following the methodology recommended by SCAQMD and using the $PM_{2.5}$ fraction of PM_{10} (SCAQMD, 2006). The detour hours during operation of the Schuyler Heim Bridge in 2011 are the same as 2030, based on the assumption that the marine traffic would not increase in future years (CH2M HILL, 2005a).

The projected increase in marine vessel emissions during bridge operation, and the summary of the general conformity applicability analysis results, are presented in Section 3.13.3.5.

3.13.3.4.3 Mobile Source Air Toxics

A quantitative MSAT analysis was prepared for the proposed project because major arterials affected by the project serve a large number of diesel trucks, and there would be a potential to concentrate high levels of diesel particulate matter. In addition, the immediate vicinity of the project area includes the community of Wilmington in Los Angeles. The community of Wilmington is just west of the proposed SR-47 Expressway and includes sensitive air quality receptors such as residences, schools, and hospitals. The project qualifies for a quantitative MSAT analysis because: (1) the project would serve diesel trucks with the potential to concentrate diesel particulate matter; and (2) sensitive receptors are within the project area and near the project site. At this time, a quantitative MSAT analysis is intended to provide a method to compare alternatives rather than emphasizing the specific MSAT emission values or estimating health risk. The final subsection of the MSAT analysis provides a discussion of the limitations of the MSAT analysis.

The MSAT analysis was performed as required by the FHWA "*Interim Guidance on Air Toxic Analysis for National Environmental Policy Act (NEPA) Documents*" (Interim Guidance) and utilized the methodology and the software tool developed by University of California Davis (UCD, 2006). The University of California, Davis references, *Estimating Mobile Source Air Toxics Emissions: A Step-by-Step Project Analysis Methodology* (UCD, 2006), and software tool *Project-Level Mobile Source Air Toxics Analysis: Spreadsheet Tool*, version 1.2 (MSAT Tool), utilize EMFAC2007 emission factors and project-specific traffic data (e.g. volume and speed) to provide an estimate of MSAT emissions for each project alternative. The detailed MSAT analysis is available as an appendix to the Air Quality Technical Study (Caltrans, 2007).

Since Alternative 3 would have the same traffic conditions as Alternative 1, and Alternative 4 would not affect the traffic conditions when compared to the No Build alternative, it was assumed that Alternatives 3 and 4 would have the same MSAT emissions as Alternatives 1 and 6, respectively. In addition, a traffic analysis was not performed for

Alternative 5. Therefore, the MSAT analysis will only include a discussion of Alternatives 1, 2, and 6.

Results

The MSAT Tool was used to estimate the MSAT emissions presented in Table 3.13-10. As shown in Table 3.13-9, the MSAT emissions are predicted to significantly decrease over time, even though the traffic volumes and percentage of diesel trucks are expected to increase over time. The decrease in MSAT emissions for the alternatives analyzed is consistent with EPA projections that MSAT emissions will decrease over the next 15 years.

In general, there would be minor differences in MSAT emissions between the build alternatives analyzed. In the year 2011, Alternative 2 would have the lowest DPM emissions because the percentage of trucks would be lower than the No Build alternative and Alternative 1. In the years 2015 and 2030, Alternative 2 would have higher DPM emissions because the traffic volumes would be greater than the No Build alternative and Alternative 1. For the remaining five MSATs, emissions would be similar from the No Build alternative, Alternative 1, and Alternative 2. The total MSAT emissions in the years 2015 and 2030 would be slightly higher (~1 percent) for Alternatives 1 and 2 when compared to the No Build alternative. This difference is likely due to lower vehicle speeds and lower traffic volumes for the No Build alternative when compared to Alternatives 1 and 2. In summary, the MSAT emissions are predicted to decrease with time.

Table 3.13-9
Daily MSAT Emissions for the Project Study Area

		Emissions (lbs/day)						
Year	**Scenario**	**Diesel PM**	**Benzene**	**1,3-Butadiene**	**Acetaldehyde**	**Acrolein**	**Formaldehyde**	**Total MSAT**
2003	**No Build**	1,683	936	181	316	41	909	4,065
2011	**No Build**	1,326	373	67	206	15	513	2,499
	Alternative 1	1,328	366	66	201	14	503	2,477
	Alternative 2	1,175	372	67	186	15	474	2,289
2015	**No Build**	1,145	273	46	172	10	415	2,060
	Alternative 1	1,147	272	46	172	10	416	2,063
	Alternative 2	1,164	270	45	170	10	410	2,068
2030	**No Build**	626	153	21	117	4	268	1,189
	Alternative 1	627	152	21	117	4	268	1,190
	Alternative 2	633	153	21	118	4	271	1,201

Limitations of MSAT Analysis

The following discussion regarding the limitations of the MSAT analysis is prototype language taken from the Interim Guidance, Appendix C. A detailed discussion of the limitations of analyzing MSAT emissions is provided in the Air Quality Technical Study (Caltrans, 2007).

Unavailable Information for Project-Specific MSAT Impact Analysis. This MSAT analysis includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable predicting the project-specific health impacts of the emission changes associated with the project alternatives. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22[b)]) regarding incomplete or unavailable information:

> ***Information that Is Unavailable or Incomplete --*** Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- Emissions. The tools available from EPA and the California Air Resources Board to estimate MSAT emissions from motor vehicles are not sensitive to key variables that determine emissions of MSATs in the context of highway projects.
- Dispersion. The tools to predict how MSATs disperse are also limited. The current EPA and California regulatory models, such as CALINE3, CAL3QHC, and CALINE4, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
- Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude the analysis from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs. Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some emission types either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

There have been studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes -- particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable performing a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community. Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow reasonable predictions of relative emission changes between alternatives for larger projects, the amount of MSAT emissions from each of the proposed project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

This MSAT analysis has provided a comparison of MSAT emissions relative to the various alternatives, and has acknowledged that, for the analysis years 2015 and 2030, total MSAT emissions from Alternatives 1 and 2 may result in slightly higher MSAT emissions in certain locations when compared to the No Build alternative. However, the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

3.13.3.4.4 Construction Emissions

Construction equipment and vehicle emission factors of CO, NO_X, ROG, SO_X, and PM_{10} used in construction emission calculations were obtained from information available in the *CEQA Air Quality Handbook* (SCAQMD, 1993 and 2006), EMFAC2002 emissions model, and the EPA *Compilation of Air Pollutant Emission Factors* (AP-42). Summaries of the emissions factors and their sources are contained in the Air Quality Technical Report (Caltrans, 2007). Because there are currently few or no $PM_{2.5}$ emission factors for combustion processes, the $PM_{2.5}$ emissions were calculated following the methodology recommended by SCAQMD and using the $PM_{2.5}$ fraction of PM_{10} (SCAQMD, 2006). Emission factors for PM_{10} from the *CEQA Air Quality Handbook*, EMFAC2002 emissions model, and the EPA *Compilation of Air Pollutant Emission Factors* (AP-42) were used in the calculation of fugitive dust emissions. Fugitive dust emissions were separated into two categories; exposed areas and unpaved roads. Exposed areas were assumed to be graded areas, excavated areas, and stockpiles. The reported fugitive dust emissions include a 68 percent control efficiency achieved by watering the exposed areas three times a day. The reported fugitive dust emissions from unpaved roads include a 45 percent control efficiency achieved by watering the unpaved roads three times a day. These control efficiencies are based on the information contained in Table 11-4 of the CEQA Handbook. It was conservatively assumed that the $PM_{2.5}$ emissions would be the same as the PM_{10} emissions.

3.13.3.5 Evaluation of Alternatives

This section provides the environmental analysis of construction and operations by alternative. Project transportation conformity and general conformity are discussed under Sections 3.13.3.4.1 and 3.13.3.4.2.

3.13.3.5.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.13.3.5.1.1 Construction Effects

Construction activities would involve demolition of the existing Schuyler Heim Bridge and construction of the replacement bridge, Ocean Boulevard/SR-47 Flyover (flyover), and SR-47 Expressway. Two construction methodologies were considered for Alternative 1: CIP and segmental. Detailed construction equipment lists for Alternative 1 are available in the Air Quality Technical Study (Caltrans, 2007).

During demolition, materials present in the existing Schuyler Heim Bridge may be released into the atmosphere. According to the Initial Site Assessment (CH2M HILL, 2005b), the Schuyler Heim Bridge was evaluated for the presence of asbestos-containing materials (ACM) and lead-based paint (LBP). Based on the type and condition of the Schuyler Heim Bridge, ACM and LBP likely are present and considered recognized environmental conditions (RECs). It has been recommended that a predemolition survey of the Schuyler Heim Bridge be conducted for ACM and LBP. The purpose of the survey would be to determine the presence of regulated and/or potentially hazardous construction materials on the bridge. If ACM is determined to be present, it will be removed prior to demolition, in accordance with SCAQMD Rule 1403 and EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP).

Another pollutant of potential concern in assessing air quality impacts associated with construction activities is naturally occurring asbestos. Asbestos is a toxic air contaminant that is regulated under the Asbestos Airborne Toxic Control Measure (ATCM), which was adopted by the ARB in 1990 and amended in 2000. The ATCM states that allowable asbestos content in surfacing materials must be less than 0.25 percent, effective spring 2001. In addition to surfacing materials, asbestos may occur naturally in serpentinite and ultramafic rock and can be released when the rock is broken or crushed.

According to the Department of Conservation, Division of Mines and Geology, the project is located in a county that does contain serpentinite or ultramafic rock. However, any serpentinite or ultramafic rock found in Los Angeles County is restricted to the Catalina Islands. The surficial geology of the Long Beach area is composed of quaternary alluvial material that consists of sands, gravels, silts, and clays and not ultramafic or serpentinite material (Cal. DWP, 1961). Therefore, fugitive asbestos from naturally occurring materials would not be emitted in significant quantities during construction or operation of Alternatives 1 and 1A. Surfacing materials also would not contain more than 0.25 percent asbestos; therefore, Alternatives 1 and 1A would not have an adverse effect on air quality from emissions of asbestos.

Direct

Criteria Pollutants

Direct construction emissions include emissions from equipment that would be used during site preparation and project construction to perform activities such as clearing, grading, excavating, and demolishing existing structures. These activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants such as CO, NO_X, ROG, SO_X, PM_{10}, and $PM_{2.5}$. Direct emissions from Alternative 1 construction are shown in Table 3.13-10. The construction emissions of CO, NO_X, ROG, PM_{10}, and $PM_{2.5}$ would exceed the SCAQMD thresholds. In addition, since the project is located in Los Angeles County, which has been federally designated nonattainment status for CO, ozone, $PM_{2.5}$, and PM_{10}, the construction emissions associated with Alternative 1 would have an adverse but temporary effect on air quality.

As described above, construction emissions of CO, ROG, SO_X, NO_X, PM_{10}, and $PM_{2.5}$ would be expected to have adverse but temporary effects on air quality. The proposed action would be required to comply with control measures specified in SCAQMD Rule 403, Table 1, and in Rule 1186. In addition, mitigation measures would be implemented to further reduce air quality effects during project construction.

Sensitive Receptors

Construction activities may expose sensitive receptors in the vicinity to short-term elevated diesel PM_{10} levels. However, the PM_{10} concentrations would be considered less than substantial because the risk posed by diesel PM_{10} is based on long-term exposure. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during construction of the project alternatives. The CO concentrations at the intersections shown in Tables 3.13-7 and 3.13-8 are less than the air quality standards; therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during operation.

Odors

During project construction, objectionable odors likely would occur related to operation of diesel-powered equipment and to road-building activities, such as paving and asphalting. Objectionable odors may occur as a result of construction in marine sediments for demolition of the existing Schuyler Heim Bridge and construction of the new bridge, as well as drilling and augering activities on land for the support piers for both the bridge and flyover. These subsurface activities may encounter contaminated sediments and/or soils that would release VOCs and release objectionable odors to the atmosphere. Such odors, however, would be short-term and limited to the area where the specific activity is occurring. Odors would cease once the subsurface construction activity ceases. The perception of these odors is dependent upon climatic conditions such as temperature, humidity, wind speed, and wind direction.

Table 3.13-10
Alternative 1/Alternative 1A Maximum Direct Construction Emissions with Mitigation to Control Fugitive Dust

	Cast-in-Place Method Emissions						Segmental Method Emissions					
	CO (lb/day)	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**	**CO (lb/day)**	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Maximum Construction Equipment Exhaust	785	1,744	201	1.9	80	74	713	1,520	188	1.7	72	67
Maximum Workers Commute	82	8.6	8.9	0.07	0.6	0.6	76	7.9	8.2	0.06	0.6	0.5
Maximum Fugitive Dust	NA	NA	NA	NA	903	191	NA	NA	NA	NA	716	152
Combined Maximum Daily Emissions	**868**	**1,753**	**210**	**1.9**	**983**	**266**	**788**	**1,528**	**196**	**1.8**	**789**	**219**
SCAQMD Thresholds (lb/day)	**550**	**100**	**75**	**150**	**150**	**55**	**550**	**100**	**75**	**150**	**150**	**55**

Note:

1. According to SCAQMD *CEQA Air Quality Handbook* Table 11-4, the control efficiencies of the fugitive dust from construction sites and unpaved roads were assumed to be 68 percent and 45 percent, respectively, by watering the sites or unpaved roads three times a day. The PM_{10} emissions listed in the table have taken into account the above control efficiencies.

Construction will be conducted in compliance with SCAQMD Rule 1166, which limits VOC emissions. In addition, construction activities will be located within fenced, secured sites as far from receptors as feasible, with no public access. Due to the relatively short-term nature of construction odors, controlled access, and the distance to the nearest receptors, odors are not likely to affect a substantial number of people.

Indirect

As discussed in Section 3.13.1, emissions from marine vessel detours during construction are subject to general conformity applicability analysis. Annual hours spent in detouring by each ship were estimated for each the construction year (2009 and 2010) based on the bridge closure/restriction schedule in the *Draft Schuyler Heim Bridge Replacement and SR-47 Expressway Project: Long-Term Economic Impacts to Marine Vessel Operation in the Cerritos Channel* (CH2M HILL, 2005a). Since there would be more closures and restriction periods using the CIP method, the annual emissions of the marine vessel detours were estimated using the closure/restriction schedule of the CIP method to represent the worst-case scenario. Detailed emission calculations for the marine vessel detours are available in the Air Quality Technical Study (Caltrans, 2007).

Tables 3.13-11 and 3.13-12 show that the indirect marine vessel emissions of NO_X, ROG, CO, PM_{10}, and $PM_{2.5}$ are below the general conformity *de minimis* levels and are less than 10 percent of the Basin emissions inventory during construction. On the basis of the conformity applicability criteria, the marine vessel emissions conform to the South Coast SIP and, therefore, would not have adverse effects on air quality. Therefore, a detailed conformity demonstration would not be required to satisfy NEPA requirements. However, impacts related to marine vessel detours would be considered significant under CEQA criteria and are addressed relative to those criteria in Chapter 4.0.

The sum of direct and indirect emissions from construction associated with Alternative 1 would have an adverse but temporary effect on air quality. Mitigation will be implemented.

3.13.3.5.1.2 Operations Effects

Direct

Criteria Pollutants

The flyover and auxiliary lanes of the bridge will be added to the project description in an amendment to the 2006 RTIP, anticipated in July/August 2008. It is expected that changes to the project scope will be included in the draft 2008 RTP in October or November 2007, with the final RTP approval in March 2008. Since the project will be listed in the conforming 2008 RTP/2006 RTIP amendment, the project would have satisfied the conformity requirements as required by the regional plan and program. In addition, localized CO, PM_{10}, and $PM_{2.5}$ emissions associated with operation of Alternative 1 were evaluated. The CO emissions shown in Table 3.13-7 and 3.13-8 for Alternative 1 are less than the federal standards shown in Table 3.13-1. The qualitative PM hot spot analysis is discussed in Section 3.13.3.4.1.3. Localized PM_{10}/PM_{25} demonstrated that the project would not contribute to or exacerbate exceedances of the PM_{10} or $PM_{2.5}$ standards. Therefore, no permanent direct air quality effects would be expected under Alternative 1.

Table 3.13-11
Marine Vessel Detour Emissions During Construction of the Schuyler Heim Bridge – Construction Year 2009

	Detour hours (per year)	CO ton/year	NO_X ton/year	ROG ton/year	SO_2 ton/year	PM_{10} ton/year	$PM_{2.5}$ ton/year
Tugs	534.6	1.6	6.3	0.2	0.0043	0.165	0.15
Harbor Operations	10.7	0.04	0.15	0.01	0.000101	0.004	0.004
Fishing	2.4	0.002	0.007	0.0003	0.000005	0.0002	0.0002
Yachts	106.3	0.1	0.5	0.02	0.00037	0.014	0.013
Tankers	2.4	0.06	0.21	0.01	0.00014	0.005	0.005
Marine Vessel Detour Emissions 2009		**1.80**	**7.23**	**0.27**	**0.0049**	**0.19**	**0.17**
***De Minimis* Level**		**100**	**25**	**25**	**100**	**70**	**100**
Basin Emissions Inventory[1]		1,219,465	254,405	281,050	25,550	168,995	--[2]
Percent of Emissions Inventory		0.0001%	0.0028%	0.0001%	0.00002%	0.0001%	--[2]

Notes:

1. Basin emissions inventory data were obtained from *1997 AQMP* (SCAQMD, 1997) and *1999 Amendment to the 1997 Ozone AQMP Revision for the South Coast Air Basin and Settlement Agreement on the 1994 Ozone SIP Litigation* (SCAQMD, 1999). Emissions inventory data for 2010 were used for the emissions comparison of 2009 and 2010.
2. The emission inventories in the 1997/1999 AQMPs did not include $PM_{2.5}$.

Table 3.13-12
Marine Vessel Detour Emissions During Construction of the Schuyler Heim Bridge – Construction Year 2010

	Detour hours (per year)	CO ton/year	NOx ton/year	ROG ton/year	SO_2 ton/year	PM_{10} ton/year	$PM_{2.5}$ ton/year
Tugs	1,457.5	4.3	17.2	0.7	0.01163	0.449	0.41
Harbor Operations	30.6	0.11	0.43	0.02	0.00029	0.011	0.01
Fishing	6.8	0.005	0.021	0.0008	0.00001	0.0005	0.0005
Yachts	302.2	0.4	1.6	0.06	0.00105	0.041	0.04
Tankers	6.8	0.06	0.23	0.01	0.00015	0.006	0.005
Marine Vessel Detour Emissions 2010		**4.84**	**19.46**	**0.74**	**0.013**	**0.51**	**0.47**
***De Minimis* Level**		**100**	**25**	**25**	**100**	**70**	**100**
Basin Emissions Inventory[1]		1,219,465	254,405	281,050	25,550	168,995	--[2]
Percent of Emissions Inventory		0.0004%	0.008%	0.0003%	0.00005%	**0.0003%**	--[2]

Notes:

1. Basin emissions inventory data were obtained from 1997 AQMP (SCAQMD, 1997) and 1999 Amendment to the 1997 Ozone AQMP Revision for the South Coast Air Basin and Settlement Agreement on the 1994 Ozone SIP Litigation (SCAQMD, 1999). Emissions inventory data for 2010 were used for the emissions comparison of 2009 and 2010.
2. The emission inventories in the 1997/1999 AQMPs did not include $PM_{2.5}$.

Odors

Objectionable odors from project operations would be consistent with odors produced by existing bridge and road uses, primarily vehicle exhaust and diesel emissions. The perception of these odors is dependent upon climatic conditions such as temperature, humidity, wind speed, and wind direction. The perception of odors resulting from project operations would be reduced to the extent that vehicular traffic along the SR-47 Expressway would be elevated and would be above the level of sensitive receptors, where odors would be dispersed. No additional sources of odor would be expected.

Indirect

Replacement of the existing Schuyler Heim Bridge with a fixed-span bridge would have indirect effects on local air quality by affecting the marine traffic. Replacing the lift-span bridge with the lower fixed-span bridge would force taller marine vessels to take a longer route around Terminal Island and would delay vessels with adjustable mast heights. The increased trip times for the marine vessels would result in increased emissions of criteria pollutants. Table 3.13-13 summarizes the indirect operations emissions associated with the marine vessels. These emissions would be the same for Alternatives 1, 1A, 2, 3, and 4. Table 3.13-13 shows that marine vessel detour emissions of NO_X, ROG, CO, PM_{10}, and $PM_{2.5}$ would be below the general conformity *de minimis* levels and would be less than 10 percent of the Basin emissions inventory. On the basis of the conformity applicability criteria, the marine vessel emissions conform to the South Coast SIP. Therefore, a detailed conformity demonstration would not be required, and the marine vessel emissions alone would not have adverse effects on air quality.

Table 3.13-13
Indirect Annual Operations Emissions from Marine Vessels

	CO (ton/year)	NO_x (ton/year)	ROG (ton/year)	SO_2 (ton/year)	PM_{10} (ton/year)	$PM_{2.5}$ (ton/year)
Total emissions 2011 and after	4.3	17.3	0.65	0.012	0.45	0.41
***De minimis* Level**	100	25	25	100	70	100
Basin Emission Inventory[1]	1,219,465	254,405	281,050	25,550	168,995	--[2]
% of Emission Inventory 2011 and after	**0.0004%**	**0.007%**	**0.0002%**	**0.00005%**	**0.0003%**	**--**[2]

Notes:

1. Emissions were estimated based on forecast data that indicate no increase in vessel traffic between 2011 and 2030, and the conservative assumption that marine vessels with cleaner burning engines are not introduced into the fleet in this time period.
2. Basin emissions inventory data were obtained from 1997 AQMP (SCAQMD, 1997) and 1999 Amendment to the 1997 Ozone AQMP Revision for the South Coast Air Basin and Settlement Agreement on the 1994 Ozone SIP Litigation (SCAQMD, 1999). Emissions inventory data for 2010 were used for the emissions comparisons.
3. The emission inventories in the 1997/1999 AQMPs did not include $PM_{2.5}$.
4. Marine vessel detours related to project operation would occur in 2011 and after.

Daily emissions resulting from marine vessel detours during operation of the proposed fixed-span Schuyler Heim Bridge, as well as the comparisons with SCAQMD operational emission thresholds are presented in Table 3.13-14. Project operations would result in a net increase in NO_x emissions greater than the SCAQMD operation threshold for NO_x. Therefore, under CEQA criteria, the net increase in NO_x emissions from combined direct and indirect emissions would be considered adverse and mitigation is required.

Table 3.13-14
Indirect Daily Operational Emissions from Marine Vessels

Ship Type	Worst-Case Daily Detour Hours During Operation (hours/day)	CO (lb/day)	NO_X (lb/day)	ROG (lb/day)	SO_2 (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Tugs	3.53	20.77	83.52	3.16	0.06	2.18	2.00
Harbor Operations	0.08	0.54	2.15	0.08	0.0015	0.06	0.05
Fishing	0.02	0.03	0.10	0.004	0.0001	0.003	0.003
Yachts	0.76	1.95	7.85	0.30	0.0053	0.20	0.19
Tankers	0.02	0.31	1.14	0.05	0.0008	0.03	0.03
Total		**23.6**	**94.8**	**3.59**	**0.06**	**2.47**	**2.27**
SCAQMD Thresholds		**550**	**55**	**55**	**150**	**150**	**55**

3.13.3.5.2 Alternative 2: SR-103 Extension to Alameda Street

3.13.3.5.2.1 Construction Effects

Construction activities would involve demolition of the existing Schuyler Heim Bridge, plus construction of the replacement bridge, flyover, and SR-103 Extension. Two construction methodologies were considered for Alternative 2: CIP and segmental. Detailed construction equipment lists for Alternative 2 are available in the Air Quality Technical Study (Caltrans, 2007).

Direct

Direct emissions from Alternative 2 construction are shown in Table 3.13-15. The construction emissions of CO, NOx, ROG, PM_{10}, and $PM_{2.5}$ would exceed the SCAQMD thresholds. In addition, since the project is located in Los Angeles, which has been federally designated nonattainment status for CO, ozone, PM_{10}, and $PM_{2.5}$, the direct construction emissions associated with Alternative 2 would have adverse but temporary effects on air quality.

Indirect

Under Alternative 2, the bridge construction would be the same as under Alternative 1. Also, marine vessel traffic restrictions would be the same as under Alternative 1. Therefore, effects from marine vessel detour emissions during construction of the Schuyler Heim Bridge (Tables 3.13-11 and 3.13-12) would be the same as those described for Alternative 1.

The sum of direct and indirect emissions from construction associated with Alternative 2 would have an adverse but temporary effect on air quality.

3.13.3.5.2.2 Operations Effects

Under Alternative 2, direct and indirect operations effects would be the same as those described for Alternative 1.

3.13.3.5.3 Alternative 3: Bridge Demolition Avoidance

3.13.3.5.3.1 Construction Effects

The existing bridge would not be demolished under this alternative so there would be no construction effects associated with emissions from bridge demolition. Construction activities would involve construction of the replacement bridge, flyover, and the SR-47 Expressway. Two construction methodologies were considered for Alternative 3: CIP and segmental. Detailed construction equipment lists for Alternative 3 are available in the Air Quality Technical Study (Caltrans, 2007).

Direct

Direct construction emissions from Alternative 3 construction are shown in Table 3.13-16. The construction emissions of CO, NOx, ROG, PM_{10}, and $PM_{2.5}$ would exceed the SCAQMD thresholds. In addition, since the project is located in Los Angeles County, which has been federally designated nonattainment status for CO, ozone, PM_{10}, and $PM_{2.5}$, the construction emissions associated with Alternative 3 would have adverse but temporary effects on air quality.

Indirect

Under Alternative 3, the bridge construction would be comparable to Alternative 1. Also, marine vessel traffic restrictions would be the same as under Alternative 1. Therefore, effects from marine vessel detour emissions during construction of the Schuyler Heim Bridge (Tables 3.13-11 and 3.13-12) would be the same as those described for Alternative 1.

The sum of direct and indirect emissions from construction associated with Alternative 3 would have an adverse but temporary effect on air quality.

3.13.3.5.3.2 Operations Effects

Under Alternative 3, direct and indirect operations effects would be the same as those described for Alternative 1.

3.13.3.5.4 Alternative 4: Bridge Replacement Only

3.13.3.5.4.1 Construction Effects

Construction activities would involve demolition of the existing bridge and construction of the replacement bridge. Two construction methodologies were considered for Alternative 4: CIP and segmental. Detailed construction equipment lists for Alternative 4 are available in the Air Quality Technical Study (Caltrans, 2007).

Table 3.13-15
Alternative 2 Maximum Direct Construction Emissions with Mitigation to Control Fugitive Dust

	Cast-in-Place Method Emissions						**Segmental Method Emissions**					
	CO (lb/day)	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**	**CO (lb/day)**	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Maximum Construction Equipment Exhaust	776	1,719	199	2	79	73	726	1,593	187	2	71	65
Maximum Workers Commute	84	8.8	9.1	0.07	0.6	0.6	77	8.0	8.3	0.06	0.6	0.6
Maximum Fugitive Dust	NA	NA	NA	NA	904	191	NA	NA	NA	NA	717	152
Combined Maximum Daily Emissions	**860**	**1,728**	**208**	**1.9**	**983**	**265**	**803**	**1,601**	**195**	**2**	**788**	**218**
SCAQMD Thresholds (lb/day)	**550**	**100**	**75**	**150**	**150**	**55**	**550**	**100**	**75**	**150**	**150**	**55**

Note:

1. According to SCAQMD *CEQA Air Quality Handbook* Table 11-4, the control efficiencies of the fugitive dust from construction sites and unpaved roads were assumed to be 68 percent and 45 percent, respectively, by watering the sites or unpaved roads three times a day. The PM_{10} emissions listed in the table have taken into account the above control efficiencies.

Table 3.13-16
Alternative 3 Maximum Direct Construction Emissions with Mitigation to Control Fugitive Dust

	Cast-in-Place Method Emissions						Segmental Method Emissions					
	CO (lb/day)	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**	**CO (lb/day)**	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Maximum Construction Equipment Exhaust	768	1,729	199	1.8	79	73	704	1,503	186	1.7	72	66
Maximum Workers Commute	84	8.8	9.1	0.07	0.6	0.6	77	8.1	8.4	0.06	0.6	0.6
Maximum Fugitive Dust	NA	NA	NA	NA	893	189	NA	NA	NA	NA	706	150
Combined Maximum Daily Emissions	**852**	**1,738**	**208**	**1.9**	**971**	**262**	**781**	**1,511**	**194**	**1.8**	**778**	**216**
SCAQMD Thresholds (lb/day)	**550**	**100**	**75**	**150**	**150**	**55**	**550**	**100**	**75**	**150**	**150**	**55**

Note:

1. According to SCAQMD *CEQA Air Quality Handbook* Table 11-4, the control efficiencies of the fugitive dust from construction sites and unpaved roads were assumed to be 68 percent and 45 percent, respectively, by watering the sites or unpaved roads three times a day. The PM_{10} emissions listed in the table have taken into account the above control efficiencies.

Direct

Direct construction emissions from Alternative 4 construction are shown in Table 3.13-17. The construction emissions of NOx, ROG, PM_{10}, and $PM_{2.5}$ would exceed the SCAQMD thresholds. In addition, since the project is located in Los Angeles County, which has been federally designated nonattainment status for CO, ozone, PM_{10}, and $PM_{2.5}$, the construction emissions associated with Alternative 4 would have adverse but temporary effects on air quality.

Indirect

Under Alternative 4, the bridge construction would be the same as under Alternative 1. Also, marine vessel traffic restrictions would be the same as under Alternative 1. Therefore, effects from marine vessel detour emissions during construction of the Schuyler Heim Bridge (Tables 3.13-11 and 3.13-12) would be the same as those described for Alternative 1.

The sum of direct and indirect emissions from construction associated with Alternative 4 would have an adverse but temporary effect on air quality.

3.13.3.5.4.2 Operations Effects

Under Alternative 4, direct and indirect operations effects would be the same as those described with operation of the new bridge under Alternative 1.

3.13.3.5.5 Alternative 5: Transportation System Management

3.13.3.5.5.1 Construction Effects

There would be minimal construction under the TSM alternative. Therefore, there would be no direct or indirect construction effects to air quality.

3.13.3.5.5.2 Operations Effects

Direct

Components of the TSM alternative would improve traffic flow and reduce delays which would be expected to reduce vehicle emissions. Therefore, there would be no direct effect to air quality under the TSM alternative.

Indirect

Under the TSM alternative, Schuyler Heim Bridge would not be replaced, so marine vessels would not be required to detour around Terminal Island. Therefore, there would be no indirect effect to air quality under the TSM alternative.

3.13.3.5.6 Alternative 6: No Build

Under Alternative 6, there would be no change to the existing Schuyler Heim Bridge or to the local roadway system.

3.13.3.5.6.1 Construction Effects

There would be no construction activities under the No Build alternative. Therefore, there would be no direct or indirect construction effects to air quality.

Table 3.13-17
Alternative 4 Maximum Direct Construction Emissions with Mitigation to Control Fugitive Dust

	Cast-in-Place Method Emissions						Segmental Method Emissions					
	CO (lb/day)	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**	**CO (lb/day)**	**NO_X (lb/day)**	**ROG (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Maximum Construction Equipment Exhaust	471	1,078	117	1	47	236	407	879	106	1.0	40	37
Maximum Workers Commute	46	4.8	5.0	0.04	0.35	0.33	40	4.2	4.3	0.03	0.3	0.3
Maximum Fugitive Dust	NA	NA	NA	NA	635	134	NA	NA	NA	NA	448	95
Combined Maximum Daily Emissions	**517**	**1,083**	**122**	**1.2**	**682**	**178**	**447**	**883**	**110**	**1.0**	**489**	**132**
SCAQMD Thresholds (lb/day)	**550**	**100**	**75**	**150**	**150**	**55**	**550**	**100**	**75**	**150**	**150**	**55**

Note:

1. According to SCAQMD *CEQA Air Quality Handbook* Table 11-4, the control efficiencies of the fugitive dust from construction sites and unpaved roads were assumed to be 68 percent and 45 percent, respectively, by watering the sites or unpaved roads three times a day. The PM_{10} emissions listed in the table have taken into account the above control efficiencies.

3.13.3.5.6.2 Operations Effects

Direct

The CO concentrations shown in Table 3.13-7 and 3.13-8 for No Build alternative are less than the federal standards shown in Table 3.13-1. The qualitative PM_{10} analysis is discussed in Section 3.13.3.4.1.3. Localized PM_{10}/PM_{25} showed that the project would be unlikely to cause new violations or increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ NAAQS. Therefore, no direct air quality effects would be expected under Alternative 6.

Indirect

Under the No Build alternative, the existing lift-span bridge would not be replaced with a fixed span bridge. Therefore, marine traffic could continue using current routes, and there would be no indirect emissions from operations.

3.13.3.5.7 CEQA Consequences

Potential impacts of the proposed project alternatives are assessed in the context of CEQA criteria for Air Quality in Chapter 4.0 – CEQA Analysis. Based on the above analysis, under Alternatives 1, 2, 3, and 4, impacts to air quality would be significant. Under Alternative 5, impacts to air quality would be less than significant. Under Alternative 6, no construction or change to the existing environment would occur, so there would be no impact to air quality. Significant impacts related to air quality are addressed in Sections 4.3, 4.4, and 4.5 and Tables 4-1 and 4-2. A CEQA Checklist is provided in Appendix A.

3.13.4 Avoidance, Minimization, and/or Mitigation Measures

3.13.4.1 Avoidance and Minimization Measures

No avoidance or minimization measures are proposed to reduce air quality impacts.

3.13.4.2 Mitigation Measures

3.13.4.2.1 Construction

3.13.4.2.1.1 Alternatives 1, 1A, 2, 3, and 4

The following mitigation measures would reduce air quality effects during project construction and provide the noted potential efficiencies as determined by SCAQMD.

Mitigation Measures for PM_{10}/$PM_{2.5}$

AQ-1 Apply nontoxic soil stabilizers to all inactive construction areas (previously graded areas inactive for 10 days). Nontoxic soil stabilizers can reduce PM_{10}/$PM_{2.5}$ emissions from these areas by 30 to 65 percent.

AQ-2 Replace ground cover in disturbed areas as quickly as possible. A reduction of 15 to 49 percent in PM_{10}/$PM_{2.5}$ emissions for disturbed areas could be achieved.

AQ-3 Reduce traffic speed on all unpaved roads to 15 mph or less. PM_{10}/$PM_{2.5}$ emissions from travel on unpaved roads can be reduced by 40 to 70 percent by managing vehicle speeds.

Mitigation Measures for CO, ROG, and NOx

AQ-4 Develop and implement a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees. A trip reduction plan can reduce emissions of ROG, NO_X, CO, and PM_{10} from worker commutes by 0.1 to 2.2 percent, 0.1 to 2.9 percent, 0.1 to 2.9 percent, and 0.1 to 2.9 percent, respectively (SCAQMD, 1993).

AQ-5 Implement a shuttle service for construction workers to and from retail services and food establishments during lunch hours. A shuttle service can reduce emissions of ROG, NOx, CO, and PM_{10} from lunch hour trips by 0.1 to 1.0 percent, 0.1 to 1.3 percent, 0.1 to 1.3 percent, and 0.1 to 1.3 percent, respectively (SCAQMD, 1993).

AQ-6 Prohibit truck idling in excess of 2 minutes. The SCAQMD has not quantified the efficiency of this mitigation measure.

AQ-7 Suspend use of all construction equipment operations during second-stage smog alerts. The SCAQMD has not quantified the efficiency of this measure.

AQ-8 Use electricity, if feasible, from power poles rather than temporary diesel- or gasoline-powered generators. Using electricity from power poles is an effective measure to reduce emissions of ROG, NO_X, CO, and PM_{10} from generators. Reduction efficiencies for these compounds are 97 to 99 percent.

AQ-9 Heavy Duty Truck Buyback Program
The purpose of the buyback program would be to accelerate the modernizing of the heavy duty engine fleet operating in the South Coast Air Basin. By removing the older engines in the fleet and requiring replacement with newer, cleaner vehicles, a net reduction of NOx emissions (and other combustion pollutants) would occur. This reduction would help offset marine vessel detour emissions.

The protocols to be used would be consistent with the Carl Moyer Program, which is already being administered by the SCAQMD. However, this program is not available to projects such as Schuyler Heim Bridge Replacement and could not be used to actually implement this project's buy-back program. The Gateway Cities Diesel Fleet Modernization Program would be an example of a buyback program with similar reduction goals. Also, the POLA/POLB Clean Air Action Plan has a heavy duty truck buy back component. While participating in already existing programs might be preferable (and possible), it would not be necessary in order to accomplish heavy duty truck buy back. The heavy duty truck buy back could be done independently, though it would have to adhere to already accepted protocols (SCAQMD).

A heavy duty truck buyback program would consist of three steps 1) identify target vehicles based on year of make; 2) provide incentives for operators to participate 3) establish a means to ensure that replacements meet the net improvement forecasted.

The construction phase of this project is where the greatest impact of increased emission levels occurs. Therefore, the buyback program would be designed to mitigate the NOx emissions during that time. Based on recent buyback programs, the program for the proposed project would cost from \$25,000 to \$50,000 /ton of

NOx reduced. This cost can vary significantly and will continue to increase as time passes. The number of tons mitigated would be based on marine vessel detour NOx emissions during construction. The rerouting of shipping vessels during project construction would amount to 132.8 lbs NOx per day, which is equivalent to 24.2 tons NOx per year. The indirect marine vessel emissions would be mitigated to a level that is below the SCAQMD significance threshold for construction emissions.

It is estimated that each truck replacement would reduce an average of 0.55 tons per year of NO_x and 0.12 tons per year of PM. This is based on emission factors representative of current buyback programs such as the Gateway Cities Diesel Fleet Modernization Program.

These emission reductions would continue for 3 to 5 years, depending on the year of the truck updated. This timeframe would exceed the duration of the project construction phase.

3.13.4.2.2 Operations

3.13.4.2.2.1 Alternatives 1, 1A, 2, 3, and 4

No avoidance, minimization, and/or mitigation measures are proposed for project operations.

3.13.4.2.2.2 Alternatives 5 and 6

No avoidance, minimization, and/or mitigation measures are required.

3.14 Noise

The information presented in this section is based upon the *Noise Technical Report for the Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, 2007) which is herein incorporated by reference in its entirety.

Noise is defined as unwanted sound. Noise usually is objectionable because it is disturbing or annoying due to its pitch or loudness. Pitch is frequency of a tone or sound. The human ear does not hear all frequencies equally. In particular, the ear de-emphasizes low and very high frequencies. Loudness is intensity of sound waves combined with the reception characteristics of the ear.

A decibel (dB) is a unit of measurement that is used to indicate the relative amplitude of a sound. Sound levels in decibels are calculated on a logarithmic scale. Subjectively, each 10-dBA increase in sound level is generally perceived as a doubling of loudness. An increase of 3 dBA is barely perceptible, and an increase of 5 dBA is readily perceptible.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 3.14-1. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe noise over an arbitrary duration.

Table 3.14-1
Representative Outdoor and Indoor Noise Levels (dBA)

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 1,000 ft	100	
Gas Lawn Mower at 3 ft	90	
Diesel Truck at 50 ft at 50 mph	80	Food Blender at 3 ft Garbage Disposal at 3 ft
Noise Urban Area, Daytime Gas Lawn Mower, 100 ft Commercial Area	70	Vacuum Cleaner at 10 ft Normal Speech at 3 ft
Heavy Traffic at 300 ft	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime, Quiet Suburban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Rural Nighttime	30	Library Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans, 1998a.

As noise travels from the source to the receiver, it changes both in level and frequency. The most obvious change is the decrease in noise as distance from the source increases. The manner in which noise is reduced depends on a variety of factors, including the noise source, as well as the region over which the noise source propagates. Noise generated by a point source, such as equipment at a construction site, drops off at a rate of 6 dBA per doubling of distance. Traffic noise attenuates, or is reduced, at a different rate. The movement of vehicles makes the noise source appear to emanate from a line as opposed to a single point when viewed over a period of time. Noise levels drop off at a rate of approximately 3 dBA per doubling of distance for this type of source. However, ground type also plays into how much of a dropoff over distance will occur. Surfaces such as soft dirt or grass absorb some of the sound energy as the sound passes over and therefore increase the dropoff rate or attenuation. Hard surfaces such as parking lots or bodies of water do not have this excess absorption. For the sake of simplicity, attenuation rates are approximated as 3 dBA per doubling of distance for hard sites, and 4.5 dBA per doubling of distance for soft sites.

The level of highway traffic noise depends on three things: (l) the volume of traffic, (2) speed of the traffic, and (3) the number of trucks in the flow of the traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds (although it takes a doubling of traffic to increase noise levels by only 3 dB), and greater numbers of trucks. Vehicle noise is a combination of the noises produced by the engine, exhaust, and tires. The loudness of traffic noise can also be increased by defective mufflers or other faulty equipment on vehicles. Any condition (such as a steep incline) that causes heavy laboring of motor vehicle engines will increase traffic noise levels. In addition, there are other, more complicated factors that affect the loudness of traffic noise. For example, as a person moves away from a highway, traffic noise levels are reduced by distance, terrain, vegetation, and natural and manmade obstacles. Traffic noise is not usually a serious problem for people who live more than 150 meters (m) (492 feet [ft]) from heavily traveled freeways or more than 30 to 60 m (98 to 197 ft) from lightly traveled roads.

3.14.1 Regulatory Setting

3.14.1.1 Federal Requirements

The National Environmental Policy Act (NEPA) provides broad authority and responsibility for evaluating and mitigating adverse environmental effects, including highway traffic noise. NEPA directs the federal government to use all practical means and measures to promote the general welfare and foster a healthy environment.

The Federal-Aid Highway Act of 1970 mandated the Federal Highway Administration (FHWA) to develop noise standards for mitigating highway traffic noise. The law requires promulgation of traffic noise-level criteria for various land use activities. The law further provides that FHWA not approve plans and specifications for a federally aided highway project unless the project includes adequate noise abatement measures to comply with the standards. In compliance with this act, the FHWA has developed and implemented regulations for the analysis of noise impacts and the mitigation abatement of highway traffic noise from federally aided highway projects. These regulations are contained in 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise." The regulations require the following during the planning and design of a highway project: (1) identification of traffic noise impacts; (2) examination of potential abatement measures;

(3) incorporation of reasonable and feasible noise abatement measures into the highway project; and (4) coordination with local officials to provide helpful information on compatible land use planning and control. The regulations contain noise abatement criteria (NAC) that represent the upper limit of acceptable highway traffic noise for different types of land uses and human activities. The regulations do not require that the abatement criteria be met in every instance. Rather, they require that every reasonable and feasible effort be made to provide noise abatement when the criteria are approached or exceeded. Compliance with the noise regulations is a prerequisite for the granting of federal-aid highway funds for construction or reconstruction of a highway. In addition, the FHWA has prepared its *Highway Traffic Noise Analysis – Policy and Guidance* (FHWA, 1995), which provides guidance regarding NAC.

3.14.1.2 State Requirements

To comply with CEQA, Caltrans has established noise policies for evaluating the impacts of Type 1 projects, such as the proposed project, in the *Traffic Noise Analysis Protocol for New Highway Construction and Highway Reconstruction Projects* (Protocol) (Caltrans, 1998). A Type 1 project is defined in 23 CFR 772 as "A proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes." Caltrans also extends the definition of Type 1 projects to state highway projects without federal funding.

The Protocol also fulfills the highway noise analysis and abatement/mitigation requirements stemming from Section 216 et seq. of the California Streets and Highways Code, which indicates that if, as a result of a proposed freeway project, noise levels in classrooms of public or private elementary or secondary schools exceed 52 dBA L_{eq}(h), Caltrans shall provide noise abatement to reduce classroom noise to the criterion or below. If the classroom noise exceeds the criterion of 52 dBA L_{eq} both before and after the proposed freeway project, Caltrans shall, at a minimum, provide noise abatement to reduce classroom noise to pre-project noise levels.

3.14.2 Affected Environment

3.14.2.1 Location of Noise Sensitive Receptors

The project could affect the noise environment through changes in the proximity of traffic to noise sensitive receptors (e.g., residences and schools) or through exposure of such receptors to construction noise. Noise effects therefore could occur in the vicinity of the SR-47 Expressway alignment, the SR-103 Extension alignment, and the Schuyler Heim Bridge. Land uses in these areas are mixed, consisting primarily of inhabited boats in the marinas, residential neighborhoods in Wilmington and Long Beach, schools in Long Beach, and commercial/industrial developments throughout the corridor. The acronym after each name below refers to the code used to identify the noise monitoring locations in Figure 3.14-1 through 3.14-5.

- Anchorage Way Marinas (AWM). The marinas are considered a residential area because of live-aboard boats; the boat docks are west of and below the Schuyler Heim Bridge, which is made of grated metal and does not currently disrupt the line of sight between traffic and receivers within the marina.

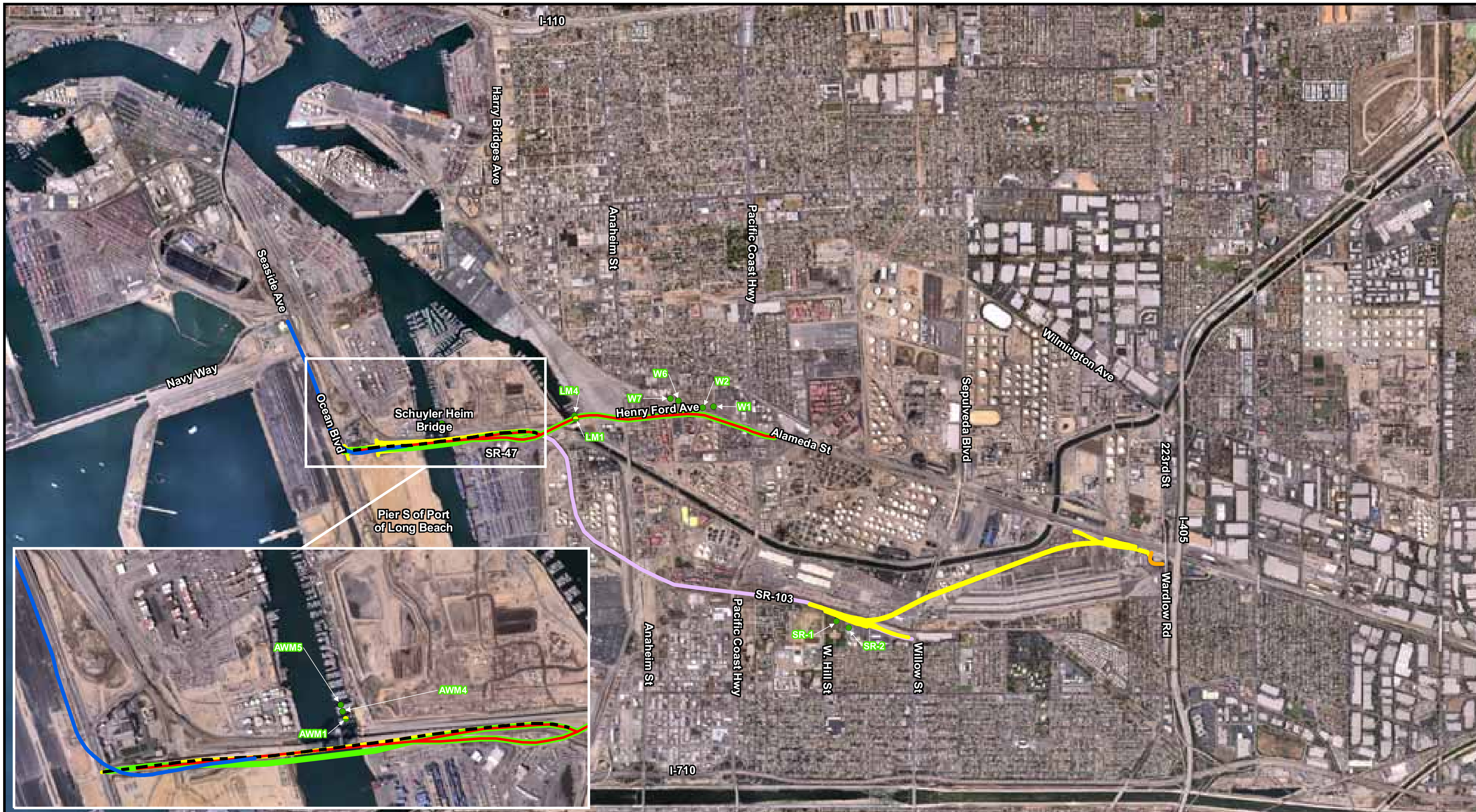
- Leeward Bay Marina (LM). This marina also is considered a residential area because of live-aboard boats. The boat docks are west of and below Henry Ford Avenue, which banks slightly away from the marina, thus shielding the receivers to some extent by obstructing the line of sight between traffic and the receivers.
- Wilmington Neighborhood (W). This single-family residential neighborhood is just west of Alameda Street, north and south of Henry Ford Avenue, and south of Pacific Coast Highway. A train track runs along Alameda Street between the neighborhood and the street on an elevated berm, providing some attenuation from traffic noise by breaking the line of sight between the vehicle tires and the receivers.
- Long Beach neighborhood/SR-103 Extension (SR). This area is east of the proposed SR-103 Extension and consists of the Elizabeth Hudson Elementary School; Savannah Academy, an early childhood education facility; Reid High School; Cabrillo High School; a park; and a single-family residential neighborhood. The elementary school classrooms are approximately 137 m (450 ft) east of the existing SR-103, and a playground lies between the classrooms and SR-103. A city park is south of the elementary school and includes a community garden that backs up to the SR-103 right-of-way. The Savannah Academy is at the south of the park. The high school classrooms are over 320 m (1,050 ft) east of SR-103, but the athletic fields back up to the SR-103 right-of-way. South of the high school is neighborhood containing scattered residences and abandoned/incomplete construction.

3.14.2.2 Existing Noise Environment

Noise measurements were taken on May 25 and 26, 2005, at 11 locations within the four receiver areas using Larson Davis Model 824 sound level meters. The monitoring locations are shown in Figures 3.14-1 through 3.14-5. Weather conditions were generally clear, with temperatures around 75 degrees Fahrenheit (°F). Relative humidity varied from 40 percent to 52 percent, and wind conditions were calm. All monitoring equipment used in the study was programmed for slow time response and the A-weighted decibel scale. To ensure accuracy, the equipment was calibrated before each measurement. The accuracy of the calibrator is maintained through a program established by the manufacturer and is traceable to the National Bureau of Standards. All instrumentation meets the requirements of the American National Standards Institute (ANSI) S1.4-1983.

Short-term (15-minute) measurements were taken at each of the 11 locations and were accompanied by traffic volume counts. These were supplemented by long-term (24-hour) measurements at two of the monitoring locations: Anchorage Way Marinas and Leeward Bay Marina (at the dock nearest the Schuyler Heim Bridge and the dock nearest Henry Ford Avenue, respectively). At both of these locations, noise levels were measured at microphone heights of 1.5 m (5 ft) to correspond with ground floor receptors. The long-term measurements were used to identify the hour during which noise levels were the loudest.

The loudest average hourly noise levels at a number of locations within the four main receiver areas were calculated using the FHWA Traffic Noise Model (TNM) version 2.5. TNM calculates traffic noise based on the geometry of the site, which includes the positioning of lanes, receivers, and barriers. The noise source is the traffic flow, which is input into the program using such factors as hourly volumes and speeds of automobiles, medium trucks, and heavy trucks.



LEGEND

Alternative 1: Bridge Replacement and SR-47 Expressway
Alternative 2: SR-103 Extension
Alternative 3: Bridge Demolition Avoidance
Alternative 4: Bridge Replacement Only
Wardlow Road/223rd Street Ramp
Ocean Boulevard/SR-47 Flyover
Existing SR-103
Short-term/Long-term Noise Monitoring Stations
Short-term Noise Monitoring Stations

AWM - Anchorage Way Marinas
LM - Leeward Bay Marina
SR - SR-103
W - Wilmington

0 2,800 Feet
0 1,000 Meters

Aerial Date: May 2002, AirPhotoUSA

Note: Project components not to scale

Figure 3.14-1
Noise Monitoring Locations
Schuyler Heim Bridge Replacement and SR-47 Expressway

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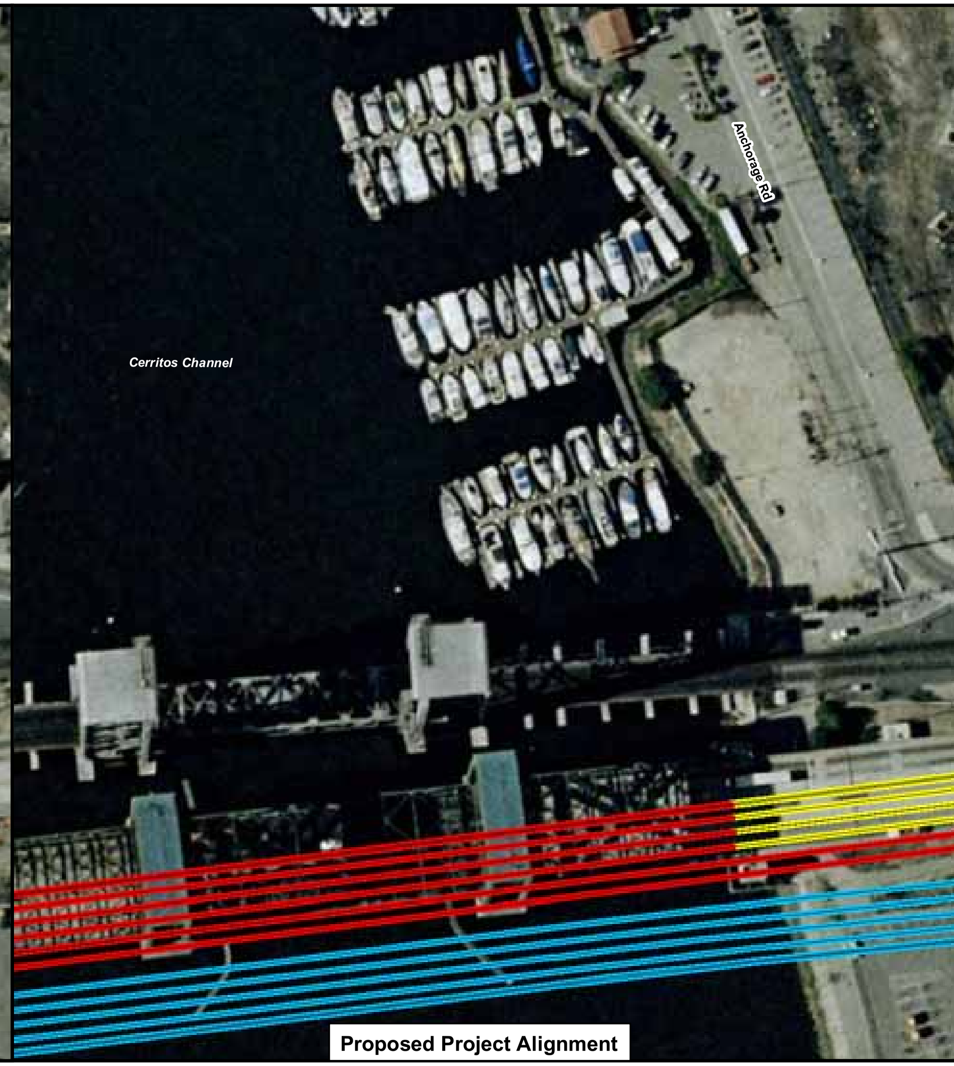

LEGEND

- Short-term Monitoring
- Short-term/Long-term Monitoring
- Noise Modeling
- NB SR-47
- SB SR-47
- NB SR-103
- SB SR-103
- NB SR-103 Realignment
- SB SR-103 Realignment

Not to Scale

Source: ACET, 2005 Aerial Date: February 2006

Figure 3.14-2
Anchorage Way Marinas Noise Monitoring and Modeling Locations
Schuyler Heim Bridge Replacement and SR-47 Expressway

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Source: ACET, 2005 Aerial Date: February 2006

Figure 3.14-3
Leeward Bay Marina
Noise Monitoring
and Modeling Locations
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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Existing Noise Monitoring and Modeling Locations (2005-2006)

Proposed Project Alignment

LEGEND

- Short-term Monitoring
- Short-term/Long-term Monitoring
- Noise Modeling
- NB SR-47
- SB SR-47
- NB SR-103
- SB SR-103
- NB SR-103 Realignment
- SB SR-103 Realignment

Source: ACET, 2005 Aerial Date: February 2006

Not to Scale

Figure 3.14-4
Wilmington Neighborhood Noise Monitoring and Modeling Locations
Schuyler Heim Bridge Replacement and SR-47 Expressway

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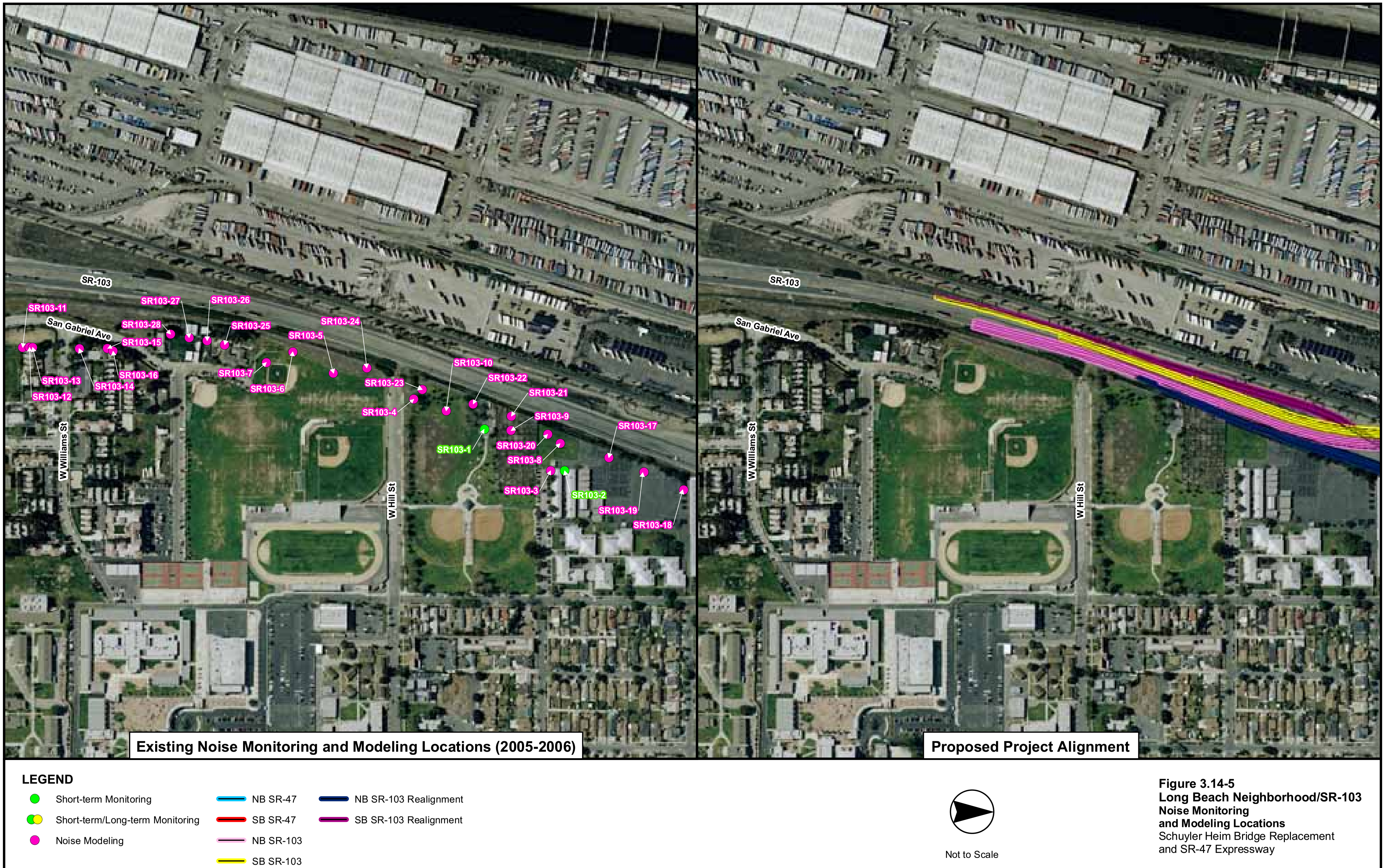

Source: ACET, 2005 Aerial Date: February 2006

Figure 3.14-5
Long Beach Neighborhood/SR-103
Noise Monitoring
and Modeling Locations
Schuyler Heim Bridge Replacement
and SR-47 Expressway

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There is considerable train traffic in the study area, and trains, particularly when their horns sound at the at-grade crossings, are a major noise source. When trains are present, they often generate higher hourly noise levels than vehicular traffic. Train traffic is intermittent, however. Therefore, to provide the most conservative analysis, the characterization of the noise environment assumes that no trains are present and that vehicular traffic is the primary noise source. The noise modeling locations are shown in Figures 3.14-2 through 3.14-5. AWM1 through AWM30 represent the receivers within the Anchorage Way Marinas; LM1 through LM33 represent receivers within the Leeward Bay Marina; W1 through W49 represent receivers within the Wilmington Neighborhood; and SR-103-1 through SR-103-28 represent the Long Beach Neighborhood/SR-103 Extension area, including the schools and park.

Within the Anchorage Way Marinas, the calculated loudest-hour L_{eq} ranged from 67 to 71 dBA; within the Leeward Bay Marina, the loudest-hour L_{eq} ranged from 57 to 62 dBA; within the Wilmington neighborhood, the loudest hour L_{eq} ranged from 50 to 63 dBA; and within the Long Beach neighborhood along the SR-103 Extension, the loudest hour L_{eq} ranged from 62 to 73 dBA (see Section 3.14.3.3).

3.14.3 Environmental Consequences

3.14.3.1 Evaluation Criteria

In accordance with the Caltrans *Traffic Noise Analysis Protocol, October 1998*, a noise impact occurs when the future peak-hour noise level with the project substantially exceeds the existing peak-hour noise level (substantial increase is defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the Noise Abatement Criteria (NAC). Approaching the NAC is defined as coming within 1 dBA of the NAC, shown in Table 3.14-2. It also is noted that local ordinances are considered when developing project construction plans.

Table 3.14-2
Activity Categories and Noise Abatement Criteria (NAC)

Activity Category	NAC, Hourly A-Weighted Noise Level, dBA L_{eq}(h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	–	Undeveloped lands
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Federal Highway Administration (FHWA), Highway Traffic Noise Analysis, Abatement Policy and Guidance, June 1995.

3.14.3.2 Methodology

Traffic noise level predictions for project alternatives were generated using TNM version 2.5 at locations of noise sensitive receptors within 150 m (492 ft) of the roadway being modeled. This is consistent with FHWA's observation that "Traffic noise is not usually a serious problem for people who live more than 150 m (492 ft) from heavily traveled freeways" (FHWA, 1995).

The TNM input files for existing conditions were developed using the existing roadway geometry and estimated surrounding terrain. Measured traffic noise levels and concurrent traffic count data were used to evaluate the accuracy of the TNM in estimating traffic noise levels within the four project areas.

Existing (2005) and projected future (2030) traffic noise levels were computed with the TNM model, using existing and future traffic data at the four study areas. Traffic data used for the assessment of existing (2005) and projected future (2030) noise exposure are provided by Meyer, Mohaddes Associates.

For noise abatement evaluation, TNM is used to determine locations and heights of noise barriers required to reduce future traffic noise exposure to feasible levels (5-dBA noise reduction) and levels below the applicable NAC. To determine whether a proposed noise barrier is feasible, the barrier must provide a minimum of a 5-dBA reduction to the impacted noise sensitive receivers, as well as meet various other practical requirements, such as non-obstruction of driveways/roadways, breaking the line-of-sight from the receiver to a 3.5-m (11.5-ft) truck exhaust stack. To determine whether a proposed barrier is reasonable, the allowance per benefited residence must be greater than or equal to the barrier cost per benefited residence. If the proposed noise abatement is feasible and reasonable, abatement is recommended.

3.14.3.3 Evaluation of Alternatives

The loudest hourly traffic noise levels resulting from implementation of the project alternatives were estimated for a number of specific locations within the four receiver areas. The following sections include discussions of construction noise associated with each project alternative and depict the existing and predicted future loudest hourly traffic noise levels rounded to the nearest whole number at each location for the build alternatives (Alternatives 1 [and 1A], 2, 3, and 4) and the No Build alternative (Alternative 6). Improvements for Alternative 5 would be relatively minor, and the exact locations are not known at this time. Implementation of Alternative 5 would not result in a perceptible change in noise levels. It is important to note that not all alternatives affect all locations.

3.14.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.14.3.3.1.1 Construction Effects

Direct

Table 3.14-3 summarizes typical noise levels generated by construction equipment that could be used to construct Alternatives 1, 1A, and the other build alternatives (2, 3, and 4).

Noise sources associated with construction activities can generally be regarded as "point" sources. As such, construction noise levels would decrease by 6 dBA with every doubling of distance. Highway construction activities do not typically stay in one location for long periods, and noise-sensitive receivers in a given location would not be exposed for extended periods to noise generated by construction. Additionally, provisions would be included in the plans and specifications requiring the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and use of muffler systems. Caltrans standard construction practices also include complying with all local sound control rules. Caltrans practices include consideration of the needs of the community, and Caltrans will take all reasonable steps to avoid disruption during construction.

Table 3.14-3
Construction Equipment Noise

Type of Construction Equipment	Maximum Level, dBA at 15 m (50 ft)
Scrapers	89
Bulldozers	85
Heavy trucks	88
Backhoe	80
Pneumatic tools	85
Concrete Pump	82
Impact Pile Driver	90 to 105

Source: Environmental Protection Agency, 1971

Pile-Driving Noise

Pile driving has the potential to be the loudest and most intrusive construction activity. Unavoidable adverse noise impacts that would occur during the construction phase would occur primarily from pile driving. However, pile driving is generally limited to those areas requiring a pier or vertical support structure. Pile driving is analogous to a hammer hitting a nail. Pile-driving operations are responsible for very high peak or impact noise levels during construction. The EPA ("Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," December 31, 1971) reports that pile-driving operations can result in peak noise levels of 90 to 105 dBA at 15 m (50 ft), with 100 dBA being typical. The angle of the noise impact on some pile drivers is such that topography and buildings that block the line of sight for grading equipment and general construction equipment noise may not block the line of sight for pile-driving noise. As a result, intervening topography or structures may not necessarily reduce construction noise levels at receptors that are in the line of sight of certain pile-driving activities. Based on a pile-driving noise level of 100 dBA at 15 m (50 ft), noise levels at other distances can be forecast. At a distance of 150 m (500 ft), the pile-driving noise might still be as high as 80 dBA. The pile-driving noise level will decrease as the distance from the source increases. Table 3.14-4 shows attenuation over distance from the pile driver (hard site assumed).

Both the Cerritos Channel and Consolidated Slip marinas would be subject to substantial noise effects from pile-driving construction activities. Pile-driving activities for the Cerritos Channel are expected to last approximately 2 weeks (10 days) for each of the two stages of falsework pile driving. Falsework pile driving for the Consolidated Slip is expected to last less than 2 weeks (10 days). Both the Cerritos Channel and Consolidated Slip marinas (Anchorage Way Marinas and Leeward Bay Marina, respectively) would be subject to short-term noise impacts from pile-driving construction activities.

Table 3.14-4
Pile-Driving Noise: Attenuation Over Distance

Distance		Noise Level
(m)	(ft)	dBA
15	50	100
25	82	96
50	164	90
75	246	86
100	328	84
150	492	80
200	656	78
300	984	74
400	1,312	71
500	1,640	70
600	1,969	68
700	2,297	67
800	2,625	65

Source: Environmental Protection Agency, 1971

Due to the noise effects, pile driving will occur during daylight hours only. However, noise is expected to be adverse at some locations. The nearest receptors at the Anchorage Way Marinas are approximately 174 m (570 ft) from potential pile driving at the north end of the new bridge across the Cerritos Channel. Maximum noise levels from pile driving at such distances are expected to be in the 79 to 80 dBA range. The nearest receptors at the Leeward Bay Marina are approximately 60 m (200 ft) from potential pile driving at the north side of the Consolidated Slip. At these receptors, estimated pile-driving maximum noise levels would be 88 dBA. Noise abatement will be implemented in accordance with state and local standards and requirements to the extent feasible.

Indirect

No indirect construction effects would occur.

3.14.3.3.1.2 Operations Effects

Direct

Anchorage Way Marinas

Table 3.14-5 summarizes the calculated existing and future traffic noise levels under Alternative 1 and No Build conditions at the Anchorage Way Marinas. Without abatement, the prescribed loudest hourly traffic noise levels at the Anchorage Way Marinas receiver area would range from 68 to 70 dBA L_{eq}(h), compared to 67 to 71 dBA under existing conditions.

Table 3.14-5
Anchorage Way Marinas – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 1 and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternative 1 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
AWM1	**70**	**69**	-1	**74**	+4
AWM2	**71**	**70**	-1	**75**	+4
AWM3	**70**	**70**	-0-	**74**	+4
AWM4	**68**	**68**	-0-	**72**	+4
AWM5	**67**	**68**	+1	**71**	+4
AWM6	**70**	**70**	-0-	**74**	+4
AWM7	**70**	**70**	-0-	**74**	+4
AWM8	**70**	**70**	-0-	**74**	+4
AWM9	**70**	**69**	-1	**74**	+4
AWM10	**69**	**69**	-0-	**73**	+4
AWM11	**69**	**69**	-0-	**73**	+4
AWM12	**69**	**69**	-0-	**73**	+4
AWM13	**69**	**69**	-0-	**73**	+4
AWM14	**69**	**69**	-0-	**73**	+4
AWM15	**69**	**69**	-0-	**73**	+4
AWM16	**69**	**69**	-0-	**73**	+4
AWM17	**69**	**69**	-0-	**73**	+4
AWM18	**68**	**68**	-0-	**72**	+4
AWM19	**68**	**68**	-0-	**72**	+4
AWM20	**68**	**68**	-0-	**72**	+4
AWM21	**68**	**68**	-0-	**72**	+4
AWM22	**68**	**68**	-0-	**72**	+4
AWM23	**67**	**68**	+1	**71**	+4
AWM24	**67**	**68**	+1	**71**	+4
AWM25	**67**	**68**	+1	**71**	+4
AWM26	**67**	**68**	+1	**71**	+4
AWM27	**67**	**68**	+1	**71**	+4
AWM28	**67**	**68**	+1	**71**	+4
AWM29	**67**	**68**	+1	**71**	+4
AWM30	**67**	**68**	+1	**71**	+4

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.

Alternative 1A would result in the same noise levels as Alternative 1.

A noise barrier along the west side of the Schuyler Heim Bridge, with an approximate length of 356 m (1,168 ft) and height of 3.96 m (13 ft), would reduce noise levels in the marinas by 5 to 7 dBA.

Currently, approximately 15 percent of the marina slips are utilized as residential "live-aboards." This means that, of the 30 to 35 impacted boat locations, only five live-aboard boats would benefit from the noise barrier. Preliminary reasonableness calculations indicate that the barrier would cost approximately $97,200 per benefited live-aboard, which exceeds the allowance per residence of $44,000 to $48,000 for this area. Therefore, it would not be reasonable to build this barrier.

Leeward Bay Marina

Table 3.14-6 summarizes the calculated existing and future traffic noise levels under Alternative 1 and No Build conditions at the Leeward Bay Marina. Without abatement, the predicted loudest hourly traffic noise levels at boat slips within the Leeward Bay Marina would range from 61 to 67 dBA L_{eq}(h).

Table 3.14-6
Leeward Bay Marina – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 1, 3, and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternatives 1 and 3 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
LM1	62	—*	—	65	+3
LM2	62	—*	—	65	+3
LM3	61	—*	—	65	+4
LM4	60	62	+2	63	+3
LM5	60	63	+3	63	+3
LM6	60	61	+1	63	+3
LM7	58	**67**	+9	61	+3
LM8	57	**67**	+0	61	+4
LM9	57	**67**	+0	61	+4
LM10	58	**67**	+9	61	+3
LM11	60	63	+3	63	+3
LM12	60	63	+3	63	+3
LM13	60	63	+3	63	+3
LM14	60	62	+2	63	+3
LM15	60	62	+2	63	+3
LM16	60	61	+1	63	+3
LM17	59	65	+6	62	+3
LM18	59	64	+5	62	+3
LM19	59	65	+6	62	+3
LM20	59	65	+6	62	+3
LM21	59	65	+6	62	+3

Table 3.14-6
Leeward Bay Marina – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 1, 3, and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternatives 1 and 3 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
LM22	59	65	+6	62	+3
LM23	59	64	+5	63	+4
LM24	59	64	+51	62	+3
LM25	57	**67**	+10	61	+4
LM26	58	**67**	+9	61	+3
LM27	57	**66**	+9	60	+3
LM28	56	**66**	+10	60	+4
LM29	57	**66**	+9	60	+3
LM30	57	**66**	+9	60	+3
LM31	57	**66**	+9	60	+3
LM32	57	**66**	+9	60	+3
LM33	57	**66**	+9	60	+4

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.
Boat slips at these locations would be acquired as part of the project.

A barrier with an approximate length of 289 m (950 ft) and height of 2.44 m (8 ft) would be needed to abate noise levels in this area. Such a barrier would reduce noise levels by 5 to 7 dBA at 65 boat locations. Table 3.14-7 shows the results of the noise barrier modeling analysis for the Leeward Bay Marina.

Table 3.14-7
Leeward Bay Marina – Noise Barrier Reduction for Alternatives 1 and 3

Receiver ID No.	Alternatives 1and 3 L_{eq}(h), dBA	Proposed Barrier L_{eq}(h), dBA	Reduction (dBA)
LM1	—*	—	—
LM2	—*	—	—
LM3	—*	—	—
LM4	62	58	4
LM5	63	58	5
LM6	61	63	3
LM7	**67**	60	3
LM8	**67**	60	3
LM9	**67**	61	6
LM10	**67**	60	6
LM11	63	58	5
LM12	63	58	5

Table 3.14-7
Leeward Bay Marina – Noise Barrier Reduction for Alternatives 1 and 3

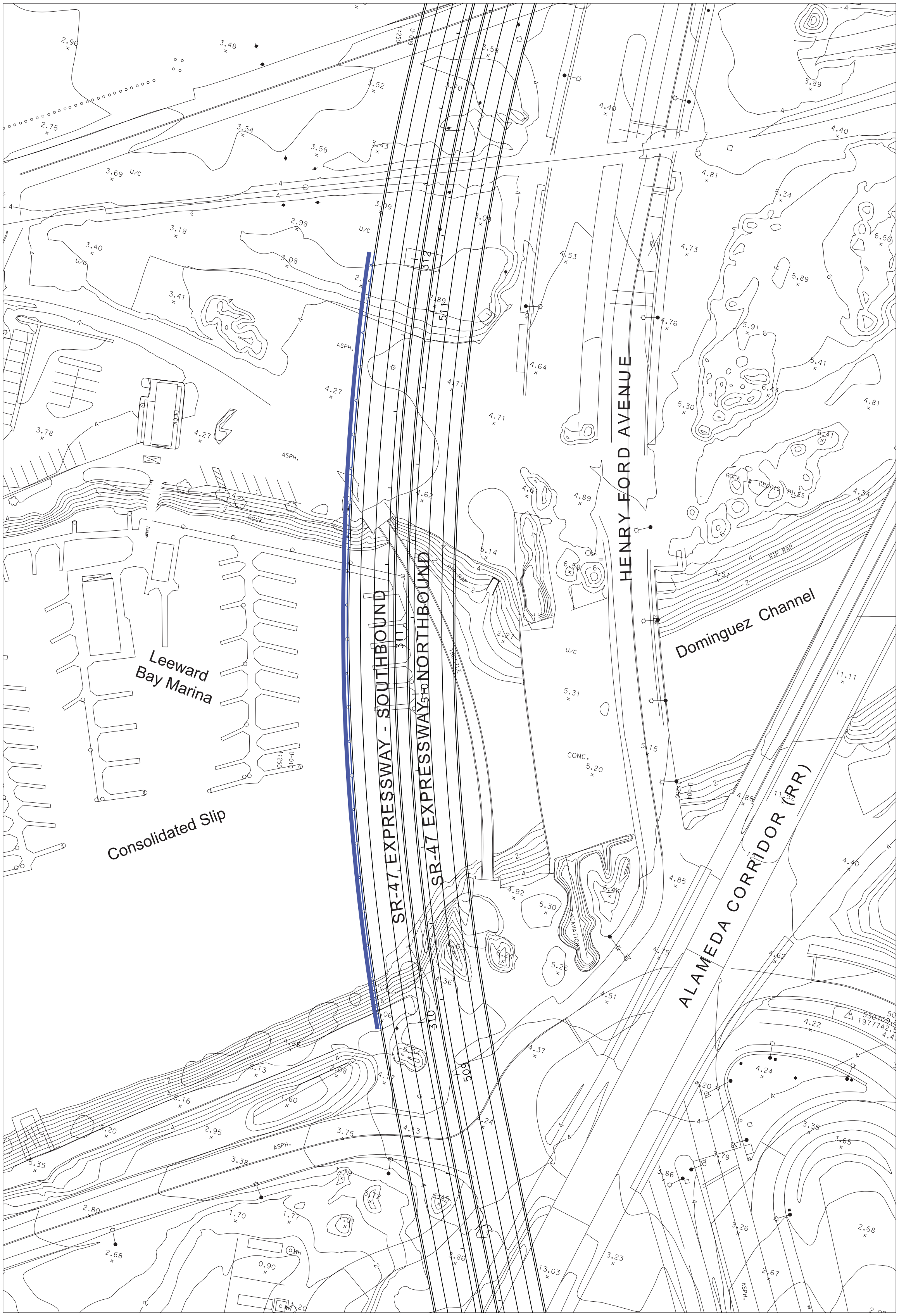
Receiver ID No.	Alternatives 1and 3 $L_{eq}(h)$, dBA	Proposed Barrier $L_{eq}(h)$, dBA	Reduction (dBA)
LM13	63	58	5
LM14	62	58	4
LM15	62	58	4
LM16	61	58	3
LM17	65	59	6
LM18	64	59	5
LM19	65	59	6
LM20	65	59	6
LM21	65	59	6
LM22	65	59	6
LM23	64	59	5
LM24	64	58	6
LM25	**67**	60	7
LM26	**67**	60	7
LM27	**66**	61	5
LM28	**66**	61	5
LM29	**66**	61	5
LM30	**66**	61	5
LM31	**66**	60	5
LM32	**66**	60	5
LM33	**66**	61	5

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.
Boxed cells show barrier heights that would achieve the Caltrans minimum requirement of 5 dBA noise reduction.
Boat slips at these locations would be acquired as part of the project.

Assuming a utilization rate of 15 percent of boats as live-aboards, there would be 10 benefited noise sensitive receivers. Preliminary reasonableness calculations indicate that the estimated barrier cost would be approximately $23,400 per benefited residence, which is within the allowance per residence of $50,000 to $54,000. Therefore, it would be feasible and reasonable to build a barrier at this location. The location of the noise barrier is shown in Figure 3.14-6.

Wilmington Neighborhood

Table 3.14-8 summarizes the calculated existing and future traffic noise levels under Alternative 1 and No Build conditions at the Wilmington neighborhood. Without abatement, the predicted loudest hourly noise levels in the Wilmington neighborhood would range from 61 to 69 dBA $L_{eq}(h)$ under Alternative 1.



LEGEND:

Expressway Soundwall

Notes: See Figure 14-3 for overview of location. Final location and architectural features of soundwalls will be determined during final design.

No Scale

Figure 3.14-6
Soundwalls – Leeward Bay Marina
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Table 3.14-8
Wilmington Neighborhood – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 1, 3, and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternatives 1 and 3 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
W1	56	**67**	+11	64	+8
W2	60	**69**	+9	**69**	+8
W3	56	**67**	+11	65	+9
W4	63	**68**	+5	**70**	+7
W5	55	65	+10	63	+8
W6	62	**68**	+6	**69**	+7
W7	61	**67**	+6	**69**	+8
W8	57	65	+8	64	+7
W9	56	64	+8	63	+7
W10	55	63	+8	62	+7
W11	54	62	+8	61	+7
W12	57	65	+8	65	+8
W13	56	64	+8	63	+7
W14	54	63	+9	62	+8
W15	57	65	+8	65	+8
W16	56	65	+9	64	+8
W17	56	64	+8	63	+7
W18	55	63	+8	62	+7
W19	54	63	+9	61	+7
W20	52	61	+9	59	+7
W21	52	62	+10	59	+7
W22	53	62	+9	61	+8
W23	54	63	+9	62	+8
W24	57	64	+7	64	+7
W25	58	65	+7	65	+7
W26	53	62	+9	60	+7
W27	54	63	+9	61	+7
W28	55	63	+8	62	+7
W29	56	64	+8	63	+7
W30	52	63	+8	60	+8
W31	54	64	+10	62	+8
W32	51	62	+11	59	+8
W33	50	61	+11	58	+8
W34	57	**66**	+9	65	+8
W35	56	65	+9	63	+7
W36	55	65	+10	63	+8

Table 3.14-8
Wilmington Neighborhood – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 1, 3, and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternatives 1 and 3 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
W37	54	64	+10	61	+7
W38	53	64	+11	61	+8
W39	52	63	+11	59	+7
W40	48	61	+13	56	+8
W41	48	61	+13	57	+9
W42	49	62	+13	58	+9
W43	51	63	+12	60	+9
W44	52	64	+12	61	+9
W45	53	65	+12	62	+9
W46	49	62	+13	57	+8
W47	50	63	+13	59	+9
W48	52	64	+12	61	+9
W49	53	65	+12	62	+9

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.
The 49 noise receptors represent the entire Wilmington neighborhood potentially affected by the proposed project. The neighborhood contains more homes than the receptors used in the analysis.

For Alternative 1, two barriers, one along the SR-47 Expressway and another on ground level along Alameda Street, would be needed to abate future traffic noise. The approximate combined length of both barriers would be 1,405 m (4,610 ft). The height of the barriers would be between 3.66 m (12 ft) and 5.49 m (18 ft). Calculations based on preliminary design data indicate that the barrier would reduce noise levels by 5 to 9 dBA at approximately 56 residences.

Preliminary reasonableness calculations indicate that the barrier cost per benefited residence would be approximately $37,500. This cost is well below the allowance per residence of $48,000. Therefore, it would be both reasonable and feasible to build a noise barrier at the Wilmington neighborhood (Table 3.14-9).

Table 3.14-9
Wilmington Neighborhood Noise Barrier Reduction

Receiver ID No.	Alternatives 1&3 L_{eq}(h), dBA	Proposed Barrier L_{eq}(h), dBA	Reduction (dBA)
W1	**67**	60	7
W2	**69**	63	6
W3	**67**	60	7
W4	**68**	60	8
W5	65	60	5

Table 3.14-9
Wilmington Neighborhood Noise Barrier Reduction

Receiver ID No.	Alternatives 1&3 $L_{eq}(h)$, dBA	Proposed Barrier $L_{eq}(h)$, dBA	Reduction (dBA)
W6	**68**	59	9
W7	**67**	59	8
W8	65	59	6
W9	64	58	6
W10	63	58	5
W11	62	58	4
W12	65	60	5
W13	64	60	4
W14	63	61	2
W15	65	59	7
W16	65	59	5
W17	64	59	5
W18	63	60	4
W19	63	60	3
W20	61	56	6
W21	62	56	6
W22	62	56	6
W23	63	57	7
W24	64	57	7
W25	65	58	7
W26	62	58	4
W27	63	58	5
W28	63	58	5
W29	64	58	6
W30	63	57	6
W31	64	59	6
W32	62	56	6
W33	61	56	6
W34	**66**	60	6
W35	65	60	6
W36	65	59	6
W37	64	59	5
W38	64	58	6
W39	63	57	6
W40	61	54	6
W41	61	55	6
W42	62	55	7
W43	63	57	7

Table 3.14-9
Wilmington Neighborhood Noise Barrier Reduction

Receiver ID No.	Alternatives 1&3 L_{eq}(h), dBA	Proposed Barrier L_{eq}(h), dBA	Reduction (dBA)
W44	64	58	7
W45	65	58	7
W46	62	55	6
W47	63	56	7
W48	64	57	7
W49	65	58	7

1. **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.
2. Boxed cells show barrier heights achieving the Caltrans minimum requirement of 5 dBA noise reduction and breaking the line of sight to a 3.5 m-high (11.5-ft-high) truck exhaust stack.
3. The 49 noise receptors represent the entire Wilmington neighborhood potentially affected by the proposed project. The neighborhood contains more homes than the receptors used in the analysis.

Long Beach Neighborhood/SR-103 Extension

This receiver area would not be affected by Alternative 1.

Indirect

No indirect effects would occur.

Alternative 1A

The noise evaluation described under Alternative 1 is also applicable to Alternative 1A.

3.14.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.14.3.3.2.1 Construction Effects

Direct

Construction noise would be similar to that discussed under Alternative 1. However, no pile driving would occur near Leeward Bay Marina.

Indirect

No indirect effects would occur.

3.14.3.3.2.2 Operations Effects

Direct

Anchorage Way Marinas

Table 3.14-10 summarizes the calculated existing and future traffic noise levels under Alternative 2 and No Build conditions at the Anchorage Way Marinas. Under Alternative 2, without abatement, the predicted loudest hourly traffic noise levels at boat locations within the marinas would range from 71 to 75 dBA L_{eq}(h).

Table 3.14-10
Anchorage Way Marinas – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 2 and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternative 2 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
AWM1	**70**	**70**	-0-	**74**	+4
AWM2	**71**	**70**	-1	**75**	+4
AWM3	**70**	**69**	-1	**74**	+4
AWM4	**68**	**68**	-0-	**72**	+4
AWM5	**67**	**68**	+1	**71**	+4
AWM6	**70**	**70**	-0-	**74**	+4
AWM7	**70**	**70**	-0-	**74**	+4
AWM8	**70**	**69**	-1	**74**	+4
AWM9	**70**	**69**	-1	**74**	+4
AWM10	**69**	**69**	-0-	**73**	+4
AWM11	**69**	**69**	-0-	**73**	+4
AWM12	**69**	**69**	-0-	**73**	+4
AWM13	**69**	**69**	-0-	**73**	+4
AWM14	**69**	**69**	-0-	**73**	+4
AWM15	**69**	**69**	-0-	**73**	+4
AWM16	**69**	**69**	-0-	**73**	+4
AWM17	**69**	**69**	-0-	**73**	+4
AWM18	**68**	**68**	-0-	**72**	+4
AWM19	**68**	**68**	-0-	**72**	+4
AWM20	**68**	**68**	-0-	**72**	+4
AWM21	**68**	**68**	-0-	**72**	+4
AWM22	**68**	**68**	-0-	**72**	+4
AWM23	**67**	**68**	+1	**71**	+4
AWM24	**67**	**68**	+1	**71**	+4
AWM25	**67**	**68**	+1	**71**	+4
AWM26	**67**	**68**	+1	**71**	+4
AWM27	**67**	**68**	+1	**71**	+4
AWM28	**67**	**68**	+1	**71**	+4
AWM29	**67**	**68**	+1	**71**	+4
AWM30	**67**	**68**	+1	**71**	+4

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.

A noise barrier with the same length and height characteristics as that evaluated under Alternative 1 would reduce noise levels at the first four rows of boat slips within the Anchorage Way Marinas by 5 to 7 dBA. Currently, approximately 15 percent of the marina slips are utilized as residential live-aboards. This means that, of the 30 to 35 impacted boat locations, only five live-aboards would benefit from the barrier. Preliminary reasonableness calculations indicate that the barrier would cost approximately $97,200 per benefited live-aboard, which exceeds the allowance per residence of $44,000-48,000 for this area. Based on that analysis, a noise barrier would not be reasonable at this location.

Long Beach Neighborhood/SR-103 Extension

Table 3.14-11 summarizes the calculated existing and future traffic noise levels under Alternative 2 and No Build conditions at the Long Beach Neighborhood/SR-103 Extension. The predicted loudest hourly noise levels in this area would range from 62 to 72 dBA L_{eq}(h) for Alternative 2.

Table 3.14-11
Long Beach Neighborhood/SR-103 Extension – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 2 and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternative 2 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
SR103-1	**67**	**68**	+1	**68**	+1
SR103-2	65	**66**	+1	**66**	+1
SR103-3	64	65	+1	65	+1
SR103-4	**68**	**70**	+2	**69**	+1
SR103-5	**68**	**69**	+1	**69**	+1
SR103-6	**70**	**70**	-0-	**72**	+2
SR103-7	**66**	**67**	+1	**67**	+1
SR103-8	**71**	**69**	-2	**72**	+1
SR103-9	**69**	**69**	-0-	**71**	+2
SR103-10	**68**	**70**	+2	**69**	+1
SR103-11	62	62	-0-	63	+1
SR103-12	62	62	-0-	63	+1
SR103-13	62	63	+1	63	+1
SR103-14	63	64	+1	64	+1
SR103-15	64	65	+1	64	0
SR103-16	63	64	+1	64	+1
SR103-17	**72**	**69**	-3	**73**	+1
SR103-18	**68**	64	-4	**70**	+2
SR103-19	**71**	**67**	-4	**73**	+2
SR103-20	**72**	**70**	-2	**73**	+1
SR103-21	**73**	**71**	-2	**75**	+2
SR103-22	**73**	**72**	-1	**74**	+1
SR103-23	**71**	**72**	+1	**73**	+2
SR103-24	**72**	**72**	-0-	**74**	+2

Table 3.14-11
Long Beach Neighborhood/SR-103 Extension – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 2 and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternative 2 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
SR103-25	**68**	**68**	-0-	**69**	+1
SR103-26	**68**	**68**	-0-	**69**	+1
SR103-27	**68**	**68**	-0-	**69**	+1
SR103-28	**68**	**68**	-0-	**69**	+1

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.

For this alternative, two overlapping noise barriers along the east side of SR-103, with an approximate combined length of 835 m (2,740 ft), would be needed to abate traffic noise levels at the Long Beach Neighborhood/SR-103 Extension. The two barriers would be 3.66 m (12 ft) high; the barrier section along the northbound off-ramp would be 4.57 m (15 ft) high. The two noise barriers would reduce noise levels by 5 to 14 dBA for 27 equivalent frontage units. Preliminary reasonableness calculations indicate that the barriers would cost approximately $37,100 per benefited unit, which is below the allowance per residence of $44,000 to $52,000. Therefore, it would be feasible and reasonable to build a barrier at this location.

Table 3.14-12 shows the predicted noise levels as well as the noise reduction for these barriers. Figure 3.14-7 shows the locations of the noise barriers, which are based on preliminary engineering plans and, as such, are considered to be approximate. The exact locations for the barriers would be determined during final design based on safety, engineering, and feasibility. The barriers would reduce noise levels in the receiver areas to below the NAC.

The residential area in the southern part of the Long Beach neighborhood would not experience noise levels that approach or exceed the NAC. Therefore, a noise barrier would not be needed for that area.

Table 3.14-12
Long Beach Neighborhood/SR-103 Extension – Noise Barrier Reduction for Alternative 2

Receiver ID No.	Alternative 2 L_{eq}(h), dBA	Proposed Barrier L_{eq}(h), dBA	Reduction (dBA)
SR103-1	**68**	58	10
SR103-2	**66**	57	9
SR103-3	65	57	8
SR103-4	**70**	58	12
SR103-5	**69**	60	9
SR103-6	**70**	60	10
SR103-7	**67**	59	8

Table 3.14-12
Long Beach Neighborhood/SR-103 Extension – Noise Barrier Reduction for Alternative 2

Receiver ID No.	Alternative 2 $L_{eq}(h)$, dBA	Proposed Barrier $L_{eq}(h)$, dBA	Reduction (dBA)
SR103-8	**69**	61	8
SR103-9	**69**	59	10
SR103-10	**70**	58	12
SR103-11	62	62	0
SR103-12	62	62	0
SR103-13	63	62	1
SR103-14	64	63	1
SR103-15	65	63	2
SR103-16	64	63	1
SR103-17	**69**	60	9
SR103-18	64	57	7
SR103-19	**67**	60	7
SR103-20	**70**	62	8
SR103-21	**71**	63	8
SR103-22	**72**	58	14
SR103-23	**72**	59	13
SR103-24	**72**	60	12
SR103-25	**68**	61	7
SR103-26	**68**	61	7
SR103-27	**68**	62	6
SR103-28	**68**	63	5

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.
Boxed cells show barrier heights that would achieve the Caltrans minimum requirement of 5 dBA noise reduction.
Shaded cells show that the sensitive receivers are in the parks.

Indirect

No indirect effects would occur.

3.14.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.14.3.3.3.1 Construction Effects

Temporary direct and indirect construction effects would be the same as described under Alternative 1.

3.14.3.3.3.2 Operations Effects

Direct

Anchorage Way Marinas

Table 3.14-13 summarizes the calculated existing and future traffic noise levels under Alternative 3 and No Build conditions at the Anchorage Way Marinas. Under Alternative 3, without abatement, the predicted loudest hourly traffic noise levels at this location would range from 66 to 68 dBA $L_{eq}(h)$, which is less that the range of 67 to 71 dBA under existing conditions.

LEGEND:

Expressway Soundwall

At-Grade Soundwall

Notes: See Figure 3.14.3 for overview of location. Final location and architectural features of soundwalls will be determined during final design.

No Scale

Figure 3.14-7
Soundwalls – SR-103
Schuyler Heim Bridge Replacement
and SR-47 Expressway

Table 3.14-13
Anchorage Way Marinas – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 3 and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternative 3 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
AWM1	**70**	**67**	-3	**74**	+4
AWM2	**71**	**68**	-3	**75**	+4
AWM3	**70**	**68**	-2	**74**	+4
AWM4	**68**	**67**	-1	**72**	+4
AWM5	**67**	**66**	-1	**71**	+4
AWM6	**70**	**68**	-2	**74**	+4
AWM7	**70**	**68**	-2	**74**	+4
AWM8	**70**	**68**	-2	**74**	+4
AWM9	**70**	**67**	-3	**74**	+4
AWM10	**69**	**67**	-2	**73**	+4
AWM11	**69**	**67**	-2	**73**	+4
AWM12	**69**	**67**	-2	**73**	+4
AWM13	**69**	**67**	-2	**73**	+4
AWM14	**69**	**67**	-2	**73**	+4
AWM15	**69**	**67**	-2	**73**	+4
AWM16	**69**	**67**	-2	**73**	+4
AWM17	**69**	**67**	-2	**73**	+4
AWM18	**68**	**67**	-1	**72**	+4
AWM19	**68**	**67**	-1	**72**	+4
AWM20	**68**	**67**	-1	**72**	+4
AWM21	**68**	**67**	-1	**72**	+4
AWM22	**68**	**67**	-1	**72**	+4
AWM23	**67**	**66**	-1	**71**	+4
AWM24	**67**	**66**	-1	**71**	+4
AWM25	**67**	**66**	-1	**71**	+4
AWM26	**67**	**66**	-1	**71**	+4
AWM27	**67**	**66**	-1	**71**	+4
AWM28	**67**	**66**	-1	**71**	+4
AWM29	**67**	**66**	-1	**71**	+4
AWM30	**67**	**66**	-1	**71**	+4

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.

Therefore, noise abatement is not necessary. In addition, under Alternative 3, a barrier along the Schuyler Heim Bridge with an approximate length of 381 m (1,250 ft) and height of 4.88 m (16 ft) would be needed to effectively reduce future noise levels at the Anchorage Way Marinas. The barrier would reduce noise levels by 5 dBA for the first four rows of boats in the marina. Assuming a 15 percent utilization rate, there would be only five benefited live-aboards. Preliminary reasonableness calculations indicate that the barrier would cost approximately $128,000 per benefited sensitive receiver, which exceeds the allowance per residence of $44,000 to $48,000. Therefore, it would not be reasonable to build this barrier.

Leeward Bay Marina

The noise evaluation described under Alternative 1 is also applicable to Alternative 3 (see Tables 3.14-6 and 3.14-7).

Wilmington Neighborhood

The noise evaluation described under Alternative 1 is also applicable to Alternative 3 (see Table 3.14-8).

Long Beach Neighborhood/SR-103 Extension

This receiver area would not be affected by Alternative 3.

Indirect

No permanent indirect effects would occur.

3.14.3.3.4 Alternative 4: Bridge Replacement Only

3.14.3.3.4.1 Construction Effects

Construction noise related to bridge demolition and construction would be the same as described under Alternative 1 for the Cerritos Channel area only.

3.14.3.3.4.2 Operations Effects

Direct

Anchorage Way Marinas

Table 3.14-14 summarizes the calculated existing and future traffic noise levels under Alternative 4 and No Build conditions at the Anchorage Way Marinas. Without abatement, the predicted loudest hourly traffic noise levels at this location would range from 64 to 66 dBA L_{eq}(h), which is less than the 67 to 71 dBA under existing conditions.

Table 3.14-14
Anchorage Way Marinas – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 4 and 6

	Existing (2005)	Future (2030)			
Receiver ID No.	Existing Alignment	Alternative 4 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
AWM1	**70**	65	-5	**74**	+4
AWM2	**71**	**66**	-5	**75**	+4
AWM3	**70**	**66**	-4	**74**	+4
AWM4	**68**	65	-3	**72**	+4
AWM5	**67**	65	-3	**71**	+4
AWM6	**70**	66	-4	**74**	+4
AWM7	**70**	66	-4	**74**	+4
AWM8	**70**	65	-5	**74**	+4
AWM9	**70**	65	-5	**74**	+4

Table 3.14-14
Anchorage Way Marinas – Existing and Projected Future (2030) Peak-Hour Noise Levels (dBA) for Alternatives 4 and 6

Receiver ID No.	Existing (2005)	Future (2030)			
	Existing Alignment	Alternative 4 (Build)		Alternative 6 (No Build)	
	L_{eq}(h), dBA	L_{eq}(h), dBA	Change (dBA)	L_{eq}(h), dBA	Change (dBA)
AWM10	**69**	65	-4	**73**	+4
AWM11	**69**	65	-4	**73**	+4
AWM12	**69**	65	-4	**73**	+4
AWM13	**69**	65	-4	**73**	+4
AWM14	**69**	65	-4	**73**	+4
AWM15	**69**	65	-4	**73**	+4
AWM16	**69**	65	-4	**73**	+4
AWM17	**69**	65	-4	**73**	+4
AWM18	**68**	65	-3	**72**	+4
AWM19	**68**	65	-3	**72**	+4
AWM20	**68**	64	-4	**72**	+4
AWM21	**68**	64	-4	**72**	+4
AWM22	**68**	64	-4	**72**	+4
AWM23	**67**	64	-3	**71**	+4
AWM24	**67**	64	-3	**71**	+4
AWM25	**67**	64	-3	**71**	+4
AWM26	**67**	64	-3	**71**	+4
AWM27	**67**	64	-2	**71**	+4
AWM28	**67**	64	-3	**71**	+4
AWM29	**67**	64	-3	**71**	+4
AWM30	**67**	64	-3	**71**	+4

Notes: **Bold** numbers represent areas where the predicted loudest hourly noise level would approach or exceed the NAC.

Alternative 4 would require a barrier with a total approximate length of 356 m (1,168 ft) and height of 4.88 m (16 ft). The barrier would reduce noise levels by 5 to 6 dBA for the first four rows of boat slips (up to 35 slips) within the Marina. Assuming a 15 percent utilization rate for live-aboards, there would be only five benefited noise sensitive receivers. Preliminary reasonableness calculations indicate that the barrier would cost approximately $119,600 per benefited residence, which exceeds the allowance per residence of $44,000-46,000. Therefore, it would not be reasonable to build this barrier.

Leeward Bay Marina

This receiver area would not be affected by Alternative 4.

Wilmington Neighborhood

This receiver area would not be affected by Alternative 4.

Long Beach Neighborhood/SR-103 Extension

This receiver area would not be affected by Alternative 4.

Indirect

No indirect effects would occur due to project operations under Alternative 4.

3.14.3.3.5 Alternative 5: Transportation System Management

3.14.3.3.5.1 Construction Effects

Direct

Construction effects for the Alternative 5 surface improvements would be less than under the build alternatives (Alternatives 1 through 4). Under Alternative 5, the amount of construction that would be required would be considerably less and limited to activities such as widening roadways, adding turn lanes, and installing electric signs.

Indirect

No indirect effects would occur as a result of project construction under Alternative 5.

3.14.3.3.5.2 Operations Effects

Direct

This alternative would not result in traffic changes that would affect the noise environment; Year 2030 noise levels would be comparable to those described for the future No Build scenario (Alternative 6). The changes in noise levels would occur regardless of whether or not this alternative was implemented.

Indirect

Under Alternative 5, no noise abatement would be required. However, a number of locations would exceed the NAC by Year 2030 due to background growth and may require noise abatement in the future.

3.14.3.3.6 Alternative 6: No Build

3.14.3.3.6.1 Construction Effects

Direct

Under this alternative, construction noise associated with the project would not occur, although at some point in the future, the existing bridge may need to be demolished and replaced due to safety considerations. If this occurred, noise effects would be comparable to those described under Alternative 4.

Indirect

No indirect effects would occur under Alternative 6.

3.14.3.3.6.2 Operations Effects

Direct

Anchorage Way Marinas

As shown in Tables 3.14-5, 3.14-10, 3.14-13, and 3.14-14, the loudest hourly traffic noise levels at the Anchorage Way Marinas would increase by 4 dBA due to an overall increase in traffic volume. This would not be a substantial increase, but all receiver locations would exceed the applicable NAC.

Leeward Bay Marina

As shown in Table 3.14-6, the loudest hourly traffic noise levels would increase by either 3 or 4 dBA due to an increase in traffic volume. Although this would not be a substantial increase, some receiver locations would be above the NAC.

Wilmington Neighborhood

As shown in Table 3.14-8, the loudest hourly traffic noise levels would increase by 7 to 9 dBA due to an increase in traffic volume. This would not be a substantial increase, but several receivers would approach or equal the NAC.

Long Beach Neighborhood/SR-103 Extension

As shown in Table 3.14-11, the loudest hourly traffic noise level would either equal the existing condition or increase by 1 or 2 dBA due to an increase in traffic volume. This is not a substantial increase but, as shown in the table, a number of areas would either approach or exceed the NAC.

Indirect

Under Alternative 6, no noise abatement would be required. However, a number of locations would exceed the NAC by Year 2030 due to background growth and may require noise abatement in the future.

3.14.4 Avoidance, Minimization, and/or Mitigation Measures

Noise abatement measures that are reasonable and feasible and that are likely to be incorporated into the project, as well as noise effects for which no apparent solution is available, must be identified and incorporated into the project's plans and specifications (23 CFR 772.11[e][1] and [2]), giving weight to the benefits and cost of abatement, and to the overall social, economic, and environmental effects (CFR 772.9). Abatement must provide at least a 5-dBA reduction in highway traffic noise levels in order to provide noticeable and effective attenuation. When noise abatement is proposed, it is recommended that an attempt be made to achieve the greatest reduction possible.

A variety of noise abatement measures were considered but determined to be infeasible or not reasonable. Impact avoidance was not considered practical due to the density of development in the project vicinity. Property acquisition is rarely implemented solely or primarily on the basis of potential noise impacts. Under Caltrans guidelines, such measures are typically only considered where "severe" noise impacts are projected ("severe" impacts are defined as future build noise levels at residences of 75 dBA L_{eq}[h] or greater, or project generated noise level increases of 30 dBA or more). Traffic management measures were rejected because a primary purpose of this project is to redirect some Port-related traffic away from existing routes that experience high levels of traffic. Any traffic management measures that would effectively reduce noise would be contrary to the project's purpose and might redistribute noise impacts elsewhere. Structural insulation is not as cost effective as a noise barrier, and it does not provide any attenuation for outdoor areas such as yards or school playgrounds, nor would it work in a marina. Based on current information, Caltrans intends to abate project noise effects through the installation of noise barriers.

Potential barrier designs were considered at the four receiver areas where noise levels would approach or exceed the NAC: the Anchorage Way Marinas, Leeward Bay Marina, Wilmington Neighborhood, and Long Beach Neighborhood/SR-103 Extension. Feasibility was based on the ability of the barrier to result in a minimum 5-dBA reduction in the future noise level. Other considerations included topography, access requirements, other noise sources, and safety considerations. Once a noise barrier achieved the minimum of a 5-dBA reduction at a given receiver, the reasonableness of that barrier was determined.

To determine whether a noise barrier would be reasonable, the total cost allowance was calculated in accordance with the *Traffic Noise Analysis Protocol for New Highway Construction and Highway Reconstruction Projects* (Protocol) (Caltrans, 1998b) and then compared to the total cost of the barrier. The locations of the noise barriers described below and shown in Figures 3.14-6, 3.14-7, and 3.14-8 are approximate; the exact locations of these barriers would be determined during final design based on safety, engineering, and feasibility. The barriers would reduce noise levels in the receiver areas to below the NAC.

3.14.4.1 Avoidance and Minimization Measures

3.14.4.1.1 Construction

3.14.4.1.1.1 Alternatives 1, 1A, 2, 3, and 4

N-1 Construction noise monitoring and control plans consistent with local noise ordinances will be prepared by a qualified acoustical engineer who is a current member of the Institute of Noise Control Engineering (INCE), and has 5 years of experience performing construction noise analyses. If mitigation is warranted, potential measures, such as screening noise blankets, etc., would be evaluated for their effectiveness, and appropriate measures would be implemented.

3.14.4.1.1.2 Alternatives 5 and 6

No avoidance and minimization measures are proposed for these alternatives.

3.14.4.1.2 Operation

No avoidance and minimization measures are proposed for project operations.

3.14.4.2 Mitigation Measures

3.14.4.2.1 Construction

3.14.4.2.1.1 Alternatives 1, 1A, 2, 3, and 4

N-2 During project construction, pile driving will occur during daylight hours only.

N-3 Residents identified as being impacted by noise from pile driving in Cerritos Channel or Consolidated Slip may obtain hotel vouchers for a local hotel so they can temporarily move. This mitigation measure would apply only during the time that pile driving is being conducted in the Cerritos Channel or Consolidated Slip. Some residents may, however, choose to stay and tolerate the noise. No other mitigation or compensation measure would be provided to residents.

3.14.4.2.1.2 Alternatives 5 and 6

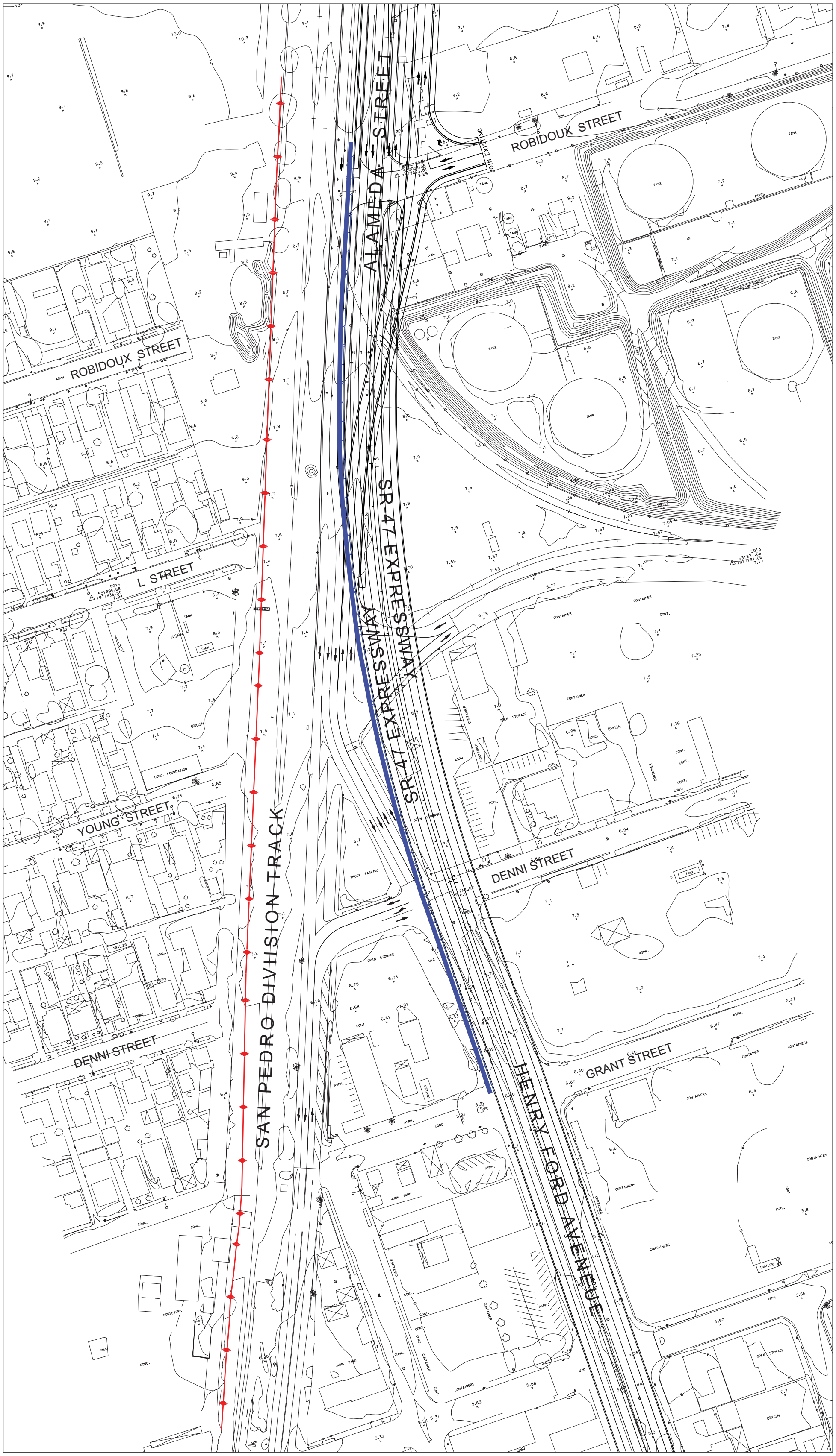
No mitigation measures are proposed for construction of Alternative 5 or for Alternative 6.

3.14.4.2.2 Operations

3.14.4.2.2.1 Alternatives 1, 1A, and 3

Leeward Bay Marina

N-4 For the Leeward Bay Marina, a barrier along the SR-47 Expressway, with an approximate length of 239 m (785 ft) and height of 2.44 m (8 ft) would be constructed to abate future traffic noise levels by 5 to 7 dBA at 65 benefited receivers. Preliminary reasonableness calculations indicate that the estimated barrier cost would be approximately $23,400 per benefited residence, which is within the allowance per residence of $50,000 to $54,000. Therefore, it would be feasible and reasonable to build a barrier at this location.



LEGEND:

Expressway Soundwall

At-Grade Soundwall

Note: Final location and architectural features of soundwalls will be determined during final design.

No Scale

Figure 3.14-8
Soundwalls – Wilmington Area
Schuyler Heim Bridge Replacement and SR-47 Expressway

Wilmington Neighborhood

N-5 For the Wilmington neighborhood, a barrier along the SR-47 Expressway and another on ground level along Alameda Street, with an approximate combined length of 1,405 m (4,610 ft) and height of 3.66 m (12 ft) to 5.49 m (18 ft) would be constructed to abate future traffic noise levels by 5 to 7 dBA at 56 benefited noise sensitive receivers. Preliminary reasonableness calculations indicate that the estimated barrier cost would be approximately $37,500 per benefited residence, which is within the allowance per residence of $48,000. Therefore it would be feasible and reasonable to build a barrier at this location.

3.14.4.2.2.2 Alternative 2

Long Beach Neighborhood/SR-103 Extension

N-6 For the Long Beach Neighborhood/103 Extension, two noise barriers along SR-103 with an approximate combined length of 835 m (2,740 ft) would be constructed to abate traffic noise levels. The two barriers would be 3.66 m (12 ft) high, although the barrier section along the northbound off-ramp would be 4.57 m (15 ft) high. The two noise barriers would reduce noise levels by 5 to 14 dBA for 27 equivalent frontage units. Preliminary reasonableness calculations indicate that the barriers would cost approximately $37,100 per benefited unit, which is below the allowance per residence of $44,000 to $52,000. Therefore, it would be feasible and reasonable to build the barriers at these locations.

The locations of the noise barriers are based on preliminary engineering plans and, as such, are considered to be approximate. The exact locations of these barriers would be determined during final design based on safety, engineering, and feasibility. The barriers would reduce noise levels in the receiver areas to below the NAC.

3.14.4.2.2.3 Alternatives 4, 5 and 6

Under Alternatives 4, 5, and 6, no noise abatement would be required. A number of locations would exceed the NAC by Year 2030 due to background growth and may require noise abatement in the future.

3.14.4.2.3 CEQA Consequences

Based on the information provided in the above analyses, noise impacts from project operations would be significant, less than significant, or less than significant with mitigation incorporated. Noise abatement would be achieved by installation of soundwalls, as follows: under Alternatives 1 and 3 at the Leeward Bay Marina; and under Alternative 2 at the Long Beach Neighborhood/SR-103 Extension.

When considered in the context of CEQA criteria, under Alternatives 1, 2, 3, and 4, impacts of construction noise from pile driving would be considered less than significant after mitigation. Under Alternative 5, construction impacts would be less than significant; under Alternative 6, there would be no construction and, therefore, no impact.

Potential impacts of the proposed project alternatives related to noise are assessed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis and Appendix A – CEQA Checklist (XI, Noise). Significant Noise impacts are addressed in Section 4.4 – Significant Environmental Effects of the Proposed Project, Section 4.5 – CEQA Analysis of Alternatives, Table 4-1 - Significant Environmental Impacts and Mitigation Measures, and Table 4-2 - CEQA Unavoidable Adverse Impacts.

3.15 Energy

The information provided in this section is derived entirely from the *Schuyler Heim Bridge Replacement and SR-47 Expressway Project - Energy Consumption* (Energy Technical Memorandum) (CH2M HILL, 2007), which is hereby incorporated by reference.

3.15.1 Regulatory Setting

NEPA (42 USC Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

The CEQA Guidelines, Appendix F, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

Each public utility and public services agency is directed by internal standards and policies that guide the provision of service to their customers. The California Public Utilities Commission (PUC) regulates privately owned natural gas, electric, telephone, and water companies, as well as railroads and marine transportation companies. The PUC does not regulate municipal or district-owned energy utilities, or mutual water companies.

The California Energy Commission (CEC) is California's primary energy policy and planning agency. The CEC was created by the legislature in 1974 and is located in Sacramento. Five major responsibilities of the CEC include:

- Forecasting future energy needs and keeping historical energy data
- Licensing thermal power plants 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's role includes overseeing funding programs that support public interest energy research; advancing energy science and technology through research, development, and demonstration; and providing market support to existing, new, and emerging renewable technologies.

3.15.2 Affected Environment

Energy is currently consumed in the study area for the construction of public and private projects: operation of automobiles, trucks, and marine vessels, and for operation of existing land uses. Automobile and truck fueling stations are located throughout the project area.

3.15.3 Environmental Consequences

3.15.3.1 Evaluation Criteria

The project alternatives were evaluated to determine if they would result in a demand for energy that would exceed the current supply, or cause a substantial increase in the rate of energy use.

3.15.3.2 Methodology

3.15.3.2.1 Construction

Direct energy consumption during project construction involves energy used by the construction equipment, work trucks, haul trucks, and worker commutes. It was assumed that all heavy construction equipment, such as loaders, cranes, scrapers, bulldozers, tugboats, workboats and crew boats, and heavy trucks use diesel fuel, while work trucks (pickups) and personal vehicles use gasoline.

Fuel consumption due to vehicle travel, including the haul trucks, pickups, and workers' commute vehicles, was calculated based on the vehicle miles traveled (VMT) and fuel economy rates in units of miles per gallon. The fuel economy values used in this analysis were developed by the Oak Ridge National Laboratory and published in the *2006 Transportation Energy Data Book; Edition 25* (Table 3.15-1) (U.S. Department of Energy, 2006). Following the methodology indicated in the *2006 Transportation Energy Data Book*, the gallons per year of fuel usage were converted directly to barrels per year using the conversion of 42 gallons per barrel. In the analysis, potential energy consumption is measured in British thermal units (Btu). One Btu is the quantity of energy necessary to raise one pound of water one degree Fahrenheit at one atmosphere of pressure (CH2M HILL, 2007).

Table 3.15-1
Energy Consumption Factors for Autos and Trucks

Vehicle Type	Energy Consumption Factor (Btu/vehicle mile)	Fuel Economy (miles per gallon)
Passenger Vehicles (auto, van, light trucks)	5,572	22.3
Pick-up Truck	5,572	17.7
Heavy Truck	23,461	7.3

Data source: 2006 Transportation Energy Data Book; Edition 25, Oak Ridge Laboratory, 2006
Btu = British thermal units
Source: CH2M HILL, 2007.

Fuel consumption by construction equipment was calculated based on equipment horsepower rating, fuel consumption rate, and operating hours. Because actual horsepower ratings are unknown at this time, the analysis utilized the default horsepower rating for each type of construction equipment in URBEMIS2002 (version 8.7.0). The diesel fuel consumption rate of the construction equipment was obtained from *SCAQMD CEQA Handbook* Table A9-8-C (SCAQMD, 1993). Equipment operating hours of each construction year were estimated based on the project construction schedule and equipment use (CH2M HILL, 2007).

Fuel consumption due to tug boat operation during construction of the new fixed-span bridge was estimated according to the methodology described in the USEPA *Analysis of Commercial Marine Vessels Emissions and Fuel Consumption Data* (2000).

Two construction methodologies were considered for the proposed project: cast-in-place (CIP) and segmental. With the conventional CIP methodology, construction would occur within a temporary structure, or "falsework," that is built and then removed once construction has been completed.

The segmental construction method is often used for bridges: 1) with span lengths greater than 91 meters (m) (300 feet [ft]); and 2) on sites where there are constraints on falsework placement (such as over the Cerritos Channel). This method involves construction of cantilevered segments from each end of the bridge. The cantilevered segments are extended toward each other until they meet in the middle and are connected.

The CIP method is proposed for all expressway construction and for most or all bridge construction. Segmental construction could be used for portions of the bridge over the Cerritos Channel. The remainder of the bridge would be constructed using the conventional CIP method. Construction emissions from the CIP and segmental methods are both analyzed.

Marine traffic would be restricted during bridge construction. This would force marine vessels to take a longer route around Terminal Island. The increased trip times for the marine vessels would result in increased fuel consumption.

3.15.3.2.2 Operations

Estimates of local energy demand directly related to each project alternative were analyzed for project operations in years 2003, 2011, 2015, and 2030. Local energy demand for transportation projects is typically dominated by vehicle fuel usage. The energy demand analysis assumes that the energy consumption by vehicles was much greater than the incremental change in electrical energy consumption for any additional lighting required for the project area. Therefore, energy use from lighting has not been quantified. Annual VMT within the project area were used to calculate energy consumption and characterize the energy demand the project would have on local resources. Peak hour VMT for cars and trucks were converted to daily VMT, and the annual VMT was estimated by multiplying the daily VMT by 365 days per year (Table 3.15-2).

Table 3.15-2
Annual Vehicle Miles Traveled for Project Operations

		No Build (VMT in millions)	**Alternative 1** (VMT in millions)	**Alternative 2** (VMT in millions)	**Alternative 3** (VMT in millions)	**Alternative 4** (VMT in millions)
2003	Auto	1,373.4	NA	NA	NA	NA
	Truck	211.64	NA	NA	NA	NA
2011	Auto	1,344.6	1,349.4	1,407.9	1,349.4	1,344.6
	Truck	233.17	228.29	204.67	228.29	233.17
2015	Auto	1,411.5	1,416.8	1,428.6	1,416.8	1,411.5
	Truck	270.76	264.73	269.59	264.73	270.76
2030	Auto	1,600.3	1,608.6	1,619.3	1,608.6	1,600.3
	Truck	372.16	361.93	366.86	361.93	372.16

Note:
VMT = Vehicle Miles Traveled
Source: CH2M HILL, 2007.

3.15.3.3 Evaluation of Alternatives

The following sections describe the energy consumption of each project alternative. A summary comparison of all alternatives can be found in Tables 3.15-3 and 3.15-4. Direct energy consumption involves energy used by the construction equipment, work trucks, haul trucks, and worker commutes. Indirect energy consumption involves energy used by marine vessels. It is expected that most energy consumption will be of fossil fuels and electricity.

3.15.3.3.1 Alternatives 1 and 1A: Bridge Replacement and SR-47 Expressway

3.15.3.3.1.1 Construction Effects

Direct Effect

Energy would be expended during construction of Alternative 1 (and 1A). Construction activities would involve demolition of the existing Schuyler Heim Bridge and construction of the new fixed-span bridge, Ocean Boulevard/SR-47 Flyover (flyover), and SR-47 Expressway. Energy expenditures would be short-term in duration, occurring periodically during each of the project construction phases over a period of approximately 33 months, and would not likely result in significant waste or inefficient use of energy. The potential for wasteful energy use during construction is low. Construction would occur in phases, with multiple crews working over the course of a two-shift workday, typically for a 5-day workweek. Energy expended during construction would be ongoing in nature, and phasing of construction activities would lessen the potential for wasteful energy use.

Direct construction energy consumption would be by equipment used during site preparation and construction to perform activities such as clearing, grading, excavating, and demolishing existing structures. These activities would involve the use of diesel- and gasoline- powered equipment that would utilize fuel.

Tables 3.15-3 and 3.15-4 summarize the diesel and gasoline consumption for Alternative 1 for the CIP and segmental construction methods, respectively. Detailed calculations of fuel consumption during project construction can be found in the Energy Technical Memorandum (CH2M HILL, 2007).

Tables 3.15-5 and 3.15-6 summarize the equivalent crude oil consumption for Alternative 1 for the CIP and segmental method, respectively. Table 3.15-5 shows that the crude oil consumption for the CIP method for year 2009 is 31,999 barrels/year; for 2010 is 39,112 barrels/year; for 2011 is 9,975 barrels/year; and for 2014 is 4,503 barrels/year. Table 3.15-6 shows that crude oil consumption for the segmental method for year 2009 is 32,461 barrels/year, for 2010 is 39,393 barrels/year, for 2011 is 8,071 barrels/year, and for 2014 is 4,503 barrels/year.

Indirect Effect

Indirect effects would include fuel consumption from marine vessel detours during construction. There would be more closures of the Cerritos Channel and restriction periods using the CIP method than using the segmental method. Therefore, fuel consumption from the marine vessel detours was estimated using the closure/restriction schedule of the CIP method to represent the worst-case scenario.

Annual fuel consumption from marine vessel detours is shown in Table 3.15-7. The table shows that 46,198 gallons/year of diesel fuel will be consumed during construction in 2009, and 124,278 gallons/year will be consumed for construction in 2010.

Table 3.15-3
Construction Fuel Consumption Summary – Cast-in-Place Method

A. Diesel Consumption

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	Diesel Fuel Consumption (Gallons/Year)			
2009	1,237,590	1,645,177	1,143,676	270,283
2010	1,497,985	1,815,693	1,401,227	400,002
2011	378,625	378,207	362,556	148,627
2014	177,759	177,759	177,759	0
	Equivalent Crude Oil Consumption (Barrels/Year)			
2009	29,466	39,171	27,230	6,435
2010	35,666	43,231	33,363	9,524
2011	9,015	9,005	8,632	3,539
2014	4,232	4,232	4,232	0

Note:
In accordance with USEPA (2006), gallons per year of fuel use were converted directly to barrels per year using the conversion of 42 gallons per barrel.

B. Gasoline Consumption

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	Gasoline Consumption (Gallons/Year)			
2009	106,358	134,641	104,415	51,118
2010	144,723	165,840	144,252	78,492
2011	40,308	41,424	40,767	18,781
2014	11,349	11,349	11,349	0
	Equivalent Crude Oil Consumption (Barrels/Year)			
2009	2,532	3,206	2,486	1,217
2010	3,446	3,949	3,435	1,869
2011	960	986	971	447
2014	270	270	270	0

Note:
In accordance with USEPA (2006), gallons per year of fuel use were converted directly to barrels per year using the conversion of 42 gallons per barrel.
Source: CH2M HILL, 2007.

Table 3.15-4
Construction Fuel Consumption Summary – Segmental Method

A. Diesel Consumption

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	Diesel Fuel Consumption (Gallons/Year)			
2009	1,265,310	1,691,148	1,190,640	426,380
2010	1,519,734	1,858,552	1,444,888	575,207
2011	304,135	304,537	288,484	75,044
2014	177,759	177,759	177,759	0
	Equivalent Crude Oil Consumption (Barrels/Year)			
2009	30,126	40,265	28.349	10,152
2010	36,184	44,251	34.402	13,395
2011	7,241	7,251	6,869	1,787
2014	4,232	4,232	4,232	0

Note:
In accordance with USEPA (2006), gallons per year of fuel use were converted directly to barrels per year using the conversion of 42 gallons per barrel.

B. Gasoline Consumption

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	Gasoline Consumption (Gallons/Year)			
2009	98,068	124,377	96,125	42,828
2010	134,774	148,314	134,304	68,544
2011	34,844	35,446	35,302	13,317
2014	11,349	11,349	11,349	0
	Equivalent Crude Oil Consumption (Barrels/Year)			
2009	2,335	2,961	2,289	1,020
2010	3,209	3,531	3,198	1,632
2011	830	844	841	317
2014	270	270	270	0

Note:
In accordance with USEPA (2006), gallons per year of fuel use were converted directly to barrels per year using the conversion of 42 gallons per barrel.

Source: CH2M HILL, 2007.

Table 3.15-5
Annual Energy Consumption during Project Construction – Cast-in-Place Method

	Total Equivalent Crude Oil Consumption (Barrels/Year)			
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
2009	31,999	42,377	29,716	7,652
2010	39,112	47,179	36,797	11,393
2011	9,975	9,991	9,603	3,986
2014	4,503	4,503	4,503	0

Source: CH2M HILL, 2007.

Table 3.15-6
Annual Energy Consumption during Project Construction – Segmental Method

	Total Equivalent Crude Oil Consumption (Barrels/Year)			
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
2009	32,461	43,227	30,637	11,172
2010	39,393	47,783	37,600	15,327
2011	8,071	8,095	7,709	2,104
2014	4,503	4,503	4,503	0

Source: CH2M HILL, 2007.

Table 3.15-7
SR-47 – Marine Vessel Detour Fuel Consumption (Annual)

	Gallons/Year (Diesel)	Barrels/Year (Crude Oil)	Barrels/Year (Crude Oil)
Construction 2009	46,198	1,100	1,100
Construction 2010	124,278	2,959	2,959
Operation 2011 and after	110,475	2,630	2,630

Note:
In accordance with USEPA (2006), gallons per year of fuel use were converted directly to barrels per year using the conversion of 42 gallons per barrel.
Source: CH2M HILL, 2007.

3.15.3.3.1.2 Operations Effects

Direct Effect

Table 3.15-8 summarizes the potential annual energy use for operation of Alternative 1. Detailed calculations of fuel consumption during project operations can be found in the Energy Technical Memorandum (CH2M HILL, 2007). Calculations indicate that the estimated energy consumption for Alternative 1 is less than the No Build alternative in both 2011 and 2030.

Table 3.15-8
Projected Annual Energy Use for Project Operations

		No Build (In millions)	Alternative 1 (In millions)	Alternative 2 (In millions)	Alternative 3 (In millions)	Alternative 4 (In millions)
2003	Auto (MMBtu/Year)	7.653	NA	NA	NA	NA
	Truck (MMBtu/Year)	4.965	NA	NA	NA	NA
	Total (MMBtu/Year)	12.618	NA	NA	NA	NA
	Total Barrels of Crude Oil (Barrels/Year)	2.157	NA	NA	NA	NA
2011	Auto (MMBtu/Year)	7.492	7.519	7.845	7.492	7.519
	Truck (MMBtu/Year)	5.471	5.356	4.802	5.471	5.356
	Total (MMBtu/Year)	12.963	12.875	12.646	12.963	12.875
	MMBtu Difference compared to 2003 Base	.345	.257	.029	.345	.257
	MMBtu Difference compared to 2011 No Build	NA	-.088	-.316	NA	-.088
	Total Barrels of Crude Oil (Barrels/Year)	2.20	2.19	2.17	2.20	2.19
2015	Auto (MMBtu/Year)	7.86	7.89	7.96	7.86	7.89
	Truck (MMBtu/Year)	6.35	6.21	6.32	6.35	6.21
	Total (MMBtu/Year)	14.217	14.105	14.285	14.217	14.105
	MMBtu Difference compared to 2003 Base	1.60	1.49	1.67	1.60	1.49
	MMBtu Difference compared to 2015 No Build	NA	-0.112	0.068	NA	-0.11
	Total Barrels of Crude Oil (Barrels/Year)	2.39	2.38	2.40	2.40	2.38
2030	Auto (MMBtu/Year)	8.917	8.963	9.022	8.917	8.963
	Truck (MMBtu/Year)	8.731	8.49	8.601	8.731	8.50
	Total (MMBtu/Year)	17.648	17.454	17.630	17.649	17.454
	MMBtu Difference compared to 2003 Base	5.031	4.867	5.012	5.030	4.837
	MMBtu Difference compared to 2030 No Build	NA	-0.194	-0.019	NA	-0.194
	Total Barrels of Crude Oil (Barrels/Year)	2.923	2.898	2.926	2.923	2.898

Note:
In accordance with USEPA (2006), gallons per year of fuel use were converted directly to barrels per year using the conversion of 42 gallons per barrel.

MMBtu/Year – million British thermal units per year.

Source: CH2M HILL, 2007

Indirect Effect

Replacement of the existing Schuyler Heim Bridge with a fixed-span bridge would have indirect impacts on fuel consumption by affecting marine traffic. Replacing the lift-span bridge with a fixed-span bridge would force taller marine vessels to take a longer route around Terminal Island and would delay vessels with adjustable mast heights. The increased trips for the marine vessels would result in increased fuel consumption. Annual fuel consumption from marine vessel detours is shown in Table 3.15-7.

3.15.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.15.3.3.2.1 Construction Effects

Direct

Energy would be expended during construction of Alternative 2. Energy expenditures would be short-term in duration, occurring periodically during each of the project construction phases and would not likely result in significant waste or inefficient use of energy. The potential for wasteful energy use during construction is low.

Construction activities would involve demolition of the existing Schuyler Heim Bridge and construction of the new fixed-span bridge, flyover, and SR-103 Extension. Tables 3.15-3 and 3.15-4 summarize the diesel and gasoline consumption for Alternative 2 for the CIP and segmental construction methods, respectively. Detailed calculations of fuel consumption during project construction can be found in the Energy Technical Memorandum (CH2M HILL, 2007).

Tables 3.15-5 and 3.15-6 summarize the equivalent crude oil consumption for Alternative 2 for the CIP and segmental method, respectively. The tables show that crude oil consumption for the CIP method for years 2009 and 2010 is higher for Alternative 2 than for Alternative 1. For years 2011 and 2014, Alternative 2 is comparable to Alternative 1.

The tables show that crude oil consumption for the segmental method for years 2009 and 2010 is higher for Alternative 2 than Alternative 1, and for years 2011 and 2014, Alternative 2 is comparable to Alternative 1.

Indirect

Under Alternative 2, impacts from marine vessel detour fuel use would be the same as for Alternative 1 because bridge construction and marine vessel traffic restrictions would be the same as under Alternative 1.

3.15.3.3.2.2 Operations Effects

Direct

Alternative 2 is estimated to have slightly greater energy consumption than the No Build alternative, but this increase is less than 1 percent.

Indirect

Impacts from marine vessel detour fuel use would be the same as those for Alternative 1 because bridge construction and marine vessel traffic restrictions would be the same.

3.15.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.15.3.3.3.1 Construction Effects

Direct

Energy would be expended during construction of Alternative 3. Energy expenditures would be short-term in duration, occurring periodically during each of the project construction phases, and would not likely result in significant waste or inefficient use of energy. The potential for wasteful energy use during construction is low.

The existing Schuyler Heim Bridge would not be demolished under this alternative. Construction activities would involve construction of the new fixed-span bridge, flyover, and the SR-47 Expressway. Tables 3.15-3 and 3.15-4 summarize the diesel and gasoline consumption for Alternative 3 for the CIP and segmental construction methods, respectively. Detailed calculations of fuel consumption during project construction can be found in the Energy Technical Memorandum (CH2M HILL, 2007).

Tables 3.15-5 and 3.15-6 summarize the equivalent crude oil consumption for Alternative 3 for the CIP and segmental method, respectively. The tables indicate that crude oil consumption for the CIP method for years 2009, 2010, and 2011 is lower for Alternative 3 than for Alternative 1. For year 2014, crude oil consumption for Alternative 3 is comparable to Alternative 1.

The tables indicate that crude oil consumption for the segmental method for years 2009, 2010, and 2011 for Alternative 3 is slightly lower than Alternative 1. For year 2014, crude oil consumption for Alternative 3 is comparable to Alternative 1. This lower energy consumption can be attributed to preserving the existing Schuyler Heim Bridge, rather than using energy for demolition.

Indirect

Under Alternative 3, impacts from marine vessel detour fuel use would be the same as those for Alternative 1 because the bridge construction and marine vessel traffic restrictions would be the same.

3.15.3.3.3.2 Operations Effects

Under Alternative 3, energy demand for project operations would be the same as described under Alternative 1.

3.15.3.3.4 Alternative 4: Bridge Replacement Only

3.15.3.3.4.1 Construction Effects

Direct

Energy would be expended during construction of Alternative 4 for demolition and replacement of the Schuyler Heim Bridge. Under this alternative, no flyover or expressway would be constructed. Energy expenditures would be short-term in duration, occurring periodically during each of the project construction phases, and would not likely result in significant waste or inefficient use of energy. The potential for wasteful energy use during construction is low.

Tables 3.15-3 and 3.15-4 summarize the diesel and gasoline consumption for Alternative 4 for the CIP and segmental construction methods, respectively. Detailed calculations of fuel consumption during project construction can be found in the Energy Technical Memorandum (CH2M HILL, 2007).

Tables 3.15-5 and 3.15-6 summarize the equivalent crude oil consumption for Alternative 4 for the CIP and segmental method, respectively. The tables indicate that, under Alternative 4, crude oil consumption for both the CIP method and segmental method for years 2009, 2010, 2011, and 2014 would be less than Alternative 1. This can be attributed to the fact that Alternative 4 involves only demolition and replacement of the Schuyler Heim Bridge and does not involve construction of the flyover, SR-47 Expressway, or SR-103 Extension.

Indirect

Under Alternative 4, impacts from marine vessel detours would be the same as Alternative 1 because bridge constriction and marine vessel traffic restrictions would be the same.

3.15.3.3.4.2 Operations Effects

Under Alternative 4, energy demand during project operations would be the same as described under Alternative 1.

3.15.3.3.5 Alternative 5: Transportation System Management

3.15.3.3.5.1 Construction Effects

Energy would be expended during construction of Alternative 5. Energy expenditures would be short-term in duration, occurring periodically during project construction and would not likely result in significant waste or inefficient use of energy. The potential for wasteful energy use during construction is low.

Construction activities associated with the TSM alternative would be minimal. Therefore, this alternative is not expected to have any measurable effects on energy demand related to project construction activities.

3.15.3.3.5.2 Operations Effects

Direct

No information is available to evaluate the operations impacts of the TSM Alternative. However, improvements in traffic flow could be expected to reduce energy demand for vehicles in the area of the TSM improvements.

Indirect

With the TSM Alternative, marine traffic would continue using current routes. Therefore, there would be no indirect effects associated with changes in fuel consumption of marine vessels.

3.15.3.3.6 Alternative 6: No Build

3.15.3.3.6.1 Construction Effects

The No Build alternative is no action; no change to the existing environment would occur under this alternative. There would be no construction activities and, therefore, no direct or indirect construction-related demand on energy.

3.15.3.3.6.2 Operations Effects

Direct

No direct impacts would be expected from operations under the No Build alternative.

Indirect

Since the existing lift-span bridge would not be replaced with a fixed-span bridge, marine traffic would continue using current routes. Therefore, there would be no indirect effects associated with fuel consumption of marine vessels.

3.15.4 Avoidance, Minimization, and/or Mitigation Measures

No measures to minimize harm related to energy are proposed because the change in energy consumption under project Alternatives 1 through 5 compared to Alternative 6 (No Build) is substantially less than one percent on an annual basis.

Based on this analysis, the project alternatives would not have an adverse effect on energy demand, and no avoidance, minimization, or mitigation measures would be required.

3.16 Biological Resources

The information provided in this section is derived from the *Natural Environment Study: Schuyler Heim Bridge Replacement and SR-47 Expressway Project* (Caltrans, 2007) (NES), which is hereby incorporated by reference. The reader is directed to that document for sources of information.

3.16.1 Regulatory Setting

3.16.1.1 Federal Regulations

This section describes permits and agreements that may be required under associated natural resource laws and regulations. The following permits would not be required for Alternatives 5 (Transportation System Management Alternative) and 6 (No Build Alternative).

3.16.1.1.1 Clean Water Act

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 USC 1344) is the primary law regulating wetlands and waters. The Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the United States (U.S.), including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the Environmental Protection Agency (EPA).

Permits associated with Sections 401, 402, and 404 of the CWA (described below) will be required for this project.

3.16.1.1.1.1 Section 401

Section 401 of the CWA, governed by 33 United States Code (USC) 1341 and 40 Code of Federal Regulations (CFR) 121, requires a water quality certification from the State Board or Regional Board when a project: (1) requires a federal license or permit (a Section 404 permit is the most common federal permit for Caltrans projects); and (2) will result in a discharge to waters of the U.S. Such certification may be conditioned. Project activities that typically result in a discharge subject to Section 401 water quality certification are the construction and subsequent operation of a facility.

The State Water Resources Control Board (SWRCB) revised state regulations for the 401 Water Quality Certification Program; these revisions went into effect on June 24, 2000. The likelihood of a passive waiver has been reduced by the revised regulations.

3.16.1.1.1.2 Section 402

Section 402 of the CWA, governed by 33 USC 1342 and 40 CFR 122, establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the U.S. A National Pollutant Discharge Elimination System (NPDES) permit is required for all point discharges of pollutants to surface waters. A point source is a discernible, confined, and discrete conveyance such as a pipe, ditch, or channel.

3.16.1.1.1.3 Section 404

Section 404 of the CWA, governed by 33 USC 1344 and 33 CFR 323, establishes a permit program administered by USACE regulating the discharge of dredged or fill material into waters of the U.S. (including wetlands). The Section 404 (b)(1) guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have fewer adverse effects. The CWA amended the federal Water Pollution Control Act of 1972.

3.16.1.1.2 River and Harbors Appropriations Act of 1899

Sections 9 and 10 of the Rivers and Harbors Appropriations Act of 1899 relate to the protection of navigable water in the U.S. and regulate any construction affecting navigable waters and any obstruction, excavation, or filling. Sections 9 and 10 require permits for all structures, such as riprap, and activities, such as dredging, in navigable waters of the U.S. Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as a means to transport interstate or foreign commerce. USACE grants or denies permits based on the effects on navigation. Most activities covered under this act are also covered under Section 404 of the CWA. All activities involving navigable waters of the U.S. require a Section 10 permit. Projects must obtain approval of plans for construction, dumping, and dredging permits (Section 10) and bridge permits (Section 9). Agencies involved in the coordination of the Rivers and Harbors Appropriations Act include the U.S. Coast Guard, USACE, EPA, as well as local and state agencies. Section 9 of the Rivers and Harbors Appropriations Act is administered by the U.S. Coast Guard. Section 10 of the Rivers and Harbors Appropriations Act is administered by USACE. It is anticipated that the project will require permits under Sections 9 and 10 of the Rivers and Harbors Appropriations Act.

3.16.1.1.3 Executive Order 11990: Protection of Wetlands

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) there is no practicable alternative to the construction; and 2) the proposed project includes all practicable measures to minimize harm.

3.16.1.1.4 Federal Endangered Species Act

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 USC, Section 1531, et seq. (See also 50 CFR Part 402.) This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion, or an incidental take permit. Section 3 of the Federal Endangered Species Act (FESA) defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

3.16.1.1.5 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) was enacted to protect and manage marine mammals and their products. Under the MMPA, the Secretary of Commerce is responsible for the conservation and management of pinnipeds (seals, sea lions, and their allies) other than walruses, and cetaceans (whales, dolphins, and porpoises). Under the definitions (50 CFR §216.3) outlined in the MMPA, to take a marine mammal means to "harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal." The 1994 amendments define "harassment levels." Early consultation with NMFS should occur to identify effects and mitigation commitments in the National Environmental Policy Act (NEPA) document. If applicable, the project sponsor should apply for an Incidental Harassment Authorization (IHA) and submit or reference the NEPA document when applying for an IHA.

3.16.1.1.6 Magnuson-Stevens Fishery Conservation and Management Act

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act set forth a number of new mandates for NMFS, regional fishery management councils, and federal action agencies to identify and protect important marine and anadromous fish habitat. The Councils, with assistance from NMFS, are required to delineate essential fish habitat (EFH) in Fishery Management Plans (FMPs) or FMP amendments for all managed species. Federal action agencies that fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH and respond in writing to the recommendations of NMFS. In addition, NMFS is required to comment on any state agency activities that would impact EFH.

The purpose of addressing habitat in this act is to provide for one of the overall marine resource management goals of the nation – maintaining sustainable fisheries. As evidenced for all wildlife resources, suitable habitat is absolutely essential for their sustenance. Although the concept of EFH is similar to that of critical habitat under the ESA, measures recommended to protect EFH by NMFS or a Council are advisory, not proscriptive. An effective EFH consultation process is vital to ensuring that federal actions serve the Magnuson-Stevens Act resource management goals.

The Magnuson-Stevens Act requires that EFH be identified for all species that are federally managed. This includes species managed by the Councils under Council FMPs, as well as those managed by NMFS under FMPs developed by the Secretary of Commerce.

Applicable species to Alternatives 1, 2, 3, and 4 include Coastal Pelagic Species, which include four finfish species: northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), Pacific sardine (*Sardinops sagax*), and chub mackerel (*Scomber japonicus*) as well as market squid (*Loligo opalescens*). These species are managed within the Coastal Pelagic Species FMP. Applicable species to Alternatives 1, 2, 3, and 4 also include groundfish. A total of 82 groundfish species (flat and rockfish) are identified on the Pacific Groundfish FMP.

Preliminary consultation with the NMFS has been conducted and was reported in the NES. This consultation confirmed the presence of FMPs in the project area. Further review by the NMFS is pending distribution of this document and/or the NES to the NMFS.

3.16.1.1.7 Migratory Bird Treaty Act

This treaty with Canada, Mexico, and Japan protects migratory birds by making it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill said species. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season.

3.16.1.1.8 Invasive Species Control

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

3.16.1.2 State Regulations

3.16.1.2.1 California Water Code and Additional Water Quality Regulations

The state enforces federal water quality protection programs for which they have been delegated authority under the California Water Code and implementing regulations. The Porter-Cologne Water Quality Control Act provides a comprehensive statewide system for water pollution control that included designation of the SWRCB and nine Regional Boards covering the entire State of California. Under the Porter-Cologne Act, the SWRCB is responsible for adopting water quality standards as required to fulfill the responsibilities of the state under the CWA (Sections 401 and 402). In addition to surface water discharge permitting requirements of the CWA, the Porter-Cologne Act regulates discharges and potential discharges to groundwater.

Any person proposing to discharge waste that could affect the quality of waters of the state must file a Report of Waste Discharge. The Regional Board may permit discharges that comply with the CWA and the Porter-Cologne Act, subject to issuance of waste discharge requirements to protect the quality of waters of the state.

3.16.1.2.2 State Endangered Species Act

California has enacted the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and

Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

3.16.1.2.3 California Fully Protected Wildlife Species Provisions

California Fish and Game Code §§3511, 4700, 5050, and 5515 prohibit the taking of fully protected birds, mammals, amphibians, and fish. The CDFG might authorize the project, with conditions, after reviewing the project effects.

3.16.1.2.3.1 Birds of Prey Protection Provision

California Fish and Game Code § 3503.5 prohibits the taking of birds of prey, including any birds of the order Falconiformes or Strigiformes, and including nests or eggs of such birds.

3.16.1.2.4 California Fish and Game Code, Section 1600

Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

3.16.1.2.5 Ballast Water Management for Control of Nonindigenous Species Act

The Ballast Water Management for Control of Nonindigenous Species Act, California Public Resources Code (PRC) § 71200 *et seq*. (enacted January 1, 2000), requires ballast water management practices for all vessels, domestic and foreign, carrying ballast water into waters of the state after operating outside the Exclusive Economic Zone (EEZ). Specifically, the regulation prohibits ships from exchanging ballast water within port waters, and requires that exchange occur outside the EEZ in deep, open ocean waters. Alternatively, ships may retain water while in port, discharge to an approved reception facility, or implement other similar protective measures.

3.16.2 Affected Environment

3.16.2.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. There were no habitat areas that have been designated as critical habitat under the Federal Endangered Species Act within the project area. Areas designated Essential Fish Habitat under the Magnusen Stephens Fisheries Management Act are addressed below. Wetlands and other waters are also discussed below under Jurisdictional Waters Including Wetlands.

The project area consists of an urbanized, port environment, with extensive development including port facilities, transportation facilities including roads, bridges, and railways, and commercial and industrial buildings and facilities. Activities at and near the ports, including truck and rail transport and container ship loading and unloading, are ongoing 24 hours per day, seven days per week. For purposes of safety and security, activity areas are brightly illuminated during nighttime operations. Developed native terrestrial plant communities are generally not supported within the project area. Vacant, open lands within the project area are generally devoid of vegetation, either through recent or historic site disturbance, including soil compaction. Terrestrial wildlife species present in the urban and industrialized area have adapted to the developed environment, or consist of waterbirds that have adapted to using port waters for foraging and roosting.

Wetland and aquatic habitats are present within the project area, and support native and non-native communities. Intertidal wetlands are present in isolated locations along Cerritos Channel and in other locales. Port waters support intertidal and subtidal aquatic communities, including hard- and soft-bottomed benthic communities, and water column communities. Port waters within the project area support abundant fish communities, as well as foraging marine mammals.

3.16.2.1.1 Urban/Developed Areas

Terrestrial vegetation within urban, developed areas of the project area, where present, consists primarily of non-native plant species, ruderal, and landscaped areas. Many areas are dominated by non-native landscape ornamentals and include species of eucalyptus (*Eucalyptus* sp.), ice plant (*Mesembryanthemum* sp.), and pine tree (*Pinus* sp.). Small patches of non-native herbaceous and shrub species and naturalized landscaped species also exist within the project area. The non-native plant species present along the approaches to the Schuyler Heim Bridge are primarily composed of fivehorn smotherweed (*Bassia hyssopifolia*), mustard (*Brassica* sp.), ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), eucalyptus, prickly lettuce (*Lactuca serriola*), white sweetclover (*Melilotus alba*), ice plant, Russian thistle (*Salsola* sp.), spiny sowthistle (*Sonchus asper*), and Johnsongrass (*Sorghum halepense*). A number of juvenile palm trees also are scattered within the site. Spreading pellitory (*Parietaria judaica)* was observed in dense patches below the southern approach to the Schuyler Heim Bridge. Landscaped areas exist north of the Cerritos Channel and along the approach to the Schuyler Heim Bridge and adjacent to Hanjin Way, as well as along Ocean Avenue and the southern approach to the bridge. Similar areas are found along the alignment to Alameda Street.

The north bank of the proposed bridge over the East Basin-Consolidated Slip/Dominguez Channel is sparsely vegetated with several non-native species including Brazilian pepper (*Schinus terebenithifolius*), tree tobacco (*Nicotiana glauca*), and small-flowered ice-plant.

Native vegetation is present in scattered locations and includes Emory's baccharis (*Baccharis emoryi*), mulefat (*Baccharis salicifolia*), horseweed (*Conyza canadensis*), spreading alkaliweed (*Cressa truxillensis*), tall flatsedge (*Cyperus eragrostis*), and knotweed (*Polygonum* sp.). The majority of native vegetation occurring on the project area at the Schuyler Heim Bridge occurs within the southern portion of the project site, between the Schuyler Heim Bridge and railroad tracks that lead to and from the Henry Ford Bridge. In addition, the north bank of the proposed bridge over the Consolidated Slip/Dominguez Channel is sparsely vegetated with some native mulefat present. The south bank of Consolidated Slip/Dominguez Channel supports some native mulefat and Brewer's saltbush *(Atriplex lentiformes*), and a small amount of pickleweed. Mulefat shrubs are also present within the north-south portion of the footprint of the proposed flyover. The east-west portion of the flyover is alongside existing roadways in highly degraded conditions or developed conditions; no natural habitat is present.

At the northern portions of the existing SR-103 alignment (Alternative 2), roadside areas consisting of iceplant and other non-native ruderal species are found adjacent to the alignment. Also, along the northern segment of the SR-103 alignment, extensive areas of landscaped vegetation exist along the proposed alignment within the existing streets.

Wildlife species expected to occur frequently in the urbanized, developed portions of the project area include rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), barn swallow (*Hirundo rustica*), American crow (*Corvus branchyrhynchos*), European starling (*Sturnus vulgaris*), house finch *(Carpodacus mexicanus*), and house sparrow (*Passer domesticus*). Mammals that are expected to occur in the project area are feral cats *(Felis domesticus*), Virginia opossum (*Didelphis virginiana*), and Norway rats (*Rattus norvegicus*). In addition, the American peregrine falcon (*Falco peregrinus anatum*) has a long history of nesting within the developed, port environment, and a pair has been reported nesting on the south tower of the Schuyler Heim Bridge for many years (see further discussions below).

Other wildlife within urban, developed areas within the project area may include numerous species of bats that may utilize structures such as the Schuyler Heim Bridge or other elevated roadways or bridges in the area for roosting, including the Ocean Avenue rail bridge, which crosses the rail line within the footprint of the flyover.

The elevated section of the existing SR-103 viaduct in the vicinity of Anaheim Street may support bat roosts or bird nests (Alternative 2). In the vicinity of the small community park, north of Pacific Coast Highway along and to the south of SR-103 (Alternative 2), numerous trees including non-native and native landscaped trees exist, providing numerous roosting and potential nesting opportunities for raptors and other birds.

3.16.2.1.2 Brackish Intertidal and Non-tidal Wetlands

A small wetland is present within the footprint of Alternative 3, on a low tidal terrace just above the riprap bank along the south bank of Cerritos Channel, just east of the existing Schuyler Heim Bridge. The wetland is dominated by pickleweed, with additional species including alkali seaheath (*Frankenia salina*) and spreading alkalibush (*Cressa truxillensis*). It appears fully within the regular tidal inundation zone, and is characteristic of tidal wetlands in brackish or saline conditions. In addition, pickleweed established in the intertidal zone is present in soil-filled crevices between riprap blocks along the Cerritos Channel east of the Schuyler Heim Bridge.

Early site visits and air photos indicated this wetland was approximately 0.25 acre in size. During a survey on December 7, 2006, it was found that the wetland had been degraded by construction activities on Pier S. A portion of the wetland was filled and it now extends approximately 30.5 meters (m) (100 feet [ft]) in the east-west direction and approximately 15.2 m (50 ft) in the north-south direction, reducing the size of the wetland to approximately 0.11 acre. The western edge of the wetland is approximately 22.8 m (75 ft) east of the plane of the southern abutment of the Schuyler Heim Bridge.

Along SR-103 (north of Pacific Coast Highway), an approximate 1-acre tidal wetland/ stormwater drainage feature currently exists east of the roadway and adjacent to

San Gabriel Street. This feature contains native species including alkali seaheath, and pickleweed. This feature continues and connects to the north with a narrow strip along (and east of) SR-103. This area contains a stormwater channel and connects to the feature described below. The area appears to be outside the footprint of direct Alternative 2 effects.

3.16.2.1.3 Aquatic Communities

Extensive aquatic wildlife habitat is present in the port waters within the project area, and a number of reports have documented conditions within aquatic habitats in the Port of Los Angeles Harbor shoreline habitats generally consist of intertidal and shallow subtidal riprap. These materials and additional hard substrates (i.e., pilings) provide habitats for both attached and motile invertebrates, which, in turn, provide food and shelter for rocky shore fishes. The rocky intertidal community on the riprap materials, as on most rocky shores, exhibits vertical zonation and is represented by crustacean, mollusk, echinoderm, and polychaete taxa. In the Los Angeles/Long Beach Harbor areas, composition and abundance of the intertidal community depends on the location, exposure, and substrate. The inner reaches of the harbor contain a sparser and less diverse rocky intertidal community. Compared to the outer and middle harbor sampling locations, the mean abundance of invertebrates occupying riprap habitats was much lower within the Cerritos Channel. The rocky subtidal epibiota in the Cerritos Channel is dominated by red (including corallines) and blue-green algal species, worm snails (*Serpulobis squamigerus*), phoronids (*Phoronis vancouverensis*), and mussels (*Mytilus* spp.).

The smaller invertebrates that constitute the benthic infaunal community of the soft-bottom channel area have been characterized previously for this general area of the Los Angeles and Long Beach inner harbors as a part of sediment quality assessments and a biological baseline study of San Pedro Bay. Compared to outer and middle harbor locations, the Cerritos Channel has an epibenthic and benthic invertebrate assemblage indicative of poorer habitat quality. Benthic infaunal organisms are the macroscopic animals that live in the top layers of sediment within the marine environment. The distribution and abundance of these species depends on the interacting sediment and environmental variability with the sediment composition characteristics being the primary determinant of their distribution. Many of the existing dominant infaunal species are thought to have been introduced from exotic sources. Within the Cerritos Channel, there are relatively more abundant infaunal invertebrate taxa associated with low to moderate nutrient enrichment compared to other harbor locations. The worst habitat quality was determined to be in the East Basin/ Consolidated Slip in the inner harbor. The epibenthic and infaunal benthic species assemblages associated with those habitats are dominated by pollution indicator species characteristic of substantial contamination.

The distribution of fish species/assemblages throughout the Harbor areas was most closely correlated with water depths. Compared to outer and middle harbor areas, fish abundance, biomass, and species numbers in the vicinity of the project area are generally lower. Pelagic fish species (within the water column) in the inner harbor (the Cerritos Channel sampling location) had the lowest average abundance (147 fish/sample), biomass (2.6 to 6.0 kilograms [kg]/sample) and fewest overall species (11) when compared to all other outer and middle harbor sampling areas. In addition, for demersal fish species (associated with the bottom), the inner harbor location (the Cerritos Channel sampling location) also had the lowest average abundance (165 fish/sample), biomass (1.0 to 3.0 kg/sample) and fewest overall species (18) when compared to other sampling locations within the study area. The Cerritos Channel sampling location clustered with other locations with a species assemblage consisting of schooling fish, including northern anchovy (*Engraulis mordax*), California grunion (*Leuresthes tenuis*), chub mackerel (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*) along with others including sardine (*Sardinops sagax*), topsmelt (*Atherinops affinis*), queenfish (*Seriphus politus*), and specklefin midshipman (*Porichthys myriaster*). The principal demersal fish assemblage that characterized the Cerritos Channel location was barred sand bass (*Paralabrax maculatofasciatus*), plainfin midshipman (*Porichthys notatus*), specklefin mipshipman, and yellowchin sculpin (*Icelinus oculatus*), and others including surf perches (Embiotocidae).

Two pinnipeds, the California sea lion (*Zalophus californianus*) and the harbor seal (*Phoca vitulina*), are frequent visitors inside the ports of Los Angeles and Long Beach.

Aquatic communities are present in the project area in Cerritos Channel and in the East Basin-Consolidated Slip/Dominguez Channel. In addition to characterization of these habitats provided by the other studies summarized above, additional terrestrial and aquatic field surveys were conducted in Cerritos Channel in the vicinity of the project area in 2002, 2004, and 2006 as a part of preparation of this environmental document. The information identified during those surveys is provided here.

3.16.2.1.3.1 Aquatic Plant Communities

From the marine surveys conducted in 2002, aquatic plant communities in the immediate area of the Schuyler Heim Bridge footings, channel bottom, and channel edges were extremely limited, presumably due primarily to light limitation caused by low water clarity and bridge shading. Direct smothering by siltation may be another limiting factor. The few macro-algae species encountered in the survey included brown algae (*Sargassum* sp., *Halosaccion* sp.) along the riprap area on the bank and red algae (*Prionitis* sp., *Pterysiphonia* sp.) in the upper subtidal zone. These species are representative of hard-substrate macro-algae of California intertidal and subtidal waters.

Although there is the potential for eelgrass (*Zostera marina*) beds to exist in shallow, Southern California harbor environments, the project site does not have the correct slope and substrate combination for the community. A shallow, flat, soft substrate is required for eelgrass. The proper depths for eelgrass at the project site are covered in riprap or vertical concrete; the softer substrates of flatter relief are too deep to support plant life. No eelgrass was found during the aquatic survey at the Schuyler Heim Bridge location. In addition, eelgrass was not observed during the site visit to the Consolidated Slip/Dominguez Channel; and conditions appear too deep to support the community in this location.

3.16.2.1.3.2 Aquatic Wildlife Communities

From the results of the marine survey conducted near the Schuyler Heim Bridge site, the diversity and abundance of all aquatic populations appeared heavily influenced by the extreme siltation at the proposed project location. From those observations, representative dominant fish and invertebrate species are shown below by habitat, with the species names listed for the most abundant organisms observed. Representative species by community type consisted of:

- High intertidal (bridge/pilings): Barnacles (*Chthamalus* sp.) and limpits

- Mid to low intertidal (bridge/pilings): Mussels (*Mytilus edulis*) and barnacles (*Chthamalus* sp.)
- Riprap area (southern channel edge): Mussels (*Mytilus edulis*), starfish (*Asterina miniatia*), nudibranchs, sea cucumbers, and tunicates
- High subtidal (bridge/pilings): Mussels (*Mytilus edulis*), tunicates (*Styela plicata*), hydroids, sponges, and starfish
- Mid-deep subtidal (bridge/pilings): Mussels (*Mytilus edulis*), rock scallops (*Crassodoma giganteus*), tunicates (*Steyela montereyensis*), annelids, and anemones
- Soft, channel bottom: Tube anemones (*Pachycerianthus fimbriatus*), sea pens (*Stylatula elongata*), and sea urchins
- Deep debris field: White surfperch (*Phanerodon furcatus*) and black surfperch (*Embiotica jacksoni*)

The aquatic community was relatively depauperate (poorly developed) in abundance and low in diversity. Diversity and abundance decreased with depth and subsequent degree of siltation. All species are common representatives of California intertidal and subtidal aquatic communities.

The only fishes observed during the 2002 aquatic survey (white surfperch [*Phanerodon furcatus*] and black surfperch [*Embiotica jacksoni]*) were at the edge of the debris field in deep, turbid water. No special-status fish or special-status marine mammal species were observed within the Cerritos Channel or Consolidated Slip/Dominguez Channel. California sea lion (*Zalophus californianus*) was observed in Cerritos Channel and is expected to be a regular visitor to the site. Harbor seals (*Phoca vitulina*) may also use the aquatic habitats in the vicinity of the project area.

3.16.2.1.4 Open Water Communities

The open water within the port environment provides ample roosting and foraging opportunities for a number of species of birds. This includes waterfowl or other waterbirds and raptors which may forage on fish, invertebrates, or other birds. Species which may use the open water areas for foraging or roosting include American peregrine falcon, double-crested cormorant (*Phalacrocorax auritus*), California brown pelican (*Pelecanus occidentalis californicus*), all of which were observed in the vicinity of the proposed project during field surveys. Additional water birds expected to use the marine environment in the project area include several species of gulls including California gull (*Larus californicus*), Western gull (*Larus occidentalis*), and mew gull (*Larus canus*); eared grebe (*Podiceps nigricollus*), great blue heron, (*Ardea herodias*), snowy egret, (*Egretta thula*), black-crowned night heron (*Nycticorax nycticorax*), mallard *(Anis platyrhynchos*), willit (*Catoptrphorus semipalmatus*), and California least tern (*Sterna antillarum*).

3.16.2.1.5 Essential Fish Habitat

The Magnuson-Stevens Act requires that Essential Fish Habitat (EFH) be identified for all species that are federally managed. This includes species managed by the fishery Management Councils under FMPs, as well as those managed by the NMFS under FMPs as developed by the Secretary of Commerce. EFH for species affected within the project area includes habitat for Coastal Pelagic Species (CPS) and Pacific Coast Groundfish (PCG).

Coastal Pelagic Species are managed under a FMP and include four finfish species: northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), Pacific sardine (*Sardinops sagax*), and chub mackerel (*Scomber japonicus*) as well as market squid (*Loligo opalescens*). The EFH for the CPS is described and identified, by species, as Appendix D of Coastal Pelagic Species FMP.

Pacific Coast Groundfish are a group of 82 species (flatfishes, rockfishes, and others) and are identified within the Pacific Groundfish FMP. The EFH for groundfish is defined as the aquatic habitat necessary to allow groundfish production to support long-term sustainable fisheries for groundfish and for all groundfish contributions to a healthy ecosystem. There are seven composite EFH descriptions for groundfish in the FMP based on seven major habitat types. The project area falls under the Estuarine EFH identified in the FMP. This is defined as those waters, substrates, and associated biological communities within bays and estuaries of the EEZ, from mean higher high water line (MHHW), which is the high tide line, or extent of the upriver saltwater intrusion to the respective outer boundaries for each bay or estuary as defined in 33 CFR 80.1 ecosystem.

3.16.2.2 Jurisdictional Waters Including Wetlands

Two areas under the first and fourth spans of the Schuyler Heim Bridge contain areas that have established wetland plant species. These are plant species that are assigned rankings by the USFWS according to their probability for occurring in a wetland. USFWS ranked the hydrophytic plant species area as obligate wetland plants (OBL) (greater than 99 percent), facultative wetland plants (FACW) (66 to 99 percent), facultative plants (FAC) (33 to 66 percent), facultative upland plants (FACU) (0 to 33 percent), and obligate upland species (UPL) (less than 1 percent). The area underneath the first span (Site 1) contains tall flatsedge (FACW), and knotweed (varies on species). A small area under the fourth bridge span (Site 2) contains a low-density area of spreading alkaliweed (FACW). A wetland delineation was conducted for these two sites.

At Site 1, while some wetland plants were present, soils did not meet the criteria of wetland soils, lacking gleying or other reduced soil characteristics. At Site 2, a limited number of small pockets of slightly gleyed and mottled soils were present within up to 4 inches of the soil surface. Small patches of soil cracking were also observed in this area. Site 2 is depressed relative to the surrounding area. It is bordered on four sides by concrete bridge columns and elevated berms. This area is supported by surface water runoff from the bridge during precipitation events and the consistent shading under these bridge spans. Because of the column and berm impediments, water is trapped in this area until it evaporates. While each parameter of the test did establish limited evidence that Site 2 may be a wetland, it was determined that these parameters collectively did not exhibit sufficient strength to determine that this site would be considered a jurisdictional wetland by the USACE. In particular, it was determined that one FACW plant species was sparsely distributed within the site, and the abundance of this one species would not satisfy the 50/20 Rule for wetland vegetation.

A small wetland is present within the footprint of Alternative 3, on a low tidal terrace just above the riprap bank along the south side of Cerritos Channel, just to the east of the existing Schuyler Heim Bridge. The wetland is dominated by pickleweed, with additional species including alkali seaheath (*Frankenia salina*) and spreading alkalibush (*Cressa truxillensis*). It appears fully within the regular tidal inundation zone. In addition, pickleweed established in the intertidal zone is present in soil-filled crevices between riprap blocks along the Cerritos Channel east of the Schuyler Heim Bridge. Early site visits and air photos indicated this wetland was approximately 0.25 acre in size. During a survey on December 7, 2006, it was found that the wetland had been degraded by construction activities on Pier S. A portion of the wetland was filled and it now extends approximately 30.5 m (100 ft) in the east-west direction and approximately 15.2 m (50 ft) in the north-south direction, reducing the size of the wetland to approximately 0.11 acre. The western edge of the wetland is approximately 22.8 m (75 ft) east of the plane of the southern abutment of the Schuyler Heim Bridge.

Along SR-103 (north of Pacific Coast Highway), an approximate 1-acre tidal wetland/ stormwater drainage feature currently exists east of the roadway and adjacent to San Gabriel Street. This feature contains native species including alkali seaheath, and pickleweed, and appears to be a wetland under jurisdiction of the USACE. This feature continues and connects to the north with a narrow strip along (and east of) SR-103, extending north to the vicinity of a small community park area. This feature appears to be waters of the U.S. under jurisdiction of USACE; it is within the existing alignment of the SR-103. Non-native ruderal plant species (Jimson weed [*Datura* sp.], Russian thistle, and brome [*Bromus* spp.]) are found along the top of the channel bank at this location. The channel areas, generally 1.8 to 2.4 m (6 to 8 ft) deep by 3.6 m (12 ft) wide, also are heavily vegetated with non-native ruderal species, including Mexican fan palm (*Washingtonia mexicana*), sunflower, iceplant, and non-native grasses. Native/domesticated trees, including western sycamore (*Platanus racemosa*), as well as non-native landscaping trees including fan palms and eucalyptus are present at the adjacent park. Similar stormwater channels line the west side of the SR-103 alignment in this vicinity and may also be jurisdictional waters of the U.S.

The Cerritos Channel and the Consolidated Slip/Dominguez Channel, because they are navigable waterways and because all or most of the channels are within the ordinary high water mark, are considered waters of the U.S., as defined by USACE, and a Navigable Waterway under Section 10 of the Rivers and Harbors Act. The Cerritos Channel and the Consolidated Slip/Dominguez Channel also may be jurisdictional under Section 1600 of the California Fish and Game Code. Indications are that CDFG considers the Dominguez Channel jurisdictional. However, these waters and jurisdictional areas have not been formally delineated.

Figure 3.16-1 shows approximate locations of jurisdictional waters within the project area.

3.16.2.3 Special-Status Species

A list of special-status species with potential to occur in the regional vicinity was compiled by consulting the California Natural Diversity Database (CNDDB), as well as environmental documents, the USFWS, the California Department of Fish and Game (CDFG), and expert opinion. Specifically, a total of 29 of these species were documented to occur in the five U.S. Geologic Survey (USGS) quadrangle maps (Long Beach, San Pedro, Torrance, Los Alamitos, and Seal Beach) surrounding the project area from a 2005 CNDDB search. This was also checked against a 2007 CNDDB search.

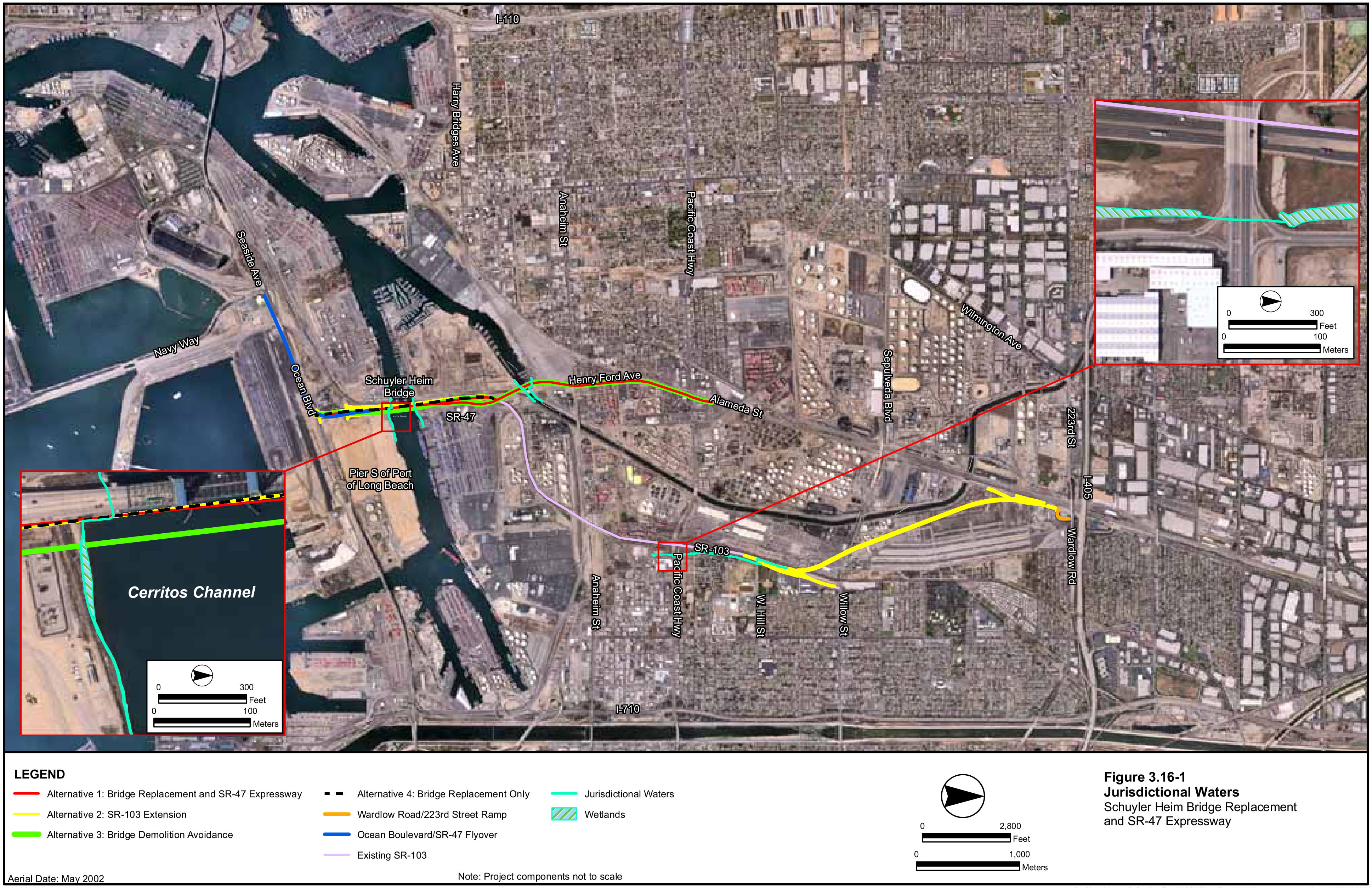


Figure 3.16-1
Jurisdictional Waters
Schuyler Heim Bridge Replacement and SR-47 Expressway

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Several additional species, including California brown pelican, American peregrine falcon, osprey (*Pandion haliaetus*), double-crested cormorant, tidewater goby (*Eucyclogobius newberry*), numerous bat species including western mastiff bat (*Eumops perotis californica*) and Yuma myotis (*Myotis yumanensis*), and a number of marine mammals have not been identified to occur within the adjacent quadrangle maps in recent CNDDB records, but have been identified in other environmental documents, or are known to occur in the regional vicinity. These species historically occurred in the region; and/or potential habitat for the species is present within the project area.

The list of special-status species potentially occurring in the region is presented in Table 3.16-1; this includes their general habitat requirements, status, and potential for occurrence on the project site. Specifically, the proposed project site was evaluated against specific habitat requirements of the species. If habitat is not present within the project site, then it was presumed the species was absent from the project site. Species with potential on the project site which were observed during field surveys are indicated. Only species with potential to occur on the project site are evaluated further in this document.

Table 3.16-2 provides information on the likely presence of special-status species on a per-alternative basis, indicating whether the species has either been observed on the alternative, or whether habitat for the species is present with potential for occurrence.

3.16.2.3.1 Federally Listed as Threatened or Endangered

This section provides information on species listed under the FESA as "threatened" or "endangered," and information on likely occurrence within the project site.

3.16.2.3.1.1 California Brown Pelican

During reconnaissance-level surveys of the project site, California brown pelicans (*Pelecanus occidentalis californicus*) were observed flying over the Cerritos Channel and roosting on the Schuyler Heim Bridge. Individuals are not expected to nest at the project site; however, there is potential for a stopover and foraging. Nesting colonies occur on the Channel Islands and islands off Baja California, generally on inaccessible sea cliffs. Brown pelicans forage in coastal waters for fish, and roost in coastal environments, generally in low, man-made structures such as jetties, piers, and bridges, or in a natural habitats such as coastal sand spits, islands, or coastal wetlands.

3.16.2.3.1.2 California Least Tern

This species nests in open dunes, vacant lots, high marsh areas, berms, sand pits, and other open, generally barren habitats adjacent to the coast. It forages in coastal waters. During reconnaissance-level surveys California least terns (*Sterna antillarum browni*) were not observed; however, this does not verify species absence from the site. Potential nesting habitat for this species is present to the southeast of the project site on barren, open lots, but no records of nesting in this location have been documented; and the area is not currently used for nesting. Recent construction activities in the vicinity of these lots preclude current use for nesting. Recent and consistent observations of this species have been documented in a number of locations adjacent to the project area. This includes nesting sites in the southwestern area of Terminal Island (Pier T) and other locations in Huntington Beach, Long Beach, and Anaheim Bay.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Plants						
Astragalus pycnostachyus var. *lanosissimus*	Ventura marsh milk-vetch	FE / SE /-/ 1A	Coastal salt marsh. Historically in coastal Southern California; now known at one site in Ventura County.	A	N	Historic collection in 1882. Occurrence not verified in 1987 and considered extirpated. Species not currently known in Los Angeles or Orange County. This habitat is not present at the project location. No effects to this species are anticipated.
Cordylanthus maritimus ssp. *Maritimus*	Salt marsh bird's beak	FE / SE /-/ 1B	Coastal salt marsh, coastal dunes, limited to the higher zones of the salt marsh habitat; 0 to 30 m (0 to 98 ft). Small population documented at Upper Anaheim Bay, Seal Beach (1983).	A	N	Historic occurrence from 1901. Surveys in 1980 concluded that this species is extirpated at this location (CDFG, 2002a). This habitat is not present at the project location. No effects to this species are anticipated.
Pentachaeta lyonii	Lyon's pentachaeta	FE / SE /-/ 1B	Chaparral, valley, and foothill grassland. Edges of clearings in chaparral. Usually at the ecotone between grassland and chaparral or edges of firebreaks; 30 to 630 m (98 to 2,067 ft).	A	N	Nondated occurrence documented at Point Fermin, San Pedro. This habitat is not present at the project location. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Fremontodendron mexicanum	Mexican flannelbush	FE / R / - / 1B	Closed-cone coniferous forest, chaparral, cismontane woodland. Usually scattered along the borders of creeks or in dry canyons; sometimes on gabbro soils; 10 to 490 m (33 to 1,607 ft). Documented at Via Del Monte, Palos Verdes (1963).	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
Aphanisma blitoides	Aphanisma	SC / - / - /1B	Coastal bluff scrub, coastal dunes, coastal scrub. On bluffs and slopes near the ocean in sandy or clay soils. In steep decline on the islands and the mainland; 1 to 305 m (3 to 1,000 ft). Documented to occur on the Palos Verdes peninsula.	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
Atriplex pacifica	Southcoast saltscale	SC / - / - /1B	Coastal scrub, coastal bluff scrub, playas, chenopod scrub, alkali soils; 1 to 500 m (3 to 1,640 ft). Occurrences in San Pedro (1992, 1931, 1903).	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
Atriplex parishii	Parish's Brittlescale	SC / - / - /1B	Alkali meadows, vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils; 4 to 140 m (13 to 459 ft). Observations on the Palos Verdes peninsula.	A	N	This habitat is not present at the project location. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Dudleya virens ssp. *Virens*	Bright green dudleya	SC / - / - /1B	Chaparral, coastal scrub, coastal bluff scrub. On the channel islands and the mainland. Rocky outcrops on bluffs facing the ocean; 20 to 110 m (65 to 360 ft). Observed at Palos Verdes peninsular park (1992).	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
Centromedia parryi ssp. *Australis*	Southern tarplant	SC / - / - /1B	Marshes and swamps (margins), valley and foothill grassland, vernal pools; from Southern California and Baja, often in disturbed sites near the coast; also in alkaline soils, sometimes with saltgrass; also vernal pools; 0 to 425 m (0 to 1,394 ft).	P	N	Historic occurrences in Long Beach (1930s) and recent occurrences in Bolsa Chica (1997, 1993). Potential exists for occurrence on disturbed sites. Species not observed onsite during surveys (CH2M HILL, 2002).
Lasthenia glabrata ssp. *Coulteri*	Coulter's goldfields	SC / - / - /1B	Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands; 1 to 1,400 m (3 to 4,593 ft).	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
Sagittaria sanfordii	Sanford's arrowhead	SC / - / - /1B	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches; 0 to 610 m (0 to 2,001 ft). Southernmost collection of species in east Garden Grove, Seal Beach (1975).	A	N	This habitat is not present at the project location. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Atriplex serenana var. *davidsonii*	Davidson's saltscale	- / - / - / 1B	Coastal bluff scrub, coastal scrub, alkaline soil; 3 to 250 m (10 to 820 ft).	A	N	Historic observation in 1906. This habitat is not present at the project location. No effects to this species are anticipated.
Symphyotrichum defoliatum	San Bernardino aster	- / - / - / 1B	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, grasslands; vernally mesic grassland or near ditches, streams and springs, 2 to 2,040 m (6 to 6,692 ft)	A	N	Historic observation in 1933; no recent records in vicinity and habitat is generally absent from the Project site.
Phacelia stellaris	Brand's phacelia	- / - / - /1B	Coastal scrub, coastal dunes. Southern California, and Baja. Open areas; 5 to 1,515 m (16 to 4,970 ft).	A	N	Historic occurrence in Redondo (1906). This habitat is not present at the project location. No effects to this species are anticipated.
Nemacaulis denudata var. *denudate*	Coast woolly-heads	- / - / - / 2	Coastal dunes; 0 to 100 m (0 to 328 ft). More recent occurrence at Bolsa Chica wetlands (1972).	A	N	Occurrences documented at Terminal Island (1905) and in Long Beach (undated reference in Jepson). This habitat is not present at the project location. No effects to this species are anticipated.
Sidalcea neomexicana	Salt spring checkerbloom	- / - / - / 2	Alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes; 0 to 1,500 m (0 to 4,921 ft).	A	N	Historic occurrence in Bryant Ranch, east of Long Beach (1936). This habitat is not present at the project location. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Mammals						
*Antrozous pallidus**	Pallid bat	- / - / SC / -	Variety of open scrub, woodland, and forest habitats; forages in terrestrial habitats, often on the ground. Breeds and roosts in mines, tunnels, caves, crevices, buildings.	P	N	May roost in crevices or compartments of Schuyler Heim Bridge, SR-103 viaduct, or Ocean Avenue rail bridge.
*Macrotus californicus**	California leaf-nosed bat	- / - / SC / -	Desert riparian, succulent scrub, and other arid habitats. Roosts in mines, caves; generally far from human habitation.	A	N	Generally associated with arid habitats and does not associate with human habitation.
*Coryno rhinus townsendii townsendii**	Townsend's western big-eared bat	SC/ - / SC / -	Variety of open habitats; forages in the air; day and maternity roosts in caves, mines, tunnels, buildings, or other human-made structures.	P	N	May roost in crevices or compartments of Schuyler Heim Bridge.
*Choeronycteris mexicana**	Mexican long-tongued bat	- / - / SC / -	Forages on nectar, pollen, and occasionally fruit; roosts in dimly lit buildings or caves, mines, and other sites.	A	N	Although habitat exists, the project site is at the extreme northern limit of range, with only one record in Los Angeles County and one record in Ventura County.
*Myotis velifer**	Cave myotis	- / - / SC / -	Lowlands of the Colorado River and adjacent environs; roosts in caves and mines. Three records from Los Angeles County.	A	N	Although recorded in Los Angeles County, generally considered out of range for the species.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
*Myotis evotis**	Long-eared myotis	SC / - / - / -	Variety of scrub, woodland, and forest habitats; roosts in buildings, crevices, snags, and under tree bark.	P	N	May roost in crevices or compartments of Schuyler Heim Bridge or Ocean Avenue rail bridge.
*Myotis volans**	Long-legged myotis	SC / - / - / -	Most common in forested areas above 1,219 m (4,000 ft); also found in coastal scrub, chaparral, woodlands, and forests. Roosts in rock crevices, buildings, and under tree bark.	P	N	May roost in crevices or compartments of Schuyler Heim Bridge or Ocean Avenue rail bridge
*Myotis yumanensis**	Yuma myotis	SC / - / - / -	Widespread in California; forages over water; roosts in buildings, mines, crevices, and in abandoned swallow nests under bridges.	P	N	May roost in crevices or compartments of Schuyler Heim Bridge or Ocean Avenue rail bridge.
*Eumops perotis californicus**	Western mastiff bat	SC / - / SC / -	In crevices in buildings and high cliff faces, tunnels, trees; from coast to Colorado Desert; in open, semiarid to arid habitats, coastal scrub, and urban areas.	P	N	May roost in crevices or compartments of Schuyler Heim Bridge or Ocean Avenue rail bridge.
Lasionycteris noctivagans	Silver-haired bat	- / - / SC / -	In coastal and montane forests foraging over streams, ponds, and open areas; roosts in hollow trees, beneath bark, or rarely under rocks.	A	N	Range generally limited to Northern California or higher elevations. CNDDB records in Southern California do occur, but records appear accidental and not consistent with other literature sources identifying limits on range.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
*Nyctinomops femorasaccus**	Pocketed free-tailed bat	- / - / SC / -	Utilizes open scrub, riparian, and desert habitats; roosts in rock crevices in cliff sites.	P	N	Range extensions identified into Los Angeles County.
*Nyctinomops macrotis**	Big free-tailed bat	- / - / SC / -	Found in open and urban habitats; forages on large moths over water sources; roosts in crevices in rock outcrops.	P	N	Range extensions identified into Los Angeles County.
Sorex ornatus salicornicus	Southern California saltmarsh shrew	- / - / SC / -	Found in coastal marshes in Los Angeles, Orange, and Ventura Counties; requires dense vegetation and woody debris for cover.	A	N	Suitable dense or extensive coastal salt marsh is not present on the Project site to support this species.
Perognathus longimembris pacificus	Pacific pocket mouse	FE / - / SC / -	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles County; seems to prefer soils of fine alluvial sands near the ocean.	A	N	This habitat is not present at the project location. No effects to this species are anticipated. Records are dated from 1865 and 1931; presumed extirpated in the immediate project vicinity.
*Phoca vitulina**	Harbor seal	PM / - / - / -	Common along mainland and islands; remain close to shore in subtidal and intertidal waters; frequent harbors and rivers.	P	N	Cerritos or Dominguez Channel provides suitable harbor habitat.
*Zalophus californianus**	California sea lion	PM / - / - / -	Found in pelagic or nearshore waters; travel up rivers and bays; haul out on rocks or other structures.	P	Y	Observed in Cerritos Channel (CH2M HILL, 2002).

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
*Mirounga angustirostris**	Northern elephant seal	PM / - /FP/ -	Forage primarily in pelagic waters; breed in rookeries on Channel Islands and other locations.	A	N	Generally restricted to pelagic waters or rookery sites; do not venture into bays or harbors.
*Tursiops gillii**	Pacific bottlenose dolphin	PM / - / - / -	Frequent nearshore waters on the California coast south of San Francisco.	A	N	May infrequently enter harbors or bays, but generally rare in these situations.
*Lagenorhynchus obliquidens**	Pacific white-sided dolphin	PM / - / - / -	Frequents near-shore waters in winter, offshore in summer along Pacific coast.	A	N	May infrequently enter harbors or bays, but generally rare in these situations.
*Eschrichtius gibbosus**	Gray whale	D / - / - / -	Migrating whales pass near- and off-shore areas along the California coast in winter and again in late spring.	A	N	Generally restricted to near- or off-shore waters; rarely venture into bays or harbors.
Neotoma lepida intermedia	San Diego desert woodrat	SC / - / SC / -	Coastal Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	A	N	This habitat is not present at the project location. No effects to this species are anticipated. Nineteen individuals trapped in prickly pear cactus on Palos Verdes peninsula in 1991.
Birds						
Rallus longirostris levipes	Light-footed clapper rail	FE / SE / - / -	Require dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on mollusks and crustaceans.	A	N	Sufficient pickleweed habitat is not present in the project area. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Haliaeetus leucocephalus	Bald eagle	FT	Forages in open water bodies, inland and coastal; nests in snags or cliff faces near open water bodies	A	N	Not regularly reported from Port vicinity. Introduced to Channel Islands. Not expected to breed, and no regularly reported wintering birds. Nearest reported wintering birds are in Lake Mathews in Riverside County.
*Pelecanus occidentalis californicus**	California brown pelican	FE / SE / - / -	Nests on coastal islands of small to moderate size, which afford immunity from attack by ground-dwelling predators.	P	Y	Nesting not expected to occur at project location, but potential stopover or foraging in area may occur. Observed in project area (CH2M HILL, 2002; 2004).
Sterna antillarum browni	California least tern	FE / SE / - / -	Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	P	N	Potential nesting habitat present southeast of the project area near the Schuyler Heim Bridge, but no records of nesting in this location; and currently not known to be used for nesting. Nesting colony present on southwest portion of Terminal Island. Foraging at site may occur.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	- / SE / - / -	Riparian forest nester along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	A	N	Historic occurrence in 1912 at the San Gabriel River near Artesia, but currently extirpated from region. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
*Falco peregrinus anatum** (nesting)	American peregrine falcon	D / SE / - /-	Breeds near wetlands, lakes, rivers, or other water on high cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	P	Y	Historic pattern of a pair nesting on Schuyler Heim or the Gerald Desmond Bridges. Observed on tower of Schuyler Heim Bridge (CH2M HILL, 2002), and reported nesting on south tower in 2004. Fledged three young in 2004.
Polioptila californica	California gnatcatcher	FT / - / SC / -	Obligate, permanent resident of coastal sage scrub below 762 m (2,500 ft) in Southern California.	A	N	Coastal sage scrub habitat not present onsite. Nesting not expected to occur at project location. No effects to this species are anticipated. Local occurrences have been documented.
*Charadrius alexandrinus nivosus**	Western snowy plover	FT / - / SC / -	Sandy beaches on marine and estuarine shores, also salt pond levees and the shores of large alkali lakes. Requires sandy, gravelly, or friable soil substrate for nesting.	P	N	Nesting habitat is not present at the project location. Nesting not expected to occur at project location, but potential stopover may occur.
*Passerculus sandwichensis beldingi**	Belding's savannah sparrow	SC / SE / - / -	Inhabits coastal salt marshes from Santa Barbara south through San Diego County. Nests in *Salicornia* sp. on and about margins of tidal flats.	A	N	Only limited pickleweed habitat is present in the project area and would not support this species; regional occurrences have been documented. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Athene cunicularia	Burrowing owl	SC / - / SC / -	Subterranean nester in open country, grasslands, agricultural areas, deserts; dependent upon burrowing mammals, most notably the California ground squirrel.	P	N	Marginal habitat is present in the project area, consisting of vacant lots to the southeast of the project site. None observed (CH2M HILL, 2002).
Campylorhynchus brunneicapillus couesi	Coastal cactus wren	- / - / SC / -	Southern California coastal sage scrub. Wrens require tall *Opuntia* sp. cactus for nesting and roosting.	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
*Pandion haliaetus**	Osprey	- / - / SC / -	Large nests built in tree tops within 24 km (15 mi) of good fish-producing body of water.	P	N	Potential nesting or stopover on Schuyler Heim Bridge or other portions of project area, but nesting not reported.
*Phalacrocorax auritus**	Double-crested cormorant	- / - / SC / -	Nest along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	P	Y	Nesting not expected to occur at project location, but potential stopover or foraging may occur. Observed onsite (CH2M HILL, 2002; 2004).
Invertebrates						
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly	FE / - / - / -	Restricted to the cool, fog-shrouded, seaward side of Palos Verdes hills, Los Angeles County. Host plant is *Astragalus trichopodus* var. *lonchus* (locoweed).	A	N	This habitat is not present at the project location. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
Reptiles and Amphibians						
Phrynosoma coronatum blainvillei	San Diego horned lizard	SC / - / SC / -	Inhabits coastal sage scrub and chaparral in arid and semiarid climate conditions. Prefers friable, rocky, or shallow sandy soils.	A	N	This habitat is not present at the project location. No effects to this species are anticipated. Species records are substantiated from museum records. Species is considered extirpated at these locations.
Clemmys marmorata pallida	Southwestern pond turtle	- / - / SC / -	Inhabits permanent or nearly permanent bodies of water in many habitat types, below 1,829-m (6,000-foot) elevation, require basking sites such as partially submerged logs, vegetation mats, or open mud banks.	A	N	This habitat is not present at the project location. No effects to this species are anticipated.
Fishes						
Gila bicolor mohavensis	Mohave tui chub	FE / SE / - / -	Endemic to the Mohave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning.	A	N	Experimental transplantation determined to be extinct in 1976. This habitat is not present at the project location. No effects to this species are anticipated.

Table 3.16-1
Regional Species and Habitats of Concern and Likelihood of Occurrence

Scientific Name	Common Name	Status Federal/State/ CDFG/CNPS	General Habitat Description	Habitat Present/ Anticipated to Occur	Observed in Project Site	Rationale
*Eucyclogobius newberry**	Tidewater goby	FE / - / SC / -	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	A	N	Ideal habitat not present onsite. Limited potential for occurrence. 1976 record locates species at South Coast Botanic Garden, Palos Verdes. Presence considered extirpated.

* Species not identified in CNDDB, but habitat present or other records suggest potential for presence.

A = Absent N = No
P = Present Y = Yes

U.S. Fish and Wildlife Service:
(FE) Federally Endangered (PE) Proposed Endangered (FT) Federally Threatened (FPE) Proposed Endangered (FPT) Proposed Threatened (SC) Species of Concern (C) Candidate (D) Delisted (PM) Protected under Marine Mammal Protection Act

State of California:
(SE) State Endangered (ST) State Threatened (R) Rare (C) Candidate

California Department of Fish and Game (CDFG):
(SC) Species of Special Concern, (FP) California Fully Protected

California Native Plant Society (CNPS):
(1A) Presumed extinct in California (1B) Rare, threatened, or endangered in California and elsewhere (2) Rare, threatened, or endangered in California, but more common elsewhere (3) More information is needed (4) Limited distribution

Sources:
CDFG 2001, 2002a, 2005, 2007; CNPS 2005; USFWS 2005.

Table 3.16-2
Summary of Presence/Absence of Special-Status Species Habitat by Project Alternative

		Specific Habitat Present					
		Alternative					
Scientific Name	**Common Name**	**Alt 1**	**Alt 2**	**Alt 3**	**Alt 4**	**Alt 5**	**Alt 6**
Plants							
Centromedia parryi ssp. *australis*	Southern tarplant	P	P	P	P	A	N/A[1]
Mammals							
Phoca vitulina	Harbor seal	P	P	P	P	A	N/A
Zalophus californianus	California sea lion	P	P	P	P	A	N/A
Antrozous pallidus	Pallid bat	P	P	P	P	A	N/A
Corynorhinus townsendii townsendii	Townsend's western big-eared bat	P	P	A	P	A	N/A
Myotis evotis	Long-eared myotis	P	P	P	P	A	N/A
Myotis volans	Long-legged myotis	P	P	P	P	A	N/A
Nyctinomops femorasaccus	Pocketed free-tailed bat	P	P	A	P	A	N/A
Nyctinomops macrotis	Big free-tailed bat	P	P	P	P	A	N/A
Myotis yumanensis	Yuma myotis	P	P	P	P	A	N/A
Eumops perotis californicus	Western mastiff bat	P	P	P	P	A	N/A
Birds							
Pelecanus occidentalis californicus	California brown pelican	P	P	P	P	A	N/A
Sterna antillarum browni	California least tern	P	P	P	P	A	N/A
Falco peregrinus anatum (nesting)	American peregrine falcon	P	P	P	P	P	N/A
Charadrius alexandrinus nivosus	Western snowy plover	P	P	P	P	A	N/A
Athene cunicularia	Burrowing owl	P	P	P	P	A	N/A
Pandion haliaetus	Osprey	P	P	P	P	A	N/A
Phalacrocorax auritus	Double-crested cormorant	P	P	P	P	A	N/A

[1] Not applicable
P = Present
A = Absent

3.16.2.3.1.3 Western Snowy Plover

During reconnaissance-level surveys, western snowy plovers (*Charadrius alexandrinus nivosus*) were not observed; however, this does not verify species absence from the site. This species breeds in coastal areas and inland salt lakes in Northern California and other areas of western North America; the species winters along the coast of Southern California and Mexico, along beaches and the coastal strand. Individuals would not nest at the project site, and winter use in the area would be limited to the coastal strand. In general, they would not utilize the project area except for occasional stopover activity. Observations of this species have been documented nesting at the Sunset Aquatic Park, Huntington Beach (1971), and two historical records in 1907 at the mouth of Anaheim Bay and in 1916 at Sunset Beach. The 1907 site was reviewed in 1978 and considered unsuitable.

3.16.2.3.2 Marine Mammals

3.16.2.3.2.1 California Sea Lion, Harbor Seal

The California sea lion (*Zalophus californianus*) was observed during field visits either under or immediately adjacent to the eastern side of the Schuyler Heim Bridge. California sea lions are found from Vancouver Island, British Columbia, to the southern tip of Baja California in Mexico. They breed mainly on offshore islands, ranging from Southern California's Channel Islands south to Mexico, although a few pups have been born on Año Nuevo and the Farallon Islands in Central California. California sea lions are very social animals, and groups often rest closely packed together at favored haul-out sites on land, or float together on the surface of the ocean. California sea lions are opportunistic eaters, feeding on squid, octopus, herring, rockfish, mackerel, and small sharks.

Harbor seals (*Phoca vitulina*) are common, nonmigratory pinnepeds found along the entire Pacific coast from the Arctic south. They prefer to remain close to shore in tidal and subtidal waters, and they often swim into bays and harbors. They haul out in groups on emergent rocks, mudflats, sandbars, and sandy beaches. Females give birth on land at haul-out sites, and the precocial young are able to swim immediately.

Suitable habitat for both of these species is present in the Cerritos Channel and the Consolidated Slip/Dominguez Channel.

3.16.2.3.3 State-Listed as Threatened or Endangered

3.16.2.3.3.1 American Peregrine Falcon

A summary of the distribution, listing and recovery, and foraging ecology and life history of the American peregrine falcon (*Falco peregrinus anatum*) is presented below.

> **Distribution.** Peregrine falcons were formerly widespread in the continental United States; the subspecies American peregrine falcon historically nested from the North American boreal forest south into Mexico. They have suffered severe population declines, due to pesticide contamination of their food chain. Conservative estimates place the pre-World War II American peregrine falcon breeding population in California at 100 pairs. By the mid 1970s, only about 10 breeding pairs were known in California. Population levels (throughout its historical range), including California, have improved in recent years as a result of restriction on the use of DDT and intensive intervention to augment the natural species reproductive range.

A conservative estimate of the current falcon population in the State is 140 pairs, surpassing recovery goals for the subspecies in California.

Status. The American peregrine falcon was federally listed as endangered FESA on October 13, 1970 (35 CFR 16047). A recovery plan was prepared by the Pacific Coast American Peregrine Falcon Recovery Team in 1982. This recovery plan describes the biology, reasons for decline, and the actions needed for recovery of peregrine falcons in California, Nevada, Oregon, and Washington. In June 1995, the Service published an advanced notice of a proposal to remove the American peregrine falcon from the list of threatened and endangered species (60 FR 34406). The peregrine falcon was removed from the federal endangered species list in September 1999. The peregrine falcon was state-listed as endangered on June 27, 1971, under the California Endangered Species Act (CESA). The peregrine falcon is also designated as "fully protected" by CDFG. The peregrine falcon is also protected as a migratory bird under the federal Migratory Bird Treaty Act (MBTA).

Foraging Ecology and Life History. The peregrine falcon is a crow-sized raptor that feeds mostly on birds, is also known to prey on bats, and typically attacks its prey in the air. Peregrine falcons are monogamous, and pair bonds persist for the life of either bird. After the loss of a mate, the surviving bird typically mates again. In a natural setting, peregrine falcons nest almost exclusively on cliff ledges that are associated with suitable foraging areas. American peregrine falcons have also been observed nesting on man-made structures in heavily urbanized areas. Peregrine falcons exhibit nest site fidelity; however, new nest locations are often established if a bird mates again.

Breeding and Migratory Patterns. Peregrine falcons have historically been migratory, with North American populations wintering in Central and northern South America. However, many urban populations have become resident year round, as prey species such as rock doves and starlings are present throughout the year in urban locations. Populations in the port area are generally resident year round and may be augmented by wintering birds from other breeding areas in North America. Peregrines generally arrive on the breeding grounds in March. Birds are fledged by June, with post-breeding birds remaining in the area until September or later.

The habitat requirements of the American peregrine falcon have been summarized within the *American Peregrine Falcon Recovery Plan* (USFWS, 1984). This summary provides a succinct description of the variables and conditions that lead to occupation of an area by the peregrine. Their high mobility, extensive hunting areas, remote, rugged nest sites, and preferences of the individual pairs combine to make it difficult to stereotype and classify the typical peregrine falcon habitat. The peregrine falcon habitat requirements are summarized as follows:

Nesting Habitat. A cliff, or series of cliffs, generally 61 to 91 m (200 to 300 ft) in height that tends to dominate the surrounding landscape. Mountain valleys and river gorges with precipitous cliffs also are preferred nest sites. Peregrines also make widespread use of buildings, bridges, and other man-made structures as nest sites. Nest sites are usually located below 2,996 m (9,500 ft) elevation. An adequate food source is normally found within 16 kilometers (km) (10 miles [mi]) of the nest site.

Hunting Habitat. Those areas within 16 km (10 mi) of the nesting cliff that supply the major portion of the food source (birds) to the peregrine falcon. Other habitats within 16 to 32 km (10 to 20 mi) of the nesting cliff also may be important hunting areas, but they are often so interspersed or widespread that it is difficult to specifically delineate them. Essential foraging habitat within 16 km (10 mi) of an eerie site include wetlands and riparian habitats; coastal areas; meadows and parklands; crop lands such as hayfields, grain fields, and orchards; and areas such as gorges, mountain valleys, and lakes over which prey are vulnerable.

Sites suitable for occupancy and/or range expansion by the peregrine. Sites (other than those occupied or historical sites) that exhibit the requirements or needs of the peregrine as described above. As the species recovers, and the best natural nest sites are reoccupied, artificial structures, such as buildings and bridges, are being used.

Migration and/or wintering habitat. Wildlife (waterfowl) refuges or other habitats that concentrate food sources.

During reconnaissance-level surveys of the project site in 2002, this species was observed perched on the north tower and central portions of the Schuyler Heim Bridge. A pair of peregrine falcons was identified to be nesting on the tower in the past few seasons. There has historically been a pair nesting on the tower since the 1990s. A nesting box was installed on the tower in 1997 by the Santa Cruz Predatory Bird Group; prior to this time, there were reports of eggs rolling off of the ledge on the tower and falling. During the December 7, 2006, survey of the bridge vicinity, a single bird was observed leaving the nest platform location and perching on a ledge on the south tower of the Badger Avenue Bridge.

Several pairs of peregrines nest every year within the general project area. In addition to the Schuyler Heim Bridge, this includes the Long Beach City Hall, the Gerald Desmond Bridge, the Vincent Thomas Bridge, various shipping cranes in the harbor, and a tower at the Koch Carbon facility. While numerous territorial peregrine falcons reside in the port area throughout the year, their numbers are supplemented with migrants/vagrants during the non-breeding season (August to February).

Before 2004, biologists concluded that the Schuyler Heim Bridge towers and the Gerald Desmond Bridge were alternatively used as one nesting territory for one pair of peregrine falcons. Table 3.16-3 describes the occupation and nesting activities of the Schuyler Heim and Gerald Desmond Bridges. After the installation of the nesting box in 1997 on the north tower, young fledged from there each year except 2000. In 2000, there was a pair reported nesting on the Gerald Desmond Bridge which produced four young.

It appeared that one pair was alternating between the two nest locations but the movements and pairing by the resident adults often were difficult to determine. For example, at times it appeared that one male was paired with two different females at the two sites early in the nesting season, only to produce young with one of them. However, early in the season in

2002, a pair was nesting on the Schuyler Heim Bridge; and the pair that had been known to nest on the Long Beach City Hall building moved to the Gerald Desmond Bridge nest site.

Table 3.16-3
History of Peregrine Falcon Nesting on the Schuyler Heim and Gerald Desmond Bridges*

Year	Schuyler Heim Bridge		Gerald Desmond Bridge	
	Presence	Offspring	Presence	Offspring
1993	Pair	None		
1994	Pair	Possibly, but not confirmed	One adult	
1995				
1996			Pair	3
1997	Box installed; adults at Desmond moved to Schuyler Heim and use box.	4	Pair initially, but moved to Schuyler Heim.	
1998	Pair	2		
1999	Pair	3		
2000	Pair present, but moved to Desmond before egg-laying.		Pair	4
2001	Pair	3		
2002	Pair	3	Pair present that moved from City Hall nest site.	4 (late)
2003	Data available but not acquired			
2004	Pair	4 (3 fledged; 1 died)	Pair	Yes; number not acquired
2005	Data available but not acquired			

* Data provided by Carl Thelander (August 2, 2002b) and Jeff Sipple (October 11, 2004).

This was the first known time that a pair has been nesting simultaneously on the Schuyler Heim Bridge and on the Gerald Desmond Bridge. In general, the proximity of both bridges to one another, and the territorial nature of nesting peregrines, leads biologists familiar with their behavior to conclude that it cannot be predicted whether one or two of the bridges will be occupied in any given year.

3.16.2.3.4 Other Special-Status Species

3.16.2.3.4.1 Plants

3.16.2.3.4.1.1 Southern Tarplant

During reconnaissance-level surveys of the project site, southern tarplant (*Centromedia parryi* ssp. *australis*) was not observed; however, this does not verify absence of the species from the site. The site surveys were not conducted during the time when such species are known to bloom. Habitat for this species may be present. Estimated recent extant occurrences for this species are located at Huntington Beach (1970), Bolsa Chica (1997 and 1993), Long Beach (1997 and 1973), Ken Malloy Harbor Regional Park (1991), Madrona Marsh Nature Preserve (1997), Bixby Ranch (1997), and Seal Beach (1996).

3.16.2.3.4.2 Mammals

3.16.2.3.4.2.1 Pallid Bat

During reconnaissance-level surveys of the project area, pallid bats (*Antrozous pallidus*) were not observed in the project area; however, this does not verify species absence from the site. Habitat for this species may be present. This species is a year-long resident throughout lower elevations of California, utilizing open, dry habitats from grasslands, shrublands, woodlands, and forests. It typically forages close to the ground and may take prey on the ground. Day roosts are typically in caves, crevices, mines, buildings, and hollow trees. The species is social, often roosting in groups of 20 or more, ranging to well over 100, in many cases with other species; however, it also may be found individually. Maternity colonies form in early April and may contain from 12 to 100 individuals. Young are weaned in 7 weeks, and they are observed flying in July and August.

Limited records of this species are present in the CNDDB for the Southern California area; this includes records from rural areas of Orange County, including a 1993 record from Santiago Canyon near Orange involving one individual and 1997 and 1998 records from San Juan Creek and Coto de Caza near Mission Viejo involving small colonies. Barkley cites a museum record from the Long Beach area, but the origin or date of the record is not specifically indicated.

While no observations of bat colonies were made during field surveys of the project site, potential roost sites occur throughout the Schuyler Heim Bridge structure and other elevated portions of highway overpasses/structures were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge and other elevated portions of highway structures.

3.16.2.3.4.2.2 Townsend's Western Big-Eared Bat

During reconnaissance-level surveys of the project area, Townsend's western big-eared bats (*Corynorhinus townsendii townsendii*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present. This species is a year-long resident throughout California; but it is generally quite rare, with numbers having declined steeply. It utilizes open, mesic habitats, foraging for moths, beetles, and other insects by echolocation or gleaning from foliage. It roosts in caves, mines, tunnels, and dark building caverns; and maternity colonies are typically fewer than 100 bats. Maternity colonies form in April, with births in May or June. Young may fly within 2 to 3 weeks, and they are weaned in 6 weeks. The maternity colony may begin to break up by August. Maternity colonies are very sensitive to disturbance.

Limited records of this species are present in the CNDDB for the Southern California area, and the bulk of these are from desert regions. In 1992, a colony of 133 individuals was observed on Santa Cruz Island roosting in a building, in open, non-native grassland, and oak woodland.

Although there is limited potential habitat for this species at the Schuyler Heim Bridge site, it is unlikely to occur because the site is highly prone to disturbance and because the species is rare in urbanized settings. This species requires large caves or cavernous facilities to roost in, and its presence in the project area would be limited to the Schuyler Heim Bridge.

3.16.2.3.4.2.3 Long-Legged Myotis

During reconnaissance-level surveys of the project area, long-legged myotis (*Myotis volans*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present. This species is a year-long resident throughout California, absent only from the Central Valley and Mohave Deserts. It preys on flying insects and may forage over water, scrub, or woodland habitats. The species roosts in trees, under tree bark, in rock crevices, or buildings; and maternity roosts may number hundreds of individuals. Young are born in June and July, and they may begin flying in mid-July. They are weaned by September.

Limited records of this species are present in CNDDB for California, consisting of a handful of records in Riverside County and Siskiyou County. Museum records occur for the Pasadena area; however, the origin or date is not known.

While no observations of bat colonies were made during field surveys of the project site, potential roost sites occur throughout the bridge structure and other elevated portions of highway overpasses/structures; and they were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge or other portions of elevated highway structures within the project site.

3.16.2.3.4.2.4 Long-Eared Myotis

During reconnaissance-level surveys of the project area, long-eared myotis (*Myotis evotis*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present. This species is a year-long resident throughout California, absent only from the Central Valley and Mohave Desert; it seems to prefer higher-elevation coniferous forests. It preys on flying insects or forages on the ground or in vegetation. The species roosts in trees, under tree bark, in rock crevices, in buildings, or in caves. Nursery colonies may number 12 to 30 individuals. Young are born May to July, with a peak in June. Young are flying by early August.

Limited records of this species are present in the CNDDB for California, consisting of a handful of records in western Riverside County and in central California. Museum records occur for the Pasadena area; however, the origin or date is not known.

While no observations of bat colonies were made during field surveys of the project site, potential roost sites occur throughout the bridge structure and other elevated portions of highway overpasses/structures; and they were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge or other portions of elevated highway structures within the project site.

3.16.2.3.4.2.5 Yuma Myotis

During reconnaissance-level surveys of the project area, Yuma myotis (*Myotis yumanensis*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present. This species is a year-long resident and generally common throughout California. It preys on flying insects, generally foraging over water sources. The species roosts in trees, under tree bark, in rock crevices, in buildings, in caves, or under bridges. Nursery colonies may number several thousand individuals. Young are born May to mid-June, with a peak in early June.

Limited records of this species are present in the CNDDB for California, consisting of a handful of records in central and northern California.

While no observations of bat colonies were made during field surveys of the project site, potential roost sites occur throughout the bridge structure and other elevated portions of highway overpasses/structures; but they were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge or elevated portions of highway overpasses/structures.

3.16.2.3.4.2.6 Western Mastiff Bat

During reconnaissance-level surveys on January 7, 8, and 15, and February 26, 2002, September 30, 2004, and December 7, 2006, western mastiff bats (*Eumops perotis californicus*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present.

This species is an uncommon resident of interior and coastal regions of central and Southern California, occurring in a variety of open, arid habitats. It catches prey in flight, foraging over various habitats. The species roosts in cliff faces, high buildings, trees, and tunnels; nursery roosts are described as tight rock crevices at least 1 m (3 ft) deep and 50 millimeters (mm) (2 inches) wide. Parturition dates vary more for this species than other species, and they may occur from April through August or September.

No records for this species are present in CNDDB for Los Angeles County, but a single record of 20 individuals from 1993 is present for Orange County. There are numerous records of this species in Los Angeles County, taken from data collected from 1954 to the late 1990s, including several records for the lower Los Angeles Basin and Long Beach areas.

While no observations of bat colonies were made during field surveys of the project site, potential roost sites occur throughout the bridge structure and other elevated portions of highway overpasses/structures; and they were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge and other elevated portions of highway overpasses/structures.

3.16.2.3.4.2.7 Pocketed Free-Tailed Bat

During reconnaissance-level surveys of the project area, pocketed free-tailed bats (*Nyctinomops femorasaccus*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present.

This species is an uncommon resident in arid regions of Southern California, occurring in desert scrub, riparian, and other habitats. It catches prey in flight, foraging over ponds, streams, or open habitats. The species roosts in rock crevices within cliff faces. The species roosts in small groups; young are born in June and July and are weaned by late August.

There are numerous records of this species in Los Angeles County, taken from data collected from 1954 to the late 1990s. This represents a known range extension; the species was formerly identified in Imperial and San Diego Counties.

While no observations of bat colonies were made during field surveys of the project site, limited potential roost sites occur throughout the bridge structure and other elevated portions of highway overpasses/structures; and they were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge and other elevated portions of highway overpasses/structures.

3.16.2.3.4.2.8 Big Free-Tailed Bat

During reconnaissance-level surveys of the project area, big free-tailed bats (*Nyctinomops macrotis*) were not observed; however, this does not verify species absence from the site. Habitat for this species may be present.

This species is rare in Southern California, with previous records from urban areas in San Diego County, and one record in Long Beach from 1983. More recent records identify a range extension into Los Angeles and Orange Counties, with numerous records in the lower Los Angeles Basin. The species prefers rugged, rocky terrain, and forages in the air over water sources for large moths and other flying insects. Roosts are recorded in rocky crevices high on cliff faces. Young are born into small nursery colonies in June and July, and they are capable of flight in August to mid-September.

While no observations of bat colonies were made during field surveys of the project site, limited potential roost sites occur throughout the bridge structure and other elevated portions of highway overpasses/structures; and they were not accessible and/or visible at the time of the surveys. Roost sites may occur in small to large crevices, compartments, or under eaves on the Schuyler Heim Bridge and other elevated portions of highway overpasses/structures.

3.16.2.3.4.3 Birds

3.16.2.3.4.3.1 Burrowing Owl

Burrowing owls (*Athene cunicularia*) utilize grasslands, deserts, and other open areas where they nest in burrows, generally excavated from existing small mammal burrows. They forage on small mammals, insects, reptiles, and other prey items. During reconnaissance-level surveys of the project area, burrowing owls were not observed; however, this does not verify species absence from the site. Habitat for this species may be present on open, vacant lots in the area, although in general the habitat is degraded and would represent marginal burrowing owl habitat. Local observations have been documented at the Seal Beach Naval Weapons Station (1983) and at the Bolsa Chica Ecological Reserve (1993).

3.16.2.3.4.3.2 Osprey

During reconnaissance-level surveys of the project area, osprey (*Pandion haliaetus*) were not observed; however, this does not verify species absence from the site. Individuals are not expected to nest at the project site; however, a limited potential for stopover may occur. Nearest known nest sites occur in Lake Casitas, Ventura County. Ospreys have been seen through the summer months at former or potential nesting areas such as West Pond (Imperial Dam), Salton Sea, Newport Bay, Buena Vista Lagoon (San Diego County), Big Bear Lake, and Lake Cachuma (Santa Barbara County).

3.16.2.3.4.3.3 Double-Crested Cormorant

Double-crested cormorants (*Phalacrocorax auritus*) are piscivorous (fish-eating) and thus require aquatic habitats for foraging. They dive from the water surface and pursue fish underwater, most often in water approximately 9 m (30 ft) deep. They also utilize nearby perching locations to dry their plumage. They require undisturbed nest sites near water, on islands, or on the mainland and near a dependable food supply. During reconnaissance-level surveys of the project site, double-crested cormorants were observed flying over the Cerritos Channel and the Consolidated Slip. Individuals are not expected to nest at the project site; however, a strong potential for a stopover or foraging exists.

3.16.2.3.4.4 Fish

3.16.2.3.4.4.1 Coast Pelagic Species

Coast Pelagic Species (CPS) include four finfish species: northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), Pacific sardine (*Sardinops sagax*), and chub mackerel (*Scomber japonicus*) as well as market squid (*Loligo opalescens*). These species are managed within the Coastal Pelegics Species FMP. This FMP is present within the Cerritos Channel including the segment spanned by the Schuyler Heim Bridge and within the Consolidated Slip/Dominguez Channel area. None of the CPS were observed during the aquatic site surveys of the proposed project site. However, during surveys conducted for the Ports of Long Beach and Los Angeles, MEC collected three of the CPS: northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), and Pacific sardine (*Sardinops sagax*) at the Cerritos Channel sampling location (LA6). No sampling was conducted within the Consolidated Slip/Dominguez Channel, but one or more of the CPS may also be present in that location as well.

The northern anchovy occurs primarily in coastal surface waters from northern British Columbia to Cabo San Lucas, Baja California. Tagging studies indicate that schools of anchovies move fairly long distances up and down the coast. This species swims in dense schools that are often visible from the surface of the water. An extremely important commercial fish, this species is also a major food source for other fishes, birds, and mammals. The northern anchovy spawns during the winter and early spring, and the pelagic eggs take between 2 and 4 days to hatch. This anchovy rarely lives longer than 4 years.

Pacific sardines (*Sardinops sagax*) are small schooling fish. At times, they have been the most abundant fish species in the California current. When the population is large, it is abundant from the tip of Baja California to southeastern Alaska and throughout the Gulf of Mexico. In the north, sardines tend to appear seasonally. Sardines also form three (and possibly four) sub-populations. The northern sub-population of sardines is most important to U.S. commercial fisheries. Sardines may live as long as 13 years, but they usually are younger than 5 years. Like anchovies, they are taken by a wide variety of predators.

Jack mackerel (*Trachurus symmetricus*) are a schooling fish that range widely throughout the northeastern Pacific. They grow to about 60 centimeters (cm) and can live 35 years or longer. Much of their range lies outside the 200-mile U.S. EEZ. Small jack mackerel (up to 6 years of age) are most abundant in the Southern California Bight, where they are often found near the mainland coast and islands and over shallow rocky banks, artificial reefs, and shallow rocky coastal areas. Large fish rarely appear close to the southern shore. They remain near the bottom or under kelp canopies during daylight and venture into deeper surrounding areas at night. Young juvenile fish sometimes form small schools beneath floating kelp and debris in the open sea. Jack mackerel in Southern California are more likely to appear on offshore banks in late spring, summer, and early fall. Small jack mackerel taken off Southern California and northern Baja California eat large zooplankton, juvenile squid, and anchovy. Larvae feed almost entirely on plankton. The spawning season for jack mackerel off California extends from February to October, with peak activity from March to July.

The Pacific chub mackerel (*Scomber japonicus*) occurs from Mexico to southeastern Alaska. They are most abundant south of Point Conception, California, and usually appear within 32 km (20 mi) offshore. The "northeastern Pacific" stock of Pacific mackerel is harvested by fishers in the U.S. and Mexico. Like sardines and anchovies, mackerel are schooling fish; and they may school with other pelagic species such as jack mackerel and sardines. They are also heavily preyed upon by a variety of fish, mammals, and sea birds.

Market squid (*Loligo opalescens)* appear from the southern tip of Baja California to southeastern Alaska. They are most abundant between Punta Eugenio, Baja California, and Monterey Bay, California. They are harvested near the surface, but they can appear to depths of 800 m or more. They prefer the salinity of the ocean and are rarely found in estuaries, bays, or river mouths. Squid are short-lived (up to 10 months). They are important as forage foods to many fish; bird; and mammals such as king salmon, coho salmon, lingcod, rockfish, seals and sea lions, sea otters, porpoises, cormorants, and murres.

3.16.2.3.4.4.2 Groundfish

Groundfish (flat and rockfish) species were not observed during the aquatic site survey on January 9, 2002. A total of 82 groundfish species are identified on the Pacific groundfish FMP. This FMP is present within the Cerritos Channel under the Schuyler Heim Bridge and within the Consolidated Slip/Dominguez Channel area.

3.16.2.4 Invasive Species

3.16.2.4.1 Terrestrial Habitats

Non-native vegetation exists throughout the project area and include species of eucalyptus, ice plant, Brazilian pepper, tree tobacco, small-flowered ice-plant, mustard, ripgut brome, red brome, prickly lettuce, Russian thistle, spiny sowthistle, and other species normally considered invasive. Juvenile Mexican fan palm also is scattered throughout the project area. Invasive, exotic vegetation is common in the disturbed, urban environment which characterizes the project area.

3.16.2.5 Aquatic Species

The EIR for the Berth 206-209 Interim Container Terminal Reuse Project identified at least 46 invasive aquatic species that are established in waters of San Pedro Bay (Los Angeles and Long Beach Harbors). Invasive species include a Japanese brown alga (*Sargassum muticum*), bubble snail (*Philine auriformis*), Japanese mussel (*Musculista senhousia*), an isopod (*Sphaeroma quoyanum*), and yellowfin goby. A total of 32 non-native species were identified in the surveys performed in 2000. In the West Basin, 15 non-native species were found in the soft-bottom and riprap samples. These species included *Dipolydora socialis, Polydora cornuta, Pseudopolydora paucibranchiata, Eochelidium* sp. *A, Aricidea catherinae, Theora lubrica, Sigambra tentaculata, Levinsenia gracilis, Grandidierella japonica, Hydroides pacificus*, Pacific oyster, and

Mediterranean mussel. The primary source of these organisms is likely to have been discharge of ballast water from cargo vessels, but they are also introduced by aquarists and the restaurant live fish trade.

3.16.3 Environmental Consequences

3.16.3.1 Evaluation Criteria

The criteria shown below are the basis for evaluating whether there are substantial adverse effects to biologic resources resulting from project development:

The proposed action would adversely affect biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species as recognized by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, or any other federal agency.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in any federal plans, policies, or regulations, or by the U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any other federal policies or ordinances protecting biological resources, such as migratory bird protection regulations.
- Conflict with the provisions of an adopted Habitat Conservation Plan, or other approved federal habitat conservation plan.
- Result in the introduction or promote the establishment of any noxious weed or invasive plant or animal.

3.16.3.2 Methodology

3.16.3.2.1 Studies Required

To comply with the provisions of CEQA, CESA, NEPA, and FESA, the potential for the occurrence of sensitive plant and animal species was initially investigated and documented by conducting a background database search using the CNDDB conducted in 2001, January 2002, March 2005, and July 2007. In addition, the California Native Plant Society's Inventory of Rare and Endangered Plants was reviewed (August 2005). These queries assisted in generating a list of special-status species that may have the potential to occur within the project study area. In addition, reconnaissance-level site surveys were conducted to review the terrestrial and aquatic habitats in the project study area, identify habitats present, and record all species observed onsite. This included underwater surveys of the Cerritos Channel. As part of this assessment, sediment samples were analyzed for chemical quality; and sediment resuspension was modeled as an estimate of potential construction effects to water quality in the Cerritos Channel. Existing water quality information was reviewed and analyzed for the Consolidated Slip/Dominguez Channel.

To comply with Section 404 of the CWA, Section 10 of the Rivers and Harbors Act, and Section 1600 of the Fish and Game Code, the project study area also was reviewed to determine the presence of jurisdictional waters of the U.S. or waters of the state, including wetlands and navigable waterways, as recognized by the USACE and Regional Board, respectively, and streambed and bank, as recognized by the CDFG. A wetland delineation was conducted for Alternative 1 under the initial bridge spans on the southern approach to the Schuyler Heim Bridge, and wetlands and waters of the U.S. extent was field estimated and mapped for the Alternative 3 alignment just east of the Schuyler Heim Bridge, the Alternative 2 alignment along SR-103, and Alternative 1 along the Consolidated Slip/ Dominguez Channel.

For the purposes of this document, the biological study area (project area) surveyed included the following areas:

- Schuyler Heim Bridge
- Adjacent Schuyler Heim bridge approach
- The new Ocean Boulevard/SR-47 Flyover alignment along Ocean Boulevard east of the Schuyler Heim Bridge
- The new SR-47 Expressway alignment from the northern Schuyler Heim Bridge approach to Alameda Street
- The existing SR-103 alignment and its extension to Alameda Street
- Submerged aquatic habitats immediately below and east of the Schuyler Heim Bridge
- The aquatic habitats at and west of the confluence of the Consolidated Slip/Dominguez Channel
- Terrestrial and aquatic habitats within range of potential dust, noise, or sediment plume range of the project

3.16.3.2.2 Sediment Characterization

A sediment characterization study, *Supplemental Report: Consolidated Slip Restoration Project Concept Plan, October, 2003*, was conducted within the Consolidated Slip in 2002 in association with the *Montrose Stormwater Pathways Confirmation Study* conducted by EPA Region IX. This sediment characterization study is incorporated by reference. The detailed *Water Quality Impacts Technical Study for the State Route 47/Schuyler Bridge Replacement Project* (Caltrans, 2007b) has been prepared and is hereby incorporated by reference.

3.16.3.2.3 Agency Coordination and Professional Contacts

A letter requesting a list of the special-status species that have the potential to be impacted by the project alternatives was submitted to the USFWS and the CDFG. The USFWS responded to this request with a species list on July 1, 2005 (*Natural Environment Study* [CH2M HILL, 2005]). In addition, the website of the Ventura Office of the USFWS was consulted in August 2005 to obtain a general (by County) species list. A copy of the distributed letters and the responses from these resource agencies are presented in

Appendix D of the NES. An updated list was not requested from CDFG in 2005 since their policy is to refer project proponents to the most recent version of the CNDDB. The most current CNDDB (July 2007) was reviewed for this project.

3.16.3.3 Evaluation of Alternatives

3.16.3.3.1 Alternative 1: Bridge Replacement and SR-47 Expressway

3.16.3.3.1.1 Construction Effects

3.16.3.3.1.1.1 Direct

Natural Communities

Urban/Developed Areas

Individual native plants are present in the urbanized, developed landscape in the Alternative 1 area; however, intact communities of these native plants do not exist. Although these individual native plants may be removed permanently with bridge replacement, new bridge construction, flyover construction, and other project construction activities, the loss of these scattered individual plants would not represent an adverse effect to natural communities.

Brackish Intertidal and Non-tidal Wetlands

Brackish intertidal or non-tidal wetlands are not present in the Alternative 1 footprint.

Aquatic Communities

Construction activities that remove or destroy existing submerged aquatic habitat (existing bridge footings, pilings, piers, and riprap) will destroy associated, attached marine macro-algae; invertebrate communities; and their habitats. The loss of the attached invertebrate communities temporarily will affect local fish that feed on those organisms. In addition, it is expected that project-caused disturbance of the soft-bottom community will disrupt and remove the sediment macro and micro invertebrate communities. In all cases, fish and some highly mobile invertebrates (e.g., crabs) will freely escape construction-related effects. In addition, it is expected that all new hard surfaces and the newly settled sediment will be recolonized rapidly postconstruction with aquatic communities comparable to those impacted. These communities are commonly found throughout the inner harbor locations.

The construction of the new bridge footings in the Cerritos Channel and Consolidated Slip/ Dominguez Channel likely would require disturbance of existing channel bottom sediments. Any construction work will result in some variable amount of sediment resuspension and dispersal into the water column of both channels. The type and duration of actual construction activities have yet to be determined, although the use of cofferdams and new pilings may be assumed. Regardless of the type of construction activities, there is sure to be some resuspension of fine-grained bottom sediments during the replacement, including demolition and replacement of the Schuyler Heim Bridge and the placement of bridge footings in the Consolidated Slip/Dominguez Channel, and other construction activities at either site.

The construction of a replacement bridge for the Schuyler Heim Bridge, construction of the limited access expressway connecting to the bridge (State Route [SR-] 47 Expressway), and demolition of the existing Schuyler Heim Bridge have the potential to adversely affect water quality in the Cerritos Channel. The harbor sediments in the area of the bridges are primarily silt and finer-sized fractions and, if resuspended, are expected to stay in suspension for days.

Tidal currents likely will disperse the resuspended sediments throughout the length of the Cerritos Channel and the Consolidated Slip. The footprint of the proposed flyover is not adjacent to any port waters or aquatic habitat.

Based on the range of maximum and average current velocities in the Cerritos Channel, the resuspended sediment plume will travel a distance of approximately 1,250 m (4,101 ft). upstream before the tide turns. The length of the Cerritos Channel between the Schuyler Heim Bridge and the western end is approximately 1,200 m (3,937 ft). This indicates that the turbidity plume will begin to turn back into the channel on the ebb tide once it reaches the end of the channel. Similar investigation shows that, on the ebb tide, the turbidity plume will not exit the channel, but rather will approach the end and then reverse direction with the rising tide.

Sediment contaminants of most concern for producing water quality effects to aquatic life in the Cerritos Channel include copper and zinc. Several polycyclic aromatic hydrocarbon (PAH) compounds may produce levels exceeding human health criteria; however, no comparable aquatic life protection standards exist for these compounds. The range of potential water quality concentrations that may occur as a result of sediment resuspension and the dilutions required to meet water quality criteria (WQC) are shown in Table 3.16-4.

As the plume of resuspended sediment disperses with tidal currents, initial dilutions down the Cerritos Channel will be up to sixteenfold. The silty nature of the sediment suggests that exceedances of water quality may be expected to last on the order of at least a few days. The limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to birds or mammals. However, these predictions of potential water quality effects to aquatic life are based on uncontrolled sediment suspension and dispersion.

It is likely that, with the flood tide current within the Consolidated Channel, any resuspended sediment plume will travel an unknown distance upstream into the Dominguez Channel before the tide turns. Similarly, it is likely that with the ebb tide current (and discharges from the Dominguez Channel), any resuspended sediment plume will travel an unknown distance downstream into the Consolidated Slip before the tide turns again. However, the length of the Consolidated Slip between the Alternative 1 footprint and the East Basin is approximately 914 m (3,000 ft); and it is likely that any turbidity plume would turn back within the Consolidated Slip on the ebb tide before it reaches the East Basin. Therefore, any plume would be contained within the Consolidated Slip and Dominguez Channel and not enter the East Basin.

Sediment contaminants of most concern (contaminants of concern [COCs]) for adversely impacting water quality for aquatic life in the Consolidated Slip include: metals (copper, lead, zinc, and mercury); total dichloro-diphenyl-trichloroethane (DDT) compounds; total polychlorinated biphenyl (PCB) compounds; and total PBC compounds. From the sediment characterization study within the Consolidated Slip, the range of concentrations in sediments within the Consolidated Slip, from the vicinity of the Alternative 1 footprint and obtained from up to 5.5 m (18 ft) of depth, are shown in Table 3.16-5. Also shown in Table 3.16-5 are the NOAA's sediment quality guideline (SQG) values (http://response.restoration.noaa.gov/cpr/sediment/SQGs.html) for effects to saltwater aquatic life for COCs identified in these sediments. Effects Range-Low (ERL) SQG values are indicative of concentrations below which adverse effects rarely occur. Similarly, Effects Range-Median (ERM) SQG values are indicative of concentrations above which adverse effects frequently occur. As seen in Table 3.16-5, there is some uncertainty of the extent of effects of concentrations of the COCs when the SQG values are >ERL and <ERM. However, in general, resuspension of metal and organic COCs in sediments up to 1.8 m (6 ft) deep are likely to result in adverse effects to aquatic life in the Consolidated Slip/Dominguez Channel.

Table 3.16-4
Potential Resuspended Sediment Concentrations in Cerritos Channel

Sediment Constituent	Units	Range of Resuspended Sediment Concentrations	WQC	Range of Dilutions to Achieve WQC
Aluminum	mg/L	790	NC	NR
Arsenic	mg/L	0.24 - 0.26	0.069	3.5 - 3.7
Cadmium	mg/L	ND – 0.016	0.042	NR
Chromium	mg/L	1.36 - 2.32	1.1	1.7 - 2.1
Copper	mg/L	0.79 - 3.38	0.0048	165 – 705
Lead	mg/L	0.44 - 1.51	0.210	2.1 - 7.2
Mercury	mg/L	0.003 - 0.009	0.0018	1.8 - 5.2
Nickel	mg/L	0.61 - 1.11	0.074	8.3 - 14.9
Zinc	mg/L	2.28 - 6.29	0.090	25 – 70
4,4’-DDE	µg/L	0.026 - 0.645	0.130	NR – 5
Anthracene	µg/L	3.37 - 3.59	110,000	NR
Benzo(a)anthracene	µg/L	3.32 - 13.46	0.049	68 – 275
Benzo(a)pyrene	µg/L	2.69 - 16.52	0.049	55 – 337
Benzo(b)fluoranthene	µg/L	6.34 - 18.32	0.049	129 – 374
Benzo(g,h,I)perylene	µg/L	ND – 8.95	NC	NR
Benzo(k)fluoranthene	µg/L	2.18 - 8.74	0.049	45 – 178
Chrysene	µg/L	4.83 - 15.62	0.049	99 – 319
Fluoranthene	µg/L	10.53 - 19.29	370	NR
Indeno(1,2,3-cd)pyrene	µg/L	ND – 9.85	0.049	NR – 201
Phenanthrene	µg/L	3.29 - 7.43	NC	NR
Pyrene	µg/L	20.19 - 21.72	11,000	NR
Naphthalene	µg/L	ND – 1.49	NC	NR

WQC is for dichloro-diphenyl-trichloroethane (DDT) in water
NC = no criteria; ND = below detection limit; NR = no dilution required
mg/L = milligram(s) per liter; µg/L = microgram(s) per liter
Source: Caltrans, 2002.

Table 3.16-5
Approximate Range of Concentrations of Contaminants of Concern from Consolidated Slip/Dominguez Channel Sediments[1] (CH2M HILL, 2005)

Sediment Constituent	Copper	Lead	Zinc	Mercury	Total DDTs	Total PCBs	Total PAHs
Units	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	µg/kg	µg/kg
@ Depth: 0<0.5'	>540	<436	<820	<0.71	<46.1	<90	>89,584
Effects Range[2]:	**>ERM[3]**	**>ERM**	**>ERL<ERM**	**>ERL<ERM**	**>ERL<ERM**	**>ERL<ERM**	**>ERM**
@ Depth: 0.5' to 3'	>270	<436	<150	<0.71	>184.4	<90	>89,584
Effects Range:	**>ERM**	**>ERM**	<ERL	**>ERL<ERM**	**>ERM**	**>ERL<ERM**	**>ERM**
@ Depth: 3' to 6'	>135	>109	<150	<0.15	>23.5	<11.3	<44,792
Effects Range:	-	-	<ERL	<ERL	**>ERL<ERM**	<ERL	**>ERL<ERM**
@ Depth: 6' to 9'	34	>109	>210	<0.15	<23.05	<22.7	<4,022
Effects Range:	<ERL	-	-	<ERL	<ERL	<ERL	<ERL
@ Depth: 9' to 12'	34-135	23-46	<150	<0.15	<23.05	<22.7	<4,022
Effects Range:	<ERL	<ERL	<ERL	<ERL	<ERL	<ERL	<ERL
@ Depth: 12' to 15'	-	<23	-	-	-	-	-
Effects Range:	<ERL	<ERL	<ERL	<ERL	-	<ERL	<ERL
@ Depth: 15' to 18'	-	-	-	-	-	-	-
Effects Range:	<ERL	<ERL	-	<ERL	-	-	-

(1) Collected Near Consolidated Slip Collection Station CS-1 (within Alternative 1 footprint) (CH2M HILL, 2005)
(2) Sediment Quality Effects Guideline (SQG) ranges (NOAA, 1999): ERL = Effects Range-Low; ERM = Effects Range-Median.
(3) Sediment Quality Guideline (SQG) values in **bold** may result in adverse effects to saltwater aquatic life.

Similar to the case within Cerritos Channel, any plume of resuspended sediment will disperse with tidal currents, and there will be an initial dilution within the Consolidated Slip. It is likely that the silty nature of the sediment would result in exceedances of water quality criteria for those COCs that may be expected to last on the order of at least a few days. It is likely that the limited time of resuspended constituents in the water column would result in some potential for acute toxicity to invertebrates or fish but not chronic, bioaccumulation, or food-chain effects to birds or mammals. These predictions of potential water quality effects to aquatic life are estimated on an uncontrolled sediment suspension and dispersion event.

The Schuyler Heim Bridge is assumed to contain lead compounds, which could cause a significant adverse effect to the channel water quality during paint removal activities or demolition.

In addition, blasting could be employed to break the existing fender piles in the channel, and pile-driving would be required to install the new fender piles in the channel, and possibly for some other activities. Either pile-driving or blasting could cause adverse effects through noise on fish larvae, if present in the vicinity. Generally, there have never been reports of fish kills in Los Angeles Harbor from pile-driving, and the potential effects of this are uncertain. Reports of fish kills in other pile-driving operations were evidently with much larger equipment than would be employed on the bridge replacement. Avoidance and minimization measures would reduce the extent of adverse effects related to blasting.

Open Water Communities

Temporary disruption of open water foraging areas adjacent to the existing Schuyler Heim Bridge would be expected with the level of construction activity associated with Alternative 1. However, wildlife using these areas are accustomed to the noisy, urban environment, and are not anticipated to be adversely affected by these activities. Where noise or disturbance is substantial, wildlife are expected to move off and utilize other port habitats.

Essential Fish Habitat

EFH in the vicinity of Alternative 1 would be subjected to the same types of water quality effects documented above under Aquatic Communities. As indicated, the resuspension of contaminated sediments from construction activities may have the potential for acute toxicity to invertebrates or fish, an adverse effect. These predictions of potential water quality effects to aquatic life are estimated on an uncontrolled sediment suspension and dispersion event. Avoidance and minimization measures would reduce these effects.

Jurisdictional Waters Including Wetlands

No jurisdictional wetlands are present within Alternative 1. However, an approximately 0.11-acre wetland is present east of the Schuyler Heim Bridge along the low tidal terrace on Cerritos Channel. This area will be avoided during construction, and avoidance and minimization measures will be implemented.

Special-Status Species

Federally Listed as Threatened or Endangered

California Brown Pelican

Some noise may occur during construction that potentially would affect areas within 152 m (500 ft) of the project site; this may disrupt roosting or foraging activities for California brown pelican, if present. Effects are anticipated to be of short-term duration and limited to areas immediately adjacent to the bridge. Because ample other aquatic habitats are present in the vicinity, the temporary effects related to the loss of this roosting and foraging habitat on the brown pelican are expected to be minimal.

California Least Tern

Some noise and construction activity may occur during construction that potentially would affect least tern nesting colonies within 456 m (1,500 ft) of the project site; this may disrupt the breeding activities for California least tern, if present. With avoidance and minimization measures, this effect would be avoided. However, this species is not expected to be present, and no impacts are anticipated.

Marine Mammals

California Sea Lion, Harbor Seal

California sea lions were observed in the project area, and harbor seals are expected to occur. It is not certain that an IHA will be required for this project for take because all effects to marine mammals will be of a temporary nature and restricted to the area around the Schuyler Heim Bridge. These species are highly mobile and are expected to move out of the area if disturbed by construction activities.

Blasting could be employed to break the existing fender piles in the channel, and pile-driving would be required to install the new fender piles in the channel, and possibly for some other activities. Both pile-driving and blasting could cause adverse effects through noise/vibrations on marine mammals, if present in the vicinity. Only limited information on potential effects of underwater sound on marine mammals is available or known, although extensive research is underway (see Office of Naval Research, 2003). Potential effects are species-specific and dependent on the strength and duration of noise, and distance to the noise. Once more specifics are known on the type of noise-generating activities required for bridge demolition, and construction, the information will be reviewed with the NMFS to determine if an IHA is required under the Marine Mammal Protection Act. If NMFS requires an IHA, then compliance with conditions of the IHA would be expected to reduce effects of noise-generating activities on marine mammals.

State-Listed as Threatened or Endangered

American Peregrine Falcon

It is unlikely that the designs of the new Schuyler Heim Bridge structure or the new bridge crossing at the Consolidated Slip will include any features consistent with typical peregrine nesting and perching sites on artificial structures. The plans for these bridges do not include the elevated vertical-lift structures or similar elevated structures currently present on the Schuyler Heim Bridge. The elevation of these existing structures creates nesting and perching habitats for the species. The adjacent Badger Avenue Bridge would be elevated above the new Schuyler Heim Bridge. It is unlikely that peregrines would nest adjacent to a taller structure. If elevated structures were constructed specifically for peregrine falcons on the new Schuyler Heim Bridge (engineering feasibility not determined), it is uncertain that individuals of this species would utilize them because this new site would be considerably different in structure; and peregrines are known to be selective about the locations of their nest and perch sites.

The removal and replacement of the Schuyler Heim Bridge would eliminate a known nest site for a breeding pair of peregrine falcons. Replacement of the Schuyler Heim Bridge with a concrete fixed bridge would result in the loss of a known nesting site for the peregrines. Disturbed and displaced, the peregrines would be forced to use another area for nesting. The nesting territory may continue to be used with alternative nesting on the Gerald Desmond. This is consistent with historical use of this vicinity, where nesting has alternated between the Schuyler Heim and Desmond Bridge. Only rarely have both bridges been used for nesting during the same year.

Peregrine falcons are very territorial. The density of pairs in any given area often reflects on the quality of the habitat to support nesting. Where suitable habitat exists many pairs will often attempt to define and defend territories in close proximity to one another, which appears to be the situation in the Los Angeles harbor area. A high number of territories are occupied and it would seem unlikely, though not impossible, for additional pairs to try and establish new territories within the currently active nesting territories. The pair dynamics and movements of individuals and pairs nesting in close proximity to one another can become complex and difficult to ascertain by biologists.

The removal of one known peregrine falcon nesting location on the Schuyler Heim Bridge in a territory that typically supports one pair but contains two alternate nesting locations would result in an adverse effect to the species.

Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column in Cerritos Channel and Consolidated Slip/ Dominguez Channel (see Section 3.16.2.1.3 Aquatic Communities). The limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to aquatic birds or peregrine falcons, which forage on aquatic birds (See the *Draft Water Quality Effects Technical Study* [2005]). No long-term effects to the species are anticipated from resuspension of harbor sediments.

Other Special-Status Species

Plants

Southern Tarplant. There is potential for individuals of this species to be present on the site. If individuals were present, and could not be avoided, they would be removed permanently as a result of construction. The removal of southern tarplant, if present on the project site, would be considered an adverse effect. However, this species is not expected to be present, and no impacts are anticipated.

Mammals

Pallid Bat. The loss of active roosts of this species of bat resulting from bridge removal would represent an adverse effect. However, with avoidance and minimization, effects to bat populations of this species are expected to be minimal. Ample other roost sites are present for bats utilizing this urban area, and alternative roosting colonies are expected to be established at the new bridges across the Cerritos Channel and the Consolidated Slip with the loss of colonies at the Schuyler Heim Bridge site. In addition, the factors that limit the population of pallid bat are probably more the lack of open foraging areas than roost sites.

Townsend's Western Big-Eared Bat. Although the species may occur at the Schuyler Heim Bridge site, the likelihood is low, given the species preference for undeveloped and/or undisturbed areas; and no adverse effects are anticipated.

Other Bats: Long-Legged Myotis, Long-Eared Myotis, Yuma Myotis, Western Mastiff Bat, Pocketed Free-Tailed Bat, Big Free-Tailed Bat. The loss of active roosts of these species of bats resulting from bridge removal would represent an adverse effect. However, with avoidance and minimization, effects to bat populations of this species are expected to be minimal. Ample other roost sites are present for bats utilizing this urban area, and alternative roosting colonies are expected to be established at the new bridges across the Cerritos Channel and the Consolidated Slip with the loss of colonies at the Schuyler Heim Bridge or other sites.

Birds

The loss of active nests or eggs resulting from bridge removal would represent an adverse effect. However, with avoidance and minimization measures, effects are anticipated to be minimal. Avoidance and minimization measures would consist of preconstruction surveys to identify potential nest sites, and exclusion or removal of nests from the Schuyler Heim Bridge prior to the nesting period. An onsite biological monitor will be present during construction activities in the nesting season to ensure that nests are not established within the construction zone. Nesting sites will be passively excluded with bird spikes, plywood, or other exclusion measures.

Burrowing Owl. Some noise may occur during construction that would potentially affect areas within 152 m (500 ft) of the project site; this may disrupt breeding activities for burrowing owl, if present. This would represent an adverse effect. However, this species is not expected to be present, and no impacts are anticipated.

Osprey. Some noise may occur during construction that potentially would affect areas within 152 m (500 ft) of the project site; this may disrupt roosting or foraging activities for osprey, if present. Project activities may render the area temporarily unsuitable for roosting or foraging, but ample other roosting or foraging areas are present in the vicinity of the project. Effects are anticipated to be minimal to roosting or foraging birds and of short-term duration.

Double-Crested Cormorant. Some noise may occur during construction that would potentially affect areas within 152 m (500 ft) of the project site; this may disrupt roosting or foraging activities for double-crested cormorant, if present. Project activities may render the area temporarily unsuitable for roosting or foraging, but ample other roosting or foraging areas are present in the vicinity of the project. Effects are anticipated to be minimal to roosting or foraging birds and of short-term duration.

Fish

Coast Pelagic Species/Groundfish. Uncontrolled construction activities in the Cerritos Channel and the Consolidated Slip/Dominguez Channel area are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column. The harbor sediments in the area of the Schuyler Heim Bridge and in the Consolidated Slip/Dominguez Channel are primarily silt and finer-sized fractions and, if resuspended, are expected to stay in suspension for days. Tidal currents will likely disperse the resuspended sediments throughout the length of the Cerritos Channel and upstream and downstream in the Consolidated Slip/Dominguez Channel.

Cerritos Channel

Sediment COCs of most concern for producing water quality effects to aquatic life in the Cerritos Channel include copper and zinc. Several PAH compounds may produce levels exceeding human health criteria; however, no comparable aquatic life protection standards exist for these compounds. The range of potential water quality concentrations that may occur as a result of sediment resuspension and the dilutions in Cerritos Channel required to meet WQCs is shown in Table 3.16-4.

As the plume of resuspended sediment disperses with tidal currents within Cerritos Channel, initial dilutions down the channel will be up to sixteenfold. The silty nature of the sediment suggests that exceedances of water quality may be expected to last on the order of at least a few days. The limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish species, but not chronic bioaccumulation or food-chain effects to birds or mammals. These predictions of potential water quality effects to aquatic life are based on uncontrolled sediment suspension and dispersion. However, cofferdams and turbidity curtains would be used to contain resuspended sediment during these construction activities. They also would reduce the noise effects of blasting and pile-driving on fish larvae and other aquatic species.

Consolidated Slip/Dominguez Channel

Sediment COCs for adversely impacting water quality for aquatic life in the Consolidated Slip/Dominguez Channel include: metals (copper, lead, zinc, and mercury); total DDT compounds; total PCB compounds; and total PBC compounds. The range of concentrations and the NOAA SQG values in sediments within the Consolidated Slip are shown in Table 3.16-5.

Any plume of resuspended sediment will disperse with tidal currents, and there will be an initial dilution within the Consolidated Slip. It is likely that the silty nature of the sediment would result in exceedances of water quality criteria for those COCs that may be expected to last on the order of at least a few days. It is likely, however, that the limited time of resuspended constituents in the water column would result in some potential for acute toxicity to invertebrates or fish but not chronic, bioaccumulation, or food-chain effects to birds or mammals. These predictions of potential water quality effects to aquatic life are based on uncontrolled sediment suspension and dispersion.

Measures have been proposed and described below to reduce the level of this effect, and may include adherence to construction measures such as cofferdams and silt curtains. This generally would contain resuspended sediment until it settles onsite. Biological effects to fish species from the constituents have been documented for a number of fish species, but information regarding the northern anchovy or other CPS or groundfish, was not attained. In general, it is likely that, with uncontrolled sediment suspension and dispersion, there is potential for adverse effects on these fish species, including acute toxicity. This effect would be temporary and generally short-lived while sediment is dispersed. With mitigation measures to reduce the extent of uncontrolled sediment resuspension and dispersion, however, the effects of contaminated sediment within the Cerritos Channel and the Consolidated Slip/Dominguez Channel area would be reduced.

In addition, blasting could be employed to break the existing fender piles in the channel, and pile-driving would be required to install the new fender piles in the channel, possibly for some activities. Both pile-driving and blasting could cause adverse effects through noise/vibrations on fish larvae, if present in the vicinity. Generally, there have never been reports of fish kills in Los Angeles Harbor from pile-driving, and the potential effects of this are uncertain. Reports of fish kills in other pile-driving operations were evidently with much larger equipment than would be employed on the bridge replacement.

However, cofferdams and turbidity curtains, which would be used to contain resuspended sediment during these construction activities, also would reduce the noise effects of blasting and pile-driving on fish larvae and other aquatic species.

3.16.3.3.1.1.2 Indirect

Natural Communities

No additional indirect effects are anticipated on natural communities beyond those described as direct effects.

Jurisdictional Waters Including Wetlands

No wetlands are present in the vicinity of Alternative 1.

Special-Status Species

Federally Listed as Threatened or Endangered

California Brown Pelican

Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column at both Cerritos Channel and Consolidated Slip/ Dominguez Channel, with potential indirect effects to aquatic organisms, or species that forage on them, including brown pelican. The limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to birds that forage on aquatic resources, including brown pelican. As such, effects to brown pelican from sediment resuspension are expected to be minimal.

California Least Tern

Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column of both the Cerritos Channel and Consolidated Slip/ Dominguez Channel, with potential indirect effects to aquatic organisms or species that forage on them, including least tern. With avoidance and minimization measures, this effect would be minimized. If resuspended sediment escapes local controls, the limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to birds that forage on aquatic resources, including least tern. As such, no long-term effects to the species are anticipated from sediment resuspension.

During construction of Alternative 1, disturbances caused from construction activities may displace the local peregrine falcons and alter their foraging activities. There is limited potential that peregrine falcons may begin foraging on least terns, resulting in an indirect effect on the least terns, given abundant other prey sources in the area. In addition, another pair of Peregrine falcons is present at the Koch Carbon facility, which is much closer to the larger least tern breeding colony at Pier T, and may forage on birds from that colony from time to time. Because peregrine falcons are territorial, the Schuyler Heim birds would be challenged if they were to attempt foraging near the birds at the Koch Carbon facility.

Western Snowy Plover

Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column in Cerritos Channel and Dominguez Channel/ Consolidated Slip, with potential effects to aquatic organisms or species that forage on them, including snowy plover. Measures to minimize this effect have been described previously. If resuspended sediment escapes local controls, the limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to aquatic birds. Because snowy plovers would be expected to stop over only rarely in the vicinity of the project area, and generally would forage or roost in more open, beach intertidal areas, no adverse effects to the species are anticipated.

Marine Mammals

California Sea Lion, Harbor Seal

Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column at both the Cerritos Channel and the Consolidated Slip/Dominguez Channel. The limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to marine mammals.

State-Listed as Threatened or Endangered

American Peregrine Falcon

Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column in Cerritos Channel and Consolidated Slip/Dominguez Channel. The limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish but not chronic bioaccumulation or food-chain effects to aquatic birds or peregrine falcons, which forage on aquatic birds. No long-term effects to the species are anticipated from resuspension of harbor sediments.

Other Special-Status Species

Birds

Osprey/Double-Crested Cormorant. Construction activities are likely to cause limited temporary resuspension of contaminated harbor sediments to the water column in Cerritos Channel and Consolidated Slip/Dominguez Channel, with potential adverse effects to aquatic organisms or species that forage on them. Measures have been proposed to reduce the level of this effect, as previously described. This would include adherence to channel construction measures such as cofferdams and turbidity curtains, which would generally contain resuspended sediment until it settles onsite. If resuspended sediment escapes local controls, the limited time of resuspended constituents in the water column indicates the potential for acute toxicity to invertebrates or fish, but not chronic bioaccumulation or food-chain effects to birds that forage on aquatic resources. As such, no long-term effects to the species are anticipated from sediment resuspension.

Fish

No additional indirect effects are anticipated for fish, beyond direct effects discussed above.

Invasive Species

Terrestrial Species

Trucks and heavy equipment associated with construction of Alternative 1 may introduce or transport seeds from terrestrial, non-native vegetation, resulting in colonization of existing or newly created vacant spaces with exotic vegetation. Because there are no natural plant or wildlife communities in the vicinity of the project, this would not result in adverse effects to native biological resources. In addition, BMPs will be employed to minimize transport and distribution of non-native vegetation propagules (cuttings, seeds, spores).

Aquatic Species

Aquatic species have been introduced to Los Angeles and Long Beach Harbors through discharge of ballast water, or sometimes through live fish trade. Construction activities in aquatic habitats associated with Alternative 1 may involve barges or other watercraft; however, generally watercraft of this size would not utilize ballast water, and would originate from local harbor waters. As such, new exotic or invasive species would not be introduced from these watercraft, or from any construction activities associated with Alternative 1.

3.16.3.3.1.2 Operations Effects

3.16.3.3.1.2.1 Direct

Urban/Developed

At the LADWP Substation No. DS 119 near Pier A Plaza, existing 4.8-kilovolt (kV) overhead lines east of the substation are in the path of elevated SR-47 structures, and would require relocation on taller steel poles. It is estimated that four high-voltage pole structures would be affected. A segment of an overhead feeder running from the West Basin Lead Track to a power pole immediately south of the Dominguez Channel would also require relocation to the west of SR-47. It is estimated that six steel poles would be required. Also, lines along the flyover alignment would require relocation on taller poles.

Utility poles or lines have the potential to result in bird mortality from collisions. Bird collisions with man-made structures have been reported in the scientific literature for over a century (see Avery *et al*., 1980, Herbert and Reese, 1995; National Wind Technology Center [NWTC], 2006). Bird collision studies conducted at transmission lines indicate that the primary factor in determining the number of birds colliding with transmission lines is the number of birds moving about in the area. The visibility of the line also appears to influence the amount of collision mortality. Within a certain height range, there is no strong evidence to suggest taller utility poles or lines will pose a greater risk for avian collisions. Increased collisions do appear to occur when transmission lines are closer to sources of avian concentration, such as near water bodies (NWTC, 2006). Collisions are also more common under inclement weather conditions (NWTC, 2006).

There are local bird movements throughout the port area, including movements by special-status species. As such, there is some potential for collision and avian mortality at transmission lines installed as a part of Alternative 1. BMPs, such as the use of visual line enhancers, will be implemented as a part of all new transmission line installations. Construction design standards for avian protection will generally be followed where feasible, as provided in the Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and USFWS *Avian Protection Plan Guidelines* (APLIC and USFWS, 2005), APLIC's *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (APLIC, 1996), or APLIC's *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (APLIC, 1994). With installation of BMPs, replacing towers and lines as a part of Alternative 1 is not expected to cause an increase in avian mortality over existing conditions.

Bird mortality at transmission towers and lines also occurs from electrocutions. This may occur when a bird completes an electric circuit by simultaneously touching two energized parts or an energized part and a grounded part of the electrical equipment. The greatest risk of electrocution is on medium-voltage distribution lines (4 to 34.5 kV), where the spacing between conductors may be small enough to be bridged by birds. Poles with energized hardware, such as transformers, may also be hazardous, as they may contain numerous, closely-spaced energized parts. "Avian-safe" structures provide adequate clearances to accommodate large birds between energized and grounded parts. Horizontal protection of 60 inches, and vertical separation of 48 inches is typically used as the standard for raptor protection (APLIC and USFWS, 2005). BMPs, such as the use of adequate conductor spacing, will be implemented as a part of all new transmission line installations. Construction design standards for avian protection will be generally followed where feasible, as provided in the documents specified (APLIC and USFWS, 2005; APLIC, 1996; APLIC, 1994).

Migrant bird mortality has also been reported at transmission, radio, or other towers, including mass mortality, although the reasons for this are not always evident. In some cases, it appears that nocturnal migrant birds may be attracted to solid red or pulsating red incandescent lights (USFWS, 2003), and during inclement weather (dense fog or cloud accompanied by precipitation) may become disoriented near lighted towers (NWTC, 2006). However, transmission lines are currently in place, and no change in lighting is proposed. No concentrations of nocturnal, migrant birds are known to use the areas proposed for transmission line replacement. As such, replacing these towers and lines, even when slightly taller than existing facilities, is not expected to cause an increase in avian mortality of migrant birds over existing conditions.

Aquatic Communities

Because the new proposed bridge would be a solid span compared to the existing grated span, the area beneath the new bridge structure would have less light than the existing bridge. The existing shading under the bridge reduces productivity of aquatic habitats. In addition, the area of the proposed new bridge is larger than the existing bridge. The existing bridge covers an area of approximately 1.54 acres of Cerritos Channel. The new bridge under Alternative 1 would cover an area of approximately 2.18 acres. Therefore the shading effect would increase under Alternative 1. The existing shading has already degraded aquatic habitats, with lowered productivity reported beneath the bridge. The shading from the new bridge would affect the already degraded aquatic system directly beneath the bridge, as well as approximately 0.64 additional acres.

3.16.3.3.1.2.2 Indirect

No indirect effects are anticipated from operation of Alternative 1.

3.16.3.3.1.3 Alternative 1A Construction Effects

3.16.3.3.1.3.1 Direct

Natural Communities

Direct effects of Alternative 1A on natural communities are expected to be similar to Alternative 1. However, Alternative 1A bridge design will have fewer piers placed in the Cerritos Channel, so effects to aquatic communities resulting from sediment disturbance during installation are expected to be slightly less under Alternative 1A. However, effects from construction involving demolition would be comparable. All other effects to natural communities under Alternative 1A will be comparable to Alternative 1.

Jurisdictional Waters Including Wetlands

Effects to jurisdictional waters under Alternative 1A will be comparable to Alternative 1.

Special-Status Species

Direct effects of Alternative 1A on special-status species are expected to be similar to Alternative 1. However, Alternative 1A bridge design will have fewer piers placed in the Cerritos Channel, so effects to aquatic communities resulting from sediment disturbance during installation, and subsequent effects on fish and wildlife, are expected to be slightly less under Alternative 1A. However, effects from demolition would be comparable.
All other effects to special-status species under Alternative 1A will be comparable to Alternative 1.

Invasive Species

Direct effects involving introduction of invasive species under Alternative 1A are expected to be similar to those described under Alternative 1.

3.16.3.3.1.3.2 Indirect

Indirect effects for Alternative 1A on biological resources are expected to be similar to Alternative 1. However, Alternative 1A bridge design will have fewer piers placed in the Cerritos Channel, so indirect effects to biological resources resulting from sediment disturbance during installation, and indirect effects on fish and wildlife, are expected to be slightly less under Alternative 1A. However, effects from demolition would be comparable. All other indirect effects to biological resources under Alternative 1A will be comparable to Alternative 1.

3.16.3.3.1.4 Alternative 1A Operations Effects

3.16.3.3.1.4.1 Direct

Urban/Developed

As with Alternative 1, several overhead utility poles and lines would require replacement. Impacts to birds from electrocution, collisions, or other sources of mortality at transmission lines were evaluated under Alternative 1, and would be comparable under Alternative 1A.

Aquatic Communities

Because the new proposed bridge would be a solid span compared to the existing grated span, the area beneath the new bridge structure would have less light than under the existing bridge. The existing shading under the bridge reduces productivity of aquatic habitats. In addition, the area of the proposed new bridge is larger than the existing bridge. The existing bridge covers an area of approximately 1.54 acres of Cerritos Channel. The new bridge under Alternative 1A would cover an area of approximately 2.18 acres. Therefore, the shading effect would increase under Alternative 1A. The existing shading has already degraded aquatic habitats, with lowered productivity reported beneath the bridge. The shading from the new bridge would affect the already degraded aquatic system directly beneath the bridge, as well as approximately 0.64 additional acres.

3.16.3.3.1.4.2 Indirect

No indirect effects are anticipated from operation of Alternative 1A.

3.16.3.3.2 Alternative 2: SR-103 Extension to Alameda Street

3.16.3.3.2.1 Construction Effects

3.16.3.3.2.1.1 Direct

Natural Communities

Urban/Developed Areas

Survey results indicated that the majority of the plant species present in the Alternative 2 project area are non-native species. There are no native plant communities within the project Alternative 2 footprint. Individual native plants are present in the Alternative 2 project area; however, intact communities of native plants do not exist. Although individual native plants may be removed permanently with bridge replacement, new bridge construction, road construction of the extension of SR-103, and other project activities, the loss of these scattered individual plants would not represent an adverse effect to natural communities.

Brackish Intertidal and Non-tidal Wetlands
Brackish intertidal or non-tidal wetlands are not present in the Alternative 2 footprint.

Aquatic Communities
From the results of the marine survey, aquatic communities are present for Alternative 2 at the Cerritos Channel only. Project effects of Alternative 2 on aquatic communities in the vicinity of the existing Schuyler Heim Bridge would be comparable to those discussed for Alternative 1 with the following exception; there would be no effects to aquatic communities in the Consolidated Slip/Dominguez Channel because the alignment for Alternative 2 does not cross this feature.

Open Water Communities
Temporary disruption of open water foraging areas under Alternative 2 would be the same as those described for Alternative 1, with effects limited to the Cerritos Channel.

Essential Fish Habitat
Effects to EFH from resuspension of contaminated sediments would be the same under Alternative 2 as Alternative 1, limited to the Cerritos Channel.

Jurisdictional Waters Including Wetlands
Although wetlands under jurisdiction of the USACE are present along SR-103, they are not within the direct Alternative 2 impact area. The wetland along SR-103 near San Gabriel Street will be avoided. Some effects may occur to roadside drainages, which may be jurisdictional as waters of the U.S. The permitting requirements have been previously described. Native plant communities are not present in these drainages. Compliance with permit conditions will result in appropriate avoidance and minimization of disturbance related to construction.

Special-Status Species
Plants
Southern Tarplant

There is potential for individuals of this species to be present on the site. If individuals were present, and could not be avoided, they would be removed permanently as a result of construction. The removal of southern tarplant, if present on the project site, would be considered an adverse effect.

Animals
The effects from Alternative 2 to special-status species, including federal- and state-listed species, would be the comparable to effects to special-status species described for Alternative 1. However, there would be no effects to harbor seal seals, California sea lions, coastal pelagic species, and groundfish for this alternative in the vicinity of the Consolidated Slip/Dominguez Channel because the alignment for this alternative would not affect those species at that location.

Invasive Species
Direct effects involving introduction of invasive species under Alternative 2 are expected to be similar to those described under Alternative 1. Specifically, introduction in terrestrial habitats is expected to be minimized by construction BMPs, and would not adversely affect biological resources because intact native plant or wildlife communities are not present on the project site. Introduction of invasive species to aquatic communities is not anticipated.

3.16.3.3.2.1.2 Indirect

Natural Communities

No effects are anticipated on Natural Communities beyond those described as direct effects.

Jurisdictional Waters Including Wetlands

No wetlands are present in the vicinity of Alternative 2.

Special-Status Species

Indirect effects to special-status species from Alternative 2, which include effects from sediment resuspension, would be comparable to those described under Alternative 1 for the Cerritos Channel only.

3.16.3.3.2.2 Operations Effects

3.16.3.3.2.2.1 Direct

Urban/Developed

As with Alternative 1, several overhead utility poles and lines along the flyover, bridge, and expressway alignments would require replacement. Several existing high-voltage (66-kV and 240-kV) SCE transmission lines would conflict with the proposed SR-103 highway structure. In order to accommodate the new alignment, the existing towers would need to be raised an average 13.7 m (45 ft). The towers are currently 13.7 to 15.2 m (45 to 50 ft) high. Each tower installation would consist of four towers, three of which would carry the 240-kV lines, plus a single tower that would carry the 66-kV line.

Impacts to birds from electrocution, collisions, or other sources of mortality at transmission lines were evaluated under Alternative 1. Generally, any new impacts beyond existing conditions would be avoided by implementation of BMPs during design and installation of new towers and lines. Specifically, the use of adequate conductor spacing and line visibility enhancements will be implemented as a part of all new transmission line installations. Construction design standards for avian protection will be generally followed where feasible, as provided in the documents specified (APLIC and USFWS, 2005; APLIC, 1996; APLIC, 1994).

Aquatic Communities

Operations effects resulting from shading under Alternative 2 would be comparable to those described under Alternative 1.

3.16.3.3.2.2.2 Indirect

No indirect effects are anticipated from operation of Alternative 2.

3.16.3.3.3 Alternative 3: Bridge Demolition Avoidance

3.16.3.3.3.1 Construction Effects

3.16.3.3.3.1.1 Direct

Natural Communities

Urban/Developed Areas

Survey results indicated that the majority of the plant species present in the Alternative 3 project area are non-native species. The loss of these non-native species and scattered individual native plants would not represent an adverse effect to natural communities.

Effects to urban/developed areas along the SR-47 route would be comparable to those described under Alternative 1.

Brackish Intertidal and Non-tidal Wetlands

A small wetland is present within the footprint of Alternative 3, on a low tidal terrace just above the riprap bank along the south bank of Cerritos Channel, just east of the existing Schuyler Heim Bridge. The wetland is about 0.11-acre, dominated by pickleweed. It appears fully within the regular tidal inundation zone, and is characteristic of tidal wetlands in brackish or saline conditions. It is anticipated that this wetland would be adversely affected by Alternative 3, since the proposed alignment is directly in line with the wetland location.

Aquatic Communities

From the results of the marine survey, aquatic communities are present for Alternative 3 at the Cerritos Channel and the Consolidated Slip/Dominguez Channel. Project effects of Alternative 3 on aquatic communities in the vicinity of the Cerritos Channel and the Dominguez Channel would be comparable to those discussed for Alternative 1. There would be less of an effect to aquatic communities at the Cerritos Channel compared to Alternative 1 because there would be no demolition of the existing Schuyler Heim Bridge. Effects to the aquatic community at the Cerritos Channel would occur only from construction of the new replacement bridge and seismic retrofit activities..

Open Water Communities

Temporary disruption of open water foraging areas under Alternative 3 would be the same as those described for Alternative 1.

Essential Fish Habitat

Effects to EFH from resuspension of contaminated sediments for Alternative 3 at Cerritos Channel and the Consolidated Slip/Dominguez Channel would be the similar to those described under Alternative 1; however, effects would be reduced since there would be no demolition of the existing Schuyler Heim Bridge. Effects to the aquatic community at the Cerritos Channel would occur only from construction of the new replacement bridge and seismic retrofit activities..

Jurisdictional Waters Including Wetlands

Design specifics for the bridge span across the Cerritos Channel would be required to determine whether the wetland on the tidal terrace east of the Schuyler Heim Bridge would be affected. However, it is likely to be infeasible or impracticable to avoid the wetland; and it is likely to be removed under Alternative 3.

Special-Status Species

Plants

Southern Tarplant

There is potential for individual southern tarplant to be present on the site. If individuals were present, and could not be avoided, they would be removed permanently as a result of construction. The removal of southern tarplant, if present on the project site, would be considered an adverse effect.

Animals

The effects from Alternative 3 to special-status species would be comparable to but less than those described for Alternative 1 with the following exception. There would be less of an effect to harbor seals, California sea lions, coastal pelagic species, and groundfish for this alternative in the vicinity of the Cerritos Channel because the existing Schuyler Heim Bridge would not be demolished. There would be less of an effect to American peregrine falcons because the existing nesting/roosting area on the Schuyler Heim Bridge would remain. However, there would continue to be an effect to American peregrine falcon because construction of the replacement bridge to the east of the existing Schuyler Heim Bridge may provide some disturbance of the falcon nest site on Schuyler Heim Bridge, as would seismic retrofit activities. Effects to bats would still potentially occur during retrofit activities required in Alternative 3, although the effects would be less than under Alternative 1, which requires complete demolition of the existing bridge.

Invasive Species

Direct effects involving introduction of invasive species under Alternative 3 are expected to be similar to those described under Alternative 1. Specifically, introduction in terrestrial habitats is expected to be minimized by construction BMPs, and would not adversely affect biological resources because intact native plant or wildlife communities are not present on the project site. Introduction of invasive species to aquatic communities is not anticipated.

3.16.3.3.3.1.2 Indirect

Natural Communities

No effects are anticipated on Natural Communities beyond those described as direct effects.

Jurisdictional Waters Including Wetlands

The wetland east of Schuyler Heim Bridge is expected to be removed under Alternative 3; as such, no additional indirect effects would be anticipated.

Special-Status Species

Indirect effects to special-status species from Alternative 3, which include effects from sediment resuspension, would be comparable to those described under Alternative 1.

3.16.3.3.3.2 Operations Effects

3.16.3.3.3.2.1 Direct

Natural Communities

Urban/Developed

Impacts to birds from electrocution, collisions, or other sources of mortality at transmission lines were evaluated under Alternative 1, and would be the same for Alternative 3, which requires transmission line removal and replacement along SR-47 and the flyover. Construction design standards for avian protection will be generally followed where feasible, reducing impacts from new lines or towers.

Aquatic Communities

Operations effects resulting from shading under Alternative 3 would result from construction of the new bridge structure. Impacts of this nature already occur under the existing bridge; under Alternative 3, the impacts under the existing bridge structure would continue unchanged. Impacts would be increased overall as an additional area of approximately 2.55 acres of the Cerritos Channel would be shaded by the new bridge structure to the east of the existing bridge. This would represent an adverse effect to aquatic communities in the Cerritos Channel. However, the habitat affected by the shading would represent a small percentage of the available aquatic habitat in the Cerritos Channel.

Essential Fish Habitat
Operations effects to aquatic communities resulting from shading under the new bridge in Alternative 3 would also represent an effect to EFH.

3.16.3.3.3.2.2 Indirect
No indirect effects are anticipated from operation of Alternative 3.

3.16.3.3.4 Alternative 4: Bridge Replacement Only

3.16.3.3.4.1 Construction Effects

3.16.3.3.4.1.1 Direct

Natural Communities

Urban/Developed Areas
Survey results indicated that the majority of the plant species present in the Alternative 4 project area are non-native species. The loss of these non-native species and scattered individual native plants would not represent an adverse effect to natural communities. Effects to urban/developed areas near Schuyler Heim Bridge would be comparable to those described under Alternative 1, as related to replacement of the bridge only.

Brackish Intertidal and Non-tidal Wetlands
Brackish intertidal or non-tidal wetlands are not present in the Alternative 4 footprint.

Aquatic Communities
From the results of the marine survey, aquatic communities are present for Alternative 4 at the Cerritos Channel only. Effects of Alternative 4 on aquatic communities in the vicinity of the existing Schuyler Heim Bridge would be comparable to those discussed for Alternative 1 with the following exception. There would be no effects to aquatic communities in the Consolidated Slip/Dominguez Channel because the alignment for Alternative 4 does not cross this feature.

Open Water Communities
Temporary disruption of open water foraging areas under Alternative 4 would be the same as described for Alternative 1 as related to replacement of the Schuyler Heim Bridge only; effects would be limited to the Cerritos Channel.

Essential Fish Habitat
Effects to EFH from resuspension of contaminated sediments would be the same under Alternative 4 as Alternative 1 as related to replacement of the Schuyler Heim Bridge only, effects would be limited to the Cerritos Channel.

Jurisdictional Waters Including Wetlands
There are no jurisdictional wetlands in the footprint of Alternative 4.

Special-status Species

Plants

Southern Tarplant
There is potential for individuals of this species to be present on the site. If individuals were present, and could not be avoided, they would be removed permanently as a result of construction. The removal of southern tarplant, if present on the project site, would be considered an adverse effect.

Animals

The effects from Alternative 4 to special-status species, including federal- and state-listed species, would be comparable to effects to special-status species described for Alternative 1 as related to replacement of the Schuyler Heim Bridge only. However, there would be no effects to harbor seals, California sea lions, coastal pelagic species, and groundfish for this alternative in the vicinity of the Consolidated Slip/Dominguez Channel because the alignment for this alternative would not affect those species at that location.

Invasive Species

Direct effects involving introduction of invasive species under Alternative 4 are expected to be similar to those described under Alternative 1 as related to replacement of the Schuyler Heim Bridge only. Specifically, introduction in terrestrial habitats is expected to be minimized by construction BMPs, and would not adversely affect biological resources because intact native plant or wildlife communities are not present on the project site. Introduction of invasive species to aquatic communities is not anticipated.

3.16.3.3.4.1.2 Indirect

Natural Communities

No effects are anticipated on Natural Communities beyond those described as direct effects.

Jurisdictional Waters Including Wetlands

No wetlands are present in the vicinity of Alternative 4.

Special-Status Species

Indirect effects to special-status species from Alternative 4, which include effects from sediment resuspension, would be comparable to those described under Alternative 1 as related to replacement of the Schuyler Heim Bridge only. Effects would be limited to the Cerritos Channel.

3.16.3.3.4.2 Operations Effects

3.16.3.3.4.2.1 Direct

Urban/Developed

Impacts to birds from electrocution, collisions, or other sources of mortality at transmission lines were evaluated under Alternative 1, and would be similar for Alternative 4, which requires transmission line removal and replacement along SR-47. Specifically, an existing segment of two 34.5-kV feeders and two 4.8-kV feeders would conflict with the proposed SR-47 roadway and would require relocation to taller steel poles. Construction design standards for avian protection will be generally followed where feasible, as described under Alternative 1, reducing impacts from new lines or towers.

Aquatic Communities

Operations effects resulting from shading under Alternative 4 would be comparable to those described under Alternative 1.

3.16.3.3.4.2.2 Indirect

No indirect effects are anticipated from operation of Alternative 4.

3.16.3.3.5 Alternative 5: Transportation System Management

3.16.3.3.5.1 Construction Effects

3.16.3.3.5.1.1 Direct

Natural Communities

Native terrestrial communities are not present on the project site. Native aquatic communities are present for this alternative only at the Cerritos Channel at the existing Schuyler Heim Bridge and replacement bridge site only. This alternative consists of traffic management measures and would require minimal, if any, construction; therefore, it would not affect native terrestrial or aquatic communities. There would be no adverse effects to terrestrial and aquatic communities from implementation of Alternative 5.

Jurisdictional Waters Including Wetlands

Jurisdictional wetlands are present to the east of the Schuyler Heim Bridge along a low tidal terrace on Cerritos Channel. There would be minimal construction, however, under Alternative 5. No effects to these wetlands would occur.

Special-status Species

Plants

During reconnaissance-level surveys, southern tarplant was not observed within the project area. However, this does not verify absence of the species from the site. There would be minimal construction, however, under Alternative 5. No adverse effect to this species, if it is present, would be anticipated to occur.

Animals

During reconnaissance-level surveys of the project area, special-status species were identified in the project vicinity, including California sea lion, California brown pelican, American peregrine falcon, and double-crested cormorant. However, habitat for special-status species would not be affected by elements of this project alternative. There would be minimal construction under Alternative 5. No adverse effects to special-status animal species, if present, would be anticipated to occur.

Invasive Species

Direct effects involving introduction of invasive species are not anticipated from the minimal construction activities under Alternative 5.

3.16.3.3.5.1.2 Indirect

No indirect effects are anticipated under Alternative 5.

3.16.3.3.5.2 Operations Effects

3.16.3.3.5.2.1 Direct

No direct effects are anticipated from operation of Alternative 5.

3.16.3.3.5.2.2 Indirect

No indirect effects are anticipated from operation of Alternative 5.

3.16.3.3.6 Alternative 6: No Build

3.16.3.3.6.1 Construction Effects

3.16.3.3.6.1.1 Direct

Natural Communities

There would be no project effects to native terrestrial or aquatic communities from the No Build alternative.

Jurisdictional Waters Including Wetlands

Jurisdictional wetlands are present to the east of the Schuyler Heim Bridge along a low tidal terrace on Cerritos Channel. There would no construction under the No Build alternative, and no effect to these wetlands would occur.

Special-Status Species

There would be no construction under the No Build alternative. No effect to special-status plant or animal species, if present, would occur.

3.16.3.3.6.1.2 Indirect

There would be no construction under the No Build alternative. No indirect temporary effects to biological resources would occur.

3.16.3.3.6.2 Operations Effects

3.16.3.3.6.2.1 Direct

There would be no change to operation of the existing Schuyler Heim Bridge under the No Build alternative. Current direct effects of the bridge operations include shading of aquatic habitats beneath the bridge (affecting approximately 1.54 acres), and provision of a nesting platform for peregrine falcons on the south tower of the bridge. These effects would continue under the No Build alternative. Specifically, nesting on the south tower of the bridge provides limited success for Peregrine falcons, and provides fledging of young on an annual basis.

3.16.3.3.6.2.2 Indirect

There would be no construction under the No Build Alternative. No indirect effects to biological resources would occur.

3.16.3.3.7 CEQA Consequences

Based on the information provided in the above analysis, in accordance with California Environmental Quality Act (CEQA) criteria, potentially significant impacts to biological resources would be less than significant after mitigation. Under Alternatives 1, 2, 3, and 4, potential significant impacts to least tern, peregrine falcon, special-status plant species, and burrowing owl would be mitigated to less than significant. Other impacts that would occur with these alternatives would be less than significant. Under Alternative 3, significant impacts to wetlands also would be mitigated to less than significant. There would be no impact to biological resources under Alternatives 5 and 6.

Under Alternatives 1 through 4, impacts to related to movement of fish or wildlife species of EFH would be less than significant, while under Alternatives 5 and 6, there would be no impact. Under Alternatives 1 through 6, there would be no impact to local policies or ordinances protecting biological resources.

Potential impacts of the proposed project alternatives related to Biological Resources are addressed in the context of CEQA criteria in Chapter 4.0 – CEQA Analysis. Significant impacts are addressed in Section 4.3 – Mandatory Findings of Significance, Section 4.4 – Significant Environmental Effects of the Proposed Project, Section 4.5 – CEQA Analysis of Alternatives, Table 4-1 - Significant Environmental Impacts and Mitigation Measures, and Table 4-2 - CEQA Unavoidable Adverse Impacts. A CEQA Checklist is provided in Appendix A (IV, Biological Resources).

3.16.4 Avoidance, Minimization, and/or Mitigation Measures

3.16.4.1 Avoidance and Minimization Measures

3.16.4.1.1 Construction

3.16.4.1.1.1 Alternatives 1, 1A, 2, and 4

B-1 Wetland Avoidance

To avoid the wetlands present to the east of the Schuyler Heim Bridge along the low tidal terrace on Cerritos Channel and along SR-103 near Gabriel Street, construction staging, traffic, and vehicle access would be excluded from these areas to the extent feasible. Caution fencing would be installed to protect the small wetlands, and construction activities would be modified to avoid them.

The above also would be implemented, as necessary, to avoid adverse effects to jurisdictional waters.

B-2 Protecting Aquatic Communities (including EFH, Coast Pelagic Species, Groundfish)

Sediment resuspension would be minimized by adherence to construction measures such as cofferdams and turbidity curtains, which would contain resuspended sediment onsite until it settles. For some underwater construction activities (such as blasting to remove portions of the Schuyler Heim Bridge, pile driving for new bridge), these would be implemented. These measures also would reduce the noise effects of blasting and pile-driving on fish larvae.

Measures that would be implemented during construction (including retrofit – [Alternative 3 only] demolition and/or new bridge installation) to minimize sediment resuspension effects include:

- Channel bank work would include bank protection (riprap, concrete walls) to eliminate the possibility of enhanced bank erosion.
- Cofferdams and blasting mats would be used during blasting operations.
- Cofferdam, silt curtains, and/or turbidity curtains would be used during pile-driving operations in the channel.
- Turbidity curtains that are constructed of a permeable material allowing water to flow through the membrane while trapping suspended sediment would be used during underwater construction.

To reduce effects to channel water quality from lead compounds in paint during removal or during bridge demolition, the following measures in some combination would be implemented:

- Erect shrouds around working areas and suspending nets and tarps below bridges to catch debris from abrasive removal of old paint, where wind conditions permit.
- Anchor tarps to barges below and enclose the bridge above to confine debris, where the bridge deck is not too far above water level.
- Use barges and booms to capture fugitive floating paint chips and custom-built enclosures to confine and capture the abrasives, old paint chips, and paint.
- Use vacuum or suction shrouds on blast heads to capture grit and old paint.
- Perform lead-based paint removal offsite, following demolition of steel members.

B-3 Protecting Special-Status Plants

Preconstruction surveys for southern tarplant would be conducted prior to construction. Surveys would be conducted during the blooming period for this plant, between June and October. If identified on site:

- The feasibility of avoiding areas that support the species would be evaluated and, if feasible, the area would be avoided during construction.
- If avoidance is infeasible, then mitigation would be required (see Mitigation Measure B-13).

B-4 Protecting Special-Status Bat Species

Avoidance and minimization measures apply to the following species: pallid bat; long-legged myotis; long-eared myotis; Yuma myotis; western mastiff bat; pocketed free-tailed bat; big free-tailed bat.

To avoid or minimize effects to these species, the following measures would be employed relative to bridge or highway deconstruction or, under Alternative 3, seismic retrofit:

- Four quarterly bat surveys would be conducted in the 12 months prior to start of construction to determine the presence or absence of the species, as determined appropriate by a qualified biologist. Surveys may include, but are not limited to the following:
  - Exit surveys of potential roost sites conducted by survey biologists stationed around the bridge or highway with binoculars and echolocation meters at nightfall
  - Surveys of all accessible potential roost sites on the bridge conducted by biologists permitted by CDFG for bat survey and handling
- In the event any of the above special-status bat species are identified during field surveys, the following would be conducted:

  - Exclusion of active roost sites by appropriate barriers, installed during the nonbreeding season from September to March
  - Taking appropriate steps to exclude roosts when vacant during nighttime foraging periods when identified during construction
  - Delay of construction where maternity roosts are encountered, where feasible, until after the young have weaned and are in flight

- Education of construction workers to identify potential roost sites, to avoid activity when identified, and to advise biological monitors when roosts are encountered.

B-5 Protecting Bird Nests and Eggs
Preconstruction surveys to identify potential nest sites for birds will be conducted within all construction areas on the bridge prior to the nesting season. Potential nest sites will be passively excluded with bird spikes, plywood, or other means, as necessary. An onsite biological monitor will be present during construction activities to ensure that nests are not established within the construction zone, and to implement passive exclusion as necessary.

B-6 Protecting California Least Tern
Prior to construction, potential breeding habitat for least tern in the vicinity of the build alternatives (Alternatives 1 through 4) would be surveyed for least tern breeding colonies during the March 1 to September 1 bird nesting season. If the species is breeding within 457 m (1,500 ft) of proposed construction areas, measures would be developed in consultation with the USFWS.

B-7 Protecting American Peregrine Falcon

- Historical nesting sites on the Schuyler Heim Bridge would be made unsuitable prior to the nesting season (January 15 to July 30) to avoid direct effects to individuals or an active nest site during construction. This may include positioning exclusion materials, such as plywood, on these nest sites prior to the nesting season to render the sites unsuitable.
- Site monitoring during the construction period would be conducted to observe the pair's movements and document its activities. This may assist in identifying nesting attempts by the pair on adjacent structures or within the construction zone. If this occurs, and the nest site is at risk or could be at risk during the nesting season, the site can be excluded. This includes risk from egg loss which may occur on a less than optimal nest site. If the nesting attempt site is not anticipated to be at direct risk from construction disturbance during the upcoming nesting season, then the pair will be allowed to nest, and nesting success will be monitored.
- Efforts will be made to coordinate the construction schedule of the Schuyler Heim Bridge with the construction schedule of the future Gerald Desmond Bridge replacement project. If these two schedules do not overlap, then the Gerald Desmond Bridge may provide a nesting location for one peregrine pair to breed at the Schuyler Heim/Gerald Desmond bridge complex, which has

generally been the case in past years. Coordination meetings with the Gerald Desmond Bridge project team are ongoing.

B-8 Protecting Burrowing Owl

To avoid effects on burrowing owls, preconstruction surveys of potential breeding sites would be conducted onsite within 152 m (500 ft) of construction activities. Construction activities would be delayed, if feasible, within 152 m (500 ft) of nest sites until after the breeding season for these species (February to July).

If breeding birds are present, then mitigation would be implemented (see Mitigation Measure B-14).

B-9 Protecting Against Invasive Species

To avoid the introduction or spread of noxious weeds into previously uninfested areas, Caltrans and/or its contractors will implement the following measures:

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations.
- Clean construction equipment at designated wash stations before entering the construction area.
- Landscaping and erosion control included in the project would use species that are not listed as noxious weeds.
- Seed all disturbed areas with certified weed-free native mixes. Use only certified weed-free straw or rice mulch in uplands only.
- Conduct a follow-up inventory of the construction area during the first spring following the completion of construction to verify that construction activities have not resulted in the introduction of new noxious weed infestations.
- If new noxious weed infestations are located during the follow-up inventory, contact the appropriate resource agency to determine species-specific treatment methods.

3.16.4.1.1.2 Alternative 3

See **B-2** through **B-9**, above.

3.16.4.1.1.3 Alternatives 5 and 6

Avoidance and minimization measures are not required.

3.16.4.1.2 Operations

3.16.4.1.2.1 Alternatives 1, 1A, 2, and 4

B-10 Protecting Avian Species at Transmission Towers

To protect against operational impacts to birds moving about or utilizing new transmission towers, construction design standards for avian protection will be followed, including use of visual line enhancers and adequate spacing between energized parts. No lighting will be associated with new transmission towers. Design standards for avian protection will be developed from the Edison Electric

Institute's Avian Power Line Interaction Committee (APLIC) and USFWS *Avian Protection Plan Guidelines* (APLIC and USFWS, 2005), APLIC's *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (APLIC, 1996), or APLIC's *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (APLIC, 1994).

3.16.4.2 Mitigation Measures

3.16.4.2.1 Construction

3.16.4.2.1.1 Alternatives 1, 1A, 2, 3, and 4

B-11 Mitigating for Breeding Colonies of Least Tern

This measure may include the following, pending consultation with USFWS:

- Breeding habitat would be disrupted during the non-nesting season when terns are absent from the site. The disruption may include placement of barriers to discourage nesting.
- Breeding habitat to compensate for loss would be identified and established, possibly in coordination with existing tern mitigation programs implemented by Los Angeles Harbor at other locations, such as at Pier T.

B-12 Mitigating for Loss of Peregrine Falcon Nest

This measure may include the following, as appropriate, pending informal consultation with CDFG:

- Create a new nest site by placing a nesting box (and potential additional support material) on a tower of the Badger Avenue Bridge or other elevated structure, as determined by a qualified biologist. Because the Badger Avenue Bridge is located immediately adjacent to the Schuyler Heim Bridge, and is approximately the same height, there is the potential that it could provide a suitable vantage point and nesting location to peregrine falcons. The peregrine pair has never nested on this bridge in the past but this may be due to an absence of suitable nesting platforms and substrate. Further evaluation of any design changes or nesting ledge installations by a qualified peregrine expert would be conducted.
- Offsite mitigation. The goal of the offsite mitigation would be to augment existing peregrine populations. This could be accomplished by purchasing approximately 10 nestling peregrines from a captive breeding facility and having those young released (hacked) in an area of California where, when they disperse, they will possibly create a new nesting pair.
- The local peregrine falcon population (approximately five pairs) would be monitored for 2 years. The pair located on the Schuyler Heim Bridge would be monitored to determine if they nest on the Badger Bridge, or if they integrate into other territories by filling a vacancy in another pair, or by usurping existing individuals in a pair. If offsite mitigation is conducted, hacked (removed) peregrine falcons would be monitored to determine their fate and if a new nesting pair is established. An experienced peregrine falcon biologist would conduct monitoring of the hacked peregrine falcons.

B-13 Mitigating for Loss of Special-Status Plant Species

If special-status plant species cannot be avoided during project construction, then seed and/or propagules of the species would be collected and replanted at an alternative location. These activities will be conducted in coordination with the resource agencies.

- Mitigation measures would be refined in coordination with the resource agencies and standard practices for this species. Measures may include the following: Areas determined to have appropriate hydrology and soil chemistry (salinity) shall be reseeded with seed collected from populations of southern tarplant. Southern tarplant is restricted to saline, vernally mesic areas, often along the margins of estuaries or areas of high salinity.
- For one year prior to construction as feasible, southern tarplant seed shall be collected by personnel experienced in collection of native seeds. Seed collection shall be conducted during successive years from September through December. One-half of the first year's collected seed shall be hand-broadcast at the reintroduction site with the remaining one-half stored in appropriate conditions for introduction the following year. Seed collected during the second season shall be stored for potential later use in the event that success standards are not met following the seeding during years one and two.
- Because southern tarplant is an annual species, population numbers are expected to naturally fluctuate from year to year depending upon environmental conditions. Reseeded areas shall be monitored for three years following the initial seeding. Establishment shall be considered successful if plant densities during any of the three years of monitoring are comparable to densities of the impacted populations based on sampling quadrants. If established populations do not achieve comparable densities of impacted populations, additional reintroduction sites shall be identified and stored seed, obtained during the collection period, shall be introduced into additional sites over a two-year period (as in the initial reintroduction program described above).

B-14 Mitigating for Burrowing Owl

Burrowing owl individuals present within the construction area would be flushed from active burrows during the non-nesting season (August to January) and burrows excluded. These activities would be conducted in a manner consistent with the *Burrowing Owl Survey Protocol and Mitigation Guidelines*, prepared by The California Burrowing Owl Consortium in 1997. Exclusions would require maintenance and monitoring to assure that individuals do not return.

3.16.4.2.1.2 Alternative 3

B-15 Mitigating Loss of Wetland

Under Alternative 3, the wetland east of the Schuyler Heim Bridge would be impacted, and mitigation would be required, as follows:

Under Section 404 of the Clean Water Act, a permit would be required from USACE prior to impacting waters of the U.S. including wetlands. This may be achieved through the Nationwide Permit system, or an Individual Permit. Compliance to permit conditions would be required. The permit is likely to require implementation of mitigation to offset effects to waters of the U.S., including wetlands. This may include creation of offsite wetlands, or payment of fees into existing mitigation banks. Complying with these mitigation measures contained in the permit, once acquired, would provide mitigation for the effect.

3.16.4.2.1.3 Alternatives 5 and 6

No mitigation measures are required for Alternatives 5 and 6.

3.16.4.2.2 Operations

No mitigation measures are required for project operations.

3.17 The Relationship Between Local and Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

3.17.1 Methodology

The relationship between the short-term and long-term consequences of a proposed action is a required topic of discussion in an EIS under NEPA (40 Code of Federal Regulations [CFR] Part 1502). This regulation states that the discussion of environmental consequences

> *"…will include…the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity…"* (Section 1502.16).

As shown in the following discussions, there would be both benefits and adverse effects associated with the six project alternatives.

The proposed action would occur in an industrialized area within and adjacent to the Ports of Long Beach and Los Angeles. The local environment is utilized primarily for ports-related commerce and industry, plus residential uses. As a result, there are few natural areas in the project vicinity.

Short-term uses of environmental resources include the money required for the purchase of land and construction materials, payment of construction workers, consumption of materials for construction purposes, effects to natural resources, and disrupted community or economic activities.

Long-term uses of the environment include the use of right-of-way required by the proposed new bridge, expressway, and flyover, and ongoing use of facilities that remain after one of the alternatives is implemented.

3.17.2 Analysis

3.17.2.1 Alternative 1: Bridge Replacement and SR-47 Expressway

3.17.2.1.1 Alternative 1

Under this alternative, the existing Schuyler Heim Bridge would be demolished and replaced by a new, fixed-span bridge, a flyover would be constructed to divert traffic bound for northbound SR-47 directly onto the new bridge from eastbound Ocean Boulevard (Ocean Boulevard/SR-47 Flyover), and a new, elevated expressway would be constructed along the State Route (SR)-47 alignment between Terminal Island and Pacific Coast Highway. Also, south of the new bridge, New Dock Street would be realigned, and the intersection at New Dock Street and Ocean Boulevard would be improved to provide access to the new bridge. Connections to surface streets north of the bridge also would be realigned.

Short-Term

Short-Term Benefits

Short-term benefits of Alternative 1 include the employment of construction workers for the 2- to 3-year construction period, and a potential increase in local economic activity and employment related to the purchase of goods and services. Alternative 1 would provide local construction jobs.

Short-Term Costs/Effects[1]

The total construction cost (2004-2005 dollars) of Alternative 1 is estimated at approximately $486 million. This includes approximately $41 million for land acquisition and right-of-way, $21 million for utilities, and $52 million for engineering and project administration. These costs include some of the estimated costs of mitigation.

Short-term effects would occur as a result of demolition of the existing Schuyler Heim Bridge and construction of the new bridge, flyover, and expressway. These effects include disturbance to soils and sediments; sediment runoff; traffic disruptions; air quality, biological resources, and noise effects; and increased energy uses. A small amount of pickleweed may be affected.

Long-Term

Long-Term Benefits

Alternative 1 would utilize existing and new alignments for the new bridge across the Cerritos Channel, access to the bridge, the flyover, and for the new SR-47 Expressway. This alternative would add approximately 4.9 kilometers (km) (3.1 miles [mi]) of limited-access roadway, with the flyover along Ocean Boulevard and the expressway along Alameda Street (SR-47) between Terminal Island and Pacific Coast Highway. As a result, the circulation system in the project area would be improved. The new bridge, flyover, and expressway would make traffic movements more efficient.

Long-term benefits relate to improved traffic flow and reduced congestion that would result from improvements to the Ocean Avenue intersection south of the new bridge and the availability of a second option for travel along SR-47 between Terminal Island and Pacific Coast Highway. The new expressway also would improve safety, as it would be designed to current Caltrans standards for expressways. With Alternative 1, there would be less traffic at the five existing signalized intersections and at five at-grade rail crossings along the existing SR-47 alignment between Terminal Island and Pacific Coast Highway, as most traffic would be expected to use the elevated expressway rather than surface streets.

Over the long term, a number of new jobs, mostly associated with maintenance of the new bridge, flyover, and expressway, would be created. Also, the cost to maintain the new fixed-span bridge that would be built under this alternative would be considerably less than the cost of maintaining the existing lift-bridge. Because the existing Schuyler Heim Bridge would be demolished under this alternative, there would be no ongoing maintenance costs for the existing bridge.

Long-Term Costs/Effects

Long-term costs would be associated with maintenance of the new, fixed-span bridge, flyover, and SR-47 Expressway. Typical maintenance items for the type of bridge proposed are yearly flushing of the deck drains, blowing debris out of the joints and/or bearings, and every-other-year inspections. The maintenance costs are estimated to be approximately $100,000 per year for Alternative 1. These costs include treating collected stormwater from

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[1] The project construction costs will be updated in the next revision of the Administrative Draft.

the elevated structure at four locations to remove solids and free-floating pollutants. Other maintenance activities would be graffiti removal on noise barriers and other structures along the elevated SR-47 Expressway.

3.17.2.1.2 Alternative 1A

Alternative 1A provides a structural variation of the replacement bridge over the Cerritos Channel. Other aspects of this alternative would be the same as those described for Alternative 1.

Short-term and long-term benefits and costs/effects of Alternative 1A would be comparable to those described for Alternative 1.

3.17.2.2 Alternative 2: SR-103 Extension to Alameda Street

Under this alternative, the existing Schuyler Heim Bridge would be replaced, and the flyover would be constructed as described under Alternative 1. In addition, an elevated expressway would be constructed along a new SR-103 alignment between Pacific Coast Highway and Alameda Street, south of 223rd Street/Wardlow Road. Also, south of the replacement bridge, New Dock Street would be realigned, and the intersection at New Dock Street and Ocean Boulevard would be improved to provide access to the new bridge. Connections to surface streets north of the bridge also would be realigned.

3.17.2.2.1 Short-Term

Short-Term Benefits

Short-term benefits of Alternative 2 would be comparable to those described for Alternative 1.

Short-Term Costs/Effects

The total construction cost (2004-2005 dollars) of Alternative 2 is estimated at approximately $667 million. This includes approximately $223 million for land acquisition and right-of-way, $20 million for utilities, and $52 million for engineering and project administration. These costs include some of the estimated costs of mitigation.

Short-term effects of Alternative 2 would be comparable to those described for Alternative 1.

3.17.2.2.2 Long-Term

Long-Term Benefits

Alternative 2 would utilize existing and new alignments for the new bridge across the Cerritos Channel, access to the bridge, the flyover, and for the new, elevated SR-103 Extension. This alternative would add approximately1.6 km (0.96 mi) of limited-access flyover along Ocean Boulevard to SR-47, and 3.2 km (2.0 mi) of limited-access expressway between Pacific Coast Highway and Alameda Street, south of 223rd Street/Wardlow Road. As a result, the circulation system in the project area would be improved. The new bridge, flyover, and expressway would make traffic movements more efficient.

Long-term benefits relate to improved traffic flow and reduced congestion with improvements to the Ocean Avenue intersection south of the bridge and the availability of a second option for travel along SR-103 between Pacific Coast Highway and Alameda Street, south of 223rd Street/Wardlow Road. The addition of the expressway also would improve safety, as the expressway would be designed to current Caltrans standards.

With Alternative 2, there would be less traffic at the Willow Street intersection where the existing SR-103 surface alignment ends, as most traffic traveling between Alameda Street, south of 223rd Street/Wardlow Road, and Pacific Coast Highway would be expected to use the new SR-103 Extension.

Over the long term, a number of new jobs, mostly associated with maintenance of the new bridge, flyover, and expressway, would be created. Also, the cost to maintain the new fixed-span bridge that would be built under this alternative would be considerably less than the cost of maintaining the existing lift-bridge. Because the existing Schuyler Heim Bridge would be demolished under this alternative, there would be no ongoing maintenance costs for the existing bridge.

Long-Term Costs/Effects

Long-term costs/effects of Alternative 2 would be comparable to those described for Alternative 1.

3.17.2.3 Alternative 3: Bridge Demolition Avoidance

Under this alternative, a new, fixed-span bridge would be constructed adjacent to and east of the existing Schuyler Heim Bridge, and the flyover and SR-47 Expressway would be constructed as described under Alternative 1. Also, south of the bridge, New Dock Street would be realigned, and the intersection at New Dock Street and Ocean Boulevard would be improved to provide access to the new bridge. Connections to surface streets north of the bridge also would be realigned. Under Alternative 3, the existing Schuyler Heim Bridge would be left intact, but would not be operational. Additional maintenance costs would be necessary to prevent the existing bridge from deteriorating and collapsing into the Cerritos Channel.

3.17.2.3.1 Short-Term

Short-Term Benefits

Short-term benefits of Alternative 3 would be comparable to those described for Alternative 1.

Short-Term Costs/Effects

The total construction cost (2004-2005 dollars) of Alternative 3 is estimated at approximately $529 million. This includes approximately $63 million for land acquisition and right-of-way, $16 million for utilities, and $53 million for engineering and project administration. These costs include some of the estimated costs of mitigation.

Short-term effects would occur as a result of construction of a new bridge, flyover, and expressway. These effects include disturbance to soils and sediments; sediment runoff; traffic disruptions; air quality, biological resources, and noise effects; and increased energy uses. A small amount of pickleweed may also be affected. Additionally, up to 0.11 acre of impact to jurisdictional Waters of the U.S., including wetlands, would occur. Mitigation would reduce these effects.

3.17.2.3.2 Long-Term

Long-Term Benefits

Long-term benefits of Alternative 3 would be comparable to those described for Alternative 1.

Long-Term Costs/Effects

Long-term costs would be associated with maintenance of the new, fixed-span bridge, flyover, and SR-47 Expressway. In addition, the cost of maintaining the existing lift bridge would continue. Other effects would be operational noise effects of the SR-47 Expressway.

3.17.2.4 Alternative 4: Bridge Replacement Only

Under this alternative, the existing Schuyler Heim Bridge would be demolished and replaced by a new, fixed-span bridge. South of the bridge, New Dock Street would be realigned, and the intersection at New Dock Street and Ocean Boulevard would be improved to provide access to the new bridge. Connections to surface streets north of the bridge also would be realigned. With this alternative there would be no construction of the flyover, SR-47 Expressway (Alternatives 1 and 3), or the SR-103 Extension (Alternative 2).

3.17.2.4.1 Short-Term

Short-Term Benefits

Short-term benefits of Alternative 4 include the employment of construction workers for the 2- to 3-year bridge construction period, and the potential related increase in local economic activity and employment related to the purchase of goods and services. Alternative 4 would provide fewer construction jobs than Alternatives 1, 1A, 2, and 3.

Short-Term Costs/Effects

The total construction cost (2005 dollars) of Alternative 4 is estimated at approximately $269 million. This includes approximately $16 million for land acquisition and right-of-way, $16 million for utilities, and $29 million for engineering and project administration. These costs include some of the estimated costs of mitigation.

Short-term effects would occur as a result of demolition of the existing Schuyler Heim Bridge and construction of the new bridge. These effects include disturbance to soils and sediments; sediment runoff; traffic disruptions; air quality, biological resources, and noise effects; and increased energy uses. There may be effects to a small amount of pickleweed. Mitigation would reduce these effects.

3.17.2.4.2 Long-Term

Long-Term Benefits

Alternative 4 would utilize existing and new alignments for the replacement bridge across the Cerritos Channel and access to the bridge. This alternative would improve the circulation system in the vicinity of the bridge. The new bridge and realigned approaches to the bridge would make traffic movements more efficient.

Long-term benefits would occur with improved traffic flow and reduced congestion at the fixed-span bridge. The new bridge also would improve safety at the north and south accesses to the bridge and across the channel, as the new construction would be designed to current Caltrans standards.

Over the long term, a number of jobs, mostly associated with maintenance of the new bridge, would be created. Also, the cost to maintain the new fixed-span bridge would be less than the cost of maintaining the existing lift-bridge. Because the existing Schuyler Heim Bridge would be demolished under this alternative, there would be no ongoing maintenance costs for the existing bridge.

Long-Term Costs/Effects

Long-term maintenance costs would be associated with maintenance of the new bridge would be about $50,000.

3.17.2.5 Alternative 5: Transportation System Management

The Transportation System Management (TSM) alternative focuses on improvements to traffic routes that parallel SR-47 and that serve the same trips, including truck trips to and from the intermodal container transfer facility (ICTF), and trips to and from the Ports of Long Beach and Los Angeles via Alameda Street, Henry Ford Avenue, and SR-47. Measures would include, but not be limited to, electronic traffic monitoring, and improvements to existing roadways and intersections.

3.17.2.5.1 Short-Term

Short-Term Benefits

Short-term benefits of Alternative 5 include the employment of a small number of construction workers to implement the chosen system(s).

Short-Term Costs/Effects

The total construction cost (2004-2005 dollars) of Alternative 5 is estimated at approximately $3.3 million, including $400,000 for engineering and project administration. (These costs do not include estimates for mitigation.) Costs for land acquisition and right-of-way, and utilities are assumed to be negligible. Most of the TSM actions would occur along existing roads and easements. It is expected that facilities that would be required for electronic measures would be leased from or provided by the ports.

Short-term effects would occur as a result of construction of the TSM alternative. These effects include disturbance to soils and sediments; runoff; traffic disruptions; air quality, biological resources, and noise effects; and increased energy use. These effects would be short-term and would occur within small portions of the project area, such as along several blocks of a street (for restriping or widening) or on street corners.

3.17.2.5.2 Long-Term

Long-Term Benefits

Alternative 5 would result in improvements to the circulation system in the project area, which would make traffic movements more efficient. Long-term benefits would result from improved traffic flow and reduced congestion. The addition of one or more TSM systems would be intended to improve safety for vehicles traveling in the project area and result in reduced travel time.

Over the long term, there would be some jobs, mostly associated with maintenance and implementation of the TSM systems. The cost to maintain the chosen TSM system(s) is expected to be nominal, based on the number and types of systems implemented.

Long-Term Costs/Effects

Long-term costs would be associated with maintenance and implementation of the new TSM systems. However, the cost to maintain the chosen TSM system(s) is expected to be nominal, based on the number and types of systems utilized.

3.17.2.6 Alternative 6: No-Build Alternative

With the No-Build alternative, there would be no change to the existing environment of the project area. Existing uses of the Schuyler Heim Bridge and local system of surface streets would remain the same as described under existing conditions.

3.17.2.6.1 Short-Term

Short-Term Benefits

The short-term benefit of this alternative would be an absence of change to the existing circulation system between Terminal Island and the mainland to the north. As a result, existing vehicular traffic would not experience detours or delays related to new construction.

Short-Term Costs/Effects

Under the No-Build alternative, no costs would be incurred, and there would be no short-term effects.

3.17.2.6.2 Long-Term

Long-Term Benefits

Under the No-Build alternative, the existing Schuyler Heim Bridge and roadway alignments in the project area, both on Terminal Island and the mainland, would continue to be utilized in their present configurations. There would be no changes to existing traffic flow and areas of congestion.

Long-Term Costs/Effects

There would be no direct costs to implementing Alternative 6. However, there would be long-term costs associated with the ongoing increase in congestion associated with projected increases in vehicular traffic to and from the ports in the project area and with ongoing maintenance of the existing Schuyler Heim Bridge.

Travel time would continue to increase over time, consistent with projected increases in traffic levels. There would be no changes to existing levels of safety. The Schuyler Heim Bridge would continue to operate as a lift bridge, with traffic delays during times the bridge is in the lifted position to allow marine traffic to pass underneath. In addition, the bridge would continue to be susceptible to physical damage and/or closure in the event of a major earthquake.

3.18 Irreversible and Irretrievable Commitment of Resources

3.18.1 Introduction

The discussion of irreversible and irretrievable commitments of resources is a required topic in an EIS under NEPA (40 Code of Federal Regulations [CFR] Part 1502). Section 1502.16 states that the discussion of environmental consequences: …

> *"will include…any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented."*

The discussion of irreversible and irretrievable commitments of resources also is a required topic in an EIR as directed under CEQA in the CEQA Guidelines, Section 15126[c], and as described in Section 15126.2[c], as *Significant Irreversible Environmental Changes Which Would Be Caused by the Proposed Project Should it Be Implemented*.

As described in the following discussions, resources would be used or removed by the project alternatives. These include the funds, materials, labor, and energy required to build and operate the project; land taken to build the project; environmental resources impacts resulting from the project; and public service capabilities used.

A specific discussion of Energy use is provided in this Draft EIS/EIR under Section 3.15 – Energy.

3.18.2 Analysis

3.18.2.1 Alternative 1: Bridge Replacement and SR-47 Expressway

3.18.2.1.1 Alternative 1

Resources Used During Construction

The total estimated construction costs (2007 dollars) for Alternative 1 are $659.1 million. These monies would be used for labor, construction materials, and energy, and could then not be spent for other transportation projects. In addition, construction materials (sand, cement, steel, wood, asphalt) would be used and energy (oil, gasoline, diesel fuel) would be expended to build the new bridge and expressway. These resources then would not be available for any other, future use.

Alternative 1 would require disposal of materials associated with demolition of the Schuyler Heim Bridge and excavation of the columns required for the bridge, expressway, and flyover (including excess soil and rock material that cannot be recycled). Because landfill capacity is finite, deposition of the total excess material in area landfills would be an irretrievable commitment of landfill capacity.

Resources Used During Maintenance and Operations

An undetermined amount of funds, labor, materials, and energy would be required to maintain and operate the bridge, expressway, and flyover under Alternative 1. These resources would be irretrievable. However, based on Caltrans operations of existing facilities, the materials and energy used to maintain and operate the bridge, expressway, and flyover are expected to be minimal. Further, operation of the new, fixed-span bridge would be less costly than operation of the existing Schuyler Heim Bridge.

Land Use

Right-of-way would be required for the new bridge, expressway, and flyover, and would require the taking of some commercial and some industrial land. Additionally, Alternative 1 would result in the taking of a number of boat slips within the Dominguez Channel due to construction of the SR-47 Expressway. Although relocation would be possible within the local area, the conversion of this land to right-of-way would be an irreversible commitment of land to transportation facilities for the life of the facilities.

Public Service Capacities

Refuse collected along the bridge, expressway, and flyover during routine maintenance would be disposed in existing landfills.

The new SR-47 Expressway would require commitment of law enforcement resources in addition to requirements on existing streets and highways. At the same time, there could be a beneficial effect on fire protection and other emergency services, as the limited-access expressway would provide an efficient route for emergency vehicles between Terminal Island and the area north of the ports. In addition, the flyover would provide more efficient access to northbound SR-47 from eastbound Ocean Boulevard.

Growth Inducement

Alternative 1 would not induce growth in localized areas, as the expressway would result in less accessibility to the specific parts of the project area where the expressway would be elevated above existing land uses. However, Alternative 1 could beneficially affect local transport of goods to and from the ports, as it would provide an improved route for transport along the Alameda Corridor between Terminal Island and areas north of the ports. The regional growth rate would be expected to remain the same, as under existing conditions, as the project is proposed to improve vehicular travel as a response to ongoing growth in the area.

Beneficial Effects

The commitment of resources for Alternative 1 is based on the concept that the transport of goods to and from the ports would benefit by a new bridge and improved transportation route. These benefits include improved accessibility and safety, savings in time, and reliable access for emergency services. These benefits are anticipated to outweigh the commitment of resources required for construction and maintenance of Alternative 1.

3.18.2.1.2 Alternative 1A

Resources Used During Construction, Maintenance, and Operations

The resources used during construction, maintenance and operation of Alternative 1A would be comparable to those used for Alternative 1.

3.18.2.2 Alternative 2: SR-103 Extension to Alameda Street

3.18.2.2.1 Resources Used During Construction

The resources used during construction of Alternative 2 would be comparable to those used for Alternative 1. However, Alternative 2 would not require taking of boat slips in the Dominguez Channel, as the proposed SR-103 Extension would not affect the Dominguez Channel. The total estimated construction costs (2007 dollars) for Alternative 2 are $709.2 million.

3.18.2.2.2 Resources Used During Maintenance and Operations

The resources used during maintenance and operation of Alternative 2 would be comparable to those used for Alternative 1.

3.18.2.3 Alternative 3: Bridge Demolition Avoidance

3.18.2.3.1 Resources Used During Construction

The resources used during construction of Alternative 3 would be comparable to those used for Alternative 1. The total estimated construction costs (2007 dollars) for Alternative 3 are $733.9 million.

3.18.2.3.2 Resources Used During Maintenance and Operations

The resources used during maintenance and operation of Alternative 3 would be comparable to those used for Alternative 1.

3.18.2.4 Alternative 4: Bridge Replacement Only

3.18.2.4.1 Resources Used During Construction

The resources used during construction of Alternative 4 would be comparable to those used for the bridge replacement under Alternative 1. However, there would be no expressway construction and no flyover construction under this alternative. Therefore, no resources would be affected in regard to construction of the SR-47 Expressway or flyover (Alternative 1, Alternative 3) or SR-103 Extension and flyover (Alternative 2). The total estimated construction costs (2007 dollars) for Alternative 4 are $388.5 million.

3.18.2.4.2 Resources Used During Maintenance and Operations

The resources used during maintenance and operation of Alternative 4 would be comparable to those used for the bridge replacement under Alternative 1. No resources would be used for maintenance and operation of an expressway or flyover, as there would be no construction of these structures under this alternative.

3.18.2.5 Alternative 5: Transportation System Management

3.18.2.5.1 Resources Used During Construction

Minimal construction would be required under Alternative 5. As a result, the resources used would be minor compared to those used for Alternatives 1, 1A, 2, 3, and 4. The total estimated construction costs (2005 dollars) for Alternative 5 are $10.7 million.

Resources Used During Maintenance and Operations

Alternative 5 would require minimal maintenance and operations activities. Therefore, resources used would be minor compared to those used for Alternatives 1, 1A, 2, 3, and 4.

3.18.2.6 Alternative 6: No Build Alternative

Under the No Build alternative, there would be no demolition or construction activities. As a result, there would be no irreversible or irretrievable commitment of resources under this alternative. There would be no construction costs associated with Alternative 6.

Chapter 4.0 CEQA Evaluation

4.1 Determining Significance Under CEQA

The proposed project is a joint action by the Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans) and is subject to federal and state environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327 (July 1, 2007). Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS), or some lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental document.

CEQA, on the other hand, requires the lead agency (Caltrans) to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report (EIR) must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated, if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance under CEQA.

This chapter discusses the effects of this project and their significance in accordance with Section 15126.2(a) of the CEQA Guidelines.

4.2 Discussion of Significance of Impacts

The following sections provide discussions of the environmental impacts that have been determined to be significant after analysis of each of the six project alternatives. There are environmental resources for which significant effects have been identified. For each of these significant effects, the criteria used as the basis of the significance evaluations are set forth as provided in Appendix G of the CEQA Guidelines (CEQA Checklist) (Title 14, Section 15000, *et seq.*) (See Appendix A of this document).

Those resources where impacts would be significant are addressed in Section 4.4 – Significant Environmental Effects of the Proposed Project and analyzed in accordance with CEQA criteria in Section 4.5. Those resource areas where impacts would be significant, even with mitigation, are addressed in Section 4.6 – Unavoidable Significant Environmental Effects. Mitigation measures are addressed in Section 4.7 and are shown in Table 4-1.

The information in this chapter is provided in accordance with Section 15126.2(a) of the CEQA Guidelines, which states:

> *An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effect…*

A discussion of significant irreversible environmental changes is required by CEQA and is provided in Section 3.18 of this Draft EIS/EIR – Irreversible and Irretrievable Commitment of Resources. Growth-inducing impacts, also required by CEQA, are addressed in Draft EIS/EIR Section 3.2 – Growth.

4.3 Mandatory Findings of Significance

In accordance with Section 15065 of the CEQA Guidelines, a project would be considered to have a significant effect on the environment if any of the following conditions would occur:

- The project would substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory.
- The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The project has possible environmental effects that are individually limited but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
- The environmental effects of the project would cause substantial adverse effects on human beings, either directly or indirectly.

Based on the analyses provided in Chapter 3.0 of this Draft EIS/EIR and in the following sections of this chapter, the project would result in mandatory findings of significance for at least one environmental resource under Alternatives 1, 1A, 2, 3, and 4 (the "build" alternatives); certain impacts related to Air Quality and Cultural Resources could not be mitigated to less than significant levels and, therefore, would be considered to substantially degrade the quality of the environment. As a result, these Air Quality and Cultural Resources impacts would be considered mandatory findings of significance.

4.4 Significant Environmental Effects of the Proposed Project

This section provides a description of the significant environmental effects of the project alternatives. Mitigation measures would be implemented to minimize these effects to below levels of significance, to the extent feasible, in accordance with Section 15126.4 of the CEQA Guidelines.

In accordance with CEQA criteria, it was determined that the proposed project would not have the potential to affect Agriculture Resources. Therefore, this topic is not addressed in the environmental analysis provided in Chapter 3.0 of this Draft EIS/EIR and is not addressed in the following discussions.

It was determined that project-related impacts to the following environmental resources would be less than significant when evaluated in accordance with CEQA criteria and, therefore, would not require mitigation: Aesthetics; Geology and Soils; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Population and Housing; Public Services; Recreation; Traffic and Transportation; and Utilities and Service Systems. Therefore, these topics are not further addressed in this chapter. These topics, and their relation to the project alternatives, are addressed in detail in Chapter 3.0 of this Draft EIS/EIR.

Based on the analyses set forth in the CEQA Checklist and in Chapter 3.0, it was determined that one or more of the project alternatives would have the potential to result in significant impacts to: Air Quality, Biological Resources, and Cultural Resources. Impacts related to these environmental resources are addressed below, in accordance with CEQA criteria. The discussion that follows focuses on the specific environmental resources where there would be a significant impact. Other environmental resources are addressed in the CEQA Checklist in Appendix A. The significant impacts described below would require mitigation which, in most cases, would reduce the impacts to a level that is less than significant. Mitigation measures are shown in Table 4-1. Impacts that could not be reduced to less than significant, even with mitigation, are shown in Table 4-2.

4.5 CEQA Analysis of Significance of the Alternatives

The analysis below follows the same order of environmental resources and specific CEQA criteria as the CEQA Checklist (Appendix A). However, in compliance with Caltrans guidelines, only significant environmental impacts are addressed in this chapter. In order to avoid repetition within this document, for those environmental resources where there would be no impact from the proposed project, or where impacts would be less than significant, the reader is referred to the CEQA Checklist (Appendix A), the appropriate section of Chapter 3.0, and the cumulative impact discussion in Chapter 5.0. For each environmental resource where impacts would be significant for at least one of the CEQA criteria, discussion is provided for each of the six project alternatives addressed in this Draft EIS/EIR.

4.5.1 Air Quality

Detailed discussion of the air quality issues addressed below is provided in Section 3.13 – Air Quality and Chapter 5.0 – Cumulative Impacts of this Draft EIS/EIR. Also see Appendix A – CEQA Checklist (III, Air Quality).

4.5.1.1 Alternative 1

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

The project would be in conformance with the 2006 Regional Transportation Plan (RTP) and Regional Transportation Implementation Plan (RTIP). Therefore, this potential impact would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

4.5.1.1.1 Construction Impacts

The direct sources of construction emissions would be from construction equipment exhaust and fugitive dust. The direct emissions of carbon monoxide (CO), nitrogen oxides (NO_X), reactive organic gases (ROG), sulphur oxide (SO_X), and particulate matter less than 10 microns in aerodynamic diameter (PM_{10}) are predicted to exceed daily significance thresholds during construction of Alternative 1. This would be considered a temporary significant impact to air quality.

The indirect source of construction emissions would be from marine vessels having to detour around Terminal Island during construction of the new bridge. The indirect marine vessel emissions exceed the South Coast Air Quality Management District (SCAQMD) NO_X threshold. Therefore, marine vessel NO_X emissions would result in a temporary, significant air quality impact. Mitigation would be implemented and would reduce the indirect marine vessel emissions to a level that is below the SCAQMD significance threshold for construction emissions.

However, the combined direct and indirect emissions of CO, NO_X, ROG, SO_X, and PM_{10} are predicted to exceed daily significance thresholds during project construction and, therefore, would result in a temporary significant impact to air quality and require mitigation. However, even with mitigation, construction emissions would be expected to remain in excess of daily significance thresholds and, therefore, remain a temporary significant impact.

4.5.1.1.2 Operations Impacts

Indirect operation emissions for Alternative 1 would result from marine vessel detours around Terminal Island, where daily emissions of NO_X exceed the SCAQMD threshold. In addition, bridge traffic during project operation would result in a net increase in emissions greater than the SCAQMD thresholds for NO_X. Therefore, although it would be an indirect impact of the project alternative, the net increase in NO_X emissions from marine vessel detours and bridge traffic would result in a significant air quality impact; mitigation is required. However, even with mitigation, operation emissions would remain significant.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Impacts during project operation would be cumulatively significant for NO_X.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

During project operation, sensitive receptors would not be exposed to substantial pollutant concentrations as a result of the project; impacts would be considered less than significant. (Also see e, below.)

e) Would the project create objectionable odors affecting a substantial number of people?

During project construction, objectionable odors would potentially occur related to operation of diesel-powered equipment and to road-building activities, such as paving and asphalt placement activities. Objectionable odors may occur as a result of construction in marine sediments for demolition of the existing Schuyler Heim Bridge and construction of the new bridge, as well as drilling and augering activities on land for the support piers. Construction will be conducted in compliance with SCAQMD Rule 1166, which limits volatile organic compounds (VOC) emissions. In addition, construction activities will be located within fenced, secured sites as far from receptors as feasible, with no public access. Impacts would be less than significant.

4.5.1.2 Alternative 2

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

This potential impact would be the same as described for Alternative 1 and would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction and operation impacts would be the same as described under Alternative 1. Mitigation would be implemented and would reduce indirect construction emissions to less than significant. However, even with mitigation, total emissions are expected to remain significant during construction and operation of Alternative 2.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

This impact would be the same as described for Alternative 1 and would be significant.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

e) Would the project create objectionable odors affecting a substantial number of people?

Under Alternative 2, potential impacts (d, e, above) would be the same as Alternative 1 and would be less than significant.

4.5.1.3 Alternative 3

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

This would be the same as for Alternative 1 and would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Under Alternative 3, construction and operation impacts would be comparable to those described for Alternative 1, even though the existing Schuyler Heim Bridge would not be demolished under this alternative. Mitigation is required and would reduce indirect construction emissions to less than significant. However, even with mitigation, total emissions are expected to remain significant during construction and operation of Alternative 3.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Under Alternative 3, this impact would be considered significant, the same as for Alternative 1.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

e) Would the project create objectionable odors affecting a substantial number of people?

Under Alternative 3, potential impact (d, e, above) would be similar to Alternative 1, and would be less than significant.

4.5.1.4 Alternative 4

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

This potential impact would be the same as described for Alternative 1 and would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Under Alternative 4, direct and indirect construction emissions would be the same as described for Alternative 1 for bridge demolition and replacement. Temporary air quality impacts from this activity would be significant under CEQA criteria. Mitigation is required and would reduce indirect construction emissions to less than significant. However, even with mitigation, total emissions are expected to remain significant during construction.

Operation emissions for Alternative 4 would be the same as for Alternative 1 and would result in a significant air quality impact. Mitigation is required, but impacts would remain significant.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Under Alternative 4, this impact would be considered significant, the same as would occur under Alternative 1.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

e) Would the project create objectionable odors affecting a substantial number of people?

Under Alternative 4, potential impacts (d, e, above) would be similar to Alternative 1, but solely for replacement of the Schuyler Heim Bridge. Impacts would be less than significant.

4.5.1.5 Alternative 5

The amount of construction that would be required under the TSM alternative would be considerably less than under the build alternatives and would consist of activities such as widening roadways, adding turn lanes, and installing electric signs. These activities would occur within portions of the project area that are already developed and utilized for transportation uses. Therefore, due to the location and minimal extent of activities related to the TSM alternative, impacts to air quality would be less than significant.

4.5.1.6 Alternative 6

Under the No Build alternative, there would be no change to the existing environment and, therefore, no impact to air quality.

However, at some point in the future, the existing bridge may need to be demolished and replaced due to safety considerations. If this occurred, air quality impacts would be comparable to those described under Alternative 1 for replacement of the Schuyler Heim Bridge.

4.5.2 Biological Resources

Detailed discussion of the biological issues addressed below is provided in Section 3.16 – Biological Resources and Chapter 5.0 – Cumulative Impacts of this Draft EIS/EIR. Also see Appendix A – CEQA Checklist (IV, Biological Resources).

4.5.2.1 Alternative 1

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Federally Listed Threatened or Endangered Species

California Least Tern. Noise and construction activity could affect least tern nesting colonies within 456 meters (m) (1,500 feet [ft]) of the project site. This could disrupt the breeding activities for the species, if present, and would be considered a significant adverse impact of Alternative 1. Mitigation would reduce impacts to less than significant.

State Listed Threatened or Endangered Species

American Peregrine Falcon. Removal and replacement of the Schuyler Heim Bridge would eliminate a known nest site for a breeding pair of peregrine falcons, and the peregrines would be forced to use another area for nesting. Historically, nesting has alternated between the Schuyler Heim Bridge and the Gerald Desmond Bridge. The removal of one known peregrine falcon nesting location on the Schuyler Heim Bridge in a territory that typically supports one pair but contains two alternate nesting locations would likely result in a significant impact to the species. Mitigation would reduce impacts to less than significant.

Other Special-Status Species

Southern Tarplant. There is potential for individuals of southern tarplant or other special-status plant species to be present on the site. If individuals were present, and could not be avoided, they would be removed permanently as a result of project construction. The removal of southern tarplant and other special-status plant species would be considered a significant adverse impact of Alternative 1. Mitigation would be required and would reduce impacts to less than significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

This potential impact would be less than significant under CEQA criteria.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetlands present in the general project area would be avoided. Therefore, no impact to federally protected wetlands would occur.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?

Potential impacts (d, e, f, above) would be less than significant.

4.5.2.2 Alternative 2

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Under Alternative 2, impacts would be the same as described for Alternative 1 and would be significant. Mitigation is required and would reduce impacts to less than significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Marine Environment

Project impacts of Alternative 2 on aquatic communities in the vicinity of the existing Schuyler Heim Bridge would be comparable to those discussed for Alternative 1 and would be less than significant. However, there would be no impacts to aquatic communities in the Consolidated Slip/Dominguez Channel because the alignment for Alternative 2 does not cross this feature.

Terrestrial Environment

Under Alternative 2, impacts to the terrestrial environment would be the same as discussed under Alternative 1 and would be less than significant.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Under Alternative 2, impacts to wetlands would be the same as described for Alternative 1 and would be less than significant.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Alternative 2 would not involve construction in the Consolidated Slip/Dominguez Channel, so impacts to aquatic communities or fish movement resulting from sediment disturbance would be limited to the Cerritos Channel. Impacts to the Cerritos Channel would be comparable to Alternative 1 and would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Potential impacts (e, f, above) of Alternative 2 would be the same as Alternative 1 and would be less than significant.

4.5.2.3 Alternative 3

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Plants

If southern tarplant individuals were present, and could not be avoided, they would be removed permanently as a result of construction. The removal of southern tarplant or other special status plant species would be considered a significant impact. Mitigation would be required (e.g., plant salvaging and transplanting) and would reduce impacts to less than significant.

Animals

Impacts of Alternative 3 to special-status wildlife species would be comparable to, but less than, those described for Alternative 1. There would be less of an impact to American peregrine falcons because the existing nesting/roosting area on the Schuyler Heim Bridge would remain. However, construction of the replacement bridge to the east of the existing Schuyler Heim Bridge may disturb the falcon nest site on Schuyler Heim Bridge. Mitigation would be required and would reduce impacts to less than significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

A small wetland (about 0.11 acre) is present on the tidal terrace east of the Schuyler Heim Bridge and is within the footprint of Alternative 3. Implementation of Alternative 3 would result in the loss of this wetland, which would be a significant adverse impact. Mitigation would be required and would reduce this impact to less than significant.

Indirect effects on terrestrial or aquatic communities may occur from introduction of exotic, invasive species. Impacts would be comparable to those described under Alternative 1 and would be less than significant.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Potential impacts (d, e, f, above) would be the same as described under Alternative 1. These impacts would be less than significant.

4.5.2.4 Alternative 4

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Plants

Under Alternative 4, potential impacts to southern tarplant and other special-status plant species from project construction would be the same as described for replacement of the Schuyler Heim Bridge under Alternative 1. Impacts to these plant species could be significant. Mitigation would reduce impacts to less than significant.

Animals

Impacts from Alternative 4 to special-status animal species would be comparable to impacts described for Alternative 1 for replacement of the Schuyler Heim Bridge and would be considered significant. There would be no impacts to species in the vicinity of the Consolidated Slip/Dominguez Channel because the Alternative 4 bridge replacement does not occur at that location. Mitigation would be required and would reduce impacts to less than significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Under Alternative 4, potential impacts (b, c, above) would be comparable to those described under Alternative 1 for replacement of the Schuyler Heim Bridge. These impacts would be considered significant. Mitigation is required and would reduce impacts to less than significant.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?

Under Alternative 4, potential impacts (d, e, f, above) would be the same as Alternative 1 for replacement of the Schuyler Heim Bridge. Impacts would be less than significant. Therefore, no mitigation measures would be required.

4.5.2.5 Alternative 5

The amount of construction that would be required under the TSM alternative would be considerably less than under the build alternatives and would consist of activities such as widening roadways, adding turn lanes, and installing electric signs. These activities would occur within portions of the project area that are already developed and utilized for transportation uses. Therefore, due to the location and minimal extent of activities related to the TSM alternative, impacts to biological resources would be less than significant.

4.5.2.6 Alternative 6

Under the No Build alternative, there would be no change to the existing environment and, therefore to impacts to biological resources.

However, at some point in the future, the existing bridge may need to be demolished and replaced due to safety considerations. If this occurred impacts to biological resources would be comparable to those described under Alternative 1 for replacement of the Schuyler Heim Bridge.

4.5.3 Cultural Resources

Detailed discussion of the cultural resources issues addressed below is provided in Section 3.8 – Cultural Resources and Section 3.11 - Geology/Soils/Seismicity/ Paleontology/Topography/Mineral Resources. Also see Appendix A – CEQA Checklist (V, Cultural Resources).

4.5.3.1 Alternative 1

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Alternative 1 would demolish the Schuyler Heim Bridge and replace it with a new bridge. This would destroy a bridge that has been determined to be a historical resource. The Schuyler Heim Bridge was determined to be eligible for listing on the NRHP under Criterion C in engineering as the highest vertical lift bridge in the western United States and one of the most significant vertical bridges in the state of California. As the Schuyler Heim Bridge is considered to be a historic property and eligible for the NRHP, the bridge is therefore eligible for inclusion in the CRHR under Criterion 3 and is considered a historical resource for the purposes of CEQA. Therefore, under CEQA, this alternative would result in a substantial adverse change in the significance of the historical resource, and would constitute a significant impact on the Schuyler Heim Bridge, under Significance Criteria 2(A) of Section 15064.5. Mitigation would be required. However, even with mitigation, impacts would remain significant.

The CEQA Guidelines, Section 15126.4(b)(2) recognize that mitigation cannot reduce all impacts to less than significant, as follows:

In some circumstances, documentation of an historical resource, by way of historic narrative, photographs, or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur.

Therefore, even with implementing the mitigation measures shown in Table 4-1, demolition of the existing Schuyler Heim Bridge would be considered a significant environmental impact.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

No historic or prehistoric archaeological sites have been recorded within the project APE. Therefore, impacts to archaeological resources from ground-disturbing activities associated with project construction within the project area would be less than significant. Mitigation is not required.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Excavation for bridge column footings and, at depths greater than 1.5 m (5 ft) below the current ground surface, any footing for elevated roadways, including on-ramps, off-ramps, and bridge approaches, could encounter fossil remains at previously unrecorded fossil sites north of Anaheim Street. Soils located south of Anaheim Street are primarily historic artificial fill. Significant impacts to paleontological resources could occur if any such resources were encountered during construction. If paleontological resources were discovered, minimization measures (such as salvaging, cataloguing, reporting) would be required. These measures would reduce impacts to less than significant.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Alternative 1 is not expected to disturb human remains. In the event excavation should unearth any human remains, impacts would be considered less than significant. However, measures would be implemented in accordance with California Health and Safety Code Section 7050.5.

4.5.3.2 Alternative 2

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Under Alternative 2, the potential for impacts to the historical Schuyler Heim Bridge would be the same as under Alternative 1 and would be considered significant. Mitigation would be required. However, the loss of this historic resource would remain a significant adverse impact.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Under Alternative 2, the potential for significant impacts to archaeological and paleontological resources (b, c, above) would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Under Alternative 2, the potential to disturb human remains would be the same as discussed under Alternative 1, and would be less than significant. Mitigation is not required.

4.5.3.3 Alternative 3

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Under Alternative 3, the potential for impacts to the Schuyler Heim Bridge, a designated historical resource, would be less than significant, as this alternative would preserve the existing bridge.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Under Alternative 3, the potential for impacts to archaeological and paleontological resources (b, c, above) would be the same as for Alternative 1 and would be less than significant. Mitigation is not required.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Under Alternative 3, the potential to disturb human remains would be the same as discussed under Alternative 1, and would be less than significant. Mitigation is not required.

4.5.3.4 Alternative 4

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Under Alternative 4, the potential for significant impacts to the historical Schuyler Heim Bridge would be the same as under Alternative 1 and would be significant. Mitigation would be required. However, the impact of demolition of this historic resource would remain a significant adverse impact.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Under Alternative 4, the potential for impacts to cultural resources (b, c, above) would be the same as for Alternative 1 and would be less than significant. Mitigation is not required.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Under Alternative 2, the potential to disturb human remains would be the same as discussed under Alternative 1, and would be less than significant. Mitigation is not required.

4.5.3.5 Alternative 5

The amount of construction that would be required under the TSM alternative would be considerably less than under the build alternatives and would consist of activities such as widening roadways, adding turn lanes, and installing electric signs. These activities would occur within portions of the project area that are already developed for transportation uses. Therefore, due to the location and minimal extent of activities related to the TSM alternative, there would be no impact to cultural resources.

4.5.3.6 Alternative 6

Under Alternative 6, there would be no changes to the existing environment and, therefore, no impact to cultural resources.

However, at some point in the future, the existing bridge may need to be demolished and replaced due to safety considerations. If this occurred impacts to cultural resources would be comparable to those described under Alternative 1 for replacement of the Schuyler Heim Bridge.

4.5.4 Noise

Detailed discussion of the noise resources issues addressed below is provided in Section 3.14 - Noise and Chapter 5.0 – Cumulative Impacts of this Draft EIS/EIR. Also see Appendix A – CEQA Checklist (XI, Noise).

4.5.4.1 Alternative 1

The determination of impact is based upon the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Highway Reconstruction Projects* (Protocol) (1998), which states that a noise impact that requires consideration of noise abatement measures occurs when:

- There is a substantial noise increase, described as 12 dBA, Leq(h) or more over existing levels, and/or
- Noise levels approach or exceed the Noise Abatement Criteria (NAC) shown in Table 3.14-2.

For this CEQA analysis, noise that meets the above criteria is considered a significant noise impact. The following discussions address impacts relative to these criteria**.**

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

During project construction, noise from pile driving is expected to exceed the noise abatement criteria (NAC) at the Anchorage Way Marinas and Leeward Bay Marina. Pile driving would be restricted to daylight hours only, and residents would be offered hotel vouchers for a local hotel during the time that pile driving is being conducted in the Cerritos Channel or Consolidated Slip, as appropriate. With these abatement measures, impacts would be less than significant. For additional discussion, see Section 4.5.4.1 d, below.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Under Alternative 1, this potential impact would be less than significant under CEQA criteria.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Anchorage Way Marinas

At the Anchorage Way Marinas, peak-hour noise levels from operation of Alternative 1 are expected to increase by up to 1 dBA, ranging from 68 to 70 dBA (Table 3.14-5). Under existing conditions, peak-hour traffic noise levels range from 67 to 71 dBA. Because all receiver locations would approach the NAC for residential areas (67 dBA), operations impacts would be considered significant at the Anchorage Way Marinas. However, due to the limited number of benefited receivers, mitigation is not reasonable at this location.

Leeward Bay Marina

As shown in Table 3.14-7, under Alternative 1, the loudest peak-hour traffic noise levels at Leeward Bay Marina would increase from 1 to 10 dBA over existing conditions. This would be a considerable increase and would result in peak-hour noise levels of 61 to 67 dBA. Therefore, noise impacts would be considered significant. Noise abatement in the form of a noise barrier would be implemented and would result in a 5- to 7-dBA decrease in peak-hour noise levels. As a result, noise impacts would be considered less than significant at this location.

Wilmington Neighborhood

As shown in Table 3.14-9, under Alternative 1, the peak-hour traffic noise levels at the Wilmington Neighborhood would increase by 5 to 13 dBA. This noise increase would be considered a potentially significant impact under CEQA criteria and would result in noise levels at some locations within the receiver area that would approach or exceed NAC for residential areas. This would be considered a significant impact. Noise abatement in the form of two noise barriers would be implemented and would result in a 5 to 9 dBA decrease in peak-hour noise levels. As a result, noise impacts would be considered less than significant at this location.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Pile driving that will occur during Alternative 1 construction has the potential to be the loudest and most intrusive of the various construction activities that will be employed. However, pile driving is generally limited to those areas requiring a pier or vertical support structure. Pile driving operations are responsible for very high peak or impact noise levels during construction. The EPA document, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (1971), reports that pile driving operations can result in peak noise levels of 90 to 105 dBA at 15 m (50 ft), with 100 dBA being typical. The angle of the noise impact on some pile drivers is such that topography and buildings that block the line of sight for noise from grading equipment and general construction equipment may not block noise from pile driving. As a result, intervening topography or structures may not necessarily reduce noise from pile driving activities.

Based on a pile driving noise level of 100 dBA at 15 m (50 ft), noise levels at other distances can be forecast. At a distance of 150 m (500 ft), pile-driving noise could still reach levels as high as 80 dBA, but the noise level will decrease as distance from the source increases. Table 3.14-4 shows noise attenuation over distance from the pile driver (hard site assumed). Based on the attenuation shown in the table, pile-driving noise would be considered significant at the Anchorage Way Marinas and the Leeward Bay Marina. Pile driving activities for the Cerritos Channel are expected to last approximately 2 weeks (10 days) for each of the two stages of falsework pile driving. Falsework pile driving for the Consolidated Slip is expected to last less than 2 weeks (10 days). Both the Anchorage Way Marinas in the Cerritos Channel and the Leeward Bay Marina in the Consolidated Slip would be subject to significant short-term noise impacts from pile driving activities. Based on the attenuation shown in Table 3.14-4, and an estimated distance of 174 m (570 ft) between the north end of the new bridge across the Cerritos Channel and the Anchorage Way Marinas, the noise level from pile driving would be approximately 80 dBA. Based on an estimated distance of 60 m (200 ft) between the north end of the new SR-47 Expressway across the Consolidated Slip/Dominguez Channel and the Leeward Bay Marina, and attenuation shown in Table 3.14-4, the noise level from pile driving would be approximately 88 dBA.

Noise abatement would be implemented. Pile driving would be restricted to daylight hours only, and residents would be offered hotel vouchers for a local hotel during the time that pile driving is being conducted in the Cerritos Channel or Consolidated Slip, as appropriate. With these abatement measures, impacts would be less than significant.

e) For a project located within a land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The project site is not within an airport land use plan, is not located within 3.3 km (2 mi) of a public airport, and is not in the vicinity of a private airstrip. The nearest airport is Long Beach Airport, approximately 12.9 km (8 mi) northeast of the project site. A heliport used by Island Express Helicopters for trips in conjunction with the Catalina Terminal is located at Slip 93 along the Main Channel in the Port of Los Angeles. A second heliport, one that is seldom used, is located approximately 4.0 km (2.5 mi) southwest of the Schuyler Heim Bridge, at Ports O′ Call, also along the Main Channel in the Port of Los Angeles. As a result of distance from the project site, there is minimal potential for persons in the project area to be exposed to excessive noise.

Based on the above, potential impacts (e, f, above) of Alternative 1 would be less than significant under CEQA criteria.

4.5.4.2 Alternative 2

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

For Alternative 2, impacts from project construction noise would be the same as discussed under Alternative 1 for the Anchorage Way Marinas. Noise abatement measures would be implemented and would reduce impacts from construction noise to less than significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

For Alternative 2, this impact would be the same as Alternative 1 and would be less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Anchorage Way Marinas

Under Alternative 2, operations noise impacts would be the same as Alternative 1 and would be less than significant at the Anchorage Way Marinas.

Long Beach Neighborhood/SR-103 Extension

As shown in Table 3.14-13, under Alternative 2, peak-hour noise levels would either decrease (by 1 to 4 dBA), increase (1 to 2 dBA), or remain the same as under existing conditions. Because noise levels would continue to approach or exceed the NAC for residential areas at some locations, this alternative would result in a significant noise impact under CEQA. Noise abatement in the form of noise barriers would be implemented and would reduce peak-hour noise levels by 1 to 14 dBA. With implementation of noise abatement, no locations within the Long Beach Neighborhood/SR-103 Extension receiver area would approach or exceed the NAC for residential areas. Noise impacts would be considered less than significant.

Leeward Bay Marina

This receiver area would not be affected by Alternative 2 operations.

Wilmington Neighborhood

This receiver area would not be affected by Alternative 2 operations.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

For Alternative 2, noise impacts from pile driving during project construction would be the same as described for Alternative 1 at the Anchorage Way Marinas. Noise abatement would be implemented and would reduce impacts to less than significant. Under Alternative 2, there would be no impact to the Leeward Bay Marina, or other receiver areas, as pile driving would not occur at those locations.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Potential impacts (e, f, above) of Alternative 2 would be the same as for Alternative 1 and would be less than significant.

4.5.4.3 Alternative 3

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

For Alternative 3, impacts from project construction noise would be the same as discussed under Alternative 1 for the Anchorage Way Marinas. Noise abatement measures would be implemented and would reduce impacts from construction noise to less than significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Under Alternative 3, this potential impact would be the same as discussed under Alternative 1 and would be less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Anchorage Way Marinas

Under Alternative 3, peak-hour traffic noise levels at the Anchorage Way Marinas would decrease by 1 to 3 dBA (Table 3.14-13). Impacts would be considered less than significant.

Leeward Bay Marina

Under Alternative 3, potential impacts to the Leeward Bay Marina would be the same as discussed under Alternative 1 (Table 3.14-7) and would be significant. Noise abatement would be implemented as described under Alternative 1.

Wilmington Neighborhood

Under Alternative 3, potential impacts to the Wilmington Neighborhood would be the same as discussed under Alternative 1 and would be considered potentially significant. Noise abatement would be implemented and would reduce impacts to less than significant.

Long Beach Neighborhood/SR-103 Extension

This receiver area would not be affected by Alternative 3 operations.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Under Alternative 3, construction impacts would be the same as described for Alternative 1. Impacts from pile driving would be significant at the Anchorage Way Marinas and the Leeward Bay Marina. Noise abatement would be implemented, and impacts would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Under Alternative 3, potential impacts (e, f, above) would be the same as for Alternative 1 and would be less than significant.

4.5.4.4 Alternative 4

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

For Alternative 4, construction impacts would be comparable to those for Alternative 1 for the Cerritos Channel only, as Alternative 4 consists solely of replacement of the Schuyler Heim Bridge. Impacts of pile driving would be mitigated to less than significant at the Anchorage Way Marinas.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

This potential impact would be the same as Alternative 1 for replacement of the Schuyler Heim Bridge and would be less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Anchorage Way Marinas

Under Alternative 4 operations, peak-hour noise levels would decrease by 2 to 5 dBA, and impacts would be considered less than significant.

Leeward Bay Marina, Long Beach Neighborhood/SR-103 Extension, Wilmington Neighborhood

These three noise receiver areas would not be affected by operation of Alternative 4.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Anchorage Way Marinas

Under Alternative 4, construction impacts would be the same as described for Alternative 1 for activities related to replacement of the Schuyler Heim Bridge. Impacts from pile driving would be less than significant at the Anchorage Way Marinas after abatement.

Leeward Bay Marina, Long Beach Neighborhood/SR-103 Extension, Wilmington Neighborhood

These three noise receiver areas would not be affected by construction of Alternative 4.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Under Alternative 4, potential impacts (e, f, above) would be the same as described under Alternative 1 and would be less than significant.

4.5.4.5 Alternative 5

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Under Alternative 5, potential impacts (a, b, above) would not occur.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Anchorage Way Marinas, Leeward Bay Marina

Under Alternative 5, future noise levels would be the same as under Alternative 6, the No Build alternative (see Tables 3.14-5 and 3.14-6). Peak-hour noise levels would increase by 4 dBA at the Anchorage Way Marinas and by 3 to 4 dBA at the Leeward Bay Marina, due to projected increases in traffic volume. This would not be considered a significant impact under CEQA, but all receiver locations would either approach or exceed the applicable NAC by Year 2030. Noise abatement may be required in the future due to increases in background traffic volumes. No noise abatement measures are proposed at this time.

Wilmington Neighborhood

Under Alternative 5, future noise levels would be the same as under Alternative 6, the No Build alternative (see Table 3.14-8). Peak-hour noise levels would increase by 7 to 9 dBA, due to an increase in traffic volume. This would not be considered a significant impact, but some receiver locations would approach or equal the NAC by Year 2030. Noise abatement may be required in the future due to increases in background traffic volumes. No noise abatement measures are proposed at this time.

Long Beach Neighborhood/SR-103 Extension

Under Alternative 5, future noise levels would be the same as under Alternative 6, the No Build alternative (see Table 3.14-11). Peak-hour noise levels would either equal the existing condition or increase by 1 to 2 dBA due to an increase in traffic volume. This would not be considered a significant impact, but a number of areas would either approach or exceed the NAC by Year 2030. Noise abatement may be required in the future due to increases in background traffic volumes. No noise abatement measures are proposed at this time.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Under Alternative 5, potential impacts (d, e, f, above) would not occur.

4.5.4.6 Alternative 6

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Under Alternative 6, potential impacts (a, b, above) would not occur.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Under Alternative 6, potential impacts to the Anchorage Way Marinas, Leeward Bay Marina, Wilmington Neighborhood, and Long Beach Neighborhood/SR-103 Extension would be less than significant (Tables 3.14-5, 3.14-6, 3.14-8, and 3.14-11). However, within these noise receiver areas, noise levels would approach or exceed the NAC by Year 2030. Noise abatement may be required in the future die to increases in background traffic volumes. No noise abatement measures are proposed at this time.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Under Alternative 6, potential impacts (d, e, f, above) would not occur.

4.5.5 Transportation/Traffic

Detailed discussion of the noise resources issues addressed below is provided in Section 3.5 – Traffic and Transportation and Chapter 5.0 – Cumulative Impacts of this Draft EIS/EIR. Also see Appendix A – CEQA Checklist (XV, Transportation/Traffic).

4.5.5.1 Alternative 1

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Would the project result in inadequate emergency access?

Potential impacts (a, b, c, d, e, above) of Alternative 1 would be less than significant. Mitigation is not required.

f) Would the project result in inadequate parking capacity?

During project construction, Alternative 1 would have temporary impacts to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S terminals. Construction would take up to 820 off-street employee parking spaces and 54 marine terminal equipment spaces. The project includes provision of temporary parking spaces prior to construction as part of project design.

During project operation, Alternative 1 is anticipated to have permanent impacts to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal. Compensation for this loss of parking capacity will be provided as part of the project, based on an agreement between Caltrans and the Port of Long Beach.

Based on the above, potential impacts would be less than significant.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No bike racks, bike lanes, or bus turnouts are anticipated to be impacted by Alternative 1, and no conflict is anticipated to occur with adopted policies, plans, or programs supporting alternative transportation. Alternative 1 is not projected to interrupt or cause any change or delay in the existing or future transit ridership or transit routes. Further, Alternative 1 is not anticipated to interfere with the Los Angeles River bike path. Impacts would be less than significant.

4.5.5.2 Alternative 2

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Would the project result in inadequate emergency access?

Potential impacts (a, b, c, d, e, above) of Alternative 2 would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

f) Would the project result in inadequate parking capacity?

During project construction, Alternative 2 would have temporary impacts to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S terminals. Construction would take up to 820 off-street employee parking spaces and 54 marine terminal equipment spaces. The project includes provision of temporary parking spaces prior to construction as part of project design.

During project operation, Alternative 2 is anticipated to have permanent impacts to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal. Compensation for this loss of parking capacity will be provided as part of the project, based on an agreement between Caltrans and the Port of Long Beach.

Based on the above, potential impacts would be less than significant.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Under Alternative 2, potential impacts related to alternative transportation would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

4.5.5.3 Alternative 3

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Would the project result in inadequate emergency access?

Potential impacts (a, b, c, d, e, above) of Alternative 3 would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

f) Would the project result in inadequate parking capacity?

During project construction, Alternative 3 would have temporary impacts to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S terminals. Construction would take up to 977 off-street employee parking spaces and 167 marine terminal equipment spaces. The project includes provision of temporary parking spaces prior to construction as part of project design.

During project operation, Alternative 3 would not affect any permanent parking spaces.

Based on the above, potential impacts would be less than significant.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Under Alternative 3, potential impacts related to alternative transportation would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

4.5.5.4 Alternative 4

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Would the project result in inadequate emergency access?

Potential impacts (a, b, c, d, e, above) of Alternative 4 would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

f) Would the project result in inadequate parking capacity?

During project construction, Alternative 4 would have temporary impacts to off-street employee parking and marine terminal equipment parking at the Port of Long Beach Pier A East and Pier S terminals. Construction would take up to 587 off-street employee parking spaces and 54 marine terminal equipment spaces. The project includes provision of temporary parking spaces prior to construction as part of project design.

During project operation, Alternative 4 is anticipated to have permanent impacts to approximately 15 employee parking spaces at the Port of Long Beach Pier S Terminal. Compensation for this loss of parking capacity will be provided as part of the project, based on an agreement between Caltrans and the Port of Long Beach.

Based on the above, potential impacts would be less than significant.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Under Alternative 4, potential impacts related to alternative transportation would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

4.5.5.5 Alternative 5

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Would the project result in inadequate emergency access?

Potential impacts (a, b, c, d, e, above) of Alternative 5 would be the same as under Alternative 1 and would be less than significant. Mitigation is not required.

f) Would the project result in inadequate parking capacity?

Potential loss of parking under Alternative 5 is undetermined at this time. However, if loss of parking should occur, impacts would be expected to be less than significant.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Alternative 5 is not expected to impact alternative transportation. In the event impact should occur, it is expected to be less than significant.

4.5.5.6 Alternative 6

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Under Alternative 6, existing traffic delays would continue, and are expected to increase, concurrent with projected increases in traffic volumes in the ports area. The Ocean Boulevard/SR-47 intersection is expected to operate at a deficient level of service at year 2030. No mitigation is proposed at this time.

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Under Alternative 6, levels of service would either stay the same or decrease, concurrent with projected increases in traffic volumes in the ports area. No mitigation is proposed at this time.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Under Alternative 6, potential impacts (c, d, above) would not occur.

e) Would the project result in inadequate emergency access?

This alternative would have no effect on existing emergency response times in the project area. However, the existing Schuyler Heim Bridge would remain seismically deficient and could be damaged during a major seismic event, with subsequent effects to land- and water-based emergency response routes and times.

f) Would the project result in inadequate parking capacity?

Under Alternative 6, there would be no change to existing conditions. Therefore, there would be no impact to alternative transportation policies or facilities.

4.5.6 Mandatory Findings of Significance

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

4.5.6.1 Cultural Resources

4.5.6.1.1 Alternatives 1, 2, and 4

Potentially significant. These alternatives would demolish the Schuyler Heim Bridge and replace it with a new bridge. This would destroy a bridge that has been determined to be a historical resource. The Schuyler Heim Bridge was determined to be eligible for listing on the NRHP under Criterion C in engineering as the highest vertical lift bridge in the Western United States and one of the most significant vertical bridges in the state of California. As the Schuyler Heim Bridge is considered to be a historic property and eligible for the NRHP, the bridge is therefore eligible for inclusion in the CRHR under Criterion 3 and is considered a historical resource for the purposes of CEQA. Therefore, under CEQA, this alternative would be considered a substantial adverse change in the significance of the historical resource, and would constitute a significant impact on the Schuyler Heim Bridge, under Significance Criteria 2(A) of Section 15064.5. Mitigation would be required. However, even with mitigation, impacts would remain significant.

4.5.6.1.2 Alternatives 3, 5, and 6

Potentially significant. Under these alternatives, the Schuyler Heim Bridge would remain in place, unaltered except through routine maintenance and upkeep. However, the bridge's overall condition would be expected to continue to deteriorate. This could be considered an indirect effect under Adverse Effect Criteria 2(iv) and 2(vi) (36 CFR 800.5(a).

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

4.5.6.2 Air Quality

4.5.6.2.1 Alternatives 1, 2, 3, and 4

Potentially significant Under these alternatives, construction would result in adverse effects to air quality, even after mitigation. Therefore, these impacts, plus those of other, concurrent, construction projects would be expected to be adverse. Therefore, project construction would contribute to cumulatively adverse effects to air quality.

During project construction and operations, significant emissions of NO_X would occur as a result of marine vessel detours around Terminal Island. These emissions would contribute to cumulatively significant impacts to air quality.

4.5.6.2.2 Alternatives 5 and 6

No impact There would be minimal impacts of Alternative 5 construction and no impacts of Alternative 5 operations or Alternative 6. Therefore, these alternatives would not contribute to cumulative impacts to air quality.

4.5.6.3 Traffic and Transportation

4.5.6.3.1 Alternatives 1, 2, 3, 4, and 5

No impact These alternatives would contribute to improved traffic flow in the project area and, therefore, would not result in cumulative impacts to traffic and transportation.

4.5.6.3.2 Alternative 6

Potentially significant This No Build alternative would make no changes to improve deficient transportation flow in the project area. With Alternative 6, congestion from queuing at the Schuyler Heim Bridge and from delays at the Ocean Boulevard/SR-47 intersection would continue, with projected increases in delays. As a result, when considered with other development projects, the No Build alternative could be considered to contribute to ongoing cumulative effects to Traffic and Transportation in the project area.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

4.5.6.4 Air Quality

4.5.6.4.1 Alternatives 1, 2, 3, and 4

Potentially significant

<u>Construction Impacts</u>

During project construction, emissions would be from construction equipment exhaust and fugitive dust. The direct emissions of CO, NO_X, ROG, SO_X, and PM_{10} are predicted to exceed daily significance thresholds during construction of the Alternatives 1, 2, 3, or 4. This would be considered a temporary significant impact to air quality. Impacts to sensitive receptors near construction areas would decrease with distance from the source of the impact. Although construction laydown areas would be located as far from sensitive receptors as the project would allow, impacts could be significant. Mitigation is required.

In addition, indirect emissions would emanate from marine vessels having to detour around Terminal Island during construction of the new bridge. The indirect marine vessel emissions exceed the SCAQMD NO_X threshold. Therefore, marine vessel NO_X emissions would result in a temporary, significant air quality impact. Mitigation is required.

Together, the direct and indirect emissions of CO, NO_X, ROG, SO_X, and PM_{10} are predicted to exceed daily significance thresholds during project construction and, therefore, would result in a temporary significant impact to air quality. However, even with mitigation, construction emissions would be expected to remain in excess of daily significance thresholds and, therefore, be a temporary significant impact.

Operations Impacts

Indirect operation emissions would result from marine vessel detours around Terminal Island. Daily emissions of NO_X exceed the SCAQMD threshold. In addition, bridge traffic during project operation would result in a net increase in emissions greater than the SCAQMD thresholds for NO_X. Therefore, although an indirect impact of the project alternative, the net increase in NO_X emissions from marine vessel detours and bridge traffic would result in a significant air quality impact; mitigation is required. However, even with mitigation, operation emissions would remain significant.

4.5.6.4.2 Alternative 5

[illegible] Under the TSM alternative, construction would be minimal and there would be no effect to marine vessel operations, so there would be minimal contributions to, and no violations of, existing or projected air quality standards.

The TSM alternative would be designed to improve traffic flow and reduce delays, which would be expected to reduce vehicle emissions. Also, the Schuyler Heim Bridge would not be replaced, so marine vessel operations would not change. Therefore, under this alternative, operations would not violate any air quality standard or contribute substantially to an existing or projected air quality violation

4.5.6.4.3 Alternative 6

[illegible] Under Alternative 6, there would be no changes to the existing environment. This alternative would not result in violation of an air quality standard or contribute substantially to an existing or projected air quality violation.

4.6 Unavoidable Significant Environmental Effects

This section addresses the unavoidable significant environmental effects of the proposed project alternatives. These are significant impacts that, even with mitigation, cannot be reduced to a level that is less than significant. For each potential impact evaluated, the CEQA criteria are utilized to assess whether or not the impact can be mitigated to a level that is less than significant. The conclusions that the impacts identified in this section cannot be mitigated to less than significant is based on analyses provided in Chapter 3.0 and in Section 4.2.2, above, as applied to the CEQA criteria.

In this section, Table 4-2 identifies the unavoidable adverse impacts by environmental resource and project alternative. As shown in the table, one environmental resource area, Air Quality, would result in unavoidable significant environmental effects for

Alternatives 1, 1A, 2, 3, and 4. In addition, implementation of Alternatives 5 or 6 could result in significant impacts related to Noise and Traffic. One environmental resource area, Cultural Resources, would result in unavoidable significant environmental effects related to a historic resource (Schuyler Heim Bridge) for Alternatives 1, 1A, 2, 3, and 4. As described in Section 4.2.2, above, and as shown in Table 4-1, for all other resource areas and alternatives, potentially significant impacts would be mitigated to a level that is less than significant.

4.7 Climate Change

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas[1] (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year. On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05. The goal of EO S-3-05 is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by 2020, and 3) 80 percent below 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals as EO S-3-05, while further mandating that ARB create a plan, including market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." EO S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

Climate change and GHG reduction is also a concern at the federal level. At this time, however, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change.

4.7.1 Affected Environment

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change, a cumulative impact of GHG emissions. A project participates in this potential impact through its incremental contribution, combined with the cumulative impact of all other sources of GHG (AEP, 2007).

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emissions reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the *Climate Action Program at Caltrans* (2006).

[1] Greenhouse gases related to human activity include: carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23, HFC-134*, and HFC-152a*.

One of the main strategies in the Caltrans Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour [mph]) and speeds over 55 mph. Relieving congestion by enhancing operations and improving travel times in high congestion travel corridors will lead to an overall reduction in GHG emissions. "

The proposed project is designed to reduce traffic congestion and vehicle time delays along the Alameda Corridor between Ocean Boulevard on Terminal Island and I-405 on the mainland to the north, on local surface streets, and along the portions of I-110 and I-710 that extend northward from the ports area. The flyover specifically would reduce congestion for traffic bound for northbound SR-47 from Ocean Boulevard, enabling this traffic to avoid the signalized intersection and Ocean Boulevard and SR-47.

The Traffic Study prepared for the proposed project (MMA, 2007) addressed 22 intersections within the study area. Without the project, by 2030, more than one-half of these intersections would operate at LOS E or LOS F during one or more peak hours. Additionally, traffic on surface streets would be subject to delays from at-grade rail crossings. Project alternatives 1, 2, and 4 would eliminate six at-grade rail crossings, thereby eliminating congestion and delays at these locations.

The existing transportation system in the ports area is becoming increasingly constrained with cargo traffic and other vehicular traffic. A POLA/POLB study forecast that the amount of cargo entering the ports is expected to nearly double between 2010 and 2020. At the same time, the amount of port-related truck traffic is expected to double. These increases would result in further congestion between the ports and the regional freeway system.

The project's inclusion in the Regional Transportation Plan and/or Regional Transportation Improvement Program and improved traffic flow for the region would result in improved traffic flow. As a result, carbon dioxide emissions should be reduced, despite what may be an increase in vehicle miles traveled (VMT).

4.7.2 Conclusion

Caltrans recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in GHG emissions levels, including carbon dioxide, at the project level is not currently possible. No federal, state or regional regulatory agency has provided methodology or criteria for GHG emissions and climate change impact analysis. Therefore, Caltrans is unable to provide a scientific or regulatory based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

Caltrans continues to be actively involved on the Governor's Climate Action Team as the ARB works to implement AB 1493 and AB 32. Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies as part of the *Climate Action Program at Caltrans* (2006). These include job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks. However, it is important to note that control of fuel economy standards is held by the United States Environmental Protection Agency and ARB. Lastly, the use of alternative fuels is also being considered. Caltrans is participating in funding for alternative fuel research at the University of California, Davis.

4.8 Mitigation Measures for Significant Impacts under CEQA

Mitigation measures that will be implemented for impacts determined under CEQA to be significant are shown in Table 4-1. A complete list of the avoidance, minimization, and mitigation measures for the proposed project are set forth in the Summary (Table S-1) and in the environmental resource discussions in Chapter 3.0.

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
AIR QUALITY		
CONSTRUCTION **Alternatives 1, 1A, 2, 3, 4** The direct sources of construction emissions would be from construction equipment exhaust or fugitive dust. Direct emissions of CO, NO_X, ROG, SO_X, and PM_{10} are predicted to exceed daily significance thresholds during construction.	**Mitigation Measures for PM_{10}** **AQ-1** Apply nontoxic soil stabilizers to all inactive construction areas (previously graded areas inactive for 10 days).	Significant
The indirect source of construction emissions would be from marine vessels having to detour during construction. Emissions from marine vessels would exceed the SCAQMD NO_X threshold. *Total* Total emissions (direct plus indirect) of CO, NO_x, ROG, SO_x, and PM_{10} are predicted to exceed daily significance thresholds during project construction.	**AQ-2** Replace ground cover in disturbed areas as quickly as possible.	Significant
	AQ-3 Reduce traffic speed on all unpaved roads to 15 mph or less.	Significant
	Mitigation Measures for CO, ROG, NO_x, and SO_x **AQ-4** Develop and implement a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees.	Significant
	AQ-5 Implement a shuttle service for construction workers to and from retail services and food establishments during lunch hours.	Significant
	AQ-6 Prohibit truck idling in excess of 2 minutes.	Significant
	AQ-7 Suspend use of all construction equipment operations during second-stage smog alerts.	Significant
	AQ-8 Use electricity, if feasible, from power poles rather than temporary diesel- or gasoline-powered generators. Using electricity from power poles is an effective measure to reduce emissions of ROG, NO_X, CO, and PM_{10} from generators. Reduction efficiencies for these compounds are 97 to 99 percent.	Significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
	AQ-9 Heavy Duty Truck Buyback Program The purpose of the buyback program would be to accelerate the modernizing of the heavy duty engine fleet operating in the South Coast Air Basin. By removing the older engines in the fleet and requiring replacement with newer, cleaner vehicles, a net reduction of NOx emissions (and other combustion pollutants) would occur. This reduction would help offset marine vessel detour emissions. The protocols to be used would be consistent with the Carl Moyer Program, which is already being administered by the SCAQMD. However, this program is not available to projects such as Schuyler Heim Bridge Replacement and could not be used to actually implement this project's buy-back program. The Gateway Cities Diesel Fleet Modernization Program would be an example of a buyback program with similar reduction goals. Also, the POLA/POLB Clean Air Action Plan has a heavy duty truck buy back component. While participating in already existing programs might be preferable (and possible), it would not be necessary in order to accomplish heavy duty truck buy back. The heavy duty truck buy back could be done independently, though it would have to adhere to already accepted protocols (SCAQMD). A heavy duty truck buyback program would consist of three steps 1) identify target vehicles based on year of make; 2) provide incentives for operators to participate 3) establish a means to ensure that replacements meet the net improvement forecasted. The construction phase of this project is where the greatest impact of increased emission levels occurs. Therefore, the buyback program would be designed to mitigate the NOx emissions during that time. Based on recent buyback programs, the program for the proposed project would cost from $25,000 to $50,000 /ton of NOx reduced. This cost can vary significantly and will continue to increase as time passes. The number of tons mitigated would be based on marine vessel detour NOx emissions during construction. The rerouting of shipping vessels during project construction would amount to 132.8 lbs NOx per day, which is equivalent to 24.2 tons NOx per year. The indirect marine vessel emissions would be mitigated to a level that is below the SCAQMD significance threshold for construction emissions. It is estimated that each truck replacement would reduce an average of 0.55 tons per year of NOx and 0.12 tons per year of PM. This is based on emission factors representative of current buyback programs such as the Gateway Cities Diesel Fleet Modernization Program. These emission reductions would continue for 3 to 5 years, depending on the year of the truck updated. This timeframe would exceed the duration of the project construction phase.	Less than Significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
OPERATIONS **Alternatives 1, 1A, 2, 3, 4** Indirect emissions would result from marine vessel detours during operation of the new bridge. Daily emissions of NO_X would exceed the SCAQMD threshold. Operation of the new bridge would result in a net increase in emissions greater than the SCAQMD thresholds for NO_X.	No mitigation measure is proposed for project operations.	Significant
BIOLOGICAL RESOURCES		
CONSTRUCTION **Alternatives 1, 1A, 3** Noise and construction activity in vicinity of least tern nesting colonies could disrupt breeding activities. The project would result in the removal of one known peregrine falcon nesting location on the Schuyler Heim Bridge, in a territory that typically supports one pair but contains two alternate nesting locations.	**B-11 Mitigating for Breeding Colonies of Least Tern** This measure may include the following, pending consultation with USFWS: • Breeding habitat would be disrupted during the non-nesting season when terns are absent from the site. The disruption may include placement of barriers to discourage nesting. • Breeding habitat to compensate for loss would be identified and established, possibly in coordination with existing tern mitigation programs implemented by Los Angeles Harbor at other locations, such as at Pier T.	Less than significant
	B-12 Mitigating Loss of Peregrine Falcon Nest This measure may include the following, as appropriate, pending informal consultation with CDFG: • Create a new nest site by placing a nesting box (and potential additional support material) on a tower of the Badger Avenue Bridge or other elevated structure, as determined by a qualified biologist. Because the Badger Avenue Bridge is located immediately adjacent to the Schuyler Heim Bridge, and is approximately the same height, there is the potential that it could provide a suitable vantage point and nesting location to peregrine falcons. The peregrine pair has never nested on this bridge in the past but this may be due to an absence of suitable nesting platforms and substrate. Further evaluation of any design changes or nesting ledge installations by a qualified peregrine expert would be conducted. • Offsite mitigation. The goal of the offsite mitigation would be to augment existing peregrine populations. This could be accomplished by purchasing approximately 10 nestling peregrines from a captive breeding facility and having those young released (hacked) in an area of California where, when they disperse, they will possibly create a new nesting pair. • The local peregrine falcon population (approximately five pairs) would be monitored for 2 years. The pair located on the Schuyler Heim Bridge would be monitored to determine if they nest on the Badger Bridge, or if they integrate into other territories by filling a vacancy	Less than significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
	in another pair, or by usurping existing individuals in a pair. If offsite mitigation is conducted, hacked peregrine falcons would be monitored to determine their fate and if a new nesting pair is established. An experienced peregrine falcon biologist would conduct monitoring of the hacked peregrine falcons.	
Alternatives 1, 1A, 2, 3, 4 <u>Construction activities could result in removal of Southern Tarplant.</u>	**B-13 Mitigating Loss of Special Status Plant Species** If special-status plant species cannot be avoided during project construction, then seed and/or propagules of the species would be collected and replanted at an alternative location. These activities will be conducted in coordination with the resource agencies. – Mitigation measures would be refined in coordination with the resource agencies and standard practices for this species. Measures may include the following: Areas determined to have appropriate hydrology and soil chemistry (salinity) shall be reseeded with seed collected from populations of southern tarplant. Southern tarplant is restricted to saline, vernally mesic areas, often along the margins of estuaries or areas of high salinity. – For one year prior to construction as feasible, southern tarplant seed shall be collected by personnel experienced in collection of native seeds. Seed collection shall be conducted during successive years from September through December. One-half of the first year's collected seed shall be hand-broadcast at the reintroduction site with the remaining one-half stored in appropriate conditions for introduction the following year. Seed collected during the second season shall be stored for potential later use in the event that success standards are not met following the seeding during years one and two. – Because southern tarplant is an annual species, population numbers are expected to naturally fluctuate from year to year depending upon environmental conditions. Reseeded areas shall be monitored for three years following the initial seeding. Establishment shall be considered successful if plant densities during any of the three years of monitoring are comparable to densities of the impacted populations based on sampling quadrants. If established populations do not achieve comparable densities of impacted populations, additional reintroduction sites shall be identified and stored seed, obtained during the collection period, shall be introduced into additional sites over a two-year period (as in the initial reintroduction program described above).	Less than significant
Noise from project construction activities could disrupt breeding activities of the burrowing owl.	**B-14 Mitigating for Burrowing Owl** Burrowing owl individuals present within the construction area would be flushed from active burrows during the non-nesting season (August to January) and burrows excluded. These activities would be conducted in a manner consistent with the *Burrowing Owl Survey Protocol and Mitigation Guidelines*, prepared by The California Burrowing Owl Consortium in 1997. Exclusions would require maintenance and monitoring to assure that individuals do not return.	Less than significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
CONSTRUCTION **Alternative 3** A small (about 1/4-acre) wetland is present within the footprint of Alternative 3, along the south bank of Cerritos Channel, just east of the existing Schuyler Heim Bridge. This wetland is likely to be removed under Alternative 3, as the proposed bridge alignment is directly in line with the wetland location.	**B-15 Mitigating Loss of Wetland** Under Section 404 of the Clean Water Act, a permit would be required from USACE prior to impacting waters of the U.S., including wetlands: • This may be achieved through the Nationwide Permit system, or an Individual Permit. • Compliance to permit conditions would be required. • The permit is likely to require implementation of mitigation to offset effects to waters of the U.S., including wetlands. This may include creation of offsite wetlands, or payment of fees into existing mitigation banks.	Less than significant
CULTURAL/PALEONTOLOGICAL RESOURCES		
CONSTRUCTION **Alternatives 1, 1A, 2, 4** Demolition and replacement of the existing Schuyler Heim Bridge would constitute an Adverse Effect on the bridge, under Adverse Effect Criterion 2(i), 36 CFR 800.5(a). In addition, demolition of the Schuyler Heim Bridge would be considered an adverse effect under significance Criterion 2(A), Section 15064.5 of the CEQA Guidelines.	**CR-3** The bridge shall be offered for sale for reuse in an alternate location to interested public agencies and non-profits. A marketing plan shall be prepared for the sale of the bridge including: a notification letter, fact sheet, list of intended recipients, as well as provisions for the salvage of smaller components in the case that there is no interest in re-use of the bridge. Advertisements shall be placed in appropriate newspapers of record. The offer shall run for 6 months. If no acceptable bids are received after 6 months this stipulation shall be deeded to have been met. The above shall be done in accordance with the U.S. Department of Transportation Historic Bridge Program 23USC144(o)(4)(A) and (B).	Significant
If the US Coast Guard requires demolition of the Schuyler Heim Bridge following implementation of Alternative 3, ground-disturbing activities associated with bridge demolition have the potential to affect as yet unknown archaeological resources within the project APE.	**CR-4** Informative permanent metal plaques shall be installed at both ends of the new bridge at public locations that provide a brief history of the original bridge, its engineering features and characteristics, the reasons for its demolition, and a statement of the characteristics of the replacement structure.	Significant
	CR-5 Pursuant to Section 110(b) of the NHPA, before the Bridge is demolished, the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) shall be contacted to determine what level and kind of recordation is required for the property. All documentation shall be completed and accepted by HABS/HAER before the Bridge is demolished.	Significant
	CR-6 Copies of the HABS/HAER report shall be disseminated to the City of Los Angeles Public Library and the City of Long Beach Public Library.	Significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
	CR-7 Information from the HABS/HAER report shall be available to the public for 10 years on an appropriate internet website.	Significant
	CR-8 A documentary (motion picture or video) shall be produced and shall address the history of the Bridge, its importance and use within the history of the Port of Long Beach and Port of Los Angeles, and demonstrate its operation and function. The motion picture or video will be of broadcast quality, of sufficient length for a standard 30-minute time period and will be made available for local broadcast stations to public access channels in local cable systems and to schools/libraries.	Significant
	CR-9 Traveling museum exhibits shall be prepared and shall address the history of the Bridge, its importance and use within the history of the Port of Long Beach and the Port of Los Angeles, and demonstrate its operation and function, appropriate for display in small museums, or for use in schools.	Significant
	CR-10 Artifacts removed from the Bridge during preliminary stages of the demolition process shall be offered to local museums, and provide for their delivery to accepting institutions. Examples of such artifacts may include, but not be limited to, control panels, instruments, structural members, railings, signage, plaques or other identifying ornamentation, street lights, navigation lights, etc.	Significant
	CR-11 Measures CR-3, CR-5, CR-8, and CR-10, above, shall be completed prior to demolition of the Bridge. All stipulations shall be completed within 1 year of demolition, unless an extension of time is agreed upon.	Significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
NOISE		
CONSTRUCTION **Alternatives 1, 1A, 3** Both the Cerritos Channel and Consolidated Slip marinas would be subject to substantial noise effects from pile driving construction activities. Pile driving activities for the Cerritos Channel are expected to last approximately 2 weeks (10 days) for each of the two stages of falsework pile driving. Falsework pile driving for the Consolidated Slip is expected to last less than 2 weeks (10 days).	**N-2** During project construction, pile driving will occur during daylight hours only. **N-3** Residents identified as being impacted by noise from pile driving in Cerritos Channel or Consolidated Slip may obtain hotel vouchers for a local hotel so they can temporarily move. This mitigation measure would apply only during the time that pile driving is being conducted in the Cerritos Channel or Consolidated Slip. Some residents may, however, choose to stay and tolerate the noise. No other mitigation or compensation measure would be provided to residents.	Less than significant
CONSTRUCTION **Alternatives 2, 4** The Cerritos Channel marinas would be subject to substantial noise effects from pile driving construction activities. Pile driving activities for the Cerritos Channel are expected to last approximately 2 weeks (10 days) for each of the two stages of falsework pile driving.	See **N-2** and **N-3,** above.	Less than significant
OPERATION **Alternatives 1, 1A, 3** Leeward Bay Marina The peak-hour traffic noise levels would increase by 1 to 10 dBA over existing conditions. Without abatement, the predicted loudest hourly noise levels would range from 61 to 67 dBA L_{eq}(h). This alternative would result in noise levels at some locations that would approach the Noise Abatement Criteria (NAC) for residential areas.	**N-4** Leeward Bay Marina Caltrans and FHWA will incorporate noise abatement in the form of a barrier along the SR-47 Expressway, with an approximate length of 239 m (785 ft) and an average height of 2.44 m (8 ft). The barrier will abate future traffic noise at 65 benefited noise-sensitive receivers. Preliminary reasonableness calculations indicate the estimated barrier cost would be approximately $23,400 per benefited residence, which is within the allowance per residence of $50,000 to $54,000.	Less than significant
Wilmington Neighborhood The peak-hour traffic noise levels would increase from 5 to 13 dBA over existing conditions. Without abatement, the predicted loudest hourly noise levels would range from 61 to 69 dBA L_{eq}(h). This alternative would result in noise levels at some locations that would exceed the NAC for residential areas.	**N-5** Wilmington Neighborhood For the Wilmington neighborhood, a barrier along the SR-47 Expressway and another on ground level along Alameda Street, with an approximate combined length of 1,405 m (4,610 ft) and height of 3.66 m (12 ft) to 5.49 m (18 ft) would be constructed to abate future traffic noise at 56 benefited noise sensitive receivers. Preliminary reasonableness calculations indicate that the estimated barrier cost would be approximately $37,500 per benefited residence, which is within the allowance per residence of $48,000.	Less than significant

Table 4-1
Significant Environmental Impacts and Mitigation Measures

Environmental Resource/Project Alternative/ Significant Impacts	Mitigation Measures*	Level of Significance After Mitigation
OPERATION **Alternative 2** Long Beach Neighborhood/SR-103 Extension The loudest hourly traffic noise level would either decrease by 1 to 4 dBA, increase by 1 to 2 dBA, or equal existing conditions. Without abatement, the predicted peak-hour noise levels at this location would range from 62 to 72 dBA L_{eq}(h). The new noise levels would approach the NAC at many locations within this residential receiver area.	**N-6** Long Beach Neighborhood/SR-103 Extension Caltrans and FHWA will incorporate noise abatement in the form of two barriers along SR-103 with an approximate combined length of 835 m (2,740 ft) to abate traffic noise levels. The two barriers would be 3.66 m (12 ft) high, the barrier section along the northbound off-ramp would be 4.57 m (15 ft) high. The barriers would reduce noise levels in the receiver areas to below the NAC and would reduce noise levels by 1 to 14 dBA for 27 equivalent frontage units. Preliminary reasonableness calculations indicate that the barriers would cost approximately $37,100 per benefited unit, which is below the allowance per residence of $44,000 to $52,000. The locations of the noise barriers are based on preliminary engineering plans and, as such, are considered to be approximate. The exact locations of these barriers would be determined during final design based on safety, engineering, and feasibility.	Less than significant

Table 4-2
CEQA Unavoidable Adverse Impacts

Environmental Resource	Applicable Alternative	Unavoidable Adverse Impact
Air Quality	Alternatives 1, 1A, 2, 3, and 4.	Short-term construction activities will result in unavoidable adverse air quality impacts for ROG, NO_x, CO, and PM_{10}. Long-term air emissions from project operation and detoured marine vessels will result in unavoidable adverse air quality impacts for NO_x.
Cultural Resources	Alternatives 1, 1A, 2, and 4.	Demolition of the existing Schuyler Heim Bridge, which has been determined to be a historical resource and is eligible for listing on the NRHP and in the CRHR, would be an unavoidable adverse impact.
	Alternative 3	The bridge approaches would be removed, and the bridge would no longer used for vehicular traffic. While this alternative retains the historic property in place, it would change the character of the bridge's original use, which would be considered an unavoidable adverse impact.
Traffic	Alternative 6	Existing traffic delays would increase, and the Ocean Boulevard/SR-47 intersection is expected to operate at a deficient level of service by 2030, an unavoidable adverse impact of this alternative.

Chapter 5.0 Cumulative Impacts

5.1 Introduction

The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) both require analysis of the cumulative effects or impacts of a proposed project and other projects that occur in the same general geographic area. A definition of cumulative impacts under NEPA can be found in 40 CFR, Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines.

Cumulative impacts are the collective impacts that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. Cumulative impacts can result from impacts that can be individually minor, but, when added to those from other projects or activities, can be substantial.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development. These land use activities can degrade habitat and diversity of species that may be in the area, through consequences such as displacement and fragmentation of habitats, alteration of hydrology, disruption of migration corridors, changes in water quality through contamination, erosion, or sedimentation, and introduction or promotion of predators. Cumulative impacts also can contribute to effects such as changes in community character, traffic patterns, housing availability, and employment.

Construction and operation of one of the six project alternatives evaluated in this EIS/EIR could result in direct and/or indirect impacts that, when combined with other projects, would contribute to cumulative impacts. Alternatives 1, 1A, 2, 3, and 4 are referred to as the "build" alternatives. Although Alternative 5 (Transportation Management System) would result in some minor construction, it is not considered a "build" alternative, given its relatively small scope when compared to Alternatives 1 through 4. Under Alternative 6, the No Build alternative, no changes would occur to the existing environment described in Chapter 3.0.

5.1.1 Federal Requirements

The analysis in this chapter employs the following definition of cumulative impact from the CEQ regulations governing implementation of NEPA (40 CFR 1508.7):

> *"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time*
> (CEQ Regulation 1508, Sec. 1508.7).

The analysis of cumulative effects also was assessed in accordance with the Federal Highway Administration (FHWA) (FHWA, 1992). The following principles were applied to the assessment of cumulative effects of the proposed project alternatives:

- Cumulative effects typically are caused by the aggregate effects of past, present, and reasonably foreseeable actions. These are the effects (past, present, and future) of the proposed action on a given resource *and* the effects (past, present, and future), if any, caused by all other related actions that affect the same resource.
- When other related actions are likely to affect a resource that is also affected by the proposed action, it does not matter who (federal, non-federal, or private) has taken the related action(s).
- The scope of cumulative effects analyses can usually be limited to reasonable geographic bounds and time periods. These boundaries should extend only so far as the point at which a resource is no longer substantially affected or where the effects are so speculative as to no longer be truly meaningful.
- Cumulative effects can include the effects (past, present and future) on a given resource caused by similar types of actions (e.g., air emissions from several individual highway projects) and/or the effects (past, present and future) on a given resource caused by different types of actions (e.g., air emissions from a highway project, a solid waste incinerator, and a mining facility).

5.1.2 State Requirements

The CEQA Guidelines, Section 15130, describe when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts.

The federal CEQ definition is consistent with the definition of cumulative impact provided in the CEQA Guidelines where:

> *"Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time* (CCR Title 14, Chapter 3, Section 15355, as amended September 7, 2004).

5.2 Related Projects Contributing to Cumulative Projects

Both the FHWA methodology and CEQA Guidelines list two methods of identifying cumulative projects. One method is based on projections, such as those in an adopted general plan or adopted/certified environmental document. This method considers adopted projections within a given geographic area. The other method is based on a list of past, present, and probable future projects that could result in cumulative impacts in combination with the project analyzed in the environmental document.

For this Draft EIS/EIR, the primary method of analyzing cumulative impacts is based on the second method, a list of past, present, and probable future projects in the study area. These projects were identified from the Port of Los Angeles (POLA), Port of Long Beach (POLB), Southern California Association of Governments (SCAG), Los Angeles County Metropolitan Transportation Authority (MTA), and the Cities of Los Angeles and Long Beach. They are located within the Port of Long Beach, Port of Los Angeles, City of Long Beach, City of Carson, and in the San Pedro and Wilmington Districts of the City of Los Angeles. All are within the study area for the alternatives analyzed in this Draft EIS/EIR. The cumulative projects for this analysis have been proposed by formal public notices (Notice of Intent, Notice of Preparation), have pending environmental documentation, and/or are awaiting regulatory reviews or approvals.

In general, the study area for cumulative impacts is the same as for the proposed project alternatives. That is, the cumulative impact study area consists of the land and water that lie within and north of the POLA and POLB, south of State Route (SR-) 91, east of Interstate (I-) 110, and west of I-710. The cumulative projects include, but are not limited to, other bridge and roadway projects, container terminals, schools, hotels, commercial and residential developments, and manufacturing and warehouse facilities. Lists of the projects, with brief project descriptions and recent status, are provided in Tables 5-1, 5-2, and 5-3. The locations of the cumulative projects are shown in Figure 5-1.

5.2.1 Rationale for Selection of Projects

Cumulative projects within the study area are of a similar nature, could affect similar resources, and are located in close geographic proximity to the proposed project alternatives. These projects have the potential to generate environmental impacts that, when considered collectively with a project alternative, could result in, or contribute to, cumulative adverse environmental impacts.

This analysis utilizes the best available information to assess the identified cumulative projects and their potential impacts. The status of the individual projects determines the level of information that is available. Public documents, conceptual plans or applications, and consultations with project applicants and government agencies were the primary sources of information for this analysis. Some environmental documents did not include analysis of all environmental resource areas. Where this occurred, the assumption was made that there would be no impacts related to that resource area. When no environmental document was available for a project, general assumptions were made about the potential impacts of the project in the context of this cumulative impacts analysis.

5.2.2 Projects and Descriptions

Projects identified in Table 5-1 were included for analysis of environmental parameters such as surface and marine traffic, air quality, noise, visual, and water quality. These projects have known impacts and were incorporated in the analyses for the technical studies completed for the project alternatives evaluated in this EIS/EIR. In some cases, projects are listed but not incorporated, due to insufficient data, the speculative nature of the project, or being identified subsequent to the Notice of Preparation for the proposed project alternatives.

Transportation projects identified in Tables 5-2 and 5-3 were obtained from SCAG and the MTA, and are already included in the regional and basin budgets for transportation and air quality. The projects selected were those that added additional transportation capacity (lane addition, new roadway, etc.), or were sufficient trip generators that could influence local traffic conditions (intersection levels of service).

5.3 Cumulative Impact Analysis

The existing environmental conditions in the study area are provided in Chapter 3.0 of this Draft EIS/EIR; the analysis of impacts within each environmental resource area provides the basis for the analysis of cumulative impacts.

The following sections provide an evaluation of potential cumulative impacts for each alternative for each environmental resource. As noted in the analyses, the cumulative impacts do not necessarily apply equally to each alternative or each resource.

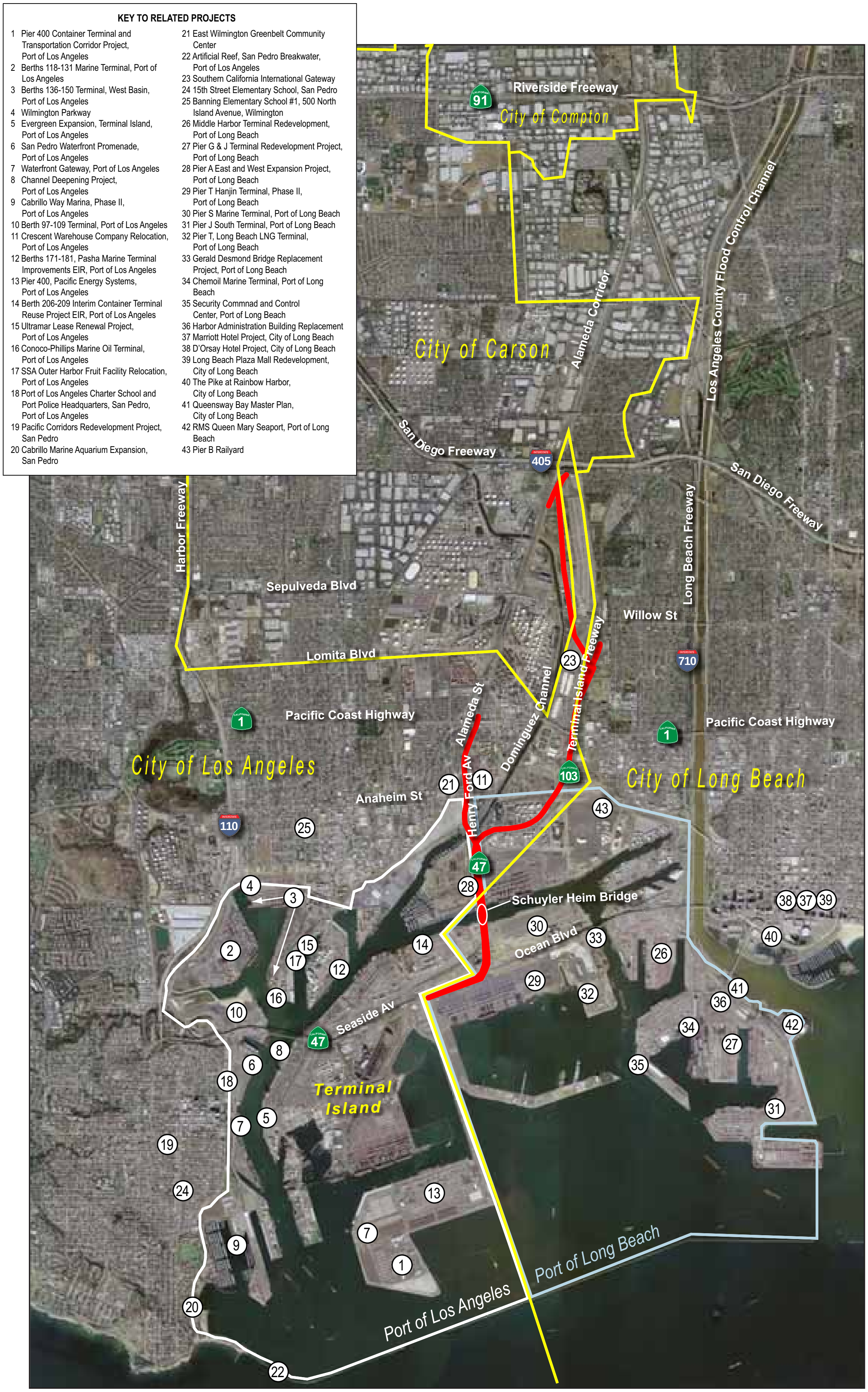
5.3.1 Land Use, Recreation, and Coastal Zone

5.3.1.1 Alternatives 1 and 1A

5.3.1.1.1 Land Use

Although the residential portions of the study area, like the study area in general, already coexist with the nearby major transportation corridors, the effects of the proposed project must be considered within the context of the effects of other past, past present, and reasonably foreseeable transportation-related changes in the area. Roadway and rail improvements associated with the Alameda Corridor have introduced substantial new construction activities throughout the area in recent years, as have the increasing level of port-related operations that can be expected to see robust growth into the future. If these development projects, in conjunction with Alternative 1, were to disrupt the pattern and/or rate of land use and development in the study area, a cumulative impact could result.

In the present case, both the pattern and rate of land development are driven more directly by the modification and expansion of port facilities than by the provision of ancillary transportation improvements. To the extent that transportation projects facilitate some of the port improvements, they may be contributing, in part, to overall land development trends. Nonetheless, port development is expected to continue with or without Alternative 1 and/or other transportation improvements.



LEGEND:

City Boundary

Related Project

Proposed Project Alignment

No Scale

Source: U.S.G.S. Aerial Map Service, Los Angeles Harbor Department, 2004

Figure 5-1
Related Projects in the Vicinity of the Project Alternatives
Schuyler Heim Bridge Replacement and SR-47 Expressway

Table 5-1
Port Area Projects

Port Area Projects		
Project	**DescriptionStatus**	**Estimated Completion Date**
Port of Los Angeles		
Pier 400 Container Terminal and Transportation Corridor Project	Element of the 2020 Deep Draft Navigation Improvements Plan: dredging, land filling, and marine terminal construction. The entire Pier 400 site is on a recently constructed landfill in the Port of Los Angeles Outer Harbor. The project is a two-phase development of Pier 400 into a 345-acre container terminal with rail, highway, and utility access. Phase I consists of construction of rail and highway access and the first 174 acres of a marine container terminal, including buildings, a wharf, and an intermodal rail yard. Phase II consists of construction of the remaining 171 acres into a container terminal. Landfill construction was recently completed. The EIR certified for the project identified significant air, transportation, noise, and vibration impacts.	Approved project. Stage I construction completed. Stage II construction underway.
Berths 118-131 Marine Terminal West Basin	Element of the West Basin Transportation Improvement Projects. Reconfiguration of wharves and backlands. Joint operations of the Yang Ming and China Shipping terminals.	EIR being completed.
Berths 136-150 Marine Terminal West Basin	Element of the West Basin Transportation Improvement Projects; Reconfiguration of wharves and backlands. Expansion and redevelopment of the TraPac Terminal.	NOI/NOP released in October 2004. EIR being completed.
Wilmington Parkway	The realignment and widening of Harry S. Bridges Boulevard, acquisition/ condemnation of properties, expansion of container terminal backlands, construction of a berm and associated recreational facilities.	EIS/SEIR being completed. Harry Bridges will no longer be realigned except directly adjacent to the C-Street interchange.
Evergreen Expansion, Terminal Island, POLA	Expansion of the Evergreen Marine Terminal. Lease boundary changes, gate improvements, wharf modifications, cranes, and new buildings.	EIR to be prepared. NOP for new EIR release possible in January 2004.
Waterfront Promenade, San Pedro	Construction of a waterfront promenade or pedestrian walkway along the western shore of the Main Channel south of the Vincent Thomas Bridge.	Design and planning initiated. Environmental work about to proceed.
Waterfront Gateway	This is part of the San Pedro Waterfront Promenade Project. Development initiated for waterfront promenade between Vincent Thomas Bridge and Fire Station 112.	Approved project. Phase I construction underway.

Table 5-1
Port Area Projects

Port Area Projects		
Project	**DescriptionStatus**	**Estimated Completion Date**
Channel Deepening Project	Dredging and sediment disposal. This project would deepen the Port of Los Angeles' Main Channel to a maximum-55 ft. MLLW (lesser depths are considered as project alternatives) by removing between 3.9 million and 8.5 millions cy of sediments. The sediments would be disposed of several sites.	Approved project. Construction underway. EIR being completed.
Cabrillo Way Marina, Phase II, San Pedro	Redevelop the old marinas in the Watchorn Basin and development of the backland areas for a variety of commercial and recreational uses.	EIR certified. 12/02/2003
Berths 97-109 Container Terminal Project, West Basin	Development and operation of a container terminal at Berths 97-109.	EIR being completed.
Crescent Warehouse Company Relocation	Relocate Crescent Warehouse Company from Port Warehouses 1, 6, 9, and 10 to an area of southeast Wilmington along Henry Ford and East I Street (tentative).	EIR to be prepared.
Berths 171-181, Pasha Marine Terminal Improvements EIR	Redevelopment of existing facilities at Berths 171-181 as an omni (multi-use) facility.	Draft EIR being prepared. Anticipated completion in 2005.
Pier 400, Pacific Energy Systems	Proposal to construct Crude Oil Receiving Facility on Pier 400 with tanks on Terminal Island, with pipelines between berth, tanks, and pipeline system.	SEIS/EIR under preparation. NOI/NOP released in June 2004.
Berth 206-209 Interim Container Terminal Reuse Project EIR	Proposal to allow interim reuse of former Matson Terminal. Change in tenant; no substantial change in operations.	Final EIR released November 2005.
Ultramar, Valero Lease Renewal	Lease renewal EIR for liquid bulk (petroleum) terminal.	New Project EIR to be prepared.
Conoco-Phillips Marine Oil Terminal	Lease renewal EIR for marine oil terminal.	New Project EIR to be prepared.
SSA Outer Harbor Fruit Facility Relocation	Proposal to relocate the existing fruit import facility at 22nd and Miner to Berth 153.	EIR to be prepared.
Charter High School and Port Police Headquarters, San Pedro	Proposal to develop a Charter High School "Port of Los Angeles High School of International Business and Maritime Studies." Development of a new headquarters building for the Port Police.	EIR to be prepared. NOP for EIR release possible in January 2004.
Pacific Corridor Redevelopment Project, San Pedro	Development of commercial/retail, manufacturing, and residential components.	Studies completed.
Cabrillo Marine Aquarium Expansion, San Pedro	Expansion of existing Cabrillo Marine Aquarium.	Construction underway.

Table 5-1
Port Area Projects

Project	Description/Status	Estimated Completion Date
Port Area Projects		
East Wilmington Greenbelt Community Center	Construction of a new 10,000-square-foot community building, a 25-space parking lot, and landscaped areas.	Project approved; construction to begin in April 2004.
Fishing Reef, San Pedro Breakwater	Development of an artificial reef site south of the San Pedro Breakwater. Provides opportunity for suitable reuse of clean construction materials, and to create bottom topography to promote local sport fishing.	Negative Declaration adopted and approved.
Southern California International Gateway[1]	Increased use of rail and increased near-dock rail facilities for movement of both existing and future containerized cargo to help address the need for increased near-dock facilities and to provide an efficient connection to the Alameda Corridor.	Notice of Preparation released September 2005.
Los Angeles Unified School District		
15th Street Elementary School San Pedro	LAUSD's construction of additional classrooms at 15th Street Elementary School. Construction scheduled to begin by late 2003.	Construction underway.
Banning Elementary School	Banning Elementary School #1 is a two-building elementary school consisting of one two-story classroom building with subterranean parking garage and a one-story multipurpose building. Located in Wilmington, the school will provide over 2 acres of playground and green space.	Construction underway.
Port of Long Beach		
Piers D, E, F Terminal Redevelopment (Middle Harbor)	Expansion of existing marine container terminal. The Piers D, E, and F Development project will be located in the Middle Harbor area of the Port of Long Beach. The project will involve consolidation of two existing container terminals into one 336-acre terminal. Construction will include approximately 53 acres of landfill, dredging, wharf construction; construction of an intermodal rail yard; and reconstruction of terminal operations buildings. The EIR prepared for this project identified significant air, transportation, biological, and water quality impacts.	EIR prepared.

Table 5-1
Port Area Projects

Port Area Projects		
Project	**DescriptionStatus**	**Estimated Completion Date**
Piers G & J Terminal Redevelopment Project	Redevelopment of two existing marine container terminals into one terminal. The Piers G and J redevelopment project is in the Southeast Harbor Planning District area of the Port of Long Beach. The project will develop a marine terminal of up to 315 acres by consolidating two existing terminals on Piers G and J and several surrounding parcels. Construction will occur in four phases; it will include approximately 53 acres of landfills, dredging, concrete wharves, rock dikes, and road and railway improvements. The EIR prepared for this project identified potentially significant impacts to air quality and geologic resources.	Construction underway.
Pier A East and West Expansion Project	Expansion of an existing marine container terminal. The Pier A expansion project would be located north of Cerritos Channel on both sides of the Terminal Island Freeway. The project consists of the development of approximately 90 acres of oil production land, including remediation of soil and groundwater contamination, relocation of oil wells, filling, paving, and utilities. Additionally, an underpass linking the existing Pier A site to the expansion site would need to be constructed under the Terminal Island Freeway, just north of the Schuyler Heim Bridge.	Conceptual project. No environmental documentation has been prepared by the Port of Long Beach.
Pier T Hanjin Terminal, Phase II	Development of a container terminal, liquid bulk facility and satellite launch facility. The Port of Long Beach is redeveloping the former Long Beach Naval Complex on Terminal Island. The project consists of constructing a 300-acre marine container terminal, with a wharf, terminal operations buildings, utilities, and rail yard. Construction includes 22 acres of landfill. The SEIS/EIR certified for this project identified significant air, transportation, public health and safety, cultural resources, biological resources, and vibration impacts.	Approved project. Phase I complete. Phase II under construction.
Pier S Marine Terminal	Development of a 150-acre container terminal on Terminal Island. The Pier S site encompasses approximately 170 acres of former oil production land, which is currently undergoing remedial action. Following remediation and stabilization, the site will be brought up to grade and paved. The project calls for existing riprap dike along Cerritos Channel to be realigned and a concrete, pile-supported wharf to be built. Additionally, terminal buildings, utilities, and a rail yard will be constructed. The EIR certified for the project identified significant air and transportation impacts.	Approved project. Construction underway.

Table 5-1
Port Area Projects

Port Area Projects		
Project	**DescriptionStatus**	**Estimated Completion Date**
Pier J South Terminal	Development of a 385-acre marine terminal. Dredge and fill activities required to consolidate two existing terminals.	Final SEIS/EIR to be released for public review in October 2006.
Pier T, Long Beach LNG Terminal	Construction of a 25-acre liquefied natural gas (LNG) import terminal facility, including pipeline and wharf construction on a portion of Pier T on Terminal Island.	EIR/EIS being prepared. Construction to begin in October 2004.
Gerald Desmond Bridge Replacement Project[1]	Replacement of existing Gerald Desmond Bridge over the Port of Long Beach Back Channel.	EIR being prepared.
Chemoil Marine Terminal	Proposed expansion of existing marine oil terminal.	Conceptual planning stages. No environmental documentation has been prepared.
Security Command and Control Center	Construction new 5-story security center with rooftop helipad.	Environmental document in preparation.
Harbor Administration Building Replacement	Proposed replacement of the POLB's existing harbor administration building.	Conceptual planning stages. No environmental documentation has been prepared.
RMS Queen Mary Seaport, City/POLB	Construction of a variety of retail and entertainment uses and parking. The Queen Mary Seaport project is a 54-acre, phased development adjacent to and incorporating the Queen Mary in the Port. Phase I includes onboard upgrades to the Queen Mary and surface parking improvements. Phase II includes construction of retail and entertainment-based uses, a parking structure, a hotel, and new infrastructure. Phase III includes events, park improvements, a major attraction, and additional retail and restaurant uses.	Approved project. Construction underway.
Pier B Intermodal Rail Yard/Expansion	Expand Pier B St intermodal rail yard to facilitate additional rail shipments. Also realign and widen Pier B St.	
City of Long Beach Projects		
Marriott Hotel Project	Development of a 430-room hotel on the southeast corner of Ocean Boulevard and the Promenade.	Approved project. Construction underway.
D'Orsay Hotel Project	Development of a 162-room boutique-style hotel on the northwest corner of Broadway and the Promenade.	Approved project. Construction underway.

Table 5-1
Port Area Projects

Port Area Projects		
Project	**DescriptionStatus**	**Estimated Completion Date**
Long Beach Plaza Mall Redevelopment	Development of commercial and residential space at the former Long Beach Plaza Mall, downtown between 3rd and 6th Streets and between Long Beach Boulevard and Pacific Avenue. Redevelop the former mall area and two blocks of vacant land east of Long Beach Boulevard with approximately 450,000 square feet of commercial space and up to 200 residential units. The EIR prepared for this project identified significant air quality impacts.	Approved project. Construction underway.
The Pike at Rainbow Harbor	Development of residential units and an office building or hotel. Project site is south of Ocean Boulevard on the site of the former Pike Amusement Park between Pine and Magnolia Avenues. Project will include approximately 770 residential units, a 500-room hotel, and 25,000 square feet of commercial space. The EIR prepared for this project identified significant air quality, cultural resources, noise, public service, and transportation impacts.	Approved project. Construction underway.
Queensway Bay Master Plan	Construction of Long Beach Aquarium, new urban harbor, office building, and entertainment complex. This project, designed to create a major waterfront attraction in downtown Long Beach, includes a recreational harbor, 150,000-square-foot aquarium, 125,000-square-foot entertainment complex, 59,000 square feet of restaurant/retail space, an 800-room hotel, 95,000 square feet of commercial/office space, and 487 boat slips in and around Queensway Bay. The recreational harbor and aquarium have been completed. The EIR certified for this project identified significant transportation impacts.	Approved project. Construction underway.

[1] These projects, while listed here, were not included in the cumulative analysis, as they were not reasonably foreseeable at the time of issuance of the Notice of Preparation for the project alternatives. Exclusion of these projects also represents a worst-case scenario with respect to surface traffic.

Table 5-2
Transportation Projects

LA MTA Short Range Transportation Plan for LA County		
Project	**Description/Status**	**Estimated Completion Date**
Avalon Blvd at I-405 Freeway[1]	Reconfigure interchange to meet future traffic loads; widen NB off-ramp at Avalon.	2006
Artesia on-ramp at I-405	Modify the NB on-ramp at Artesia by adding a third lane.	2006
Wilmington at I-405[1]	Widen the SB off-ramp at Wilmington to two lanes; widen the intersection at off-ramp and Wilmington.	2006
Avalon Blvd at I-405[1]	Modify the SB on-ramp at Avalon Blvd and I-405.	2006
Downtown/Shoreline Drive Adaptive Traffic Management System	Deployment of ITS elements in the Long Beach downtown area to provide an adaptive traffic management system to respond to special generator traffic.	2007

[1]Project also appears in the Draft 2004 SCAG Regional Transportation Plan.

Table 5-3
Projects Used for Southern California Association of Governments Projections

2004 SCAG Regional Transportation Plan		
Project	**Description/Status**	**Estimated Completion Date**
Baseline Projects		
Water Street/Figueroa Street/Fries Avenue	New 4-lane roadway	Under Study
Mormon Island Access Grade Separation	Grade separation at the railroad crossing	Under Study
Plan Projects		
Mormon Island Access Grade Separation	Harry Bridges Blvd to Fries Ave, provide 1- or 2-lane grade separation	Under Study
I-110 Freeway HOV	HOV lanes from I-405 to SR-91	Under Study
Other Unconstrained Projects		
SR-91/I-110 Freeway	From east to south and east to north, provide HOV connectors	Unknown
I-710 Freeway	At Wardlow Road, reconstruct connector bridge	Unknown

Note:
These projects were not incorporated in model for background growth, but are listed for cumulative impact analysis. Other Related Projects that are already included in the SCAG model are not individually analyzed.

It is noted that Alternative 1 would improve an existing transportation corridor and would link it to other existing transportation corridors (i.e., the Alameda Corridor, I-405, SR-91). It would not require substantial new land acquisition in areas devoted to nontransportation uses. Thus, no adverse cumulative land use impacts are anticipated.

5.3.1.1.2 Recreation
Alternative 1 would not have an effect on recreation resources. Therefore, there would be no cumulative contribution to potential recreation effects that might result from other projects.

5.3.1.1.3 Coastal Zone
Alternative 1 and other related projects within the Coastal Zone would be required to obtain Coastal Development Permits from the Ports of Long Beach and/or Los Angeles, the City of Los Angeles, and/or the California Coastal Commission. Because all coastal permits issued for projects in the Coastal Zone would ultimately fall under the jurisdiction of the California Coastal Commission and would be conditioned where necessary, substantial cumulative impacts to Coastal Zone land use are not anticipated.

5.3.1.2 Alternatives 2, 3, and 4
Under Alternatives 2, 3, and 4, cumulative impacts related to land use, recreation, and the Coastal Zone would be similar to those discussed under Alternative 1.

5.3.1.3 Alternative 5
Implementation of Alternative 5 would not result in land use changes or conflicting land uses. Improvements would not likely be within the Coastal Zone, and would not conflict with plans and policies. Alternative 5, when considered in conjunction with other related projects within the vicinity, is not expected to contribute to a cumulative impact to land use, recreation, or the Coastal Zone.

5.3.1.4 Alternative 6
This No Build Alternative would maintain existing conditions and would thus not contribute to cumulative impacts to land use, recreation, or the Coastal Zone.

5.3.2 Growth

5.3.2.1 Alternative 1
The project is intended to respond to both current congestion in the area and to help accommodate planned growth at the Ports of Los Angeles and Long Beach. Port growth is a result of international market forces and will occur regardless of whether the project is implemented. Implementation of the project is one of a wide variety of infrastructure and policy improvements underway in the region in response to forecasted growth in port activities. To the extent that the project contributes to the management of such growth, it could be considered to accommodate growth, rather than to induce growth. Therefore, the project addressed in this Draft EIS/EIR would not contribute to cumulative growth impacts in the project study area.

5.3.2.2 Alternatives 2, 3, 4, and 5

Under Alternatives 2, 3, 4, and 5, cumulative impacts related to growth would be similar to those discussed under Alternative 1.

5.3.2.3 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Growth.

5.3.3 Community Impacts

5.3.3.1 Alternatives 1 and 1A

Under Alternative 1, there could be cumulative community impacts, as other projects also could result in the acquisition of businesses and displacement of employees. However, some of the same related projects would provide commercial and retail space, in addition to what already exists, to meet the relocation needs of displaced businesses and employees. It is expected that all projects would comply with relocation and acquisition guidelines of the regulating agency. Thus, no adverse cumulative impacts would occur as a result of acquisitions and displacements.

Alternative 1 would not result in partial or full acquisition of any residential properties. Since no residents would be displaced, the project would not contribute to cumulative impacts regarding residential displacement or residential relocations.

Implementation of Alternative 1 would have offsetting benefits for the community as a whole—a safer and more reliable bridge, and improvement to the local and regional circulation system.

This alternative would not result in a disproportionately high and adverse impact to minority and/or low income population groups. Therefore, the project would not contribute to cumulative adverse impacts related to issues of environmental justice.

5.3.3.2 Alternatives 2, 3, and 4

Under Alternatives 2, 3, and 4, cumulative impacts would be the same as those described under Alternative 1.

5.3.3.3 Alternative 5

Alternative 5 would improve traffic circulation within the project area, which would benefit the entire community. Alternative 5 would not have adverse impacts to the local community and, therefore, would not contribute to cumulative adverse community impacts.

5.3.3.4 Alternative 6

Under this No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to community resources.

5.3.4 Utilities and Public Services

5.3.4.1 Alternative 1

5.3.4.1.1 Utilities

Alternative 1, in conjunction with other related projects, would require numerous utility relocations (electrically, natural gas and oil lines, telecommunications, water, and wastewater) in the immediate project vicinity and extended area. Because utility relocations are a common occurrence in heavily urbanized areas, service disruptions are minimal. Therefore, cumulative impacts of utility relocations would not be adverse. Also, excavation activities of the proposed project and cumulative projects are required to coordinate with a service such as Underground Service Alert (USA) to minimize accidental service disruptions.

Construction of Alternative 1 would result in a reduction of solid waste municipal landfill capacity; however, this capacity reduction is not expected to be substantial because a minimum of 50 percent of construction and demolition debris would be diverted in accordance with AB 75, to which cities, counties, and regional agencies are subject. Recyclable materials would be hauled to local recycling facilities or inert landfills. Alternative 1 and related projects would be required to implement waste diversion methods. This would minimize the use of Los Angeles County solid waste landfills and, therefore, minimize project-related and cumulative impacts to landfill capacity. With the primary use of recycling facilities and inert landfills, capacities at existing permitted municipal solid waste facilities would not be adversely impacted by disposal needs of the cumulative projects.

5.3.4.1.2 Public Services

Construction Impacts

Construction activities for Alternative 1 would require closures of the Schuyler Heim Bridge and the Cerritos Channel at various times during the project construction period. As a result, land-and water-based public and emergency services that rely upon the Schuyler Heim Bridge and Cerritos Channel as their primary emergency routes would be required to use alternative emergency response routes. Alternative routes for land- and water-based emergency response would be developed prior to construction, and average response times for would not be substantially affected. It is anticipated that related projects would utilize the same procedures so that there would be no cumulative effects to public services.

Operations Impacts

Operational effects to utilities are not anticipated, as relocations would have occurred during project construction. Further, project operations would have no effects on public services and, therefore, would not contribute to cumulative impacts to public services. Alternative 1 would not increase public services demand because such demand is primarily attributable to increased commercial and residential development rather than transportation projects. Also, with improvements to the local transportation system, operation of Alternative 1 would be beneficial and would not contribute to cumulative impacts to emergency services.

5.3.4.2 Alternatives 2 and 3

Under Alternatives 2 and 3, cumulative impacts to utilities and public services would be the same as those discussed under Alternative 1.

5.3.4.3 Alternative 4

Under Alternative 4, cumulative impacts to Utilities and Public Services would be the same as described under Alternative 1 for replacement of the Schuyler Heim Bridge only, as no flyover or expressway would be constructed under this alternative.

5.3.4.4 Alternative 5

Alternative 5 would result in the same types of cumulative impacts as Alternative 1. However, the scope of such potential impacts would be minimal, as Alternative 5 would involve only minor construction activities.

Alternative 5, when considered in conjunction with other related projects within the vicinity, is not expected to contribute to a cumulative impact to utilities and services. No utility relocations would be required under this alternative, and the services demand would not be affected.

5.3.4.5 Alternative 6

Under this No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Utilities and Public Services.

5.3.5 Traffic and Transportation

5.3.5.1 Alternative 1

Alternative 1 would improve traffic flow in the project area, eliminate queues at the Schuyler Heim Bridge and, with the flyover, provide for improved traffic flow from eastbound Ocean Boulevard to northbound SR-47. As a result, Alternative 1 would improve traffic in the study area and, therefore, would not contribute to cumulative impacts to Traffic and Transportation.

There are no pedestrian or bicycle facilities that would be affected by Alternative 1, and this alternative would not affect or create a need for new pedestrian and bicycle facilities. Therefore, Alternative 1 would not contribute to cumulative impacts related to pedestrian and bicycle facilities.

5.3.5.2 Alternatives 2 and 3

Under Alternatives 2 and 3, cumulative impacts to traffic and transportation would be the same as described under Alternative 1.

5.3.5.3 Alternative 4

With Alternative 4, a fixed-span bridge would be constructed to replace the existing Schuyler Heim Bridge. As a result, this alternative would alleviate queues at the bridge. With this alternative, however, no new expressway to facilitate traffic flow or flyover to improve the Ocean Boulevard/SR-47 intersection would be constructed. Therefore, the levels of service in the project area would continue to decline, as under existing conditions. Alternative 4 would not result in adverse impacts to traffic in the study area and, therefore would not contribute to cumulative impacts.

Alternative 4 would not contribute to cumulative impacts to pedestrian and bicycle facilities in the project area.

5.3.5.4 Alternative 5

Alternative 5 would provide relatively small-scale improvements to provide for better traffic flow in the project area. Therefore, it would not contribute to cumulative impacts to Traffic and Transportation.

Alternative 5 would not contribute to cumulative impacts to pedestrian and bicycle facilities in the project area.

5.3.5.5 Alternative 6

The No Build alternative would make no changes to improve deficient transportation flow in the project area. With Alternative 6, congestion from queuing at the Schuyler Heim Bridge and from delays at the Ocean Boulevard/SR-47 intersection would continue, with projected increases in delays. As a result, when considered with other development projects, the No Build alternative could be considered to contribute to ongoing cumulative effects to Traffic and Transportation in the project area.

Alternative 6 would not contribute to cumulative impacts to pedestrian and bicycle facilities in the project area.

5.3.6 Marine Vessel Transportation

5.3.6.1 Alternative 1

There would be short- and long-term disruptions to marine vessel transportation during construction and operation of the new fixed-span bridge. The Port of Long Beach is proposing to replace the Gerald Desmond Bridge, which provides a west-east connection from Terminal Island to Long Beach over the Inner Harbor. Both the Schuyler Heim Bridge and Gerald Desmond Bridge project schedules indicate that construction could overlap, while operation of the new fixed-span bridge would occur prior to operation of the new Gerald Desmond Bridge.

5.3.6.1.1 Construction

Alternative 1 may result in adverse cumulative impacts to marine vessel transportation during project construction, as activities to replace the Schuyler Heim Bridge may occur at the same time as activities to replace the Gerald Desmond Bridge. The cumulative result could have temporary impacts on marine vessel access to the harbor area north of the Gerald Desmond Bridge.

5.3.6.1.2 Operations

While replacement of the Schuyler Heim Bridge would result in decreased vertical clearance for marine vessels, replacement of the Gerald Desmond Bridge would result in increased vertical clearance for marine vessels. Therefore, operational impacts of the two projects would be individual and would not be cumulative. No other projects in the vicinity are expected to affect marine vessel transportation in the Cerritos Channel. Therefore, there would be no cumulative impacts to marine vessel transportation in the Cerritos Channel.

5.3.6.2 Alternatives 2, 3, and 4

Under Alternatives 2, 3, and 4, cumulative impacts to marine vessel transportation would be comparable to those described for Alternative 1, due to construction activities in the Cerritos Channel.

5.3.6.3 Alternative 5

Under Alternative 5, there would be no impacts to marine vessel transportation. Therefore, Alternative 5 would not contribute to cumulative impacts.

5.3.6.4 Alternative 6

Under Alternative 6, there would be no construction and, therefore, no impacts to marine vessel transportation. Therefore, Alternative 6 would not contribute to cumulative impacts.

5.3.7 Visual Resources/Aesthetics

5.3.7.1 Alternatives 1, 2, 3, and 4

Past port-related and other projects in the vicinity of the proposed project have had the effect of establishing the existing visual character of the project area.

In general, due to the nature of port-related activities, the cumulative projects are proposed in areas with existing high levels of activity (conducted up to 24 hours each day), development, and light and glare. Changes related to cumulative projects would be implemented over a period of years, likely in such a manner that construction schedules would vary, although simultaneous construction could occur. Also, projects would occur in different portions of the study area, which would disperse impacts, thereby minimizing the potential for cumulative visual impacts.

The cumulative projects would be consistent with the generally industrialized character of the study area. The projects would have the potential to alter the existing visual quality of the area by introducing additional man-made facilities and infrastructure, as well as providing new sources of light and glare. However, due to the existing industrialized nature of each of the landscape units, the generally industrialized character and “low” visual quality of each of the key views, it is anticipated that these impacts would not be different from the existing nature of the project area. As a result, there would be little cumulative effect.

Considering the existing nature of port and transportation development, in addition to the varied timing and location of the cumulative projects, adverse cumulative impacts to the visual character and quality of the project area are not anticipated. Under Alternatives 1, 2, 3, and 4, the architectural details on project features would be designed in coordination with a Caltrans landscape architect. Visual impacts from construction and operation of the proposed project alternatives would not be adverse and, as a result, would have little potential to contribute to cumulative impacts related to other projects. As a result, cumulative visual impacts related to project construction and operation would be minor.

5.3.7.2 Alternative 5

Under Alternative 5, the scope of visual impacts would be minimal, as this alternative would involve only minor surface construction activities. It would not contribute to cumulative impacts to Aesthetics and Visual Resources within the project area.

5.3.7.3 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Aesthetics and Visual Resources.

5.3.8 Cultural Resources

5.3.8.1 Alternative 1

It is reasonable to project that, if Alternative 1 or any of the projects listed in Tables 5-1, 5-2, and 5-3 should unearth cultural resources, the project would implement analysis of the resource(s) to assess their significance. If necessary, testing and evaluation would follow, in accordance with Section 106 of the National Historic Preservation Act. If appropriate, significant archaeological deposits would be recovered in accordance with existing laws and regulations. As a result, there would be no cumulative impacts among the related projects. Further, none of the projects listed in the tables is likely to impact the Schuyler Heim Bridge, the only historic resource that would be adversely affected as a result of Alternative 1. Therefore, Alternative 1 would not contribute to cumulative impacts related to Cultural Resources.

5.3.8.2 Alternatives 2, 3, and 4

Under Alternatives 2, 3, and 4, cumulative impacts to Cultural Resources would be the same as those described for Alternative 1. Therefore, no cumulative impacts are anticipated.

5.3.8.3 Alternative 5

Alternative 5 is not anticipated to result in impacts to Cultural Resources. However, if cultural resources were discovered, procedures would be the same as those described under Alternative 1. Therefore, Alternative 5 would not contribute to cumulative impacts to Cultural Resources.

5.3.8.4 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Cultural Resources.

5.3.9 Hydrology, Floodplains, and Oceanography

5.3.9.1 Alternative 1

Each Los Angeles and/or Long Beach Harbor project is subject to regulatory standards related to Hydrology, Floodplains, and Oceanography that must be achieved during project construction and operation. Therefore, Alternative 1 and the cumulative projects listed in Tables 5-1, 5-2, and 5-3 that occur in the Los Angeles and Long Beach Harbor are subject to these standards. Accordingly, avoidance and minimization measures for these cumulative projects would be incorporated and would be expected to reduce effects to less than significant. Therefore, cumulative impacts related to hydrology, floodplains, and oceanography are not anticipated.

5.3.9.2 Alternatives 2 and 3

Cumulative impacts related to Hydrology, Floodplains, and Oceanography under Alternatives 2 and 3 would be the same as those described for Alternative 1.

5.3.9.3 Alternative 4

Under Alternative 4, cumulative impacts to Hydrology, Floodplains, and Oceanography would be the same as described under Alternative 1 for replacement of the Schuyler Heim Bridge only, as no flyover or expressway would be constructed under this alternative.

5.3.9.4 Alternative 5

Alternative 5 would provide relatively small-scale improvements to provide for better traffic flow in the project area. Therefore, it would not contribute to cumulative impacts to Hydrology, Floodplains, and Oceanography.

5.3.9.5 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Hydrology, Floodplains, and Oceanography.

5.3.10 Water Quality and Stormwater Runoff

5.3.10.1 Alternative 1

5.3.10.1.1 Construction Impacts

There is the potential for cumulative impacts to surface water quality in the Cerritos Channel during construction of Alternative 1. Such effects would depend on the construction schedules of other, related projects located along the Cerritos Channel. It is anticipated that the primary cumulative impact could occur during replacement of the Gerald Desmond Bridge in the Port of Long Beach, due to the relatively large scale of that project, its location across the Back Channel, which intersects the Cerritos Channel on the east end of Terminal Island, and its proximity to the Schuyler Heim Bridge. Other projects that, collectively, could result in cumulative impacts during construction of Alternative 1 are Berth 206-209 Interim Container Terminal Reuse, Berth 171-181 Pasha Marine Terminal Improvements, Ultramar Lease Renewal, SSA Outer Harbor Fruit Facility Relocation, Channel Deepening, San Pedro Waterfront Promenade, Waterfront Gateway, and Evergreen Expansion. These projects are all located in the Port of Los Angeles. In addition, the Pier T, Long Beach LNG Terminal in the Port of Long Beach could contribute to cumulative impacts during construction of Alternative 1.

Alternative 1 would not conduct active dewatering during construction, so adverse impacts to groundwater quality and groundwater movement are not anticipated. As a result, Alternative 1 would not contribute to cumulative effects to groundwater.

5.3.10.1.2 Operations Impacts

Under Alternative 1, impacts from project operations are not expected to substantially differ from existing conditions, as the project area already is largely covered by impervious surface. As a result, effects related to stormwater runoff and surface water quality are expected to be minimal, and no effects to groundwater are anticipated. Therefore, cumulative effects to surface and groundwater quality during Alternative 1 operations also would be minimal.

5.3.10.2 Alternative 2

5.3.10.2.1 Construction Impacts

Under Alternative 2, cumulative impacts to surface and groundwater quality during project construction would be comparable to those described for Alternative 1 for replacement of the Schuyler Heim Bridge.

Cumulative impacts to surface and groundwater quality from construction of the expressway for the SR-103 Extension are not anticipated, as the SR-103 Extension is located north of the ports of Long Beach and Los Angeles. Alternative 2 is not anticipated to result in impacts and, therefore, would not contribute to cumulative impacts.

5.3.10.2.2 Operations Impacts

Under Alternative 2, cumulative impacts to surface and groundwater quality would be the same as described for Alternative 1.

5.3.10.3 Alternative 3

Under Alternative 3, temporary and permanent cumulative impacts to surface and groundwater quality would be comparable to those described for Alternative 1 for construction of the fixed-span bridge, flyover, and SR-47 Expressway. However, there would be no potential for cumulative impacts related to demolition of the Schuyler Heim Bridge, as existing the bridge would not be demolished under this alternative.

5.3.10.4 Alternative 4

Under Alternative 4, cumulative impacts to surface and groundwater quality would be comparable to those described for Alternative 1 as related to replacement of the Schuyler Heim Bridge. There would be no cumulative impacts related to construction of the flyover, SR-47 Expressway, or SR-103 Extension, as none of these features would be constructed under Alternative 4.

5.3.10.5 Alternative 5

Alternative 5 would provide relatively small-scale improvements to provide for better traffic flow in the project area. Therefore, it would not contribute to cumulative impacts to Water Quality and Stormwater Runoff.

5.3.10.6 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Water Quality and Stormwater Runoff.

5.3.11 Geology/Soils/Seismicity/Paleontology/Topography/Mineral Resources

5.3.11.1 Alternatives 1, 2, 3, and 4

5.3.11.1.1 Geology/Soils/Seismicity/Topography

Geology/Soils/Seismicity/Topography

None of the components of the project alternatives would result in disturbance to existing geologic, soils, seismic, or topographic hazards. Potential geologic, soils, and seismic impacts to project components would be addressed through incorporation of geotechnical recommendations, engineering standards, and applicable regulations and practices; all structures would be built to meet UBC standards and/or to withstand a major earthquake. It is anticipated that related projects would be implemented in a similar manner and that no cumulative impacts would occur.

However, there remains the potential for the proposed project and related projects to be adversely affected during a major seismic event; such potential cannot be precluded or mitigated. As a result, as related to geologic, soils, and seismic resources, there remains the potential for unavoidable cumulative impacts.

5.3.11.1.2 Mineral Resources

No impacts to mineral resources would occur from implementation of Alternative 1, 2, 3, or 4. Therefore, the project would not contribute to cumulative impacts to mineral resources.

5.3.11.1.3 Paleontology

Implementation of one of the build alternatives or related projects could unearth paleontological resources. Should this occur, it is reasonable to assume that the project would implement analysis of the resource(s) to assess significance. If necessary, testing and evaluation would follow and, if appropriate, paleontological deposits would be recovered in accordance with the Paleontological Resource Impact Mitigation Program (Jones & Stokes, 2005). As a result, there would be no cumulative impacts related to paleontological resources.

5.3.11.2 Alternative 5

Alternative 5 would provide relatively small-scale improvements to provide for better traffic flow in the project area. Therefore, it would not contribute to cumulative impacts to Geology/Soils/Seismicity/Paleontology/Topography/Mineral Resources.

5.3.11.3 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Geology/Soils/Seismicity/Paleontology/Topography/Mineral Resources.

5.3.12 Hazardous Waste/Hazardous Materials

5.3.12.1 Alternative 1

The primary types of hazardous material-related impacts attributable to Alternative 1, in conjunction with construction of related projects, are from the handling of contaminated soil and groundwater that may be encountered during project construction. Each Los Angeles/ Long Beach Harbor project is subject to regulatory standards that must be achieved during construction and operation. Similar to Alternative 1, all related projects in the area would be evaluated on a project-by-project basis and would incorporate measures to reduce potential impacts. These measures would be expected to be consistent with applicable standards, regulations, and permits to reduce potential impacts from hazards and hazardous materials. Incorporation of these measures would be expected to reduce impacts to less than significant. Therefore, Alternative 1 would not contribute to cumulative impacts relative to Hazardous Waste/Hazardous Materials.

5.3.12.2 Alternatives 2, 3, and 4

Under Alternatives 2, 3, and 4, cumulative effects related to Hazardous Waste/Hazardous Materials would be as described for Alternative 1.

5.3.12.3 Alternative 5

Alternative 5 would provide relatively small-scale improvements to provide for better traffic flow in the project area. Therefore, it would not contribute to cumulative impacts to Hazardous Waste/Hazardous Materials.

5.3.12.4 Alternative 6

Under the No Build alternative, there would be no construction or other changes to the existing environment. As a result, Alternative 6 would not contribute to cumulative impacts to Hazardous Waste/Hazardous Materials.

5.3.13 Air Quality

5.3.13.1 Alternative 1

5.3.13.1.1 Construction Impacts

Construction of Alternative 1 would result in adverse effects to Air Quality, even after mitigation. Therefore, impacts of Alternative 1, plus those of other, concurrent, construction projects would be expected to be adverse. Therefore, Alternative 1 would contribute to cumulatively adverse effects to Air Quality during construction.

5.3.13.1.2 Operations Impacts

Alternative 1 operations were shown to have a minor impact on localized CO levels near intersections. Therefore, the cumulative effect of Alternative 1 operations would not contribute to cumulative effects to CO.

Indirect operations impacts, due to marine vessel detours, would result in significant emissions of NO_X. Therefore, the combined impacts from Alternative 1 with other nearby projects would result in cumulatively significant impacts for NO_X emissions. Under Alternative 1, emissions of CO, ROG, and PM_{10} due to marine vessel detours would be minimal and, therefore, would not contribute to adverse cumulative impacts to Air Quality.

5.3.13.2 Alternatives 2, 3, and 4

Cumulative impacts under Alternatives 2, 3, and 4 would be the same as those described for Alternative 1.

5.3.13.3 Alternative 5

5.3.13.3.1 Construction Impacts

There would be minimal construction under the TSM alternative. With this alternative, there would be no emissions associated with marine vessel detours, as no new bridge would be constructed, and marine vessels would not be required to detour around Terminal Island. Therefore, there would be no direct or indirect project impacts to air quality during construction, and this alternative would not contribute to cumulative construction impacts.

5.3.13.3.2 Operations Impacts

Operation of the TSM Alternative would be expected to result in improvements to local traffic, with related improvements (decreases) in air emissions. Therefore, Alternative 5 operations would not contribute to adverse cumulative Air Quality impacts in the project area.

5.3.13.4 Alternative 6

The impact of Alternative 6 on localized CO levels near intersections was determined to be less than significant. With this alternative, there would be no emissions associated with marine vessel detours, as no new bridge would be constructed, and marine vessels would not be required to detour around Terminal Island. Therefore, Alternative 6 operations would not contribute to cumulative Air Quality impacts.

5.3.14 Noise

5.3.14.1 Alternative 1

5.3.14.1.1 Construction Impacts

Noise impacts from construction activities are by nature temporary and localized. For a cumulative impact to occur, construction activities would have to take place at the same time and in the same vicinity, as noise dissipates over distance. However, noise is not additive. For example, if construction activities for Alternative 1 and a nearby project generated approximately the same amount of noise, this would result in only a 3-dB increase in noise levels, which is a barely perceptible difference. If one project generated noise that exceeded the noise produced by a second project, the louder noise would essentially mask the noise of the second project. Even if construction activities for a related project occurred at the same time as those of Alternative 1, the overall increase in noise levels would be minor and temporary; potential cumulative impacts would be minor.

5.3.14.1.2 Operations Impacts

Noise impacts for project operations are based on a future traffic forecast for the year 2030. This forecast already includes foreseeable development, which includes Alternative 1 and related projects (see Tables 5-1, 5-2, and 5-3). Therefore, no additional cumulative traffic noise impacts would occur.

5.3.14.2 Alternatives 2, and 3

Under Alternatives 2, and 3, temporary and permanent noise impacts would be the same as those described for Alternative 1.

5.3.14.3 Alternative 4

Under Alternative 4, temporary and permanent noise impacts would be the same as those described for Alternative 1, but related only to replacement of the Schuyler Heim Bridge, as no flyover or expressway would be constructed under this alternative. This alternative would not contribute to additional cumulative noise impacts.

5.3.14.4 Alternative 5

5.3.14.4.1 Construction Impacts

This alternative would involve minimal construction compared to the build alternatives. Therefore, construction noise also would be minimal and is not expected to contribute to cumulative noise impacts.

5.3.14.4.2 Operations Impacts

Under Alternative 5, cumulative operations impacts would be the same as those described for Alternative 1.

5.3.14.5 Alternative 6

5.3.14.5.1 Construction Impacts

No construction would occur under this alternative. Therefore, it would not contribute to cumulative noise impacts.

5.3.14.5.2 Operations Impacts

Under Alternative 6, cumulative operations impacts would be the same as those described for Alternative 1.

5.3.15 Energy

For purposes of this Draft EIS/EIR, cumulative impacts to energy would occur if the selected alternative, in conjunction with other related projects, collectively resulted in excessive and/or inefficient energy use.

5.3.15.1 Alternative 1

5.3.15.1.1 Construction

Alternative 1 would require the use of energy resources during construction. Energy impacts involve one-time, non-recoverable energy use associated with construction activities and the use of materials. Energy use for construction would be a short-term impact and would represent a small percent of the total energy consumed in the region during the period of project construction. As a result, Alternative 1 is not anticipated to result in an adverse impact on the overall supply of or demand for energy during project construction and, therefore, would not contribute to adverse cumulative impacts to energy resources.

5.3.15.1.2 Operations Impacts

Development of related projects in the ports area would have a tendency to result in increased energy consumption, whereas Alternative 1 and other transportation-related projects are expected to result in improved or reduced energy consumption associated with more efficient traffic flow. In either case, due to the relatively high cost of energy, cumulative energy consumption related to Alternative 1 operations is not expected to be excessive or inefficient. Alternative 1 would not result in an adverse impact to fuel consumption. Therefore, Alternative 1 operations would not contribute to cumulative impacts to energy resources.

In the long term, during operation of Alternative 1, energy will be used for vehicles operating on the roadways. Replacement of the existing Schuyler Heim Bridge with a fixed-span bridge would have indirect impacts on fuel consumption by affecting marine traffic in the Cerritos Channel. Replacing the lift-span bridge with a fixed-span bridge would force taller marine vessels to take a longer route around Terminal Island and would delay vessels with adjustable mast heights. This increase in trips and travel time for the marine vessels would result in increased fuel consumption. However, the increased consumption is not expected to be excessive or inefficient, as the relatively high cost of fuel serves to regulate demand. Therefore, there would be no adverse impact of Alternative 1 on fuel consumption in the long term, and it would not contribute to a cumulative adverse effect on Energy.

5.3.15.2 Alternatives 2, 3, and 4

Cumulative impacts of Alternatives 2, 3, and 4 would be the same as described for Alternative 1.

5.3.15.3 Alternative 5

Alternative 5 would require minimal construction. Therefore, energy use also would be minimal and would likely be offset by efficiencies in roadway operations. No cumulative impacts are expected.

5.3.15.4 Alternative 6

Under Alternative 6, there would be no construction and no change to ongoing operation of local roadways. Therefore, this alternative would not contribute to cumulative impacts to Energy.

5.3.16 Biological Resources

5.3.16.1 Alternatives 1 and 1A

5.3.16.1.1 Natural Communities

Significant adverse effects could occur to aquatic communities and essential fish habitat (EFH) in the Cerritos Channel and Consolidated Slip/Dominguez Channel from sediment resuspension, blasting, and pile driving. However, avoidance and minimization measures would be implemented to reduce these adverse effects.

The silty nature of the sediment suggests that exceedances of water quality may be expected to last on the order of at least a few days. With implementation of measures to prevent uncontrolled suspension and dispersion, actual effects are expected to be much less.

Because of the limited geographic extent and short duration of potential impacts, cumulative effects from sediment suspension and dispersion are not anticipated. Any potential effects from Alternative 1 would be temporary. As such, cumulative impacts are not expected. Projects that are proposed in Long Beach and Los Angeles Harbors which may result in resuspension and dispersion of sediments are shown in Table 5-4. These projects are not anticipated to overlap with Alternative 1 in either geographic area or time frame (Alternative 1 construction is anticipated from 2009 to 2011. The closest project with the potential for overlap with Alternative 1 is the Pier S Marine Terminal along Cerritos Channel just west of the Schuyler Heim Bridge. This project involves realignment of the rip rap channel dikes on Cerritos Channel and placement of a concrete-pile supported wharf in Cerritos Channel. However, this project is expected to be completed by the time Alternative 1 would be constructed.

Table 5-4
Port Area Projects with Potential to Generate Sediment Resuspension and Dispersion

Project	Location	Estimated Completion Date
Port of Los Angeles		
Pier 400 Container Terminal and Transportation Corridor Project	Outer Harbor, several miles southwest	Approved project. Stage I construction completed. Stage II construction underway.
Berths 118-131 Marine Terminal West Basin	Approximately 2 miles west, in West Basin	EIR being completed.
Berths 136-150 Marine Terminal West Basin	Approximately 2 miles west, in West Basin	NOI/NOP released in October 2004. EIR being completed.
Evergreen Expansion, Terminal Island, POLA	Approximately 2 miles west, on Terminal Island	EIR to be prepared. NOP for new EIR release possible in January 2004.
Channel Deepening Project,	Approximately 2 miles west, on POLA Main Channel	Approved project; Construction underway. EIR being completed.
Port of Long Beach		
Piers D, E, F Terminal Redevelopment	Middle Harbor of the Port of Long Beach, approximately 1 mile east	EIR prepared.
Piers G & J Terminal Redevelopment Project	Approximately 2 miles east, in the Southeast Harbor Planning District of the Port of Long Beach	Construction underway.
Pier S Marine Terminal	Just east of Schuyler Heim Bridge on Cerritos Channel (within 1/2 mile)	Approved project. Construction underway.
Pier J South Terminal	Approximately 2 miles east, in Long Beach Harbor	Final SEIS/EIR to be released for public review in October 2006.
Pier T, Long Beach LNG Terminal	Less than a mile south, but on the opposite side of Terminal Island from Schuyler Heim Bridge	EIR/EIS being prepared. Construction was to begin in October 2004.
Gerald Desmond Bridge Replacement Project	Less than a mile east, and on a different side of Terminal Island than the Schuyler Heim Bridge	EIR being prepared.

Adverse effects could occur to aquatic communities in the Cerritos Channel and Consolidated Slip/Dominguez Channel from lead paint distribution during dismantling of the existing Schuyler Heim Bridge. This effect would be mitigated by adherence to construction practices to limit the potential discharge of lead compounds into Cerritos Channel. With implementation of these avoidance and minimization measures during construction, the effects of lead paint to water quality are expected to be reduced.

The Gerald Desmond Bridge Replacement Project may also result in introduction of lead into harbor waters. This project is located about 1 mile south of Alternative 1 on the east side of Terminal Island. The construction schedule for this project is unknown. However, it is presumed that measures would be employed to reduce the potential effects from lead paint introduction into harbor waters.

With measures to reduce the effects of lead paint on Alternative 1, and comparable measures used on other projects where there is lead paint removal, no cumulative impacts to aquatic communities or EFH are anticipated.

5.3.16.1.2 Special-Status Species

California Least Tern

Impacts to least tern are not anticipated unless a breeding colony were to establish on potential habitat just west and south of the Schuyler Heim Bridge. This site, the Pier S Marine Terminal, is currently under construction. Barring periods of construction inactivity, terns are not likely to establish. Should terns establish, appropriate mitigation would be implemented to reduce Alternative 1 construction impacts.

The potential for other proposed projects in the harbor area to affect least terns is not known. However, successful mitigation for least terns has been implemented at Pier T, where an established breeding colony is protected and monitored on an annual basis. It is presumed that other projects with potential effects on least terns also would implement appropriate mitigation to reduce impacts on the species and ensure population stability in the harbor area.

With measures to reduce the impacts of Alternative 1 on least terns, and comparable measures on other projects that may affect least terns, no cumulative impacts are anticipated.

American Peregrine Falcon

Removal of an occupied peregrine falcon nest would be avoided by measures intended to avoid take of an active nest, including nest exclusion during the non-nesting season. However, the active nest site would still be permanently removed, representing a significant impact. This impact would be lessened if the alternative nest site on the Gerald Desmond Bridge remained available at the time of nest exclusion on the Schuyler Heim Bridge.

With the proposed Gerald Desmond Bridge Replacement Project, it is not certain that the alternative nest site would be available. The potential loss of both nest sites would represent an adverse cumulative impact.

Mitigation for this cumulative impact would include mitigation measure B-6, Protecting American Peregrine Falcon. Specifically, this mitigation measure includes a program of monitoring both nest sites during construction and excluding nest sites if they would be at risk or if they could be at risk during the nesting season. This measure would reduce project-related impacts to less than significant, and Alternative 1 then would not contribute to cumulative adverse effects related to the peregrine falcon.

Plant Species

Impacts to southern tarplant or other special-status plant species are not anticipated unless such species are identified during pre-construction surveys. Should special-status plant species be identified, they would be avoided if possible, or appropriate mitigation to protect or reestablish the population elsewhere would be implemented. It is presumed that other projects with potential effects on special-status plant species also would implement appropriate measures to reduce impacts.

Due to the developed nature of the port environment, there is a low likelihood of impacts on special-status plants. Based on this factor, plus implementation of measures to reduce the impacts of Alternative 1 on special-status plants, and comparable measures on other projects, no cumulative impacts are anticipated.

Bat Species

Under Alternative 1, the loss of occupied bat roosts from demolition of the Schuyler Heim Bridge would be a significant impact, requiring mitigation. Mitigation involves exclusion of bat roosts during the non-breeding season. If active roosts with young are encountered during construction, the roosts would be left alone, if feasible, until the young have weaned and are in flight. It is presumed that ample other bat roosts are present in the port vicinity, including areas on existing causeways, the Badger Avenue Bridge, Gerald Desmond Bridge, various warehouse facilities, or other structures.

Other proposed projects in the port vicinity may also affect roosting bats. The Gerald Desmond Bridge project may remove potential roost sites. It is presumed that appropriate mitigation also would be implemented during that project and other projects to reduce effects on roosting bats.

With measures to reduce the effects of Alternative 1 on roosting bats, and comparable measures on other projects that may affect roosting bats, no cumulative impacts are anticipated.

Burrowing Owl

Unless burrowing owl are identified during pre-construction surveys, impacts are not anticipated. Should burrowing owl be identified, appropriate mitigation to protect them during the breeding season, or exclude burrows for relocation of the population, would be implemented. Because of the developed nature of the port environment, neither Alternative 1 nor other proposed projects in the vicinity have a high likelihood of affecting burrowing owl. The only potential habitat near Alternative 1 is currently under construction (Pier S Marine Terminal). It is presumed that other projects with potential effects on burrowing owl also would implement appropriate mitigation to reduce impacts.

With the low likelihood of impacts on burrowing owl, measures to reduce the effects of Alternative 1 on the species, and comparable measures used on other projects, no cumulative impacts are anticipated.

Coast Pelagic Species and Groundfish

Impacts to these species would occur as impacts to EFH, and would be the same as impacts to aquatic communities. Therefore, no cumulative impacts regarding coast pelagic species and groundfish are anticipated.

Invasive Species

There is limited potential for adverse impacts resulting from dispersion and establishment of invasive species because sensitive terrestrial communities are absent from the Alternative 1 site. In addition, avoidance and minimization measures would be implemented to reduce the likelihood of dispersion and establishment of invasive species. Similar measures would be anticipated on other projects. As such, no cumulative impacts resulting from introduction of invasive species are anticipated under Alternative 1.

5.3.16.1.3 Jurisdictional Waters Including Wetlands

With wetland avoidance measures under Alternative 1, impacts to the tidal wetland east of the Schuyler Heim Bridge on the south side of Cerritos Channel would be avoided. If the Pier S Marine Terminal project, located adjacent to the wetland, should affect the wetland, mitigation would be required under federal and state regulations. Because of the low likelihood of impacts from Alternative 1, and the likelihood that impacts from the Pier S Marine Terminal Project would require mitigation, no cumulative impacts to wetlands are anticipated under Alternative 1.

5.3.16.2 Alternative 2

The cumulative impact analysis of Alternative 2 related to Biological Resources would be comparable to that discussed for Alternative 1, with the following exception: there would be no impacts to aquatic communities or EFH in the Consolidated Slip/Dominguez Channel because the alignment for Alternative 2 does not cross this feature.

5.3.16.3 Alternative 3

The cumulative impact analysis of Alternative 3 would be comparable to that discussed for Alternative 1, with the following exceptions: there would be less potential for cumulative impacts to aquatic communities at the Cerritos Channel because, under Alternative 3, there would be no demolition of the existing Schuyler Heim Bridge. Potential impacts to the aquatic community at the Cerritos Channel would occur only from construction of the new, fixed-span bridge.

Wetland mitigation measures would be required under Alternative 3, because of the probable loss of the tidal wetland east of the Schuyler Heim Bridge on the south side of Cerritos Channel. It is unknown if other projects in the port vicinity would affect wetlands. Many of the POLA projects have historically mitigated for wetland losses because of impacts to stands of pickleweed along rip rap banks, and it is likely that many of the currently proposed projects involving marine terminal or wharf improvements would have similar impacts. Mitigation of POLA projects has been negotiated with appropriate agencies. Mitigation measures include using credits from saltmarsh mitigation banks, including areas in Anaheim Bay or other high quality salt marsh habitats. Generally, the mitigation areas provide more opportunity for high quality wetland and wildlife habitat than the impacted area, and the exchange is beneficial.

Because impacts from Alternative 3 would be mitigated as appropriate, and because other projects in the port area involving wetland impacts also would be mitigated, there are no cumulative impacts anticipated from Alternative 3.

5.3.16.4 Alternative 4

Under Alternative 4, the cumulative impact analysis for Biological Resources would be comparable to that discussed for Alternative 1 with the following exception: there would be no impacts to aquatic communities or EFH in the Consolidated Slip/Dominguez Channel because Alternative 4 involves only replacement of the Schuyler Heim Bridge and the extent of construction does not cross this feature.

5.3.16.5 Alternatives 5 and 6

There are no anticipated project impacts to biological resources from implementation of Alternatives 5 and 6. As such, no cumulative impacts are anticipated.

Chapter 6.0 Summary of Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process to determine the scope of environmental documentation, level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for the proposed project have been accomplished through a variety of formal and informal methods, including but not limited to: public scoping meetings, project development team meetings, interagency coordination meetings, and Native American Heritage Commission (NAHC) notification. This chapter summarizes the results of efforts by the California Department of Transportation (Caltrans) to fully identify, address, and resolve project-related issues through early and continuing coordination.

6.1 Public Scoping

6.1.1 Scoping Activities – 2002

In 2002, Caltrans and the Alameda Corridor Transportation Authority (ACTA) began formal public scoping and initiation of environmental studies for a previous project that included replacement of the Schuyler Heim Bridge and construction of an elevated SR-47 Expressway between Terminal Island and Alameda Street, at Pacific Coast Highway. Notice letters were sent to federal, state, and local agencies on January 28, 2002. Notices were published in local newspapers advertising the public scoping and open house, held on February 13, 2002, at the Port of Long Beach Administrative Building. The scoping meeting was held from 2:30 p.m. to 4:30 p.m., with the open house from 4:30 p.m. until 7:30 p.m. Public comments were received until February 28, 2002. These included 9 comments provided on the information cards at the scoping meeting and 15 letters received from agencies and the general public.

A review of subsequent environmental studies led the Federal Highway Administration (FHWA) to conclude that an Environmental Impact Statement (EIS) would be required for the project. Budgetary constraints then led Caltrans to temporarily suspend the project.

6.1.2 Scoping Activities – 2004

For the project addressed in this Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), the formal scoping process began when a Notice of Intent (NOI) to prepare an EIS/EIR was published in the *Federal Register* on June 8, 2004, with notices sent to the appropriate local, state, and federal agencies. Then, an NOI to prepare an EIS for the project proposed in this document was published in the *Federal Register* on July 26, 2004, and notices were sent to the appropriate local, state, and federal agencies. In September 2004, a scoping notice to inform the general public of the proposed project was published in the following newspapers: *Los Angeles Times*, *Long Beach Press Telegram*, and *Daily Breeze* (Wednesday, September 1, 2004); *La Opinion* (Thursday, September 2, 2004), and *The*

California Journal (Philippine paper) (Friday, September 3, 2004) (see Appendix F for copies of these notices).

Also, scoping letters and briefings were provided to elected officials and staff including, but not limited to: U.S. senators and house members, the California governor's office, state senators and assembly members, and local officials from the County of Los Angeles, City of Los Angeles, City of Long Beach, City of Carson, and City of Compton. In addition, presentations were made to stakeholder groups, including the Wilmington Neighborhood Council, Port of Los Angeles Port Community Advisory Committee, and Wilmington Chamber of Commerce. Scoping letters also were sent to individuals who requested notice of projects in the community.

Copies of the NOI, and the NOP are included in Appendix F of this Draft EIS/EIR. The scoping notice, scoping letter, and distribution list are included in the Scoping Summary Report (Caltrans, 2006).

Two formal scoping meetings/open houses were held on September 9, 2004, one at 2:30 p.m., and one at 5:30 p.m., in a conference room at the Wilmington Senior Citizens Center. The purpose of the meetings was to introduce the project to responsible and coordinating agencies and members of the public, and to solicit their comments and concerns. Displays of the Schuyler Heim Bridge Replacement and SR-47 Expressway project alternatives and sign-in sheets were provided. At each meeting, Caltrans provided an overview of the project.

Caltrans and the FHWA were identified as the lead agencies; the Port of Long Beach, and Port of Los Angeles were named as responsible agencies; and U.S. Coast Guard and U.S. Army Corps of Engineers were identified as cooperating agencies. Participants in the project development team were described as Caltrans District 7, FHWA, and ACTA.

The project responsibilities were delineated, and the proposed project was described as replacement of the Schuyler Heim bridge as an "essential service" structure and construction of a four-lane elevated expressway (SR-47) linking the bridge to Alameda Street. The limits of the project were shown as extending from Ocean Boulevard on Terminal Island to Alameda Street just north of Pacific Coast Highway (SR-1).

Alternatives to the project were presented: (1) Schuyler Heim Bridge Replacement and SR-47 Expressway; (2) SR-103 extension to Alameda Street; (3) avoidance of removing the existing bridge (historical preservation); (4) Schuyler Heim Bridge replacement only; (5) traffic system management (TSM), and (6) no build.

Comments received at the 2:30 Scoping Meeting primarily reflected concerns regarding: effects on City of Carson residential areas, specifically noise, air quality, health, and traffic; placement of vehicle ramps to I-405 and SR-103; effects to the Leeward Bay Marina and, during construction, access to Leeward Bay Marina; maintenance/ landscaping of the expressway; potential conflicting use of property along the SR-103 alignment as a rail facility; and source of funding for a new bridge.

At the 5:30 Scoping Meeting, concerns were expressed regarding the Dominguez and Lincoln residential communities in the City of Carson, specifically truck traffic, air quality, and businesses along Alameda Street; Port growth; exit ramps from the proposed expressway; impacts to traffic on Pacific Coast Highway; funding of the expressway;

potential connection to eastbound Highway 91; and ability of the public to propose additional alternatives to the proposed project.

Based upon the comment letters received from Latham & Watkins, PCR Services Corporation, and representatives from Watson Land Company, additional public noticing and commenting opportunities were provided to clarify the project alternatives and study area. An additional display ad was advertised in the *California Crusader News* from February 24, 2005, through March 2, 2005.

6.1.3 Scoping Comments

Scoping comments received in letters from agencies and other interested parties are summarized in Table 6-1. As shown in the table, the major concerns were traffic, air quality, and community health. Other concerns included the peregrine falcon, project visibility (aesthetics), and public notification of the proposed project.

Major traffic concerns include the potential for an increase in truck traffic and for the expressway to become a high-speed freeway for truck traffic. Air quality issues include concerns that the combination of diesel fumes from trucks and trains will cause air quality to fall below safe levels for residents in the City of Carson. Other community health issues include concerns regarding pedestrian safety, and an increase in noise.

6.1.4 Areas of Controversy

The following areas of controversy were raised in comments received in response to the NOI or comments submitted to the project team during the course of the environmental evaluation:

- **Marine Vessel Detours and Economic Impacts**. The proposed replacement bridge is designed for a fixed vertical clearance of 14.3 m (47 ft). Potential adverse effects could occur with respect to marine vessels traveling in Cerritos Channel that are too tall to clear the 14.3-m (47-ft) vertical limit. Such vessels would be required to detour through the outer harbor, with a consequent economic impact.
- **Historic Schuyler Heim Bridge Property**. The existing Schuyler Heim Bridge is considered eligible for listing in the National Register of Historic Places and the California Register of Historic Resources. Demolition of the existing bridge or obstruction of views of the existing bridge behind the replacement bridge would constitute a substantial change in the significance of a historical resource.
- **Pier S and Pier A Property Acquisitions**. Property acquisitions required in areas of Pier S and Pier A would alter the planned physical layout and operation of the Pier S and Pier A Terminals, which are operated by the Port of Long Beach.
- **Health Risk Concerns. Toxic Air Contaminants**. Health risk concerns are related to the increased diesel truck traffic in proximity to the Wilmington community as a result of the expressway.
- **Community Concerns.** Numerous comments have been raised by various community groups in the Wilmington area in opposition to the project. These relate to redirection of truck traffic closer to the Wilmington area, with resulting air emissions, noise, light and glare, and traffic issues, and concern for the effects to the aesthetics of the commercial and residential neighborhood.

Table 6-1
Comments Received

Letter From	Date of Letter	Comment
Environmental Protection Agency, Region IX NEPA Office	9-Sept-04	1. Commenter had questions regarding the scoping effort. 2. Commenter requested to be contacted regarding questions about EPA requirements.
United States Fish and Wildlife Service (USFWS) Carlsbad	20-Sept-04	1. Commenter had questions about peregrine falcons (that roost at Schuyler Heim Bridge), and the Cerritos Channel relative to the footprint of the new piers.
	21-Sept-04	1. Pier and abutment fills in the channel would need to be consistent with the Ports/USFWS mitigation agreement. 2. Compliance with CDFG requirements for the peregrine falcons would satisfy concerns of the USFWS in regard to MBTA.
Los Angeles Unified School District	21-Sep-04	1. Concern that the project will negatively impact pedestrian routes for students attending Wilmington Park Elementary School.
City of Carson	29-Sep-04	1. The effect of the elevated expressway on the health and well-being of Carson residents and businesses on or near the Alameda Corridor. 2. Concern about air quality (particularly PM10 and PM 2.5) related to additional truck traffic and associated diesel emissions. 3. The project would disrupt existing street circulation feeding onto Alameda Street. 4. The project would disrupt vehicle and pedestrian flow between local neighborhoods and create another barrier toward isolating the East Carson community. 5. The project would impact the health of east Carson residents, result in increased noise and pollution levels, disrupt small businesses along Alameda Street, decrease property values, result impacts to traffic circulation patterns, and create safety issues. 6. Caltrans should consider alternatives, including the no-build alternative, connect rail lines directly to the ports, other methods of container/goods deliveries, and alternative truck routes.

Table 6-1
Comments Received

Letter From	Date of Letter	Comment
United States Coast Guard	28-Feb-06	1. A bridge over navigable waters of the U.S. may only exist by virtue of a federal permit. When no longer used for the permitted purpose of providing for land transportation, a bridge is no longer in compliance with its permit and shall be removed from the waterway, by and at the expense of the bridge owner. Therefore, if the proposed Schuyler Heim Drawbridge replacement, is permitted, the requirement to remove all parts of the existing bridge, not used in the replacement bridge, would be included as a condition in the federal permit for the replacement bridge.
Dominguez Area Property Owners Association	13-Sep-04	1. Opposition to any changes to SR-47 that would result in increased truck traffic on Alameda Street.
		2. Concern about effects to air quality from diesel fumes from trucks and trains.
		3. Concern about the amount of noise generated by trucks and trains.
		4. Project plans for most of the trucks to exit Alameda Street at the I-405 or 91 freeway would result in gridlock.
Wilmington Neighborhood Council Transportation Committee	27-Sep-04	1. Commenter expressed concern that truck traffic could be redirected to local streets at terminus of expressway south of Pacific Coast Highway PCH). Commenter suggested: – Reconfiguring the PCH/Alameda Street/SR-47 intersection to prevent trucks from turning west onto PCH. – Evaluate relative to Port Transportation Master Plan objective to direct all truck traffic around the community of Wilmington.
		2. Support pilings of expressway crossover at Henry Ford Avenue could impact Leeward Bay Marina. Commenter suggested: – Keep marina intact. – During construction, provide unobstructed and clearly marked detours at Henry Ford Avenue which provides the only entrance/exit to eleven (11) Wilmington marinas.
		3. The project would have aesthetic impact to business and residential areas between Anaheim Street and PCH by an increase in truck traffic. Commenter suggested: – The project included landscaping (decorative fencing, trees, vines, shrubs) and energy-efficient, non-glare, overhead light fixtures.
Latham & Watkins LLP	29-Sep-04	1. The project could involve property several miles from the project boundary provided in the NOI/NOP.
		2. Commenter asserted that public notice of the project has been inadequate.
Jody Jones	30-Sep-04	1. The project will impact the quality of life of those who live in the Harbor communities.
		2. Decisions related to port expansion should be weighed with regard to effects on the community's health.

Table 6-1
Comments Received

Letter From	Date of Letter	Comment
PCR Services Corporation	30-Sep-04	1. Commenter asserted that an alternative alignment would begin more than 1 mile northeast of the Pacific Coast Highway terminus of the proposed project and terminate 2 miles to the north. – As a result, the commenter asserted that the NOI/NOP was inadequate in informing the public or affected property owners of the locations of significant possible improvements under the proposed project and therefore, of the likely distribution of associated impacts. 2. Commenter asserted that the extension of SR-103 Extension to Alameda Street alternative could cost twice as much as the SR-47 Expressway. 3. Commenter asserted that construction impacts will be greater with the SR-103 Extension alternative than with the SR-47 Expressway. 4. The SR-103 Extension alternative would result in serious disruption to ICTF operations.
Verbal Comment From	**Date of Comment**	**Comment**
U.S. Environmental Protection Agency: Liz Varnhagen	09-Sep-04	1. Commenter had questions regarding the scoping effort. 2. Commenter requested to be contacted regarding questions about EPA requirements.
U.S. Fish and Wildlife Service:	20-Sep-04	1. Commenter had questions about peregrine falcons (that roost on the Schuyler Heim Bridge), and the Cerritos Channel relative to the footprint of the new piers.
Jonathon Snyder	21-Sep-04	1. Commenter stated that pier and abutment fills in the channel would need to be consistent with the Ports/USFWS mitigation agreement. 2. Commenter stated that compliance with CDFG requirements for the peregrine falcons would satisfy concerns of the USFWS in regard to MBTA.

6.2 Ongoing Public Involvement

Additional public involvement will occur with the 45-day circulation period for this Draft EIS/EIR to agencies and the public, submittal of comments on the document, and public hearing on the Draft EIS/EIR. After the public circulation period, all comments will be considered, and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. A Final EIS/EIR will be prepared for the selected alternative and will address public comments on the Draft EIS/EIR.

In accordance with CEQA, Caltrans will certify that the project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that cannot be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. Caltrans will then file a Notice of Determination with the State Clearinghouse that will identify whether or not: the selected project alternative will have significant impacts, mitigation measures were included as conditions of project approval, findings were made, and a Statement of Overriding Considerations was adopted. In accordance with NEPA. Based on the information provided in the EIS/EIR, Caltrans will determine a preferred alternative and issue a Record of Decision (ROD) to notify the public of the selected alternative and the reasons for that decision.

6.3 Agency Coordination

Below is a list of federal, state, and regional agencies and individuals who were consulted during the scoping process and contributed information for inclusion in the text and/or technical reports prepared in conjunction with this Draft EIS/EIR.

6.3.1 Federal Agencies

National Marine Fisheries Services
United States Coast Guard
United States Army Corp of Engineers
United States Fish and Wildlife
United States Environmental Protection Agency

6.3.2 State Agencies

California Department of Fish and Game
California Department of Conservation, Division of Oil and Gas, District 2
California Regional Water Quality Control Board, Los Angeles, Region 4
California State Parks and Recreation
California Transportation Commission
California Coastal Commission
Department of Toxic Substances Control, Cypress office
State Historic Preservation Office

6.3.3 Regional Agencies

Metropolitan Transportation Authority
Southern California Association of Governments
South Coast Air Quality Management District

6.3.4 Local Agencies

City of Carson
City of Carson, Department of Health
City of Commerce, Department of Health and Services, Public Health Investigation
City of Los Angeles
City of Los Angeles, Department of Building and Safety
City of Los Angeles, Bureau of Sanitation, Industrial Waste Management Division
City of Long Beach
City of Long Beach, Department of Health, Hazardous Materials
City of Long Beach Department of Health and Human Services
Long Beach Parks, Recreation and Marine
Long Beach Unified School District
Los Angeles City Fire Department

6.3.5 Tribal (Section 106)

Native American Consultation

In accordance with Section 106 of the National Historic Preservation Act, a request was made to the NAHC for a review of the *Sacred Lands Inventory* to determine if any known cultural properties are present within or adjacent to the project Area of Potential Effect. (APE). The NAHC responded, stating that no Native American cultural resources are known to exist within or adjacent to the project APE. In addition, the NAHC provided a list of Native American groups and individuals for further consultation.

During the period of May through June 2002, the project solicited information and comments regarding cultural resources in the Schuyler Heim Bridge project area from local governments, public and private organizations, and other parties likely to have knowledge of or concerns about such resources, as described in the *Negative Archaeological Survey Report* (NASR, 2002). Letters requesting information were sent to the following:

- The Gabrielino/Tongva Tribal Council of the Gabrielino Tongva Nation
- The Los Angeles City/County Native American Indian Commission
- Ms. Cindi Alvitre, Ti'At Society
- Mr. John Jeffredo, Island Gabrielino Group
- Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council
- Mr. Anthony Morales, Gabrielino/Tongva Tribal Council
- Mr. Jim Velasques
- Mr. Samuel Dunlap
- Mr. John Valenzuela
- Mr. Craig Torres
- Mr. Alfred Valenzuela
- Ms. Angela Louise Lassos-Sanchez

A second round of consultation with the NAHC for the SR-103 Extension to Alameda Street was conducted in 2004; the NAHC again responded, stating that no Native American cultural resources are known to exist within or adjacent to the APE for the SR-103 Extension. On October 19, 2004, the following groups and individuals were again contacted regarding the SR-103 portion of the project:

- The Gabrielino/Tongva Tribal Council of the Gabrielino Tongva Nation
- The Los Angeles City/County Native American Indian Commission
- Ms. Cindi Alvitre, Ti'At Society
- Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council
- Mr. Anthony Morales, Gabrielino/Tongva Tribal Council
- Mr. Jim Velasques
- Mr. Samuel Dunlap
- Mr. Craig Torres
- Mr. John Tomy Rosas, Gabrielino Tongva Indians of California Tribal Council
- Ms. Susan Frank, Gabrielino Band of Mission Indians of California
- Mercedes Dorame, Gabrielino Tongva Indians of California Tribal Council

No response from these individuals or organizations was received following consultation.

6.3.6 Other Coordination Activities

In addition to the above, during project design and development, there have been ongoing coordination meetings between ACTA, ACET, the Port of Long Beach, and the Port of Los Angeles. These meetings have addressed environmental and engineering issues associated with the proposed project alternatives to assure that the project does not interfere with ongoing operations and planned development at the ports.

Also, the Project Development Team (PDT) conducts monthly coordination meetings to address design issues of all the alternatives in accordance with the needs of the various entities. Agencies in attendance at the PDT meetings include ACET, ACTA, representatives from Caltrans headquarters and Caltrans District 7, City of Carson, Federal Highway Administration, City of Los Angeles Department of Transportation, POLA and POLB.

6.3.7 Professional Contacts

Peregrine Falcon Monitor: Carl G. Thelander, assisted by Jeff Sipple
Project Consultant: Kathy Keane

6.4 Project Design and Development

In addition to the above, during project design and development, there have been ongoing coordination meetings with the Port of Long Beach, ACTA, and ACET. These meetings have addressed environmental and engineering issues associated with the proposed project alternatives to assure that the project does not interfere with ongoing operations and planned development at the ports, particularly at Pier S, Pier A, and Pier T. As a result of these meetings, the project alternatives have been designed to accommodate the interests of the ports and the pier operators. At Pier S, the issues addressed include, but are not limited to, advance planning for potential effects to the existing oil wells near Cerritos Channel, avoidance of the remediation cells, and compensation for loss of vehicular and equipment parking space. At Pier A, the SR-47 Expressway has been designed so the support columns avoid the operations buildings and avoid the alignment of a planned tunnel under SR-47. In addition, the design of the project alternatives is consistent with planned development at Pier A and Pier S. At Pier T, elements of project alternatives south of the Schuyler Heim Bridge and along Ocean Avenue, including the flyover, have been designed to avoid impacts to existing and future terminal operations.

Karl

CITY OF CARSON

February 25, 2002

Mr. Ronald J. Kosinski
Deputy director
Division of Environmental Planning
California Department of Transportation
120 S Spring St
Los Angeles, CA 90012-3602

Dear Mr. Kosinski:

This letter is in response to your letter dated January 28, 2002 (attached), regarding a proposed project in Los Angeles/Long Beach Harbor Area. The following projects, within an adjacent area of our city, are currently either under construction or under design.

- **Sepulveda Grade Separation at Alameda Street:**

This project consists of a 854 foot long bridge plus a 341-foot long slab bridge over Alameda Street and a connector road to Alameda Street. This project is currently under construction. It is anticipated that construction will be completed by April 2002.

- **Sepulveda Blvd Widening from Alameda Street to the East City Limit:**

This Project consists of widening Sepulveda Blvd from Alameda Street to the East City Limit, including widening the bridge over Dominguez Channel, symmetrically about its existing centerline to 84'-0" between curbs, with 6'-0" sidewalks, to an overall width of 96'-0".
This project is currently under design. The construction is scheduled to commence in July 2002 and be completed by February 2003.

If you have any question or require additional information, please contact Mr. Massoud Ghiam, P.E., Civil Engineering Associate at (310) 952-1700 Ext. 1812.

Sincerely,

M. VICTOR ROLLINGER
CITY ENGINEER
Cc: Ann Marie Gallant, Development Services Group, General Manager
Kenneth i. Boyce, Director of Public Works
C/MASSOUD/CALTRANS.DOC

CITY HALL • 701 E. CARSON STREET • P.O. BOX 6234 • CARSON, CA 90749 • (310) 830-7600
WEBSITE: ci.carson.ca.us

"Sobelman, Julie (HHS/OS)" <Julie.Sobelman@hhs.gov> on 02/21/2002 11:13:16 AM

To: "'karl.price@dot.ca.gov'" <karl.price@dot.ca.gov>
cc: "Beben, Camille (HHS/OS)" <Camille.Beben@hhs.gov>
Subject: Scoping Study Schuyler Heim Bridge replacement

Per your request, the Department of Health and Human Services has searched our property database and cannot find any properties within the zip codes, or street addresses of the Schuyler Heim Bridge project. Based on available information, I do not think your project will have any environmental impact on us. Julie Sobelman

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086

Flex your power!
Be energy efficient!

July 10, 2003

Tom Holsman
Executive Vice President/CEO
Associated General Contractors
3095 Beacon Blvd.
West Sacramento, CA 95691

Dear Mr. Holsman:

As you know, over the last four years we have dramatically increased our program, reaching all-time records of improvements underway for Californians. Currently, we have over $6.7 billion of work under contract. This could not happen without the full partnership of the contracting community and the workers who are on the job at hundreds of sites across the State. In the spirit of that partnership, I need to alert you to the major impacts on our programs of the ongoing failure of the Legislature to pass a budget for the 2003-04 fiscal year.

The record levels of delivery, reductions of truck weight fees, previous budget actions, and lower gas tax receipts have contributed to a diminished cash balance in the State Highway Account (SHA). Further, this year's federal reimbursement capacity is exhausted, and gas tax receipts cannot be transferred without a budget. The Department of Finance (Finance) is unable to authorize a General Fund loan to the SHA to meet SHA cash flow needs at this time given the lack of available General Fund resources and an enacted budget for the 2003-04 fiscal year. Once a budget is enacted, DOF will be able to reconsider a loan request if a loan is still required to meet SHA short-term cash needs.

Without a budget, we project that there may not be sufficient cash in the SHA to cover costs incurred after July 20. At that point, we will be faced with the need to curtail, at least temporarily, construction and maintenance work throughout the State. If this happens, we will pay all penalties and interest due according to statutes and contractual obligations when funding is restored. It may also be necessary to suspend or terminate some contracts to reduce costs, keeping in mind that safety is our first priority. If we must suspend or terminate contracts, we will certainly work closely with our industry

"Caltrans improves mobility across California"

Tom Holsman
July 10, 2003
Page 2

partners to minimize potential impacts. Toll bridge projects will not be affected due to the fact that they have a separate source of funding. A list of projects that are subject to impact due to the lack of a budget, can be found at:

http://www.dot.ca.gov/hq/construc/jun03doc.html

The prospect of shutting down major portions of the State's largest-ever program is something we obviously hope to avoid, but it may be inevitable without the Legislature approving a budget. Such a shutdown not only would affect travelers in every county throughout the State, but also would have devastating economic impacts. Close to 200,000 private-sector jobs supported by our program would be put at risk, and the ripple effects throughout the economy would be tremendous.

I understand the position in which this would place our contractors and their employees, and hope the Legislature's impasse is short-lived. We will keep you informed on the status of our funding capacity. Maintaining and improving our highways, bridges, and transportation systems throughout California is one of the top priorities of the Davis Administration.

Sincerely,

Original signed by:

JEFF MORALES
Director

"Caltrans improves mobility across California"

PRACTICE LIMITED TO THE EYE

TELEPHONE: (714) ~~882-3788~~
(909) 754 3877

JONATHAN D. OLENICK, M.D., F.A.C.S.
~~399 E. HIGHLAND AVE. SUITE 209~~
SAN BERNARDINO, CALIF. 92404

NEW ADDRESS
Jonathan D. Olenick
2102 Jacaranda Court
San Bernardino, CA 92404

FEB 2002
RECEIVED
Planning Division

05 February 2002

CALTRANS c/o Port of Long Beach Administrative Building
925 Harbor Plaza
Long Beach, Calif, 90802

re: Proposed Heim Drawbridge Replacement

Gentlemen:

1) Whether or not the Heim Bridge is replaced with a fixed structure, there will still be a draw bridge over the Cerritos channel, namely the rail road bridge, there fore what is to be gained???
2) Through either natural events, ie Earth Quake, or man made events, ie Terrorist sappers, the Vincent Thomas Bridge over the Los Angeles main channel could well block that channel entraping all vessels North of it.
3) Therefore, if it is deemed necessary to replace the Heim drawbridge with a fixed bridge, it is imparative that the vertical and horizontal clearance be sufficient for the largest vessel berthed North of the Vincent Thomas to be able to exit in an emergency. (Remember Pearl Harbor) with only a single narrow channel.
4) If a fixed bridge is being considered for security reasons, then perhapse it should include a railroad bed, so that NO draw bridges span the Cerritos channel.

Thank you for your kind consideration of the letter, regrettably I will be unable to attend the meeting on 13 February.

Sincerely.

Jonathan D. Olenick

Feb 27 - 02
Marie Castle
1513 Bay View
Wilm Ca 9074

Mr. R. J. Kosinski; PK

I'm writting this letter in reguards to Cal-Trans wanting to replace the Commadore Schuler Heim vertical lift span bridge with a fixed bridge.

Well, it's hard to believe that Cal-Trans (Dept. of Transportation), wants to take a bridge that is vital to Long Beach & Los Angeles harbors, that raises for Ships, tugs & barges, derrick crane barge, vessels that need the bridge raised & turn it into a fixed span bridge, simply because it is "Cheeper" to build a new fixed bridge than to seismically-reto-fit the one that's there.

This has to be the dumbest idea Cal-Tran has ever thought up! Make a vertical lift bridge, a fixed bridge, next to the Ford/Badger vertical lift railroad bridge, that would totally stop traffic going throug the Cerritos Channel, Because not only do you want to make it fixed to aprox. 47' high, but you want to narrow the channel, from Heim bridge which now is 180', the Ford bridge is 220', down to 140' & maybe down to 80' wide.

Did anybody research all of this? I don't think so, because if they did they would find out that ships-full lift, derrick crane

Feb. 27, 2002
Marie Caste
1513 Bay View
Wilm Ca 90744

barge its 107 feet tall, tugs up to 40' wide (the new Foss tug Marshall Foss 40' wide), the fuel barge is 72' wide + tug that's up to 112' wide & Cal-trans wants to narrow the channel: Not a good idea. If the derrick crane barge or ships have to go arround it takes aprox. 4 hrs. With a ship, that's alot of pollution, not counting the added expense, tugs are getting $1250 a hr. plus fuel. Also if the weather is bad or water rough the fuel barge can not go arround (the outside way).

The Commadore Heim bridge also has a pair of nesting red-tailed falcons in the tower. They have been there a few years. It would affect them. Not counting the people who run the bridge, 4 equiptment operators & 1 bridge operator. That's me, I'm the only bridge operator in So. Calif.

Also this project will not eliminate 5 railroad crossings - only 1 at P.C.H & Alameda.

I was told that Cal-Trans notified all parties that this project affect, but at the same time my leadworker told me "they" weren't notified. All I do know is I wasn't informed of the 1st meeting (not the Feb 13 200. & after the meeting, when I found out, I was upset, I wanted to go, but my leadworker told me he "didn't know if it was open to the public". I told him "I'm not the public!" thats my job, a bridge operator. oh well.

I called the "interested parties" in the harbor & told them of the Feb 13, 2002 meeting, I don't know how many people went to it. But I do know the tug companies were not notified - they had herd of maybe a new bridge but didn't know you were going to narrow the channel etc. Also Dow Chemical wasn't notified - they have ships come through the chan.: (Dow is next to the Ford Bridge) And I don't think the people who have homes & bussiness were told either.

But my main concern, Mr. Kosinski, is for the lift span bridge be kept a lift span bridge, this harbor needs this bridge.

I do hope you Mr. Kosinski will read this letter & consider the impact on the harbor of not having this bridge. If at all possible I would like for you to respond back to me about this matter. Thank you very much for your time.

Marie Castle

Comm. Heim Bridge operator:
Marie Castle
1513 Bay View Ave
Wilmington, Ca 90744

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100

JAMES A. NOYES, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

February 14, 2002

IN REPLY PLEASE REFER TO FILE: PD-4

Mr. Ronald J. Kosinski, Deputy District Director
Division of Environmental Planning (LA 47 KP 4.5/8.5 (PM 2.8/5.3))
Caltrans
120 South Spring Street (MS 16A)
Los Angeles, CA 90012

Dear Mr. Kosinski:

SCHUYLER HEIM BRIDGE REPLACEMENT AND ALAMEDA CORRIDOR TRUCK EXPRESSWAY

In response to the Notice of Scoping/Initiation of Studies dated January 28, 2002, we have identified the following existing facilities and planned developments surrounding your project study area:

- We operate a seawater barrier in the vicinity of the proposed project as shown on the enclosed map. In particular, the proposed project may affect Injection Well 26J, Observation Well 26JN, and a portion of the water supply pipeline.

- We are in the process of developing a watershed management master plan to mitigate flooding and enhance water quality in the Dominguez Watershed, which includes the proposed project area. We anticipate proposing several projects that may be underway by 2004.

- The proposed expressway alignment crosses Dominguez Channel, which is maintained and operated by us.

Mr. Ronald J. Kosinski
February 14, 2002
Page 2

We appreciate the opportunity to participate in this project and look forward to providing any information that may be required in the future. If you have any questions, please contact Ms. Kitty Shih of our Flood Management Section at (626) 458-5196 or KSHIH@ladpw.org.

Very truly yours,

JAMES A. NOYES
Director of Public Works

William Winter

for PATRICK V. DeCHELLIS
Assistant Deputy Director

KHS:ph
C011480
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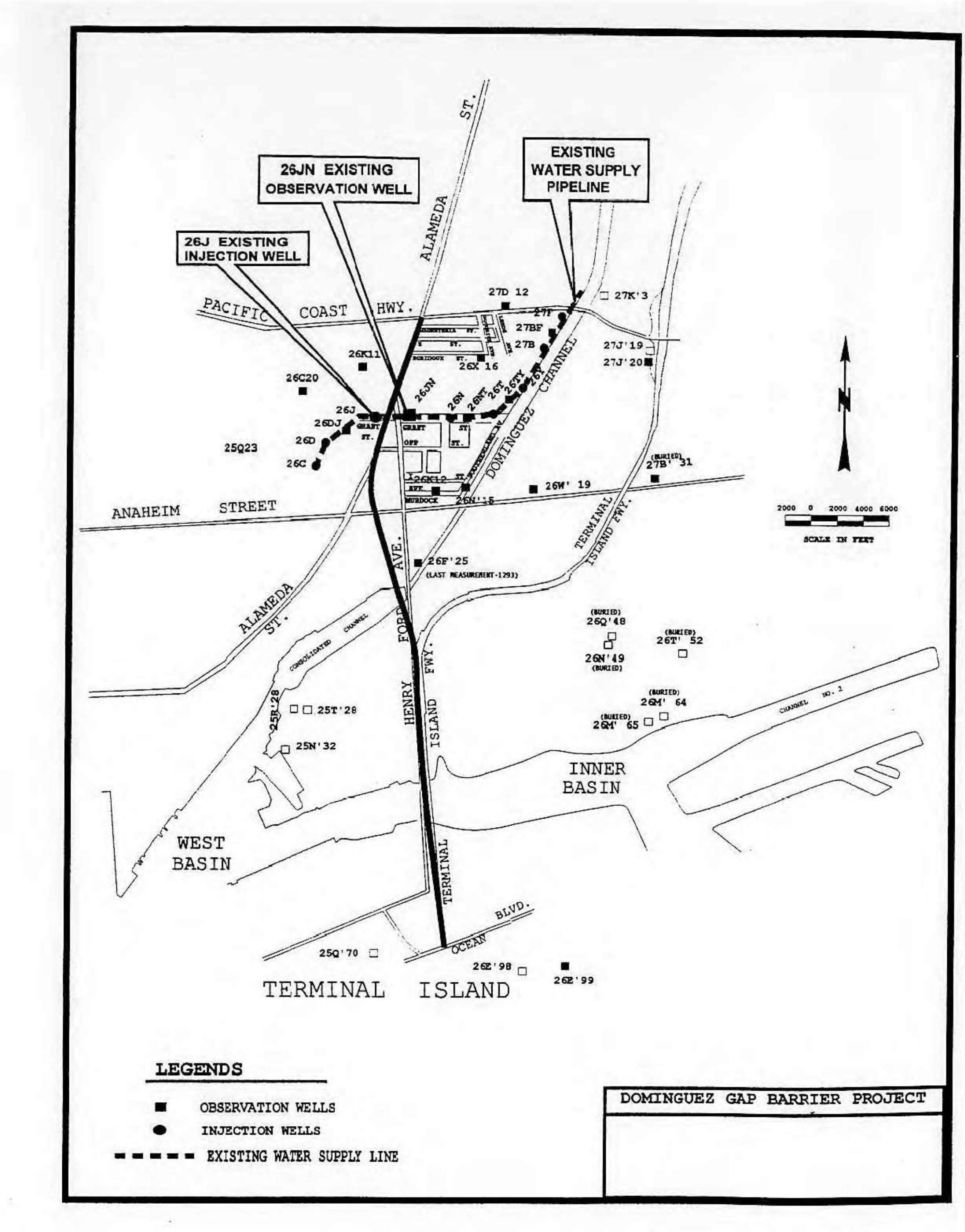
26JN EXISTING OBSERVATION WELL
EXISTING WATER SUPPLY PIPELINE
26J EXISTING INJECTION WELL
ALAMEDA ST.
PACIFIC COAST HWY.
DOMINGUEZ CHANNEL
ANAHEIM STREET
HENRY FORD AVE.
TERMINAL ISLAND FWY.
INNER BASIN
WEST BASIN
OCEAN BLVD.
TERMINAL ISLAND
LEGENDS
OBSERVATION WELLS
INJECTION WELLS
EXISTING WATER SUPPLY LINE
DOMINGUEZ GAP BARRIER PROJECT
SCALE IN FEET

"Mike Bagheri" <MBagheri@dot.lacity.org> on 03/08/2002 10:48:46 AM

To: <karl_price@dot.ca.gov>
cc:
Subject: Schuler Heim Bridge Replacement

We've received the "Notice of Scoping/Initiation of Studies" for the subject project. Although we have no comments a this time, please keep us informed of the EIR's progress. Thank you.

our address is:

LADOT
221 N. Figueroa Street, Suite 600
Los Angeles, CA 90012

=====================
Mike Bagheri
Transportation Engineer, P.E., PTOE
(213) 580-5202
(213) 580-5208 FAX
=====================

Rec'd 2/28/02

Los Angeles Unified School District

ROY ROMER
Superintendent of Schools

ANGELO BELLOMO
Director,
Office of Environmental Health and Safety

Environmental Review File
Miscellaneous "AD"

January 13, 2002

Mr. Ronald J. Kosinski
Division of Environmental Planning
Caltrans
120 S. Spring Street
Los Angeles, CA 90012

SUBJECT: STATE ROUTE 47 FROM OCEAN TO PACIFIC COAST HIGHWAY

Dear Mr. Kosinski:

Thank you for giving the Los Angeles Unified School District (LAUSD) the opportunity to comment on State Route 47, etc. The project negatively impacts the safety of the pedestrian route for students attending **Wilmington Park Elementary School.**

Contractors must maintain ongoing communication with the administrator of the school, providing sufficient notice to forewarn children and parents when existing pedestrian and vehicular routes to school will be impacted. Additionally, construction scheduling and haul routes should be sequenced to minimize conflicts with pedestrians, school buses and cars at he arrival and dismissal times of the school day. Haul trucks are not to be routed past the school, except when school is not in session.

The District's Transportation Branch has prepared the attached comments on school transportation issues. These comments describe mitigation measures that will be necessary to protect school walk routes during project demolition and construction. Therefore, the measures set forth in these comments should be adopted as conditions of project approval to offset unmitigated impacts on the affected school students.

Thank you for your attention to this matter. For additional information please call me at (213) 633-3897.

Raymond E. Dippel

Raymond E. Dippel
Assistant Environmental Planning Specialist

RD:rd
Attachments

c: Ms. Palacios

BUSINESS SERVICES CENTER ANNEX: 1449 S. San Pedro St., Los Angeles, CA 90015• MAILING ADDRESS: Box 512298, Los Angeles, CA 90051 •
Telephone (213) 743-5086 • Fax (213) 749-7201

02/27/2002 14:53 13232274498 PERSONNEL PAGE 02

INTER-OFFICE CORRESPONDENCE
LOS ANGELES UNIFIED SCHOOL DISTRICT

TO: Raymond Dippel,
Assistant Environmental Planning Specialist
Environmental Health and Safety

Date: February 26, 2002

FROM: Martha Palacios
Administrative Services Manager, Transportation Branch

SUBJECT: **ENVIRONMENTAL IMPACT RESPONSE**
CALTRANS PROJECT
SR47 / HENRY FORD AVE / ALAMEDA ST
Near **Wilmington Park ES**

The following are the environmental impact concerns and the mitigation measures necessary to address the related issues for transported students and bus routes near **Wilmington Park ES**.

I **OVERALL IMPACT**

This project offers some potential to impact school transportation and the safety of student pedestrians near the location.

Current Bussing Patterns Near the Site:

- Three (3) bus routes pass within 1/4 mile of the project property while transporting approximately one hundred forty (140) integration/pwt/cap students to programs through out the greater Los Angeles area.
- These integration buses stop to load students at three (3) school bus stops within ten (10) blocks from a portion of the proposed site.
- One (1) bus delivers 19 students with disabilities to special education day classes at **Wilmington Park ES** near the site.
- Other special education buses also travel through and make home pick ups in this area.

II **ENVIRONMENTAL IMPACTS**

ON SCHOOL TRANSPORTATION

During Construction:

- During any construction phase, truck traffic and construction vehicles may cause traffic delays for our transported students.
- Some additional costs to the District for additional drivers' time generated by routing delays or diversions.
- Rough street surfaces may be result from construction activities.

FORM 34-AEH-3 (STK. NO. #15901) Rev. 11-92

02/27/2002 14:53 13232274498 PERSONNEL PAGE 03

ON STUDENT PEDESTRIANS

During Construction:

- Additional dangers to student pedestrians may occur from staging of trucks along streets near the project and increased truck traffic.
- Access to the construction sites may expose student pedestrians to unexpected dangers.
- Trucks and equipment may draw the attention of students who may not respond appropriately to the excitement of construction activity.

OTHER CONSIDERATIONS

- Because of provisions in the vehicle code, other trucks and construction vehicles may encounter school buses using the red flashing lights and must stop.
- Because of the nearness of the schools, trucks and construction equipment may encounter concentrations of student pedestrians.

III ADDITIONAL MITIGATION MEASURES REQUESTED

PRIOR NOTICE

- The Project Manager or designee should notify the LAUSD Transportation Branch of the expected start and ending dates for the various portions of the project that may affect traffic through the areas.

TRAFFIC MANAGEMENT

- Contractors to avoid staging trucks and equipment along streets in the area to facilitate the movement of buses during peak traffic hours.
- Contractors to provide flag-men to assist traffic when construction activities block traffic.
- When possible, avoid heaviest construction traffic between the hours of 6:30 a. m. to 8:00 a. m. and between 3:30 p. m. and 4:30 p. m. to minimize delays to the arrivals and departures of buses and encounters with student pedestrians in and around **Wilmington Park ES**.
- Time spacing of portions of the project to minimize traffic flow impacts.

STUDENT SAFETY

- Contractors to provide temporary fencing at appropriate portions of the construction sites to deter entry of student pedestrians.
- Contractors to restore affected street and sidewalk surfaces to reasonable smoothness to minimize the potential for bus accidents and trip & fall injuries to student pedestrians.
- The Los Angeles Unified School District will evaluate special education bus stops in the area for possible routing alternatives and will modify integration routing if necessary.

OTHER CONSIDERATIONS

- Contractors to remind their drivers of construction vehicles of the requirement to stop for the red flashing lights of any school bus.
- Contractors to remind drivers to be alert to the presence of many child pedestrians and exercise care.
- Contractors should notify drivers that the presence of traffic signals, crossing guards and/or school zone flashing lights do not exempt school buses from using the red flashing lights.
- Contractors should notify drivers and workers to be cautious of student pedestrians in the area during peak hours.
- Contractors to be aware that the presence of any traffic light, crossing guard or school zone flashing lights do not guarantee that student pedestrians will act appropriately when crossing streets.

Thank you for your attention and diligence to this important issue. If you have any further questions or concerns, please feel free to contact me.

AA: ala
C: A. Rodriguez
M. Palacios
A. Altieri
D. Wilkes

MTA ART,SIG-GOODS-MOVE Fax:213-922-6996 Mar 7 '02 9:21 P.02

0311807220/2000

METRO

Metropolitan
Transportation
Authority

One Gateway Plaza
Los Angeles, CA
90012-2952

February 28, 2002

Mr. Ronald J. Kosinski, Deputy District Director
California Department of Transportation-District 7
Division of Environmental Planning
120 South Spring Street
Los Angeles, California 90012

Dear Mr. Kosinski: Ron

This is in response to your correspondence dated January 28, 2002 regarding the notice of scoping and initiation of studies for the Schuyler Heim Bridge replacement and Alameda Corridor Truck Expressway project. After conferring with the appropriate departments at the MTA, we have determined that there are no planned improvements in vicinity of your project at this time. However, it is anticipated that there may be transportation projects identified within your project study area during the development of the locally preferred strategy for the Route 710 Major Corridor Study. Caltrans' Corridor Studies/Feasibility Studies Oversight unit is a participant in this study and can keep you in informed as the Route 710 study progresses. Sam Alameddine is the Caltrans contact person. The Route 710 Major Corridor Study is scheduled to be completed in 2003. 710 MIS

Thank you for giving the MTA an opportunity to comment on your study at this stage. We look forward to working cooperatively with you and your staff on the development of this study. If you have any questions, please contact Carol Inge, Deputy Executive Officer of Transportation Development and Implementation, at (213) 922-3056.

Sincerely,

James L. de la Loza, Executive Officer
Countywide Planning & Development

cc: Renee Berlin, ASGM Director
Ray Maekawa, Highway Programs Director

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

State Clearinghouse

Gray Davis
GOVERNOR

Steven A. Nissen
DIRECTOR

Notice of Preparation

February 1, 2002

To: Reviewing Agencies

Re: Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project
SCH# 2002021009

Attached for your review and comment is the Notice of Preparation (NOP) for the Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Ronald Kosinski
Department of Transportation, District 7
120 South Spring Street (MS 16 A)
Los Angeles, CA 90012

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 WWW.OPR.CA.GOV/CLEARINGHOUSE.HTML

Document Details Report
State Clearinghouse Data Base

SCH#	**2002021009**
Project Title	Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project
Lead Agency	Caltrans #7

Type	**NOP** Notice of Preparation
Description	The proposed project consists of replacement of the Schuyler Heim Bridge (Bridge Number: 53-2618) over the Cerritos Channel at the Port of Long Beach and construction of an elevated truck expressway between the Schuyler Heim Bridge and Pacific Coast Highway (SR1) in the Wilmington community of Los Angeles.

Lead Agency Contact

Name	Ronald Kosinski				
Agency	Department of Transportation, District 7				
Phone	213-897-0703	***Fax***			
email					
Address	120 South Spring Street (MS 16 A)				
City	Los Angeles	***State***	CA	***Zip***	90012

Project Location

County	Los Angeles						
City	Long Beach, Los Angeles, City of						
Region							
Cross Streets	Ocean Ave. & SR 47 to Alameda St. & SR 1						
Parcel No.							
Township	5S/4S	***Range***	R13W	***Section***		***Base***	

Proximity to:

Highways	SR 47
Airports	
Railways	Union Pacific Railroad
Waterways	Ceritos Channel; Dominguez Channel
Schools	Wilmington Wye Park School
Land Use	

Project Issues	Aesthetic/Visual; Air Quality; Archaeologic-Historic; Coastal Zone; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Public Services; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Water Quality; Water Supply; Wildlife
Reviewing Agencies	Resources Agency; California Coastal Commission; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; Reclamation Board; Department of Fish and Game, Region 5; Native American Heritage Commission; Public Utilities Commission; State Lands Commission; Caltrans, District 7; California Highway Patrol; Integrated Waste Management Board; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 4

Date Received	02/01/2002	***Start of Review***	02/01/2002	***End of Review***	03/04/2002

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List — County: — SCH#

Resources Agency

- ■ Resources Agency — Nadell Gayou
- ☐ Dept. of Boating & Waterways — Bill Curry
- ☒ California Coastal Commission — Elizabeth A. Fuchs
- ☒ Dept. of Conservation — Roseanne Taylor
- ☐ Dept. of Forestry & Fire Protection — Allen Robertson
- ☒ Office of Historic Preservation — Hans Kreutzberg
- ■ Dept of Parks & Recreation — Resource Mgmt. Division
- ☒ Reclamation Board — Pam Bruner
- ☐ S.F. Bay Conservation & Dev't. Comm. — Steve McAdam
- ☐ Dept. of Water Resources — Resources Agency, Nadell Gayou

Health & Welfare

- ☐ Health & Welfare — Wayne Hubbard, Dept. of Health/Drinking Water

Food & Agriculture

- ☐ Food & Agriculture — Steve Shaffer, Dept. of Food and Agriculture

Fish and Game

- ☐ Dept. of Fish & Game — Scott Flint, Environmental Services Division
- ☐ Dept. of Fish & Game 1 — Donald Koch, Region 1
- ☐ Dept. of Fish & Game 2 — Banky Curtis, Region 2
- ☐ Dept. of Fish & Game 3 — Robert Floerke, Region 3
- ☐ Dept. of Fish & Game 4 — William Laudermilk, Region 4
- ☒ Dept. of Fish & Game 5 — Don Chadwick, Region 5, Habitat Conservation Program
- ☐ Dept. of Fish & Game 6 — Gabrina Gatchel, Region 6, Habitat Conservation Program
- ☐ Dept. of Fish & Game 6 I/M — Tammy Allen, Region 6, Inyo/Mono, Habitat Conservation Program
- ☐ Dept. of Fish & Game M — Tom Napoli, Marine Region

Independent Commissions

- ☐ California Energy Commission — Environmental Office
- ■ Native American Heritage Comm. — Debbie Treadway
- ☒ Public Utilities Commission — Ken Lewis
- ■ State Lands Commission — Betty Silva
- ☐ Governor's Office of Planning & Research — State Clearinghouse Planner

- ☐ Colorado River Board — Gerald R. Zimmerman
- ☐ Tahoe Regional Planning Agency (TRPA) — Lyn Barnett
- ☐ Office of Emergency Services — John Rowden, Manager
- ☐ Delta Protection Commission — Debby Eddy
- ☐ Santa Monica Mountains Conservancy — Paul Edelman

Dept. of Transportation

- ☐ Dept. of Transportation 1 — IGR/Planning, District 1
- ☐ Dept. of Transportation 2 — Vicki Roe, Local, Development Review, District 2
- ☐ Dept. of Transportation 3 — Jeff Pulverman, District 3
- ☐ Dept. of Transportation 4 — Jean Finney, District 4
- ☐ Dept. of Transportation 5 — Lawrence Newland, District 5
- ☐ Dept. of Transportation 6 — Marc Birnbaum, District 6
- ☒ Dept. of Transportation 7 — Stephen J. Buswell, District 7
- ☐ Dept. of Transportation 8 — Mike Sim, District 8
- ☐ Dept. of Transportation 9 — Colleen O'Brien, District 9
- ☐ Dept. of Transportation 10 — Chris Sayre, District 10
- ☐ Dept. of Transportation 11 — Lou Salazar, District 11
- ☐ Dept. of Transportation 12 — Aileen Kennedy, District 12

Business, Trans & Housing

- ☐ Housing & Community Development — Cathy Creswell, Housing Policy Division
- ☐ Caltrans - Division of Aeronautics — Sandy Hesnard
- ☒ California Highway Patrol — Lt. Julie Page, Office of Special Projects
- ☐ Dept. of Transportation — Ron Helgeson, Caltrans - Planning
- ☐ Dept. of General Services — Robert Sleppy, Environmental Services Section

Air Resources Board

- ☐ Airport Projects — Jim Lerner
- ☐ Transportation Projects — Ann Geraghty
- ☐ Industrial Projects — Mike Tollstrup

- ☒ California Integrated Waste Management Board — Sue O'Leary
- ☐ State Water Resources Control Board — Diane Edwards, Division of Clean Water Programs
- ☒ State Water Resources Control Board — Greg Frantz, Division of Water Quality
- ☐ State Water Resouces Control Board — Mike Falkenstein, Division of Water Rights
- ☐ Dept. of Toxic Substances Contr — CEQA Tracking Center

Regional Water Quality Control Board (RWQCB)

- ☐ RWQCB 1 — Cathleen Hudson, North Coast Region (1)
- ☐ RWQCB 2 — Environmental Document Coordinator, San Francisco Bay Region (2)
- ☐ RWQCB 3 — Central Coast Region (3)
- ☒ RWQCB 4 — Jonathan Bishop, Los Angeles Region (4)
- ☐ RWQCB 5S — Central Valley Region (5)
  - ☐ RWQCB 5F — Central Valley Region (5), Fresno Branch Office
  - ☐ RWQCB 5R — Central Valley Region (5), Redding Branch Office
- ☐ RWQCB 6 — Lahontan Region (6)
  - ☐ RWQCB 6V — Lahontan Region (6), Victorville Branch Office
- ☐ RWQCB 7 — Colorado River Basin Region (7)
- ☐ RWQCB 8 — Santa Ana Region (8)
- ☐ RWQCB 9 — San Diego Region (9)

Rec'd from R. Kosinski @ 3/6/02 mtg.

165248. TI Cat. 231
L. Sequeira ✓
K. Chapman
L. Utsumi
D. Pappada

425 S. Palos Verdes Street
Post Office Box 151
San Pedro, CA 90733-0151
Tel/TDD 310 SEA-PORT
www.portoflosangeles.org

February 28, 2002

Via Facsimile and USPS

J. Bingham

Mr. Robert J. Kosinski, Deputy District Director,
Division of Environmental Planning
Caltrans
120 S. Spring Street (MS 16A)
Los Angeles, CA 90012

SUBJECT: RESPONSE TO NOTICE OF PREPARATION, SCHULYER HEIM BRIDGE REPLACEMENT AND ALAMEDA CORRIDOR TRUCK EXPRESSWAY PROJECT

Dear Mr. Kosinski:

Thank you for the opportunity to review the Notice of Preparation (NOP) for the draft Environmental Impact Report (EIR) for the project identified above. We have the following comments regarding the proposed project.

The Port of Los Angeles (POLA) is concerned with possible impacts to port operations if takings of POLA property are involved in the project. This issue should be fully evaluated in the EIR.

Recreational impacts were not identified in the NOP. The project is adjacent to a number of small boat marinas where private pleasure craft are docked. Potential impacts to recreational boating and marina access should be considered in the EIR. REC.

Bridge alignment Alternatives 1 and 2 include the same two fixed vertical clearance options, as opposed to a variable elevated bridge as currently exists. Option A allows a vertical bridge clearance of 38 feet over water, while Option B proposes a vertical bridge clearance of 47 feet over water. The EIR should evaluate the positive benefit of reduced truck idling emissions due to elimination of traffic delays during bridge closures. AQ.

For Bridge Alternatives 1 or 2, there are three channel width options: Option A is 180 feet wide, Option B is 145 feet wide, and Option C is 85 wide. Any change to the channel dimensions that could potentially affect water circulation should be modeled for both Ports. Excepting this potential impact, Option C would seem advantageous from one aspect; as a lifeline bridge, it should be better able to withstand a seismic event.

The EIR should evaluate construction impacts of both the Heim Bridge replacement and the Alameda Corridor Truck Expressway. In particular, any infusion of truck traffic into the communities of Wilmington or San Pedro as a result of this construction is unacceptable. Although periodic, short-duration closures (e.g., weekend) that are absolutely required may not have serious impacts; lengthy, full-bridge closures will have significant impacts. Consequently, construction staging needs to be analyzed extensively and carefully. Detailed cost-benefit analyses should

Const. Rel. Truck Trip Diversions.

be conducted for various construction alternatives (e.g., what are the costs and benefits of maintaining two-way traffic at all times?). For alternatives with a full bridge closure, detailed traffic detour impact analyses need to be conducted. These analyses should include level of service (LOS) analyses of adjacent roadways/intersections that would be impacted by the detoured traffic (e.g., Anaheim Street, Alameda Street, Henry Ford Avenue, Ocean Boulevard, Ocean Boulevard-I-710 connector ramps). The Ports Transportation Study model should be used for this analysis. The LOS analyses should be for the AM, mid-day (2-3), and PM peak hours. MMA ?

Additionally, the impact of the Heim Bridge replacement on the planned Ocean Boulevard/Terminal Island Freeway interchange needs to be addressed. In particular, the southbound travel direction on the south bridge approach may need to be modified (widened to the west) to better connect with the interchange project. Rel. Proj.

Regarding the Alameda Corridor Truck Expressway alternative, detailed traffic impact and cost-benefit analyses need to be conducted. One of the benefits of the proposed Expressway would be the grade separation of the West Basin lead track. As a remedy for this operational problem, the Alameda Corridor Transportation Authority will be implementing an Advance Warning system, which entails the installation of changeable message signs to alert motorists about train crossing delays. This system, which is to be installed sometime this year, should result in motorists altering their routes, to bypass West Basin train delays (e.g., using the TI Freeway instead of Alameda Street). Therefore, two base scenarios should be analyzed to evaluate the project benefits: with and without an intermodal train crossing during peak hours. MMA?

It appears that the Truck Expressway will involve a flyover of elevated railroad tracks and reach a height of as much as 75 feet above ground. An evaluation of the anticipated grades on the expressway and flyover, and impact on truck traffic should be included in the EIR.

POLA has engineering perspectives on the merits of the project alternatives and options outlined in this NOP, and would welcome the opportunity to provide input during the development of the EIR, either in the form of additional written comments, or in meetings with Caltrans.

The project appears to fall, in part, within the boundaries of POLA, making POLA a Responsible Agency for the project. A Coastal Development Permit and Engineering Permit from POLA will be required. A portion of the project lies on lands outside the Port district but within the jurisdiction of the City of Los Angeles, and will require review and permit approvals from the City and the California Coastal Commission. The EIR should contain a discussion of the intended uses of the document for use by the Port and City. Coastl. POLB & POLA

If you have any questions regarding these comments, please contact Kenneth Ragland at (310) 732-3912.

Sincerely,

(for) RALPH G. APPY, Ph.D.
Director of Environmental Management

RGA:PJ:KR
ADP NO: 020206-002

cc: R. Kanter, POLB
G. Lum, POLA
R. Reddick, POLA

The Port of Long Beach

P. O. BOX 570 · LONG BEACH, CA 90801-0570 · TELEPHONE (562) 437-0041 · FAX (562) 901-1725

c: 165248.TI Cat. 231
L. Sequeira
K. Chapman
J. Bingham
L. Utsumi
D. Pappada

February 26, 2002

Mr. Ronald J. Kosinski, Deputy District Director
Division of Environmental Planning
Caltrans, District 7
120 S. Spring Street (MS 16A)
Los Angeles, CA 90012

Subject: Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project

Dear Mr. Kosinski:

The Port of Long Beach appreciates the opportunity to review the subject Notice of Preparation (NOP). The Environmental Impact Report should evaluate the impacts of property acquisition and relocation that would be required by Bridge Alternative 2. Alternative 2 is unacceptable to the Port since it would adversely impact the Pier A and Pier S marine terminals. Potential impacts include intrusion of bridge foundations into contaminated soil remediation cells on Pier S, relocation of active oil production areas, and severe development and operating limitations for both terminals. Additionally, the Truck Expressway alternatives impact Pier A and the area immediately west. These impacts need to be thoroughly evaluated.

Get POLB Master Plan

The environmental document needs to adequately address construction impacts of both the Heim Bridge replacement and the Alameda Corridor Truck Expressway. Although periodic, short-duration closures (e.g., weekend) that are absolutely required may not have serious impacts, lengthy, full-bridge closures will have significant traffic and economic impacts. Consequently, construction staging needs to be analyzed extensively and carefully. Detailed cost-benefit analyses should be conducted for various construction alternatives (e.g., what are the costs and benefits of maintaining two-way traffic at all times?). For alternatives with a full bridge closure, detailed traffic detour impact analyses need to be conducted. These analyses should include detoured traffic estimates and level of service (LOS) analyses of the following adjacent roadways (including key intersections): Anaheim Street, Alameda Street, Henry Ford Avenue, and Ocean Boulevard (including the Gerald Desmond and Vincent Thomas Bridges, and the Ocean Boulevard/I-710 connector ramps). The Ports Transportation Study model should be used for this analysis. The LOS analyses should be for the AM, mid-day (2-3), and PM peak hours.

Cost benef. as part of the EA?

Additionally, the impact of the Heim Bridge replacement on the Port's planned Ocean Boulevard/Terminal Island Freeway interchange needs to be addressed. In particular, the southbound travel direction on the south bridge approach may need to be modified (widened to the west) to better connect with the Port's interchange project.

Koren

Regarding the Alameda Corridor Truck Expressway alternative, detailed traffic impact and cost-benefit analyses need to be conducted. One of the benefits of the proposed Expressway would be the grade separation of the West Basin lead track. As a remedy for this operational problem, the Alameda Corridor

PRESIDENT'S "E" AND "E-STAR" AWARDS FOR EXCELLENCE IN EXPORT

Ronald J. Kosinski
February 26, 2002
Page 2

Transportation Authority will be implementing an Advance Warning system, which entails the installation of changeable message signs to alert motorists about train crossing delays. This system, which is to be installed sometime this year, should result in motorists altering their routes, to bypass West Basin train delays (e.g., using the TI Freeway instead of Alameda Street). Therefore, two base scenarios should be analyzed to evaluate the project benefits: with and without an intermodal train crossing during peak hours. Korey

Another key issue for this project is cost-effectiveness. Given the high cost estimate for the proposed Expressway, this EIR should include detailed benefit-cost analyses of the proposed project compared to other facility alternatives, such as improvements on the I-710 or major arterial streets in the area (e.g., Sepulveda Boulevard). It should be noted that the proposed Expressway is also being examined in the I-710 Major Corridor Study, which is a joint effort of Caltrans, the Gateway Cities Council of Governments, and the Los Angeles County Metropolitan Transportation Authority. An assessment of how the proposed Expressway project might change the needed improvements on the I-710 should be included in this EIR. ACTS ? MFA

Finally, please note that the Port of Long Beach would be a Responsible Agency for this project and has the responsibility under the California Coastal Act to prepare an Application Summary Report and issue a Harbor Development Permit prior to the start of construction. Accordingly, please allow three months for document preparation and permit issuance.

If you have any questions, please contact Stacey Crouch at 562-590-4160.

Sincerely,

Robert Kanter

Robert Kanter, Ph.D.
Director of Planning

KC:s

Cc: Doug Failing, Caltrans
Rose Casey, Caltrans
Steve Novotny, Caltrans
Mabel Tran, Caltrans
Stacey Jones, Port of Los Angeles
Gerald Lum, Port of Los Angeles
Art Goodwin, ACTA
Duane Kenagy, ACET
Mario Montes, DMJM-Harris
Leonard Sequeira, CH2MHill

Apr-09-02 10:30 From- T-004 P.02 F-615

SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

Main Office
818 West Seventh Street
12th Floor
Los Angeles, California
90017-3435

t (213) 236-1800
f (213) 236-1825

www.scag.ca.gov

February 19, 2002

Mr. Ronald J. Kosinski RK
Deputy District Director
Division of Environmental Planning, Mail Stop 16A
California Department of Transportation, District 7
120 South Spring Street
Los Angeles, CA 90012-3606

RE: **Comments on the Notice of Scoping / Initiation of Studies for the Schuyler Heim Bridge Replacement & State Route 47 / Henry Ford Avenue / Alameda Street Transportation Corridor Improvement Project – SCAG No. I 20020066**

Dear Mr. Kosinski:

Thank you for submitting the **Notice of Scoping / Initiation of Studies for the Schuyler Heim Bridge Replacement & State Route 47 / Henry Ford Avenue / Alameda Street Transportation Corridor Improvement Project** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

In addition, The California Environmental Quality Act requires that EIRs discuss any inconsistencies between the proposed project and the applicable general plans and **regional plans (Section 15125 [d])**. If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided.

Policies of SCAG's Regional Comprehensive Plan and Guide and Regional Transportation Plan, which may be applicable to your project, are outlined in the attachment. **We expect the environmental document to specifically cite the appropriate SCAG policies and address the manner in which the Project is consistent with applicable core policies or supportive of applicable ancillary policies. Please use our policy numbers to refer to them in your environmental document. Also, we would encourage you to use a side-by-side comparison of SCAG policies with a discussion of the consistency or support of the policy with the Proposed Project.**

Please provide a minimum of 45 days for SCAG to review the environmental document when this document is available. If you have any questions regarding the attached comments, please contact me at (213) 236-1867. Thank you.

Sincerely,

Jeffrey M. Smith

JEFFREY M. SMITH, AICP
Senior Planner

Apr-09-02 10:30 From- T-004 P.03 F-615

February 19, 2002
Mr. Ronald J. Kosinski
Page 2

COMMENTS ON THE
NOTICE OF SCOPING / INITIATION OF STUDIES
FOR THE
SCHUYLER HEIM BRIDGE REPLACEMENT
& STATE ROUTE 47 / HENRY FORD AVENUE /
ALAMEDA STREET TRANPORTATION CORRIDOR IMPROVEMENT PROJECT
SCAG NO. I 20020066

PROJECT DESCRIPTION

The proposed Project considers the replacement of the existing vertical lift bridge with a fixed structure along with various alternative street alignments. The proposed Project is located in the Los Angeles / Long Beach Harbor area.

CONSISTENCY WITH REGIONAL COMPREHENSIVE PLAN AND GUIDE POLICIES

The **Growth Management Chapter (GMC)** of the Regional Comprehensive Plan and Guide (RCPG) contains the following policies that are particularly applicable and should be addressed in the environmental documentation for the Schuyler Heim Bridge Replacement & State Route 47 / Henry Ford Avenue / Alameda Street Transportation Corridor Improvement Project.

3.03 *The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.*

The **Regional Transportation Plan (RTP)** also has goals, objectives, policies and actions pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. Among the relevant goals, objectives, policies and actions of the RTP are the following:

Core Regional Transportation Plan Policies

4.02 *Transportation investments shall mitigate environmental impacts to an acceptable level.*

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4.04 *Transportation Control Measures shall be a priority.*

4.16 *Maintaining and operating the existing transportation system will be a priority over expanding capacity.*

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL STANDARD OF LIVING

The Growth Management goals to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. The evaluation of the proposed project in relation to the following policies would be intended to guide efforts toward achievement of such goals and does not infer regional interference with local land use powers.

3.10 *Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.*

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL QUALITY OF LIFE

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The evaluation of the proposed project in relation to the following policies would be intended to provide direction for plan implementation, and does not allude to regional mandates.

3.18 *Encourage planned development in locations least likely to cause environmental impact.*

3.20 *Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.*

3.21 *Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.*

3.22 *Discourage development, or encourage the use of special design requirements, in*

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areas with steep slopes, high fire, flood, and seismic hazards.

3.23 *Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.*

AIR QUALITY CHAPTER CORE ACTIONS

The **Air Quality Chapter** core actions related to the proposed project includes:

5.07 *Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecommunications, provision of community based shuttle services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed.*

5.11 *Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.*

CONCLUSIONS

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA.

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SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) is a ***Joint Powers Agency*** established under California Government Code Section 6502 et seq. Under federal and state law, SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). SCAG's mandated roles and responsibilities include the following:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. '134, 49 U.S.C. '5301 et seq., 23 C.F.R. '450, and 49 C.F.R. '613. SCAG is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080 and 65082 respectively.

SCAG is responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. '7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the State Implementation Plan, pursuant to 42 U.S.C. '7506.

Pursuant to California Government Code Section 65089.2, SCAG is responsible for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. SCAG must also evaluate the consistency and compatibility of such programs within the region.

SCAG is the authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, Environmental Impacts Reports of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. '1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized ***Areawide Waste Treatment Management Planning Agency***.

SCAG is responsible for preparation of the ***Regional Housing Needs Assessment***, pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the Association of Bay Area Governments, the Sacramento Area Council of Governments, and the Association of Monterey Bay Area Governments) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

Revised July 2001

WILMINGTON COALITION

FOR A SAFE ENVIRONMENT

140 West Lomita Blvd., Wilmington, California 90744-1223
WilmingtonCoalition @ Prodigy.net 310-609-9198

February13, 2002

California Dept. of Transportation - Caltrans
Division of Environmental Planning
File: 07-LA-47 KP 4.5/8.5 (PM 2.8/5.3) EA 199900
120 S. Spring Street (MS 16A)
Los Angeles, California 90012

Re: Schuyler Heim Bridge Replacement &
Alameda Corridor Truck Expressway
Su: Opposition To Current Project Route
From Alameda to Pacific Coast Highway

Mr. Ronald J. Kosinski
Deputy District Director

Dear Mr. Kosinski:

The Wilmington Coalition For A Safe Environment would like to state for the record that we are opposed to the current Preferred Truck Expressway Alternative 1 Route for the following reasons:

1. Caltrans has erroneously pre-determined that there will be an Environmental Impact Report/Finding of No Significant Impact which is grossly in error.

   A. There will be a significant increase in Diesel Truck Traffic coming into the Wilmington community and nearby streets based on the preliminary released information. Caltrans has not provided any information to justify its alleged "no impact" conclusion. We have found out that most governmental agency studies (EIR's, EIA's etc.) have contained numerous errors, incomplete data, omitted data and inaccurate conclusions. We want to study any and all preliminary studies or data in advance. It will become more increasingly difficult to travel from Wilmington to Long Beach and back when there are long lines of trucks. Many Wilmington residents travel to Long Beach to work and to use the Metro Blue Line Train to go to work in further cities. Many residents go to Long Beach Memorial Hospital and other clinics for medical care. More specific information on the exact Anaheim Street, Pacific Coast Highway and Alameda Street/Corridor exists/entrances and routes are needed.

   B. The Wilmington community is against any further expansion of Diesel Truck Traffic in or near our community for any reason whatsoever. We now support slow and well planned economic growth. Our studies have revealed that the claimed economic benefits of Port of Long Beach and Port of Los Angeles expansion are not true. Wilmington receives almost no economic benefit, less than 5% of Wilmington residents are employed with the Harbors or related companies.

C. Wilmington has already been identified by the South Coast Air Quality Management District as # 1 in South Los Angeles County in " High Cancer Risk Due To Diesel Fuel Emissions." Recent air quality tests in Wilmington reveal that 26 carcinogenic chemicals and 39 toxic chemicals were found in our air. Most of these from diesel truck fuel emissions. The Port of Long Beach, Port of Los Angeles and no other Harbor company have provided an adequate, realistic or attainable solution to significantly decrease or eliminate air pollution now or in the near future. We want a Mitigation Plan from all air, water and land polluters and a no growth policy until all our Negative Environmental Impacts have been resolved.

D. Caltrans has failed to conduct a" Health Impact Study " to determine if there are any existing health problems in Wilmington due to the current Negative Environmental Diesel Truck Traffic and the "Cumulative Impact "that this new proposed truck route will have on the Wilmington community. How can you claim a "no impact" if no Health Impact Study was ever performed.

E. Caltrans has failed to comply with new federal and state Environmental Justice laws, regulations and guidelines. These new requirements mandate special considerations and mitigation when a project proposal will impact a minority or low income community. Wilmington is a 99% minority community and meets all federal poverty and low income guidelines. No mention was made regarding this.

F. Caltrans failed to conduct a " Children Impact Study" to comply with new state laws that mandate special considerations for project proposals that may have an impact on children. Wilmington has a higher than normal under 18 national population. Wilmington Park Elementary School is less than 2 miles away from the proposed truck route. We estimate that over 20% of all our children have asthma, bronchitis, allergies or some other respiratory problem due to diesel fuel emissions and other air pollutants. Wilmington has one of the highest populations of children with learning disabilities of which many studies have now concluded that diesel fuel emissions cause or contribute significantly too.

G. Caltrans has not provided any Traffic Congestion Study Report to support its claim of "no impact." We want ample time to evaluate any such study and its final conclusions. We have found that almost every Traffic Report that we have reviewed contained numerous errors, incomplete data, omitted data and inaccurate conclusions.

H. Caltrans information failed to disclose if any hazardous chemicals will be transported via this route. Have hazardous chemical companies and their truck routes been identified and studied? Has a Community Evacuation Plan been prepared and approved?

I. Caltrans has failed to provide any information on the additional truck noise impact on our community. Has a Noise Level Study been performed? Are noise barriers being proposed? The Wilmington community is tired of being wakened at 4:30am as trucks come driving by. It is getting more difficult to have a peaceful and restful sleep when you can still hear truck traffic nearby and miles way all night long.

J. What about light pollution? Have you performed a Light Pollution Study? Your information states that a new bridge over-pass will be built higher. This means higher located and higher wattage lights will be installed. It is difficult for Wilmington residents to sleep peaceful and restful when the entire area is lighted up like a football field. We almost have no starry nights.

K. What about a Fugitive Dust Plan? No mention was made in your information that describes how our community will be protected from Fugitive Dust or Contaminated Dust.

L. What about contaminated soil? The Port of Long Beach, Port of Los Angeles, Alameda Corridor Project, every local Oil Refinery and practically every other major business in the Harbor Area in the name of economic growth and profit has illegally contaminated our local communities lands. There is no mention in your information of any Soil Sampling Test Studies or a Contingency Plan. Our organization a few weeks ago turned in the City of Los Angeles, Alameda Corridor Project and Burlington Railroad to the Los Angeles County Fire Department Hazmat Division and SCAQMD for violating every law, regulation and rule in the book for illegal transportation of contaminated soil, illegal storage of contaminated soil, the failure to notify the public and failure hold a Public Hearing in order to issue a Permit.

M. What about the marina residents and Wilmington's access to Leeward Bay also referred to as Consolidated Slip Marina? No mention is made to the communities access, project impact or the desire for Wilmington to redevelop this marina area. Many of us enjoy eating at the Chowder Barge Restaurant and having a Marina Boat View.

2. Caltrans information states that additional Right of Way parcels will have to be acquired. Will these be Wilmington land parcels or Long Beach land parcels? We want no further sales, condemnation or loss of land in Wilmington for benefits or Mitigation we will not receive. The Wilmington community reserves the right to plan and approve the future uses of any our communities zoned areas and lands.

3. Caltrans failed to adequately provide advance notification to the public communities affected by the Project Proposal. It is our opinion that a "Newspaper Ad" is an inadequate and limited way to properly notify the public of information or of a Public Hearing opportunity.

A. It assumes that everyone buys the newspaper that you purchased the advertisement. Wilmington does have a local community newspaper that is distributed free to the public called the Wilmington Community News. Wilmington is also serviced by two other excellent local free English language newspapers: Random Lengths published in San Pedro and The View From The Hill published in Long Beach.

B. Caltrans assumes that everyone reads English. Wilmington is over 90% Hispanic and 50% of the population speaks and reads Spanish. Caltrans should also be advertising in Spanish language newspapers such as the La Opinion and Vida Nueva.

C. Caltrans should have mailed a brochure to every resident in Wilmington in both English and Spanish.

D. Caltrans should have sent a representative(s) to ever community organization in Wilmington and Long Beach to discuss the project proposal. There are approximately 60 community organizations, and agencies in Wilmington, some of which are exclusively Spanish speaking.

E. The advertisement should have been designed to stand out, possibly using colors. I myself personally by-passed the ad when I read the paper. It was another Wilmington resident that called me the next day to ask if I had seen it.

F. Caltrans should have written a Press Release so that additional story coverage could have been obtained. Another free publicity outlet and overlooked opportunity.

4. The Wilmington Coalition based on the available information does not support or approve the preferred project Truck Expressway Alternate 1 proposal of connecting SR47 to Alameda Street. The Wilmington Coalition based on the limited information available prefers that SR47 connect to SR103 as described in the Truck Expressway Alternate 2 proposal. We would also recommend a Truck Expressway Alternate 3 connect directly to the Long Beach 710 Freeway.

In conclusion, Wilmington supports a slow and properly planned economic growth which includes any transportation expansion or improvement plan. We want proper, complete and accurate Negative Environmental Impact and Negative Economic Impact Studies to be performed by independent third parties. We want public and community participation in all planning, designs and approvals. We want a Mitigation Plan prepared and approved by the communities affected to address every Negative Environmental Impact and Negative Economic Impact.

The Wilmington Coalition For A Safe Environment is a non-profit community organization which is a coalition of Wilmington residents, senior citizens, students, business owners, harbor area employees and friends who are concerned with environmental, economic, health, safety and welfare issues affecting our community.

Sincerely,

Jesse N. Marquez

Jesse N. Marquez
Chairman

Miss Trish C. Salas
Vice Chairperson

Ms. Cecilia L. Ponce
Treasurer

CALSHB01

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
DIVISION OF ENVIRONMENTAL PLANNING
100 S. Main St.
Los Angeles, CA 90012
PHONE (213) 897-0702
FAX (213) 897-1060

August 4, 2005

Mr. Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks & Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Re: Supplemental Historic Property Survey Report for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project in the Ports of Long Beach and Los Angeles, Los Angeles County, California

Dear Mr. Donaldson:

The California Department of Transportation (Caltrans), under the authority of the Federal Highway Administration (FHWA), is initiating consultation with the State Historic Preservation Officer (SHPO) regarding the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project. This consultation is undertaken in accordance with the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation (PA).*

Enclosed you will find a *Supplemental Historic Property Survey Report* (SHPSR) for the proposed undertaking, prepared by Jessica B. Feldman, Architectural Historian of Myra L. Frank/Jones & Stokes, initially prepared prior to the PA going into effect, but now dated June 2005. As a result the report contains some use of pre-PA terminology and procedures. This does not affect the validity of the SHPSR's conclusions, and Caltrans District 7 PQS have properly addressed other issues relevant to PA consistency. 0The SHPSR is intended to document three of Caltrans' actions under the PA for Section 106 of the National Historic Preservation Act: determination of the Area of Potential Effects (APE); identification of potential historic properties located within the undertaking's APE; and evaluation of potential historic properties for eligibility to the National Register of Historic Places (NRHP). Under the PA, Caltrans is responsible for ensuring the appropriateness of the APE (Stipulation VIII.A) and the adequacy of historic property identification efforts (Stipulation VIII.B). We are consulting with you at the present time under Stipulation VIII.C.5 of the PA, which requires that we seek your concurrence on Caltrans' determinations of eligibility for potential historic properties.

In cooperation with FHWA and Caltrans, the Alameda Corridor Transportation Authority (ACTA) has proposed constructing an expressway between the Commodore Schuyler Heim Bridge and Alameda Street, north of Pacific Coast Highway (SR-1), as a way to alleviate traffic in a congested area. Also, Caltrans had proposed replacing the Schuyler Heim Bridge. Those two actions comprised one project, which was addressed in the *Historic Property Survey Report for the State Route 47 (SR-47) Truck Expressway and the Commodore Schuyler Heim Bridge Replacement Project (2002 HPSR)* prepared by Myra L. Frank & Associates, Inc., and JRP Historical Consulting Services in October 2002 (final SHPO concurrence July 27, 2005). The same project is now called the Schuyler Heim Bridge Replacement and SR-47 Expressway Project. Subsequent to receiving SHPO concurrence, an alternative to the SR-47 Expressway was proposed, and the alternative now requires a supplemental HPSR. The alternative would extend State Route 103 (SR-103) to the northwest on an elevated viaduct. Because two years have passed since the 2002 HPSR was prepared, this SR-103 SHPSR also addresses properties within the SR-47 Expressway APE for their potential to qualify as historic properties that now meet the age criteria. A full project description and depiction of the APE can be found on page 2 and Exhibit 3 of the SHPSR.

Consultation and identification efforts for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project (summarized in pages 1-2 of the attached SHPSR) resulted in the identification of ten (10) properties requiring formal evaluation within the APE, including:

- 916 N. Henry Ford Ave., Wilmington (within the SR-47 Expressway APE)
- 1622 E. Robidoux St., Wilmington (within the SR-47 Expressway APE)
- 2100 W. Willow St., Long Beach
- Hudson Park, Long Beach
- 2365 Sepulveda Blvd., Los Angeles
- 22440 S. Alameda St., Carson
- 22500 S. Alameda St., Carson
- 22606 S. Alameda St., Carson
- 22422 S. Alameda St., Carson
- 2430 E. 223rd St., Carson

None of these properties requiring formal evaluation have been previously determined eligible for the NRHP. Pursuant to Stipulation VIII.C of the PA, these properties were formally evaluated for NRHP eligibility for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project; these evaluations are documented in Appendix A (Supplemental Historical Resources Evaluation Report) of the SHPSR.

All resources identified within the APE without any potential for NRHP eligibility were exempted from formal evaluation pursuant to Stipulation VIII.C.1 and Attachment 4 of the PA ("Properties Exempt from Evaluation").

Pursuant to Stipulation VIII.C.5 of the PA, Caltrans is requesting your concurrence with the following eligibility determinations:

- None of the ten (10) properties listed above have been determined eligible for the NRHP as they are typical examples of a style of architecture of which many are extant, and they lack an overall architectural quality and distinction. Furthermore, there are no known associations with important historic events, personages, or movements.

We look forward to receiving your response within 30 days of your receipt of this submittal, in accordance with Stipulation VIII.C.5.a of the PA. Pending you concurrence regarding Caltrans' eligibility determinations, Caltrans' finding for this portion of the undertaking (pursuant to Stipulation IX.A.2) is "No Historic Properties Affected," due to the absence of identified historic properties with this undertaking's APE.

If you need additional information, please do not hesitate to contact Caltrans Architectural Historian Kelly Ewing-Toledo at 213.897.4095 (fax 213.897.9572; e-mail Kelly_Ewing-Toledo@dot.ca.gov) or myself at 213.897.3818. Finally, thank you for your assistance with this undertaking.

Sincerely,

Kelly Ewing Toledo

for Gary Iverson
Office Chief, Cultural Studies
Caltrans District 7
Los Angeles

Attachment: Supplemental Historic Property Survey Report for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge Replacement and SR-47 Truck Expressway Project in the Ports of Long Beach and Los Angeles, Los Angeles County, California

Cc: Gene Fong, FHWA Division Administrator

"Caltrans improves mobility across California"

STATE OF CALIFORNIA Gray Davis, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

February 28, 2002

Ronald Kosinski
Department of Transportation
120 South Spring Street (MS 16 A)
Los Angeles, CA 90012

RE: SCH# 2002021009 – Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project

Dear Mr. Kosinski:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

✓ Contact the appropriate Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.

✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check.
  - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.

✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

AEN-7

Sincerely,

Rob Wood

Rob Wood
Environmental Specialist III
(916) 653-4040

CC: State Clearinghouse

STATE OF CALIFORNIA – THE RESOURCES AGENCY

GRAY DAVIS, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov

June 18, 2003

Reply To: FHWA030424A

Gary N. Hamby, Division Administrator
U.S. Department of Transportation
Federal Highway Administration
California Division
980 Ninth Street, Suite 400
Sacramento, CA 95814-2724

Re: Determinations of Eligibility and Effect for the Proposed State Route 47 Truck Expressway and the Commodore Schuyler Heim Bridge Replacement Project, Los Angeles, CA [HDA-CA, FILE NO. 07-LA-47, DOCUMENT NO. P44486]

Dear Mr. Hamby:

You have provided me with the results of your efforts to determine whether the above undertaking will affect historic properties. You have done this, and are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act and implementing regulations codified at 36 CFR Part 800.

The Federal Highway Administration (FHWA) has determined that the Commodore Schuyler Heim Bridge was previously determined eligible in 1988. The FHWA has also found that 29 properties qualify for treatment under the Caltrans Interim Policy for the Treatment of post-1957 Buildings. In addition the FHWA has determined that the following properties are not eligible for the National Register of Historic Places (NRHP):

- Oil Wells, south side of the Cerritos Channel and east of the Commodore Schuyler Heim Bridge
- SR 47, north and south of the Commodore Schuyler Heim Bridge
- 1050 N Alameda Street, Wilmington, CA
- 1260 N Alameda Street, Wilmington, CA
- 1230 N Alameda Street, Wilmington, CA
- 1601 E Anaheim Street, Wilmington, CA
- 1625 E Anaheim Street, Wilmington, CA
- 1539 E Denni Street, Wilmington, CA
- 1634 E Denni Street, Wilmington, CA
- 1609 E Grant Street, Wilmington, CA
- 1023-27 N Henry Ford Avenue, Wilmington, CA
- 1120 N Henry Ford Avenue, Wilmington, CA
- 1041 N Henry Ford Avenue, Wilmington, CA
- 1563 E L Street, Wilmington, CA
- 1559 E L Street, Wilmington, CA
- 1538 E L Street, Wilmington, CA
- 1725-31 E M Street, Wilmington, CA
- 1710 E Mauretania Street, Wilmington, CA
- 1714 E Mauretania Street, Wilmington, CA
- 1674 E Mauretania Street, Wilmington, CA

Oct 25 04 11:42a JONES & STOKES LB 2136275376 p.2

Mr. Hamby
June 18, 2003
Page 2 of 2

FHWA980317A

- 1733 E Robidoux Street, Wilmington, CA
- 1621 E Robidoux Street, Wilmington, CA
- 1617 E Robidoux Street, Wilmington, CA
- 1619 E Robidoux Street, Wilmington, CA
- 1702 E Robidoux Street, Wilmington, CA
- 1544 E Young Street, Wilmington, CA
- 1539-41 E Young Street, Wilmington, CA

I concur with the above determinations.

To better inform my review of the FHWA's effort to identify historic properties in the undertaking's APE, I would appreciate knowing

(1) where and to what horizontal and vertical extent the undertaking will disturb the ground in the APE,

(2) whether and where portions of the APE consist of artificial landforms, and to what approximate depth the portions of the APE that consist of natural landforms have been graded or otherwise disturbed,

(3) the record search evidence that indicates where on the landscape of the record search area prior research has found prehistoric shell middens, lithic scatters, village ruins, and a cemetery (*VI. Remarks* section of 6 October 2002 Negative ASR for the State Route 47 Truck Expressway).

I have elected not to address FHWA's finding of "adverse effect" for this undertaking pending my receipt of the additional information requested under items (1) - (3), above.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist at (916) 654-0631 and e-mail at nlind@ohp.parks.ca.gov or Michael McGuirt at (916) 653-8920 and e-mail at mmcgu@ohp.parks.ca.gov.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

Oct 25 04 11:42a JONES & STOKES LA 2136257376 p.3

STATE OF CALIFORNIA – THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
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calshpo@ohp.parks.ca.gov

July 27, 2005

In Reply Refer To: FHWA030424A

Gene K. Fong
Division Administrator
U.S. Department of Transportation
Federal Highway Administration, California Division
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Dear Mr. Fong:

Re: State Route 47 (SR47) Truck Expressway City of Los Angeles, Los Angeles County, California 07-LA-47-KP 4.5/8.5 (PM 2.8/5.3) EA987903 and the Commodore Schuyler Heim Bridge Replacement Project City of Los Angeles, Los Angeles County, California 07-LA-47-KP 5.6/6.9 (PM 3.5/4.3) EA199900.

You are continuing consultation with SHPO regarding the subject undertaking pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act. Previous consultation on this undertaking between the U.S. Department of Transportation (FHWA) (letter of April 18, 2003) and SHPO (letter of June 18, 2003) resulted in SHPO concurring that 27 historic properties identified by Caltrans in the project Area of Potential Effect (APE) were not eligible to the National Register of Historic Places (NRHP).

At that time, SHPO could not concur on the proposed finding of Adverse Effect as there were several areas of concern involving the APE and Efforts to Identify Historic Properties within the APE. Those areas of concern were identified in our letter of June 18, 2003. In addition to the earlier consultation letter from FHWA, the following documents have been submitted in support of this undertaking:

- *Historic Property Survey Report for the State Route 47 (SR47) Truck Expressway City of Los Angeles, Los Angeles County, California 07-LA-47-KP 4.5/8.5 (PM 2.8/5.3) EA987903 and the Commodore Schuyler Heim Bridge Replacement Project City of Los Angeles, Los Angeles County, California 07-LA-47-KP 5.6/6.9 (PM 3.5/4.3) EA199900* (Feldman, Horne, and Herbert: September 2002).

- *Finding of Adverse Effect Schuyler Heim Bridge (53-2618) Replacement EA 199900 07-LA-47-K.P. 5.6/6.9 (PM 3.5/4.3)* (JRP Historical Consulting Services: November 22, 2002).

Caltrans District 07 has responded to the request by SHPO for additional information on this undertaking in a letter dated April 14, 2005. Based on the additional information provided in that letter I have the following comments:

1) I concur that the Area of Potential Effects is appropriate as per 36 CFR §§ 800.4(a) (1) and 800.16(d) and that the efforts made to identify historic properties have been appropriate as per 36 CFR § 800.4(b).

2) I further concur that the Finding of Adverse Effect is appropriate as per 36 CFR § 800.5(a)(1) and that the supporting documentation has been provided as per 36 CFR § 800.11(d).

In the letter (FHWA letter HAD-CA File # 07-LA-47 Document #P44486 dated April 18, 2003) initiating consultation on this undertaking, FHWA stated that "An executed Memorandum of Agreement to address identified adverse effects associated with the Schuyler Heim Bridge replacement proposal will be forwarded under separate cover for further consultation." I look forward to continuing consultation on this undertaking at that time.

Thank you for seeking my comments and for considering historic properties in planning your project. If you require further information, please contact William Soule at phone 916-654-4614 or email wsoule@parks.ca.gov or Natalie Lindquist at phone 916-654-0631 or email nlindquist@parks.ca.gov.

Sincerely,

Stephen D. Mikesell for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Cc:

Gary Iverson
Office Chief, Cultural Studies
Department of Transportation
District 07, Division of Environmental Planning
100 S. Main Street, Suite 100
Los Angeles, CA 90012

2

Gary Iverson
10/25/2005 03:28 PM

To: mmcguirt@parks.ca.gov, smikesell@parks.ca.gov, Steve.Healow@fhwa.dot.gov, Kelly Ewing-Toledo/D07/Caltrans/CAGov@DOT, Jill Hupp/HQ/Caltrans/CAGov@DOT
cc:
cc:
Subject: 30 days past notice: Route 103 extension and Truck Expressway

The following project was sent by Caltrans District 7 Division of Environmental Planning to SHPO:

Supplemental Historic Property Survey Report for the SR-103 Extension Alternative of the Commodore Schuyler Heim Bridge replacement and SR-47 Truck Expressway Project in the Ports of Long Beach and Los Angeles, Los Angeles County, California, PM 2.8/5.3.

SHPO received this documentation on August 8, 2005 per certified return receipt #7004 2510 0007 2264 7539.

The 30 day review period ended on September 7, 2005

Since 30 days for comment has now passed, Caltrans is hereby informing all concerned that we are proceeding forward per stipulation VIII.C.5.a of the PA.

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

March 6, 2007 Reply To: FHWA030424A

Gene K. Fong, Division Administrator
Federal Highway Administration
California Division
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Re: Finding of Effect for the Proposed Construction of the State Route 47 Expressway and Replacement of the Commodore Schuyler F. Heim Bridge, Los Angeles County, CA

Dear Mr. Fong:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

The Federal Highway Administration (FHWA) is requesting my concurrence that the proposed project will have an adverse effect on historic properties, specifically the East Schuyler Heim Bridge, determined eligible for the National Register of Historic Places in 1998. Based on my review of the submitted documentation I concur. My comments on the proposed Memorandum of Agreement will follow at a later date.

Thank you for considering historic properties as part of your project planning. If you have any questions, please contact Natalie Lindquist of my staff at your earliest convenience at (916) 654-0631 or e-mail at nlindquist@parks.ca.gov .

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008

In Reply Refer To:
FWS-LA-2668.1

FEB 28 2002

Ronald J. Kosinski
Deputy District Director
Division of Environmental Planning
California Department of Transportation
120 South Spring Street (MS 16A)
Los Angeles, California 90012

Re: Notice of Preparation of a Draft Environmental Impact Report for the Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project, Cities of Long Beach and Los Angeles, Los Angeles County, California

Dear Mr. Kosinski:

We have reviewed the notice of preparation (NOP) for a draft environmental impact report (DEIR) received in this office on January 31, 2002, for the Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project, Cities of Long Beach and Los Angeles, Los Angeles County, California. The proposed project consists of the replacement of the Schuyler Heim Bridge over the Cerritos Channel at the Port of Long Beach and construction of an elevated truck expressway between the Schuyler Heim Bridge and Pacific Coast Highway in the Wilmington community of Los Angeles.

We offer the following comments and recommendations regarding project-associated biological impacts based on our review of the NOP and our knowledge of declining habitat types and species within Los Angeles County. We provide these comments in keeping with our agency's mission to work "with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people." Specifically, we administer the Endangered Species Act of 1973 (Act), as amended. Section 7 of the Act requires Federal agencies to consult with the Fish and Wildlife Service (Service) should it be determined that their actions may affect federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be permitted under the provisions of sections 7 (Federal consultations) and 10 (permits) of the Act. We also provide comments on public notices issued for a Federal permit or license affecting the Nation's waters pursuant to the Clean Water Act.

Ronald J. Kosinski (FWS-LA-2668.1) 2

To facilitate the evaluation of the proposed project from the standpoint of fish and wildlife protection, we request that the DEIR contain the following specific information.

1. A description of the environment in the vicinity of the project from both a local and regional perspective, including an aerial photograph of the area with the project site outlined.

2. A complete discussion of the purpose and need for the project and each of its alternatives.

3. A complete description of the proposed project, including the limits of the project area. This project description should include all practicable alternatives that have been considered to avoid and minimize project impacts, to the maximum extent practicable, to sensitive habitats (e.g., eelgrass) and endangered, threatened, and sensitive species, as well as measures to mitigate unavoidable impacts.

4. Quantitative and qualitative assessments of the biological resources and habitat types that will be impacted by the proposed project and its alternatives. An assessment of direct, indirect, and cumulative project impacts to fish and wildlife associated habitats. All facets of the project (i.e., construction, implementation, operation, and maintenance) should be included in this assessment. Proposed developments in the surrounding area should be addressed in the analysis of cumulative impacts.

   This assessment should include a list of Federal candidate, proposed, or listed species; State-listed species; and locally sensitive species that are on or near the project site, including a detailed discussion of these species and information pertaining to their local status and distribution. We are particularly interested in any and all information and data pertaining to potential impacts to populations of federally listed species, including the endangered California brown pelican (*Pelecanus occidentalis*), endangered California least tern (*Sterna antillarum (=albifrons) browni*), and threatened western snowy plover (*Charadrius alexandrinus nivosus*). The peregrine falcon (*Falco peregrinus*), recently delisted from the list of endangered species, has also been found to nest at the bridge. The rare southern tarplant (*Centromadia parryi* var. *australis*) has been documented to occur in disturbed areas in the region. The DEIR should disclose all impacts to these sensitive resources and proposed measures to be taken to avoid, minimize, and mitigate these impacts. Measures to avoid, minimize, and mitigate impacts should be spelled out separately from the effects analysis.

5. An assessment of potential impacts to wetlands and jurisdictional waters of the United States. Section 404 of the Clean Water Act prohibits the unauthorized discharge of dredged or fill material into such waters, including wetlands. This section also provides that the U.S. Army Corps of Engineers (Corps) may issue permits for discharges of dredged or fill material into jurisdictional waters and wetlands. Potential areas of Corps jurisdiction should be evaluated and wetlands should be delineated using the methodology set forth in the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual*. The DEIR should disclose all impacts to jurisdictional waters, including wetlands, and propose measures to avoid, minimize, and mitigate such impacts.

Ronald J. Kosinski (FWS-LA-2668.1) 3

We appreciate the opportunity to comment on the referenced NOP for potential impacts on sensitive and endangered species and wetland resources. If you should have any questions pertaining to these comments, please contact Fish and Wildlife Biologist Kevin Clark of my staff at (760) 431-9440.

Sincerely,

For Karen A. Evans
Assistant Field Supervisor

cc: Brad Henderson, CDFG,

08/05/02 WED 08:20 FAX 7144292050 CH2M HILL/SCO 001

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008

In Reply Refer To:
FWS-LA-2668.2

MAY 31 2002

Carolyn Washburn, Ph.D.
CH2M HILL
3 Hutton Centre Drive
Santa Ana, California 92707

Re: Request for Information on Proposed, Threatened, and Endangered Species in the Vicinity of Schuyler Heim Bridge, Ports of long Beach and Los Angeles, Los Angeles County, California

Dear Dr. Washburn:

This letter is in response to your inquiry received May 7, 2002, concerning federally endangered, threatened, and proposed species that may occur in the vicinity of Schuyler Heim Bridge, Los Angeles County, California. To assist you in evaluating the potential occurrence of these species within the area of interest, we are providing the enclosed list, which identifies federally listed endangered, threatened, and proposed species that occur in the general region.

Section 7 of the Endangered Species Act of 1973 (Act), as amended, requires Federal agencies to consult with us, the U.S. Fish and Wildlife Service, should it be determined that their actions may affect federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under sections 7 (Federal consultations) and 10 (habitat conservation plans) of the Act.

If a proposed project is authorized, funded, or carried out by a Federal agency and may affect a listed species, then the Federal agency must consult with us on behalf of the applicant, pursuant to section 7 of the Act. In other words, any activity on private land that requires Federal involvement (such as the issuance of a section 404 permit under the Clean Water Act by the U.S. Army Corps of Engineers) and may affect listed species must be reviewed by us to insure that the continued existence of the species would not be jeopardized. During the section 7 process, measures to avoid and minimize project effects to listed species and their habitat will be identified and incorporated into a biological opinion that includes an incidental take statement that authorizes incidental take by the Federal agency and applicant.

If a proposed project does not involve a Federal agency, but is likely to result in the take of a

Dr. Carolyn Washburn (FWS-LA-2668.2) 2

listed animal species, then the landowner or project proponent should apply for an incidental take permit, pursuant to section 10 of the Act. When an application is made for an incidental take permit, measures to avoid, minimize, or mitigate for effects to listed species and their habitat will be identified and incorporated into a habitat conservation plan. If the habitat conservation plan and the application for the permit meet the issuance criteria, a permit authorizing incidental take is issued.

We do not have site-specific information for this area. Therefore, we recommend that project proponents seek assistance from a biologist familiar with the habitat conditions and associated species in and around their project site to assess the actual potential for direct, indirect and cumulative impacts likely to result from the proposed activity.

In addition to the organisms specified on the enclosed list, we are also concerned for the following habitat community types that could potentially occur in the area and are becoming more rare. These include coastal salt marsh, eelgrass, and intertidal communities.

Please contact the California Department of Fish and Game (CDFG) for other State-listed and sensitive species that may occur in the area of the project. State-listed species are protected under the provisions of the California Endangered Species Act. Rare plant species that may occur in the project area are included in the California Native Plant Society's (CNPS) inventory of rare and endangered vascular plants in California. The rare southern tarplant (*Centromadia parryi* var. *australis*) has also been documented to occur in disturbed areas in the region. The peregrine falcon (*Falco peregrinus*), recently delisted from the list of endangered species, has been found to nest at the bridge. State-listed and CNPS species require full consideration under the California Environmental Quality Act. The Natural Diversity Data Base of CDFG should also be contacted for a list of taxa that are known to occur in the project vicinity.

Should you have any questions regarding the species list provided, or your responsibilities under the Act, please contact Fish and Wildlife Biologist Kevin Clark of my staff at (760) 431-9440.

Sincerely,

Anne Hoecker
for

Karen A. Evans
Assistant Field Supervisor

Enclosure

Federally Endangered, Threatened, Proposed, and Candidate Species that May Occur in the Vicinity of Schuyler Heim Bridge, Ports of Los Angeles and Long Beach, Los Angeles County, California
May 31, 2002

Common Name	Scientific Name	Status
BIRDS		
California least tern	*Sterna antillarum (=albifrons) browni,*	E
California brown pelican	*Pelecanus occidentalis*	E
Western snowy plover	*Charadrius alexandrinus nivosus*	T

E: Endangered
T: Threatened

STATE OF CALIFORNIA - THE RESOURCES AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, California 92123
(858) 467-4201
(858) 467-4235 FAX

March 1, 2002

Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Schuyler Heim Bridge Replacement and Alameda Corridor Truck Expressway Project, Cities of Long Beach and Los Angeles, Los Angeles County (SCH#2002021009)

Ronald Kosinski
Department of Transportation, District 7
120 South Spring Street (MS 16 A)
Los Angeles, CA 90012

Dear Mr. Kosinski:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. The Department is both a Trustee and Responsible Agency pursuant to the California Environmental Quality Act (CEQA), Sections 15386 and 15381 respectively. As a Trustee Agency, the Department must be consulted by the Lead Agency during the preparation and public review for project specific CEQA documents. The Department is responsible for the conservation, protection, and management of the state's biological resources, including rare, threatened, and endangered plant and animal species pursuant to the California Endangered Species Act (CESA). The Department also administers the Natural Community Conservation Program (NCCP).

The proposed project consists of replacement of the Schuyler Heim Bridge over the Cerritos Channel at the Port of Long Beach and construction of an elevated truck expressway from the Schuyler Heim Bridge to SR-1. The purpose of the project is to bring the bridge up to current seismic standards and improve the SR-47/Henry Ford Avenue/Alameda Street transportation corridor. It has been determined that bridge replacement is more economically feasible than retrofit and maintenance of the existing bridge. A wider concrete fixed bridge would replace the existing steel vertical lift bridge. Bridge alternatives include only variations in the horizontal alignment, vertical clearance and channel-widths. Although this area is highly developed and includes land uses such as industrial shipyards, oil wells and refineries, potentially significant impacts to biological resources have been identified. Biological resources in the vicinity include peregrine falcons, which currently use the towers of the bridge as a nest site and hunting perch, a California brown pelican feeding area, habitat for Pacific pocket mouse and salt marsh bird's beak; there is also potential for several other listed, sensitive or special-status species.

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To enable Department staff to adequately review and comment on the proposed project, we recommend the following information be included in the Draft Environmental Impact Report (DEIR):

1. A complete description of the proposed project, including all staging areas, access routes, utility relocations, etc.

2. A complete list and assessment of the flora and fauna within and adjacent to the project area, with particular emphasis on identifying endangered, threatened, and candidate species, State Protected and Fully Protected species, California Species of Special Concern, and locally unique species and sensitive habitats.

   a. A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines (revised August 1997) for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).

   b. Surveys for eelgrass in the vicinity (area of potential affect) of the Schuyler Heim Bridge must be included, along with an assessment of impacts to this habitat type, if it is present.

   c. A detailed discussion, including both qualitative and quantitative analyses, of the potentially affected species (fish, wildlife, plants), and their habitats, including information pertaining to their local status and distribution. The anticipated impacts of the project on these species and habitats should be fully addressed. Seasonal variations in use of the project area should also be addressed.

   d. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

   e. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, § 15380).

   f. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitats, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

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3. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts should be included.

   a. CEQA Guidelines, § 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.

   b. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this should include nearby public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas should be fully evaluated and provided.

   c. Discussion of potential conflicts resulting from wildlife-human interactions, potential adverse impacts from lighting, noise, vibration, human activity, changes in drainage patterns, polluted runoff, hazardous materials spills, soil erosion and/or sedimentation, with mitigation measures proposed to alleviate such impacts must be included.

   d. A cumulative effects analysis should be developed as described under CEQA Guidelines, § 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

   e. If applicable, the document should include an analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs. Under § 2800-§ 2840 of the Fish and Game Code, the Department, through the Natural Communities Conservation Planning (NCCP) program, is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity.

4. An appropriate range of alternatives should be analyzed to ensure that alternatives to the proposed project which would avoid or substantially lessen significant effects on fish, wildlife and native plants of the state are fully considered and evaluated. In order for the Department to utilize the final document as a responsible agency, the alternatives must include those which avoid or otherwise minimize impacts to sensitive biological resources that are regulated by Fish and Game Code.

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5. Mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats should be discussed. Mitigation measures should emphasize avoidance and where avoidance is infeasible, reduction of impacts. For unavoidable impacts, the selection of on-site or off-site restoration and/or enhancement, or habitat acquisition and preservation should be determined based on a thorough analysis of the context of each impact and how the proposed compensation measure(s) will completely mitigate for all lost habitat functions and values.

   a. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).

   b. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

   c. Areas reserved as mitigation for project impacts must be conserved as habitat in perpetuity and should be protected from future direct and indirect impacts. Potential issues to be considered include limitation of access, conservation easements, monitoring and management programs, control of illegal dumping, water pollution, and fire.

   d. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: 1) the location of the mitigation site; 2) the plant species to be used, container sizes, and seeding rates; 3) a schematic depicting the mitigation area; 4) planting schedule; 5) a description of the irrigation methodology; 6) measures to control exotic vegetation on site; 7) specific success criteria; 8) a detailed monitoring program; 9) contingency measures, should the success criteria not be met; and 10) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

6. A California Endangered Species Act (CESA) Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to a project

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and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of a 2081 permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a 2081 permit. For these reasons, the following information is requested:

a. An analysis and discussion demonstrating that: 1) each impact has been minimized and fully mitigated, 2) all mitigation measures are capable of successful implementation, and 3) adequate funding is ensured for implementation, and for monitoring compliance with, and effectiveness of, the mitigation measures.

b. The analysis of the impacts of the taking must include all impacts on the species that result from any act that would cause the proposed taking.

c. An evaluation of the impacts that includes a discussion of the potential to jeopardize the continued existence of the species. This shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of: 1) known population trends, 2) known threats to the species, and 3) reasonably foreseeable impacts on the species from other related projects and activities.

d. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

e. A Department-approved Mitigation Agreement and Mitigation Plan is required for plants listed as rare under the Native Plant Protection Act.

f. Include an evaluation of the potential to create suitable nesting and perching habitat for peregrine falcon on the new bridge structure, along with an assessment of the value in providing that habitat. Address the potential impacts to other species that would result if peregrine habitat is maintained at this location vs. removing it.

7. The Department cannot authorize take of Fully Protected Species, which include the peregrine falcon and brown pelican. The DEIR should address how potential impacts to these species will be avoided and include specific measures that will be implemented to ensure this.

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March 1, 2002
Page 6

8. The Department has responsibility for wetland and riparian habitats and opposes any alteration of a natural watercourse that would result in a reduction of wetland acreage or wetland habitat values. Alterations include, but are not limited to: conversion to subsurface drains, placement of fill or building of structures within the wetland and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

   a. A jurisdictional delineation of lakes, streams, and associated riparian habitats should be included in the DEIR, including a wetland delineation pursuant to the United States Fish and Wildlife Service definition (Cowardin 1979). Please note that wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

   b. The Department may require a Lake or Streambed Alteration Agreement, pursuant to Section 1600 *et seq*. of the Fish and Game Code, prior to the commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or use material from a streambed. The Department's issuance of a Lake or Streambed Alteration Agreement for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department as a responsible agency under CEQA, may consider the local jurisdiction's (lead agency) Negative Declaration or EIR for the project. To minimize additional requirements by the Department pursuant to Section 1600 *et seq*. and/or under CEQA, the document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the agreement. A Streambed Alteration Agreement form may be obtained by writing to The Department of Fish and Game, 4949 Viewridge Avenue, San Diego, California 92123, by calling (858) 636-3160, or by accessing the Department's web site at www.dfg.ca.gov/1600.

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March 1, 2002
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Thank you for this opportunity to comment. Questions regarding this letter and further coordination on these issues should be directed to Pam Beare at (858) 467-4229.

Sincerely,

William E. Tippets

William E. Tippets
Environmental Program Manager

Attachments

cc: State Clearinghouse

File: Chron
file: Co. Los Angeles\SchuylerHeimbridgeNOP.wpd

Literature Cited

Cowardin, Lewis M., V. Carter, G. C. Golet, and E. T. La Roe. 1979. Classification of wetlands and deepwater habitats of the United States. Fish and Wildlife Service, U.S. Department of the Interior. U. S. Government Printing Office, Washington, D. C.

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who prepare and review environmental documents determine **when** a botanical survey is needed, **who** should be considered qualified to conduct such surveys, **how** field surveys should be conducted, and **what** information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

   A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

   Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

   a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
   b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

   a. Experience conducting floristic field surveys;
   b. Knowledge of plant taxonomy and plant community ecology;
   c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
   d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
   e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

   a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

ATTACHMENT 2

Sensitivity of Top Priority Rare Natural Communities in Southern California

Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

S1.# Less than 6 known locations and/or on less than 2,000 acres of habitat remaining.

S2.# Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining.

S3.# Occurs in 21-100-known locations and/or 10,000-50,000 acres of habitat remaining.

The number to the right of the decimal point after the ranking refers to the degree of threat posed to that natural community regardless of the ranking. For example:

S1.1 = very threatened
S2.2 = threatened
S3.3 = no current threats known

Sensitivity Rankings (February 1992)

Rank	Community Name
S1.1	Mojave Riparian Forest
	Sonoran Cottonwood Willow Riparian
	Mesquite Bosque
	Elephant Tree Woodland
	Crucifixion Thorn Woodland
	Allthorn Woodland
	Arizonan Woodland
	Southern California Walnut Forest
	Mainland Cherry Forest
	Southern Bishop Pine Forest
	Torrey Pine Forest
	Desert Mountain White Fir Forest
	Southern Dune Scrub
	Southern Coastal Bluff Scrub
	Maritime Succulent Scrub
	Riversidean Alluvial Fan Sage Scrub
	Southern Maritime Chaparral
	Valley Needlegrass Grassland
	Great Basin Grassland
	Mojave Desert Grassland
	Pebble Plains
	Southern Sedge Bog
	Cismontane Alkali Marsh

CDFG Attachment 2 for NOP Comment Letters

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Chapter 9.0 References

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