

**FINAL**

# Gerald Desmond Bridge Replacement Project



**Environmental  
Impact Report /  
Environmental  
Assessment  
&  
Application  
Summary  
Report**



Prepared for



Port of  
**LONG BEACH**  
*The Green Port*



Prepared by



**JULY 2010**

The 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.





**Gerald Desmond Bridge Replacement Project**

**FINAL ENVIRONMENTAL IMPACT REPORT**

**Submitted Pursuant to Division 13, California Public Resources Code  
California Environmental Quality Act (CEQA)**

**The Port of Long Beach**



Richard D. Cameron  
Director of Environmental Planning  
The Port of Long Beach

July 22, 2010  
Date





CALIFORNIA DEPARTMENT OF TRANSPORTATION  
FINDING OF NO SIGNIFICANT IMPACT (FONSI)  
FOR  
GERALD DESMOND BRIDGE REPLACEMENT PROJECT

The California Department of Transportation (Caltrans) has determined that the North-Side Alignment Alternative will have no significant impact on the human environment. This FONSI is based on the attached EA, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an EIS is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA (and other documents as appropriate).

The 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.

Notwithstanding any other provision of law, a claim arising under federal law seeking judicial review of a permit, license or approval issued by a federal agency for a highway or public transportation project shall be barred unless it is filed within 180 days after publication of a notice in the Federal Register announcing that the permit, license or approval is final pursuant to the law under which the agency action is taken, unless a shorter time is specified in the federal law pursuant to which judicial review is allowed.

Sept 23, 2010  
Date of Approval

  
Ron Kosinski  
Deputy District Director  
Division of Environmental Planning District 7  
California Department of Transportation





**Gerald Desmond Bridge Replacement Project**

**REVISED DRAFT  
ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT**

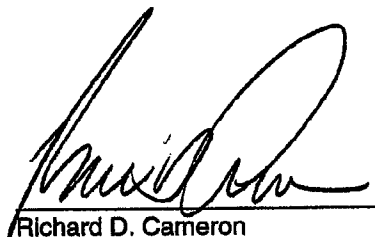
The Port of Long Beach

and

STATE OF CALIFORNIA  
Department of Transportation

Submitted Pursuant to (State) Division 13, California Public Resources Code  
and (Federal) 42 U.S.C. 4332(2)(c)

The 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.



Richard D. Cameron  
Director of Environmental Planning  
The Port of Long Beach

1/11/10  
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**LIST OF ACRONYMS AND ABBREVIATIONS**

AADT	annual average daily traffic
AAM	annual arithmetic mean
AASHTO	American Association of State and Highway Transportation Officials
AB	Assembly Bill
ABIH	American Board of Industrial Hygiene
AC	asphalt concrete
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACTA	Alameda Corridor Transportation Authority
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
ADT	average daily traffic
AEP	Association of Environmental Professionals
AIHA	American Industrial Hygiene Association
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
AQTS	Air Quality Technical Study
APCD	Air Pollution Control District
APE	area of potential effects
ARPA	Archaeological Resources Protection Act
ARRA	American Recovery and Reinvestment Act
ASF	age sensitivity factors
ASR	Application Summary Report
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATA	American Trucking Association
BEP	Business Emergency Plan
bgs	below ground surface
BHC	Board of Harbor Commissioners
BMPs	best management practices
BOD	biochemical oxygen demand
BP	British Petroleum
BSA	Biological Survey Area
BTA	Bicycle Transportation Account Compliance Document
BWHRA	Bay-Wide Health Risk Assessment
°C	degrees Celsius
CAA	Clean Air Act
CAAAAs	Clean Air Act Amendments
CAAP	Clean Air Action Plan
CAAQS	California Ambient Air Quality Standards
CA FID	California Facility Index Database
Cal-EPA	California Environmental Protection Agency
Cal/OSHA	California/Occupational Safety and Health Administration
Cal-Sites	California Sites
Caltrans	California Department of Transportation
CAP	Climate Action Program
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCC	California Coastal Commission
CC/GHG Plan	Climate Change/Greenhouse Gas Strategic Plan
CCR	California Code of Regulations
CCTV	closed-circuit television
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology

List of Acronyms and Abbreviations

CEC	California Energy Commission
CEIDARS	California Emission Inventory and Reporting System
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 of 1992
CESA	California Endangered Species Act
CFCs	chlorofluorocarbons
CFP	California fully protected species
CFR	<i>Code of Federal Regulations</i>
CH <sub>4</sub>	methane
CHMIRS	California Hazardous Material Incident Reporting System
CIH	Certified Industrial Hygienist
CLA	Compton-Los Alamitos
cm	centimeter
CMA	Critical Movement Analysis
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
COLB	City of Long Beach
CORRACTS	Corrective Action Tracking System
CORSIM	Traffic Software Integrated System Corridor Simulation
CORTESE	Cortese Hazardous Waste and Substances Site List
CPI	Consumer Price Index
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CSC	California Department of Fish and Game Species of Concern
CSLC	California State Lands Commission
CSO	Construction Safety Orders
CSSC	California Species of Special Concern
CTC	California Transportation Commission
CTD	conductivity, temperature, and depth
CTP	Clean Trucks Program
cu yd	cubic yard
CVC	California Vehicle Code
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel
DDT	dichloro-diphenyl-trichloroethane
DE	diesel exhaust
DMI	Danish Maritime Institute
DMV	Department of Motor Vehicles
DO	dissolved oxygen
DOGGR	California Department of Conservation, Division of Oil, Gas, and Geothermal Resources
DOT	United States Department of Transportation
DPM	diesel particulate matter
DSAs	disturbed soil areas
DTR	drayage truck registry

DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
EB	eastbound
EBR	eastbound right
EBTR	eastbound through right
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPFT	Elysian Park Fold and Thrust Belt
ERNS	Emergency Response and Notification System
ESA	Federal Endangered Species Act
°F	degrees Fahrenheit
FBI	Federal Bureau of Investigation
FEE	functional-evaluation earthquake
FEMA	Federal Emergency Management Agency
FEU	forty-foot equivalent unit
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FMC	Federal Maritime Commission
FONSI	Finding of No Significant Impact
FSTIP	Federal Statewide Transportation Improvement Program
ft	feet
FTA	Federal Transit Administration
FY	fiscal year
GARVEE	Grant Anticipation Vehicle Revenue
GHG	greenhouse gas
g/hp-hr	gram per horsepower-hour
GPP	Green Port Policy
GWh	gigawatt-hours
GWP	global warming potential
ha	hectares
HAPs	hazardous air pollutants
HARP	Hotspots Analysis and Reporting Program
HCM	Highway Capacity Manual
HEPA	high efficiency particulate air
HFCs	hydrofluorocarbons
HHI	health hazard index
HIA	Health Impact Assessment
HIST UST	Historic UST
HOV	high-occupancy vehicle
HRA	Health Risk Assessment
HPSR	Historic Properties Survey Report
HRER	Historic Resources Evaluation Report
I-110	Interstate 110
I-405	Interstate 405
I-710	Interstate 710
ICF	Infrastructure Cargo Fee
ICTF	Intermodal Container Transfer Facility
ICU	intersection capacity utilization
IHA	Incidental Harassment Authorization
in.	inch
in/yr	inches per year
IP	Port-related Industrial zone
IPCC	Intergovernmental Panel on Climate Change

List of Acronyms and Abbreviations

IR	Installation Restoration
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Traffic Engineers
ITS	Intelligent Transportation System
IWG	Interagency Working Group on Environmental Justice
kg/mo	kilograms per month
km	kilometers
km/hr	kilometers per hour
kts	knots
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hours
LACFCD	Los Angeles County Flood Control District
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAHD	Los Angeles Harbor Department
LBFD	Long Beach Fire Department
LBGO	Long Beach Gas and Oil Department
LBGP	Long Beach General Plan
LBGS	Long Beach Generating Station
LBNSY	Long Beach Naval Shipyard
LBP	lead-based paint
lbs/day	pounds per day
LBT	Long Beach Transit
LBWD	Long Beach Water District
LCFS	low carbon fuel standard
LCPs	Local Coastal Plans
LED	light-emitting diode
$L_{eq}$	energy equivalent sound level
$L_{max}$	maximum sound level
LNG	liquefied natural gas
LOS	level of service
LPR	license plate recognition
LST	localized significance threshold
LT	left through
LUST	leaking underground storage tank
$L_{xx}$	percentile-exceeded sound level
m	meters
M	Richter Magnitude
MATES-II	Multiple Air toxics Exposure Study
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
MCGMAP	Multi County Goods Movement Action Plan
MEP	maximum extent practicable
Metro	Los Angeles County Metropolitan Transportation Authority
mgd	million gallons per day
$\mu\text{g/L}$	micrograms per liter
$\text{mg/L}$	milligrams per liter
$\mu\text{g/m}^3$	micrograms per cubic meter
$\text{mg/m}^3$	milligrams per cubic meter
MGP	Manufactured Gas Plant
MHW	mean high water
MHWL	mean high water level
mi	miles

ML	local magnitude
MLD	most likely descendent
MLLW	mean lower low water datum
µm	micron
mm	millimeter
mm/yr	millimeters per year
MMRP	Mitigation Monitoring and Reporting Program
M&N	Moffatt & Nichol
MND	Mitigated Negative Declaration
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
MSATs	mobile source air toxics
MSL	mean sea level
MSRC	Marine Spill Response Building
MTA	Metropolitan Transportation Authority
MTBE	methyl tributyl ethylene
MTG	Mercator Transport Group
MW	megawatt
MY	model year
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NATA	National Air Toxics Assessment
NB	northbound
NBL	northbound left
NBR	northbound right
NBT	northbound through
NBTL	northbound through/left
NBTR	northbound through/right
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NISZ	Newport-Inglewood Structural Zone
NLEV	national low-emission vehicle
nm	nautical miles
NMHC	non-methane hydrocarbons
N <sub>2</sub> O	nitrous oxide
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxide
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Construction
NOI	Notice of Intent
NOIS	Notice of Initiation of Studies
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRDC	National Resources Defense Council
NRHP	National Register of Historic Places
NTE	not-to-exceed
NTU	nephelometric turbidity units
O <sub>3</sub>	ozone
OCR	optical character recognition
OEHHA	Office of Environmental Health Hazard Assessment
OGVs	ocean-going vessels



List of Acronyms and Abbreviations

O&M	operating and maintenance
OPR	Office of Planning and Research
OSHA	Office of Safety and Health Administration; Occupational Safe and Health Act; Occupational Safety and Health Administration
PA	Programmatic Agreement
PAHs	polycyclic aromatic hydrocarbons
Pb	lead
PCBs	polychlorinated biphenyls
PCC	Portland cement concrete
PCE	passenger car equivalent
PCH	Pacific Coast Highway
pc/mi/ln	passenger cars per mile per lane
PDT	Project Development Team
PEAR	Preliminary Environmental Analysis Report
PELs	Permissible Exposure Limits
PFCs	perfluorocarbons
PFMMP	Peregrine Falcon Monitoring and Mitigation Program
PHT	Puente Hills Thrust
PID	photoionization detector
PLA	Project Labor Agreement
PM	particulate matter
PM <sub>2.5</sub>	particulates less than 2.5 microns in diameter
PM <sub>10</sub>	particulates less than 10 microns in diameter
PMP	Port Master Plan
POAQC	Projects of Air Quality Concern
POLA	Port of Los Angeles
POLB	Port of Long Beach
POM	polycyclic organic matter
Port	Port of Long Beach
Ports	Port of Long Beach and Port of Los Angeles
PPE	personal protective equipment
ppm	parts per million
ppt	parts per thousand
PRC	Public Resources Code
project	Gerald Desmond Bridge Replacement Project
PSR	Project Study Report
PWCT	Plains West Coast Terminals, LLC
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RCRIS-LgGen	Resource Conservation and Recovery Information System Large Generator Database
RCRIS-SmGen	Resource Conservation and Recovery Information System Small Generator Database
RECs	recognized environmental conditions; renewable energy certificates
RELs	reference exposure levels
RFCS	Request for Concepts and Solutions
RFG	reformulated gasoline
RFP	Request for Proposals
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROI	region of influence
ROW	right-of-way
RPM	radiation portal monitors
RTG	rubber tire gantry
RTIP	Regional Transportation Improvement Program

RTP	Regional Transportation Plan
RV	recreational vehicle
RVP	Reid vapor pressure
RWQCB	Regional Water Quality Control Board
SAFETEA-LU	Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users
SAP	Sampling and Analysis Plan
SB	southbound; State Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SDC	Caltrans Seismic Design Criteria
SEE	safety-evaluation earthquake
SET	supplemental emissions test
SF <sub>6</sub>	sulfur hexafluoride
SHOPP	State Highway Operation and Protection Plan
SHPO	State Historic Preservation Office
SHS	State Highway System
SIP	State Implementation Plan
SLIC	spills, leaks, investigation, and cleanup
SMB	Santa Monica Bay
SO <sub>2</sub>	sulfur dioxide
SO <sub>4</sub>	sulfates
SPBS	San Pedro Bay Standards
sq ft	square feet
sq km	square kilometer
sq mi	square mile
SR	State Route
SRA	source/receptor areas
SS	settleable solids
STIP	State Transportation Improvement Program
Strategic Plan	Metro Bicycle Transportation Strategic Plan
SWEEPS	Statewide Evaluation and Environmental Planning System
SWLF	Solid Waste and Landfill Database
SWMP	Stormwater Management Plan
SWRCB	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
TAP	Technical Advisory Panel
TCIF	Trade Corridor Infrastructure Funds
TCMs	Transportation Control Measures
TCWG	Transportation Conformity Working Group
TDC	targeted design constituent
TEA-21	Transportation Equity Act for the 21 <sup>st</sup> Century
TES	threatened, endangered, or special-status
TEU	20-foot equivalent unit
THB	THUMS-Huntington Beach
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Plan
TMDL	total maximum daily load
TMP	Transportation Management Plan
TOG	total organic gas
TPH	total petroleum hydrocarbon
TR	through right
TRB	Transportation Research Board

List of Acronyms and Abbreviations

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TSA	Department of Homeland Security Transportation Security Division
TSCA	Toxic Substances Control Act
TSD	treat, store, or dispose (hazardous materials)
T/SP	top and side pick
TSS	total suspended solids
TTI	Total Terminal, Inc.
TWG	Technical Working Group
UFP	ultrafine particles
ULCS	Ultra Large Container Vessel
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
V/C	volume/capacity
VCP	Voluntary Cleanup Program
VDECS	verified diesel emission control system
VHT	vehicle hours traveled
VMT	vehicle miles traveled
VOCs	volatile organic chemicals
vpd	vehicles per day
VSRP	Vessel Speed Reduction Program
WB	westbound
WCI	Western Regional Climate Action Initiative
WDR	waste discharge requirement
WPCs	Water Pollution Controls
ZECMS	Zero Emission Container Mover System
ZOI	zone of influence

## EXECUTIVE SUMMARY

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This Final Environmental Impact Report (EIR)/Environmental Assessment (EA) includes some refinements since the release of the February 2009 revised Draft EIR/EA, as required, to provide updated information and/or supplemental analysis presented in the draft document as a result of consideration of public comments received during circulation of the revised Draft EIR/EA. No new impacts have been identified within this Final EIR/EA, the severity of the impacts identified in the Draft EIR/EA are unchanged from what was previously described, and no feasible alternatives or mitigation measures were identified that would clearly lessen the environmental impacts of the proposed Gerald Desmond Bridge Replacement Project (project). All comments and responses to comments are provided within Chapter 4 of this Final EIR/EA.

Based on the project-specific impacts described in the revised Draft EIR/EA for the proposed project and after consideration of the public comments and associated refinements, the Port of Long Beach (Port or POLB) and California Department of Transportation (Caltrans) have identified the North-side Alignment Alternative as the preferred alternative.

This document has been prepared by the City of Long Beach acting by and through its Board of Harbor Commissioners (Port of Long Beach [Port or POLB]) as lead agency for the EIR and the California Department of Transportation (Caltrans) as lead agency for the EA, in accordance with Section 6005 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (23 United States Code [U.S.C.] 327[a][2][A]), the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality (CEQ) Regulations implementing NEPA (40 *Code of Federal Regulations* [CFR] 1500-1508); Federal Highway Administration (FHWA) Environmental Regulations (23 CFR 771); and the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code [PRC] 21000 *et seq.* as amended) and implementing guidelines (California Code of Regulations [CCR], Title 14, Section 15000 *et seq.*).

### ES 1.1 SUMMARY OF CHANGES TO THE PROJECT FOLLOWING CIRCULATION OF THE JUNE 2004 “DRAFT” EIR/EA

Subsequent to the public comment period for the previously circulated Draft EIR/EA (June 2004), the Port elected to consider two additional alternatives: a bridge rehabilitation alternative and a tolling alternative (using tolls to fund bridge construction and operation). In addition, the Port updated the analysis of existing and future traffic conditions by collecting more recent traffic data and updating the projection of future traffic conditions based on recent forecasts of marine terminal activity and configuration.

The proposed project limits (i.e., new bridge and related improvements, and Southern California Edison [SCE] transmission line relocation) remain the same as that presented in the 2004 Draft EIR/EA; however, the study area was expanded, as described in the 2005 revised Notice of Preparation (NOP), to address the tolling alternative as follows: Willow Street/Sepulveda Boulevard on the north end and Interstate 110 (I-110) on the west end. The tolling alternative was found to have effects beyond these expanded study limits, extending to Interstate 405 (I-405) to the north, I-110/State Route (SR) 91 to the west, and into downtown Long Beach at Pine Avenue to the east. The south end of the project study area has not changed, terminating at Pico Avenue south of the Ocean Boulevard interchange.

Subsequently, the tolling alternative was not carried forward for further consideration as discussed below in Section ES 1.9 and in Chapter 1, Section 1.7. The study area was then reduced and is now slightly larger than the study area discussed within the 2004 Draft EIR/EA. The study area now extends along Ocean Boulevard from just west of Navy Way/Seaside Avenue on Terminal Island to Pine Avenue in downtown Long Beach. Project limits to the north and south have not changed from the 2004 Draft EIR/EA and extend to 9th Street on SR 710 to the north and to Pico Avenue south of Ocean Boulevard to the south.

The Bridge Rehabilitation Alternative would seismically retrofit the existing bridge by improvements including replacing the bridge deck and expansion joints, adding steel casings at all

columns, foundation retrofit, replacing sway bracings, and painting of all steel members. After bridge rehabilitation, roadway operations within the project areas would be the same as existing.

With the addition of the Rehabilitation Alternative, tolling alternative, expanded study area limits, and updated traffic forecasts, the Port elected to update several technical studies supporting the revised Draft EIR/EA. These consisted of the Air Quality Analysis, Traffic Impact Analysis, Noise Study, Natural Environment Study, Community Impact Analysis, Visual Impact Analysis, Water Resources, and Hazardous Waste Initial Site Assessment (ISA). The revised Draft EIR/EA also included a Health Risk Assessment (HRA). POLB issued the revised NOP in December 2005 and made it available to the public and responsible/trustee agencies to provide comments regarding the revisions to the proposed project. No comments were received from either the public or responsible/trustee agencies during the public review period of the revised NOP.

## **ES 1.2 INTENDED USES AND AUTHORIZING ACTIONS**

The Port and Caltrans are acting as the lead agencies for the proposed project in accordance with CEQA and NEPA, respectively. The Port and Caltrans have prepared a joint EIR/EA for the proposed project.

As described in Chapter 4, the revised Draft EIR/EA was circulated and made available, as required by CEQA and NEPA, to interested and concerned parties, including private citizens, community groups, the business community, elected officials, and public agencies. This Final EIR/EA provides the basis for decision making by the local and federal lead agencies.

This Final EIR/EA includes refinements to analysis included in the revised Draft EIR/EA, as required, based on all written public comments and public hearing comments. Subsequent to circulation of this Final EIR/EA, the lead agencies are required to take actions regarding the environmental document. The POLB Board of Harbor Commissioners (BHC) will determine whether to certify the EIR and issue Findings and a Statement of Overriding Considerations, and Caltrans will issue a Finding of No Significant Impact (FONSI). Based on Caltrans consideration of the project impacts and consideration of the public comments included in this Final EIR/EA, the project will not result in a significant impact pursuant to NEPA and an Environmental Impact Statement (EIS) is not required.

### **ES 1.2.1 Caltrans Intended Uses**

Caltrans is the lead agency for the proposed project under NEPA, primarily because federal funding would be obtained and the affected transportation segment would become part of the National Highway System. Caltrans would approve the project under NEPA on behalf of FHWA under its assumption of responsibility pursuant to 23 U.S.C. 327.

### **ES 1.2.2 Port of Long Beach Intended Uses**

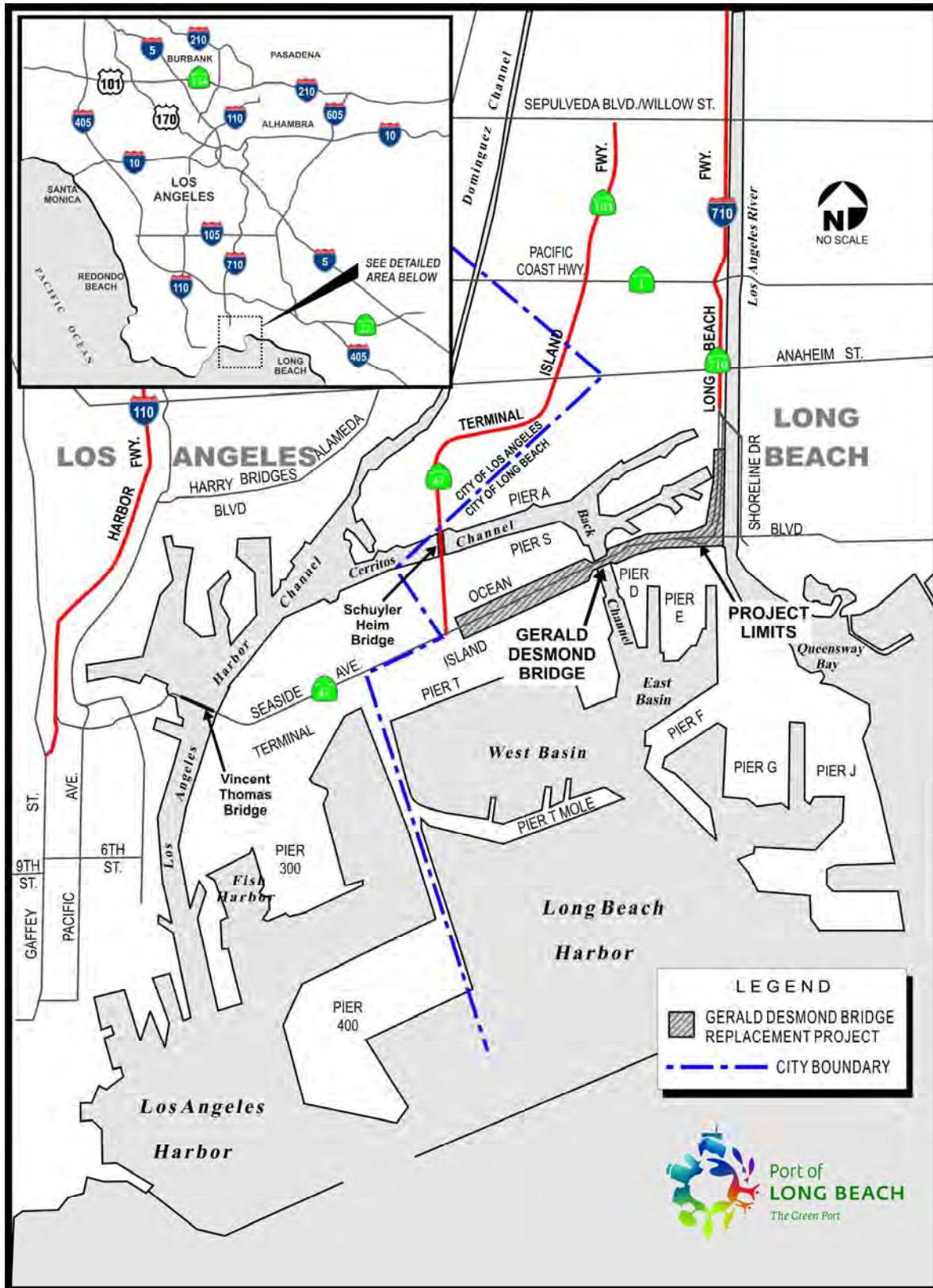
The Port seeks federal and state approvals to proceed with construction of the project. The Port is responsible for the preparation of the joint CEQA and NEPA documentation, pursuant to the respective environmental regulations and guidelines of Caltrans and FHWA.

Subsequent to completion of the Final EIR/EA, the Board of Harbor Commissioners (BHC) would certify the EIR. If the project is appealed to the California Coastal Commission (CCC), then the Port would use the Final EIR/EA to demonstrate compliance with CEQA and NEPA and to justify approval of the project. In the event that the project is approved, the BHC would approve a transportation easement and issue a Harbor Development Permit.

## **ES 1.3 PROJECT LOCATION AND SETTING**

The Gerald Desmond Bridge is one of three bridges connecting surface highways to Terminal Island in the harbor area (see Exhibit ES-1). The bridge is located within the Port in an area zoned industrial. The Port owns most of this land, with several relatively small, privately owned properties located in the Inner Harbor area and northernmost sections of the Port. The bridge crosses the Back Channel and generally runs east-west across Pier D. It is located in three different Planning Districts in the Long Beach Harbor. These include the Northeast Harbor Planning District, the Terminal Island Planning District, and the Middle Harbor Planning District (POLB, 1999).

The proposed project and alternatives are located in the southwest portion of the City of Long Beach at the southern end of Interstate 710 (I-710). I-710 is classified as SR 710 south of Pacific Coast Highway (PCH) in the State of California's Streets and Highways Code. Under the Bridge Replacement Alternatives, the bridge and Ocean Boulevard would become part of SR 710 and would operate as a freeway facility with controlled access. The improvements between the existing SR 710 and



**Exhibit ES-1**  
**Gerald Desmond Bridge Replacement Project Vicinity and Project Location Map**

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SR 47, including the bridge, would be transferred to Caltrans by easement following route adoption and execution of a freeway agreement. It is estimated that the transfer would be completed within 2 years after construction.

The proposed project is over the Back Channel/Cerritos Channel area of the Port. It is centered along Ocean Boulevard from the intersection of the Terminal Island Freeway (SR 47) at the western end to its eastern terminus at the westerly end of the bridge over the Los Angeles River. The southern limit of the project is located on Pico Avenue approximately 660 feet (ft) (201 meters [m]) south of the Ocean Boulevard interchange. The northern limit of the project is along SR 710, approximately 2,630 ft (801 m) north of Ocean Boulevard, and to the southernmost limit of the SCE tower on Pier A.

### **ES 1.4 PROJECT OBJECTIVES**

The objectives of the proposed project include providing a structurally sound bridge linking Terminal Island and Long Beach/SR 710 over the next hundred years, given that the existing bridge is seismically deficient and could be seriously damaged in a major earthquake. Another objective is to provide sufficient roadway capacity to handle current and projected vehicular traffic volume demand, which the existing bridge cannot provide with only two through lanes and no outside shoulders. Lastly, the proposed project would provide sufficient vertical clearance for safe navigation through the Back Channel to the Inner Harbor, which the existing bridge, at only 156 ft (47.5 m) above mean high water level (MHWL), does not provide. (See Section 1.1.2.2 for detailed information supporting these objectives.)

The project would replace or rehabilitate the existing seismically deficient Gerald Desmond Bridge. Additionally, the North- and South-side Alternative Alignment Alternatives would improve vehicular traffic flow and marine vessel safety for current and future marine vessels requiring passage through the Back Channel. The Bridge Replacement Alternatives would provide additional benefit to the Port and region by handling existing operations and forecasted growth in vehicular traffic, vessel traffic, and goods movement. The project objectives are consistent with similar goals addressed in the Port Master Plan (PMP), as amended.

### **ES 1.5 PURPOSE AND NEED**

The main purpose of the proposed project is to provide a structurally sound/seismically resistant

bridge, in addition to improved vehicular capacity and marine vessel safety. The project purpose is consistent with similar goals addressed in the PMP, as amended.

This project is included in the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP) and 2008 Regional Transportation Improvement Program (RTIP) for Local Highway Projects (Project ID LA000512).

The current estimated cost of the proposed project for the North- and South-side Bridge Replacement Alternatives and the Rehabilitation Alternative is approximately \$983 million, \$1.0 billion, and \$289.3 million (in 2008 dollars), respectively. The Port would secure funding for the project from federal, state, regional, and local agency resources, and it would continue to pursue public-private partnerships to the extent required to supplement public funds.

#### **ES 1.5.1 Project Purpose**

The purpose of the proposed project is four-fold – to provide a bridge that would:

1. Be structurally sound and seismically resistant;
2. Reduce approach grades;
3. Provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and
4. Provide vertical clearance that would afford safe passage of existing container ships and for new-generation larger vessels currently being constructed.

Only the Bridge Replacement Alternatives would meet all four purposes of the project, as well as provide a structure that would meet the transportation needs of the Port and the region for its planned 100-year design life. The Rehabilitation Alternative would still require replacement after its 30-year design life (see Section ES 1.10 for additional discussion comparing the proposed alternatives).

#### **ES 1.5.2 Project Need**

The following discussion summarizes the present and projected deficiencies in the Gerald Desmond Bridge that constitute the basic needs for rehabilitation or replacement of the bridge.

## Bridge Condition

According to a County of Los Angeles Department of Public Works Bridge Inspection Report dated September 5, 2007, the bridge has a sufficiency rating of 43. Bridges that are found to be structurally deficient or functionally obsolete, as defined by FHWA, with a sufficiency rating of less than 80 are eligible for federal funding for rehabilitation. Bridges are eligible for replacement when they have a sufficiency rating of less than 50 (Caltrans, 2001).

The existing bridge is physically deteriorated. One of the major physical deficiencies of the bridge is that the concrete is spalling off the bridge in many areas. Pieces of fallen concrete weighing several pounds have been found, requiring the Port to install netting underneath the bridge to protect Port facilities and workers below.

The bridge is also seismically deficient. It was designed in the early 1960s and completed in 1968. As with all bridges of that era in high seismic regions, its original construction has seismic performance issues that do not meet current seismic standards required by the American Association of State Highway and Transportation Officials (AASHTO), as well as Caltrans Seismic Design Criteria (SDC). Additional seismic deficiencies that do not meet current AASHTO or SDC requirements include the presence of lap splices at the base of columns and an insufficient amount of confinement reinforcement in the bridge columns. Both of these deficiencies will make it very difficult for the bridge to withstand a major earthquake without incurring significant damage to the columns and potentially threatening overall bridge integrity.

An assessment of the existing bridge was performed to evaluate whether it is in compliance with current AASHTO codes, as well as Caltrans seismic criteria, and to determine the extent of any bridge rehabilitation needed to comply with current codes.

Several reports, including a 2005 Inspection Report, 2002 Load Rating Report, and 1989 Fatigue Memorandum, were reviewed to confirm the condition of the existing bridge and estimate the amount of work and cost associated with bringing it up to current AASHTO and Caltrans standards. A brief summary of findings from these reports is provided below:

- The Inspection Report cited the condition of the deck as “critical,” and the condition of the paint as “extremely poor.” With the existing deck

crossing seawater and now being 40 years old, the inspection found it would have to be replaced in the near future to protect the overall structural integrity of the bridge and improve its seismic response. Deck replacement would also necessitate replacement of all expansion joints. To prevent major deterioration of the bridge steel members, painting would also be required in the near future.

- The Load Rating Report indicated that the members of the arch main span were overstressed for all design truck loads and would need to be replaced.

The existing bridge underwent a seismic retrofit study in the early 1990s, followed by a seismic retrofit to improve its seismic performance. To minimize retrofit cost, partial steel column casings were added at select columns, such as Piers 15 and 16, to support the main steel truss span.

## Traffic Capacity/Roadway Deficiencies

### Capacity

In 2005, which is the NOP baseline year, approximately 38 percent of all traffic on the Gerald Desmond Bridge had an origin or destination in the Ports of Long Beach and Los Angeles (Ports) (Iteris, 2009). Of the approximately 59,700 vehicles per day (vpd) on the bridge, 15,200 or 25 percent were trucks.

The presence of substantial numbers of vehicles other than passenger cars (i.e., heavy-duty trucks) affects traffic flow in two ways: (1) these vehicles occupy more roadway space than passenger cars; and (2) the operational capabilities of these vehicles, including acceleration, deceleration, and maintenance of speed, are inferior to passenger cars and result in the formation of large gaps in the traffic stream, which reduces highway capacity. On long sustained grades and segments where trucks operate considerably slower, formation of these large gaps can have a profound impact on the traffic stream (Iteris, 2009).

The bridge is forecast to carry a substantial amount (39 percent) of non-port, regional through traffic in 2030 (Iteris, 2009). Regional traffic will increase due to several major development projects that have been constructed in downtown Long Beach, such as the Pike at Rainbow Harbor and the proposed San Pedro Waterfront Development in the Port of Los Angeles (POLA).

Year 2030 forecasted traffic volumes without the project are approximately 124,670 total trips per

day (including 54,360 trucks or 43.6 percent of the total traffic) on the Gerald Desmond Bridge (Iteris, 2009).

**Level of Service (LOS).** LOS is defined in six levels, from A through F. Level A is free-flow, high-speed conditions. At Level D, speed and maneuverability are reduced due to congestion, and Level F is a breakdown in flow, with speeds and vehicular throughput potentially dropping to zero. In 2005, peak-hour (i.e., morning, midday, and evening) traffic on the uphill segments (i.e., base of bridge to the crest) of the existing Gerald Desmond Bridge operated at LOS B or C in both the westbound (WB) and eastbound (EB) directions. In 2030, without the project, operations during peak hours are projected to be LOS F WB toward Terminal Island and LOS C EB toward Long Beach (Iteris, 2009).

#### Deficiencies

The primary roadway deficiencies are the lack of outside shoulders and the steep approach grades.

**Shoulders.** The lack of shoulders often results in broken-down trucks or passenger vehicles being stuck in the outside lane, effectively blocking or severely restricting the entire traffic flow in that direction of travel until the incident is cleared. The lack of shoulders also makes it more difficult for emergency vehicles and tow vehicles to gain access to the incidents. Providing outside shoulders would improve safety to the emergency responders and traveling public in these situations. The recent addition of climbing lanes on the bridge does not mitigate the need for breakdown shoulders because breakdowns still tie up the outside lanes as wider, slow-moving trucks must negotiate around incidents.

**Approach Grades.** The long, steep approach grades cause trucks to operate considerably slower, especially when passing, which creates large gaps in the traffic stream and further reduces highway capacity. The current approach grades are 5.5 percent on the west side of the bridge and 6 percent on the east side.

#### Vertical Clearance

The existing bridge is located over the main federal navigation channel (i.e., Back Channel) that serves the Port. It provides a vertical clearance of 156 ft (47.5 m) above MHWL, which is insufficient for the clearance of some existing container ships, as well as new vessels currently being constructed. The Gerald Desmond Bridge is one of the lowest bridges of any large commercial port in the world.

In addition, the vertical clearance afforded by the SCE transmission lines crossing Cerritos Channel north of the bridge is only 153 ft (46.6 m) above MHWL. These transmission lines would be the primary vertical clearance hazard to navigation if the bridge clearance were to be increased.

### **ES 1.6 PROJECT BACKGROUND**

The existing Gerald Desmond Bridge was constructed in the mid 1960s and seismically upgraded in 1995. It provides four through travel lanes (i.e., two in each direction). On the uphill segments, climbing lanes were added by reconstructing the roadway area of the bridge to handle container trucks and improve LOS on the bridge. This improvement resulted in three ascending lanes and two descending lanes in each travel direction. Each climbing lane ends at the crest of the bridge. The bridge is a steel tied-arch truss structure, in which the horizontal forces of the arch are borne by the bridge deck, rather than the ground or the bridge foundations. The bridge has a 409.5-ft-long (124.8-m-long) suspended span that crosses the deep-water navigable channel connecting the middle and inner harbors of the Port (Parsons-HNTB, 2002a).

As the fifth largest seaport complex in the world, the Ports handle more than 30 percent of U.S. waterborne container cargo (POLB, 2006b). The bridge is a vital link in Port-area goods movement infrastructure because it is the westerly extension of SR 710, which is the primary access route for the Ports and carries approximately 15 percent of all U.S. port-related container traffic (Caltrans *et al.*, 2005).

### **ES 1.7 PROJECT DESCRIPTION**

#### **ES 1.7.1 Bridge Replacement**

The proposed project would construct a new bridge across the Back Channel and associated roadway connectors, demolish the existing Gerald Desmond Bridge, and relocate the SCE transmission lines crossing the Cerritos Channel north of the bridge.

The new bridge, excluding approach structures, would be 2,000 ft (610 m) long, and it would be elevated 200 ft (61 m) above the MHWL of the Back Channel. Bridge replacement would also necessitate reconfiguration of adjacent freeway and arterial interchanges.

#### **ES 1.7.2 Bridge Replacement Concepts**

A study of the various types of possible bridges determined that a cable-stayed bridge would be

the best option. A cable-stayed bridge consists of a continuous girder with one or more towers erected above piers in the middle of the span. From these towers, cables stretch down diagonally (usually to both sides) and support the girder. A design team consisting of Port staff representatives, an architect, and project engineers began the aesthetic design process with a review of the overall design parameters, such as the context of the surrounding site, the bridge roadway geometry, the recommended height and span for the bridge, and the estimated dimensions of the major structural members.

The team next considered aesthetics, cost, constructability, seismic performance, right-of-way (ROW) issues, schedule risk, impact to Port operations, and maintenance.

Based on the results of the design review, four cable-stayed alternatives were chosen for further consideration:

- Single Mast Tower
- Delta Tower
- H-Tower with Vertical Legs
- H-Tower with Slanted Legs

An in-depth study of these four design options was conducted over an 8-month period and included more detailed analysis and design for each alternative. Concepts for architectural lighting of the bridges were developed. Additionally, the potential ROW impacts to third-party properties were more fully defined.

Based on this in-depth study, two design options were selected to be carried forward for further development: Single Mast Tower and H-Tower with Slanted Legs. With further refinements to the bridge concept study, the Port staff elected to proceed with the development of the Single Mast Towers with a steel composite deck.

**ES 1.7.3 SCE Transmission Line Relocation**

Because the new bridge would be 200 ft (61 m) above the MHWL, in contrast to the existing bridge at 156 ft (47.4 m) above MHWL, the project also requires that the SCE high-voltage transmission towers and lines that cross the Cerritos Channel north of the bridge be raised.

**ES 1.8 ALTERNATIVES**

Like the revised Draft EIR/EA, this Final EIR/EA fully analyzes the North-side Alignment (preferred alternative), the South-side Alignment, the

Rehabilitation Alternative, and the No Action Alternative.

**ES 1.8.1 No Action Alternative**

Under the No Action Alternative, the Gerald Desmond Bridge would not be replaced or rehabilitated. It would remain in its existing deteriorated condition until a retrofit schedule is established. It would remain with insufficient roadway capacity to handle projected car and truck traffic volumes, and inadequate channel clearance for safe passage of some existing and new-generation container ships.

Under the No Action Alternative, the existing bridge would continue in use as the sole direct connection between SR 710, the City of Long Beach, and Terminal Island. Existing measures to protect against falling structural elements would need to be enhanced as the bridge continued to deteriorate, and the related safety issues would increase in severity. Seismic safety of the channel crossing would not be enhanced with a new or rehabilitated bridge meeting current seismic standards. Increasing traffic volumes would result in steadily deteriorating LOS; this impact would also occur with the Rehabilitation Alternative.

Under the No Action Alternative (as with the Rehabilitation Alternative), the existing SCE transmission lines would not be removed or relocated.

**ES 1.8.2 North-side Alignment Alternative (Preferred Alternative)**

The North-side Alignment Alternative would provide a new bridge located approximately 140 ft (42.7 m) north of the existing bridge (measured from centerline to centerline). This bridge alignment would have a vertical profile over the Back Channel of 200 ft (61 m) above the MHWL. The roadway grades would be 5 percent in both directions.

The new bridge would be a cable-stayed design. The total bridge length would be 2,000 ft (610 m) long, with a main span opening across the channel of 1,000 feet (306 m), tower to tower. The west and east approach structures would be 3,117 ft (950 m) and 3,035 ft (925 m) in length, respectively.

The bridge cross section and approaches to the new bridge would include the following project features:

- Three 12-ft-wide (3.6-m) lanes in each direction

- A 10-ft-wide (3-m) outside shoulder in each direction
- A 10- to 12-ft-wide (3- to 3.6-m) inside shoulder in each direction
- A 32-inch (in.)-high (81.3-centimeter [cm]) barrier that would run along the outside of each shoulder
- Reconstruction of the existing Horseshoe interchange ramp connectors
- Reconstruction of the existing connectors to SR 710 and the two ramp connections to Pico Avenue

The approach spans would be of concrete box girder construction, either segmental or cast-in-place.

This alignment alternative would use the land between the existing bridge and the Long Beach Generating Station (LBGS) (former SCE plant), and it would require construction of new ramps for the existing Horseshoe interchange. The proposed alignment would transition to join Ocean Boulevard approximately 3,280 ft (1,000 m) east of the channel, and the new connections would join SR 710 approximately 2,630 ft (801 m) north of Ocean Boulevard.

The Horseshoe interchange would use reconfigured ramps to provide access from the WB Gerald Desmond Bridge to Pier T Avenue and from Pier T Avenue to the EB Gerald Desmond Bridge. Additional ramp connections would be provided between Pier T Avenue and both Ocean Boulevard and the one-way frontage roads created by the newly constructed POLB Ocean Boulevard and SR 47 Interchange Project. These ramps would allow full access between Pier T Avenue and Ocean Boulevard in all directions.

At the SR 710 interchange, a new median connection to Ocean Boulevard in downtown Long Beach would be constructed, as would a new pair of connector ramps between SR 710 and the new bridge. A new hook ramp or loop ramp would be used to replace the existing on-ramp between Pico Avenue and the WB Gerald Desmond Bridge. The current ramp between Pico Avenue would be partially reconstructed to join the new connectors from SR 710. This interchange concept would enable trucks traveling to and from SR 710 to remain in the outside lanes, while cars traveling to and from downtown Long Beach via Ocean Boulevard would remain in the inside lanes. This approach would minimize the intermixing of cars and trucks accessing the

above facilities. The estimated cost for this alternative is approximately \$983 million.

### **ES 1.8.3 South-side Alignment Alternative**

The South-side Alignment Alternative would provide a new bridge located approximately 177 ft (53.9 m) south of the existing bridge (measured from centerline to centerline). As with the North-side Alignment Alternative, this bridge alignment would have a vertical profile over the Back Channel of 200 ft (61 m). The main span bridge design options would be the same as those proposed for the North-side Alignment Alternative. The bridge cross section and approaches to the new bridge would include the same project features as described for the North-side Alignment Alternative.

The proposed alignment would transition to join existing Ocean Boulevard approximately 3,280 ft (1,000 m) west of the channel. This alignment would require reconstruction of all ramps for the existing Horseshoe Interchange and a portion of the existing Pier T terminal main gate facility. The proposed alignment would transition to join existing Ocean Boulevard approximately 3,280 ft (1,000 m) east of the channel, and the new connections would join existing SR 710 approximately 2,820 ft (860 m) north of Ocean Boulevard. The four existing ramp connections to Pico Avenue would have to be reconstructed for this alternative. The interchange design variations used for the North-side Alignment Alternative would also be applied to the South-side Alignment Alternative. The estimated cost for this alternative is approximately \$1.0 billion.

### **ES 1.8.4 Bridge Rehabilitation Alternative**

With this alternative, the existing bridge would be rehabilitated to improve its seismic performance and to extend its operational life span. No new traffic lanes would be added, and the height of the bridge would remain at 156 ft (47.5 m) above the MHWL. To comply with current seismic detailing standards for new bridges, the lap splices at the base of the columns would need to be eliminated and the amount of confinement reinforcement increased. Because there are no practical means to accomplish this, the best solution would be to add steel casings at all columns. Lacking a detailed seismic performance study, it is assumed that the casings would be placed along the full height of the columns. These retrofit measures would allow for the level of deformation needed for the bridge to withstand a major earthquake and to comply with Caltrans SDC requirements for

capacity protection of column foundations and bent caps.

Main span trussed arch members would likely require strengthening and connection retrofit to meet SDC joint capacity protection requirements. Typical for this type of bridge in the state of California, retrofit measures for truss members include member strengthening and installation of additional bolted through steel plates at truss joints, similar to the retrofit of the existing Carquinez Bridge, San Francisco Oakland Bay Bridge Main Span, and others.

In summary, to bring the existing Gerald Desmond Bridge up to current AASHTO standards and to mitigate continuous bridge deterioration would require the following measures:

- Replacement of the bridge deck
- Replacement of expansion joints
- Replacement of the sway bracings for the main span
- Painting of all steel members
- Seismic retrofit of foundations, columns, bent caps, abutments, and superstructure

The estimated cost for these corrective measures is approximately \$289.3 million. The conceptual-level cost could only be determined after the retrofit measures are better defined.

All of the above measures would be consistent with the level of retrofit undergone by major bridges in California, where retrofit measures were designed for a “No Collapse” design criteria. The “No Collapse” criteria imply that the bridge would survive the maximum credible earthquake (MCE) without collapse and loss of life, but it would have a high probability of being condemned after an extreme seismic event such as the MCE. Thus, even with implementation of the above seismic retrofit measures, the existing bridge seismic performance would not be on par with the proposed new bridge. The new bridge would be designed to withstand the MCE with only repairable damage allowed and an ability to be in service within days after the MCE event.

### **ES 1.9 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR FURTHER ANALYSIS**

The June 2004 Draft EIR/EA evaluated several other alternatives, including tunnel options, main span and approach span options, design options, and interchange options, which were all withdrawn

from further evaluation. In addition, to those alternatives, the Draft EIR/EA considers a tolling alternative as an alternative evaluated but eliminated from further consideration. The alternates are described and the rationale for their elimination is discussed in Section 1.7 of this document.

### **ES 1.10 COMPARISON OF ALTERNATIVES**

The North-side and South-side Alignment Alternatives would achieve the project's purpose and need. Specifically, these alternatives would:

1. Provide a new bridge that is structurally sound and seismically resistant;
2. Reduce approach grades;
3. Provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and
4. Provide vertical clearance that would afford safe passage of existing container ships and for new-generation vessels currently being constructed.

The North-side Alignment Alternative would impact Port and private properties, including tenant businesses and utilities. It would require demolition of the Port Maintenance Yard and temporary relocation of Fireboat Station No. 20. The North-side Alignment Alternative would result in the conversion of approximately 0.7-acre (0.3-hectare [ha]) of privately held Port-related industrial land to public/ transportation use. Privately owned facilities affected include Pacific Pipelines, LLC, LBGS, SCE, Connolly Pacific and Los Angeles County Flood Control District (LACFCD). Potential effects on these properties could include loss of land due to acquisition, modified access due to bridge footings and easements, and relocation/replacement of utilities and/or facilities. The current estimate for the value of the land for the affected private properties is \$2.0 million (see Section 2.1.3.2 [Relocations] for further discussion).

The South-side Alignment Alternative would also achieve the project's purpose and need as discussed under the North-side Alignment Alternative. This alternative would impact primarily Port properties, utilities, and tenant businesses. This alternative would require reconfiguration of both the California United Terminals and Total Terminal International, Inc. (TTI) operations on Piers D, E, and T. The Pier E gate at the California United Terminal facility would require relocation and would include reconfiguration of the

following elements: entrance and exit roadways, inbound optical character recognition (OCR) devices, receiving gate lanes with pedestals, scales, cameras and queuing area, trouble resolution building and parking area, outbound primary radiation portal monitors (RPM) and OCR, outbound secondary RPM, exit gate lanes with pedestals and cameras, associated underground electrical and communication lines, and pavement markings/ barriers. It is estimated that the reconfiguration on Piers D and E would cost approximately \$10.0 million. Reconfiguration of Pier T would result in the permanent loss of 2.4 acres (1-ha) within the TTI terminal storage facility currently used for refrigerated container storage. Additionally, reconfiguration on Pier T would require modification of the following elements: relocation of a portion of the main gate canopy, driver's service building and trouble parking, steel high-mast light poles, chassis storage, and associated utilities, barriers, and pavement markings. It is estimated that the reconfiguration on Pier T would also cost approximately \$10.0 million. The South-side Alignment Alternative would also permanently reduce leasable Port acreage by approximately 2.4 acres (1-ha). The estimated present value of lost Port lease revenue would be \$7.0 million over a typical 20-year lease (see Section 2.1.3.2 [Relocations] for further discussion).

When comparing the anticipated environmental effects of the North- and Southside Alignment Alternatives, there are no substantial differences in the environmental effects associated with construction and operation of these alternatives.

Under the Rehabilitation Alternative, the bridge would survive an extreme seismic event without collapse and loss of life, but it would have a high probability of being condemned and taken out of service; therefore, even with implementation of the retrofit measures in the Rehabilitation Alternative, at an estimated cost of \$289.3 million, the bridge seismic performance would not be on par with a new bridge. Furthermore, bridge rehabilitation would not handle current and future traffic volumes, nor would it provide the vertical clearance needed for safe passage of container ships.

The No Action Alternative would not meet the purpose and need for the proposed project, and it would not eliminate the need for rehabilitation or replacement of the Gerald Desmond Bridge. The No Action Alternative would not improve clearance for the safe passage of container ships or handle current or forecasted traffic volumes. Under the No Action Alternative the bridge would

likely be severely damaged during an MCE and would endanger life and property for those using the bridge, ships in the Back Channel, and at adjacent Port and private facilities.

### **ES 1.10.1 Preferred Alternative**

After considering all public comments received on the Draft EIR/EA, the potential effects of the project alternatives as described in the Final EIR/EA, and the potential benefits resulting from implementing the project alternatives, the Port and Caltrans have identified the North-side Alignment Alternative as the preferred alternative. The EIR/EA has compared the three Build Alternatives and the No Build Alternative and has concluded: (1) the No Build Alternative does not satisfy the project purpose and need; (2) the North-side and South-side Alignment Alternatives, when compared with the Rehabilitation Alternative, better satisfy the project purpose and need because they better provide for future traffic demand and meet all of the project objectives; (3) the environmental effects associated with the North-side and South-side Alignment Alternatives (both during construction and operation) are reasonably equivalent; and (4) the North-side Alignment Alternative is more cost effective than the South-side Alignment Alternative. Accordingly, the North-side Alignment Alternative has been selected as the preferred alternative for purposes of the environmental review.

### **ES 1.10.2 Project Approval**

All public comments on the revised Draft EIR/EA have been considered, and the Port and Caltrans have selected a preferred alternative. In accordance with CEQA, the Port has prepared findings for all significant impacts identified and a Statement of Overriding Considerations for impacts that cannot be mitigated to below a level of significance. The Findings and Statement of Overriding Considerations will be forwarded to the BHC for consideration with a recommendation to approve the project and certifying that the project complies with CEQA. Caltrans, as assigned by FHWA, has determined that the NEPA action does not significantly impact the environment, and the Department will issue a FONSI in accordance with NEPA.

### **ES 1.11 RIGHT-OF-WAY IMPACTS**

Estimates of nonresidential displacements and partial acquisitions were made by reviewing engineering design plans, aerial photographs, and through field reviews. There is no residential acquisition required for the Build Alternatives.

Several private properties and Port tenants would be impacted by ROW acquisition and property relocation. As more detailed engineering becomes available during the final design phase, the ROW impacts will be defined. The POLB will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601, *et seq.*), as amended, for any ROW acquisitions on private property.

### **ES 1.12 PUBLIC INVOLVEMENT**

An NOP/Preliminary Environmental Analysis Report (PEAR) to prepare an EIR/EA and a Notice of Initiation of Studies (NOIS) for the proposed project were issued on October 25, 2002, by POLB. An agency scoping meeting was held on November 12, 2002, at the POLB Administration Building to solicit comments and discussion from responsible and trustee agencies regarding the proposed project. In addition, a public scoping meeting was held at the POLB Administration Building later the same day. Four comment letters were received during the NOP review period and scoping meetings. Issues of concern were traffic, utilities, water resources, and hazardous waste/materials.

The Draft EIR/EA was issued by the Lead Agencies on June 15, 2004, with the public comment period concluding on July 29, 2004. Twelve (12) comments were received during the Draft EIR/EA public review and comment period. Also, a public hearing was held July 19, 2004. These comments were addressed in the revised Draft EIR/EA.

Because the project study area was expanded and Rehabilitation and Toll Operation Alternatives were considered for the build alternatives, the Port issued a revised NOP in December 2005 and made it available to the public and responsible/trustee agencies. No comments were received from either the public or responsible/trustee agencies during the public review of the NOP.

The revised Draft EIR/EA was issued by the lead agencies on February 4, 2010, with the public comment period concluding on March 18, 2010. Forty-nine (49) comments were received during the revised Draft EIR/EA public review and comment period. In addition, two public hearings were held on February 17 and 24, 2010. Chapter 4 of the Final EIR/EA describes in detail the public

outreach/participation during the public review and comment period, and it includes all comments and responses to comments received on the revised Draft EIR/EA and from the public hearings.

### **ES 1.13 FINAL EIR/EA CONTENTS**

Information contained within this Final EIR/EA is generally the same as was included in the revised Draft EIR/EA, except where information was refined or supplemented to address public comments received on the revised Draft EIR/EA, as described in responses to comments provided in Chapter 4. A detailed project description is presented in Chapter 1, and it now includes additional discussion on the lead agencies' decision to select the North-side Alignment Alternative as the preferred alternative. The environmental consequences associated with the proposed project on the affected Human, Physical, and Biological Environments, as well as measures to avoid, minimize, and/or mitigate these effects are presented in Chapter 2. Also, included in Chapter 2 is an analysis of potential cumulative impacts of the proposed project. Chapter 3 presents the analysis of project impacts pursuant to CEQA. Chapter 4 summarizes the consultation and coordination undertaken with agencies and the public. This includes a summary of the public outreach and public participation process on the revised Draft EIR/EA and all comments and responses to comments received during the public review and public comment period for the revised Draft EIR/EA and public comments from the public hearing. Chapter 5 provides a list of preparers for the Final EIR/EA. Chapter 6 contains the distribution list for the Final EIR/EA and includes federal government agencies and all agencies and interested parties that commented on the revised Draft EIR/EA. Chapter 7 lists the references used for the technical analyses. Chapter 8 contains the Port's Application Summary Report to satisfy PMP and California Coastal Act requirements.

### **ES 1.14 SUMMARY OF SIGNIFICANT AND ADVERSE IMPACTS AND MITIGATION MEASURES**

Table ES-1 summarizes adverse and significant project effects, proposed minimization/mitigation measures and residual effects subsequent to implementation of minimization and mitigation measures.



**Table ES-1 Summary of Potentially Adverse/Significant Impacts**

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
<b>Traffic and Circulation (see Section 2.1.5)</b>						
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier B Street/9th Street intersection during construction Stage 2.	TC-1 Prior to the start of construction Stage 2, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stage 2: Add dual NB right-turn lanes; restripe EB through/right lane to a right-turn lane; provide one (1) EB through lane; and continue two (2) SR 710 SB off-ramp lanes to Pico Avenue.	Minor Impact	Less than Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier B Street/9th Street intersection during construction Stages 3 and 4.	TC-2 Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4: remove NB-SB split-signal phasing; restripe NB through lane to a NB left-turn lane; widen SB approach and provide two (2) left-turn lanes and one (1) through lane; and continue two (2) on-ramp lanes to NB SR 710.	Temporary Adverse	Temporary Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier D Street intersection during construction Stages 2, 3, and 4.	TC-3 Prior to the start of construction Stage 2, a traffic signal will be installed at the intersection of Pico Avenue and Pier D Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative.	Temporary Adverse	Temporary Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier E Street intersection during construction Stages 3 and 4.	TC-4 Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue and Pier E Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4: permanently signalize the intersection (the signal will not be removed after completion of construction of a Bridge Replacement Alternative); restripe NB through lane to a NB right-turn lane, providing a single NB through lane; add dual free-flow WB right-turn lanes; and continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue.	Minor Impact	Less than Significant
√	√	X	A project-related adverse effect is anticipated at the intersection of Navy Way/Seaside Avenue.	TC-5 During the design phase of a Bridge Replacement Alternative, the Port shall add a third NB left-turn lane to mitigate the project effect at the Navy Way/Seaside Avenue intersection.	Minor Impact	Significant <sup>1</sup>
√	√	X	A project-related adverse effect is anticipated at the intersection of Ocean Boulevard/Magnolia Avenue.	TC-6 The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection	Minor	Less than Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur on WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange.	No feasible measures to minimize traffic effects at WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange have been identified. However, construction of the SR 47 Flyover as part of the SR 47 project would eliminate the temporary adverse traffic effect.	Temporary Adverse	Temporary Significant
√	√	X	A temporary adverse traffic effect has been identified that would result from construction of the proposed Bridge Replacement Alternatives at the Ocean Boulevard and Terminal Island Freeway interchange.	The two intersections of the Ocean Boulevard ramps (north and south) and the Terminal Island Freeway would have temporary unavoidable adverse effects for 3 years, which is the approximate combined duration of construction Stages 2, 3, and 4 of either of the proposed Bridge Replacement Alternatives..	Temporary Adverse	Temporary Significant
<b>Hazardous Materials/Wastes (see Section 2.2.3)</b>						
√	√	√	Previously unidentified contaminated soil and groundwater may exist within the construction impact areas that could affect human health or be released to the environment.	HM-1 A Phase II Site Investigation shall be performed in construction areas where excavation will exceed 5 feet (ft) (1.5 meters [m]) below ground surface (bgs), where groundwater may be encountered and in areas where underground storage tanks (USTs) were removed without closure. The results of the Phase II investigation would be incorporated into the Safety Plan to protect construction workers against known contamination in construction areas. A Hazardous Waste Management Plan based on the results of the Phase II investigation will also be incorporated into the Final Design to ensure proper disposal of contaminated materials and contaminated groundwater found in the construction areas.	Minor Impact	Less than Significant
√	√	√	Cross contamination of water-bearing intervals may occur during excavation and bridge pile installation.	HM-2 A risk assessment shall be performed prior to construction to determine how construction activities will impact the water-bearing levels and, as applicable, to determine health risks to construction workers. HM-3 To minimize cross-contamination of the water-bearing zones, the construction contractor shall employ construction techniques to minimize the need for dewatering.	Minor Impact	Less than Significant
√	√	√	Asbestos-containing materials (ACM) may be released to the environment during bridge rehabilitation and building and bridge demolition.	HM-4 The Port shall conduct a survey to screen for asbestos-containing materials (ACMs) and lead-based paint (LBP) in all affected buildings and the bridge prior to any demolition activities. Identification of locations of buildings or structures containing ACMs and LBP will be clearly identified on the construction plans and incorporated into the project safety plan and hazardous waste management plan. Any disturbance/demolition of structures containing ACM or LBP will be completed in accordance with the contract specifications and all federal, state, and local laws and regulations.	Minor Impact	Less than Significant
√	√	√	Soil areas disturbed during construction may contain aerially deposited lead (ADL).	HM-5 Prior to construction, the Port shall test areas within the proposed project corridor where soil may be disturbed for ADL. If ADL levels meet or exceed the action level set forth by the hazardous waste management plan for the project, then ADL-contaminated soils shall be removed in accordance with federal, state, and local regulations.	Minor Impact	Less than Significant

<sup>1</sup> This intersection is within the POLA and is outside of the Port's Jurisdiction, thus the impact is considered significant and unavoidable; however, with implementation of TC-5 or one of the other POLA projects being considered for this location, this impact would be eliminated (see Section 3.2.1.4.3 for further discussion).

√ - Impact associated with alternative; X - Impact not associated with Alternative



**Table ES-1 Summary of Potentially Adverse/Significant Impacts**

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
√	√	√	The public/construction workers may be exposed to hazardous materials during construction activities.	HM-6 A Safety Plan will be required to address any exposure to hazardous materials. The Safety Plan will include proper personal protective equipment (PPE) work requirements, soil and air space monitoring requirements, documentation and reporting requirements, and action levels.	Minor Impact	Less than Significant
√	√	√	According to Port officials, the bridge structure is likely to have lead-based paint (LBP) coatings that would be disturbed by demolition.	HM-7 The contractor shall prepare a Lead Compliance Plan in accordance with California Code of Regulations (CCR) Title 8 Section 1532.1. The Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.	Minor Impact	Less than Significant
√	√	√	The project may require the removal or disturbance of any existing yellow thermoplastic traffic lane striping in the project area.	HM-8 If it is determined that the project would require the removal or disturbance of any existing yellow thermoplastic traffic lane striping in the project area, then Caltrans standard measures shall be implemented to ensure the proper removal, storage, and disposal of the material, as applicable.	Minor Impact	Less than Significant
<b>Public Health and Safety (see Section 2.2.4)</b>						
√	√	X	An analysis of accident and terrorist vulnerability of the new bridge was recommended by the Gerald Desmond Bridge Technical Advisory Panel (TAP). The intent of this assessment is to address the potential vulnerability of the bridge and develop conceptual modifications to the bridge design as required.	HS-1 An Accident and Terrorist Vulnerability assessment of the build alternative shall be completed and all recommendations incorporated into the project during final design. The assessment will analyze and consider applicable protection measures for the construction and operational phases of the proposed project.	Minor Impact	Less than Significant
√	√	√	Road work associated with the project alternatives could potentially adversely affect emergency response times or interfere with the emergency response services. Also, marine transportation hazards could potentially adversely affect ships navigating through the Back Channel during the bridge construction and demolition phases.	HS-2 The Port shall submit all bridge work schedules to the Long Beach Police and Fire Departments, United States Coast Guard (USCG), and Caltrans at least 2 weeks prior to initiation of work to provide adequate time for the agencies to plan for alternate routes in case of emergencies.	Minor Impact	Less than Significant
√	√	√	Project construction may affect business operations and access.	HS-3 Prior to initiation of construction activities, the Port shall notify all businesses, tenants, and utility companies (i.e., SCE, gas, water, oil, and telecommunications) within the project area of the proposed work schedules and associated roadway and ramp closures.	Minor Impact	Less than Significant
√	√	√	Temporary delays within the Back Channel may occur during construction and demolition.	HS-4 The Port shall notify all marine transportation and recreational boating companies 2 weeks prior to initiation of planned work activities potentially affecting normal operations within the Back Channel. HS-5 The Port shall regularly notify USCG and all Port tenants of scheduled work over the Back Channel during construction and demolition of the project.	Minor Impact	Less than Significant
√	√	√	Possible exposure of workers to hazardous situations and materials during project construction and demolition.	HS-6 The contractor shall prepare an emergency response and health and safety plan in accordance with all applicable federal, state, and OSHA standards. The plan should address potential emergency situations and assure the safety and health of workers by setting and enforcing standards to reduce occupational injuries and accidents. The Port will review and approve the plans prior to initiation of construction activities.	Minor Impact	Less than Significant
<b>Air Quality (see Section 2.2.5)</b>						
√	√	X	Construction emissions associated with the North- and South-Side Alignment Alternatives would exceed South Coast Air Quality Management District (SCAQMD) nitrogen oxide (NO <sub>x</sub> ) thresholds.	AQ-C1: Construction processes shall adhere to all applicable SCAQMD rules and regulations concerning the operation of construction equipment and dust control. AQ-C2: Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications. AQ-C3: During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts. AQ-C4: To the extent feasible, use electricity from power poles rather than temporary diesel or gasoline power generators. AQ-C5: As part of the Port's commitment to promote the Green Port Policy and implement CAAP, the proposed project construction would employ all applicable control measures included in the CAAP and relevant clean air technologies. Project heavy-duty construction equipment would use clean fuels, such as ultra-low sulfur fuel, or compressed natural gas and oxidation catalysts. AQ-C6: Construction activities that affect traffic flow on the arterial roadways shall be scheduled to off-peak hours to the extent possible. Additionally, construction trucks shall be directed away from congested streets or sensitive receptor areas. AQ-C7: During the construction period, temporary traffic controls, such as flaggers, and improved signal flow for synchronization to maintain smooth traffic flow, shall be provided. AQ-C8: Trucks used for construction prior to 2015 shall use engines with the lowest certified NO <sub>x</sub> emission levels, but not greater than the 2007 NO <sub>x</sub> emission standards. AQ-C9: Where feasible, construction equipment shall meet the EPA Tier 4 non-road engine standards. The equipment with Tier 4 engine standards becomes available starting in year 2011.	Temporarily Adverse during Construction Years 1,2 and 3	Temporarily Significant during Construction Years 1, 2 and 3

√ - Impact associated with alternative; X - Impact not associated with Alternative



**Table ES-1 Summary of Potentially Adverse/Significant Impacts**

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
√	√	X	Operational emissions associated with the North- and South-Side Alignment Alternatives would exceed South Coast Air Quality Management District (SCAQMD) nitrogen oxide (NO <sub>x</sub> ) thresholds.	There are no feasible mitigation measures to address NO <sub>x</sub> operational emissions for transportation projects. Vehicle emissions are regulated at the federal and state levels. Reduction of operational vehicle emissions will come from three overarching strategies: more efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. Reduced emission in the transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy. It should be noted that a portion of the operational exceedance would be attributable to construction emissions associated with the demolition of the Gerald Desmond Bridge subsequent to opening the new bridge. The construction emissions included as part of the opening year have been mitigated to the maximum extent practicable as discussed in Measures AQ-C1 through AQ-C9.	Temporarily Adverse during Opening Year Minor Impact in 2030	Temporarily Significant during Opening Year Less than Significant in 2030
√	√	X	Exceedance of SCAQMD NO <sub>x</sub> construction and operational thresholds would result in cumulative air quality impacts	CEQA (AQ)-1: <b>Cumulative Air Quality Impact Reduction Program.</b> To help reduce cumulative air quality impacts associated with the Gerald Desmond Bridge Replacement Project, the Port will require the project to contribute \$2 million in support of the Schools and Related Sites Guidelines for the Port of Long Beach Grant Programs (\$1 million) and Healthcare and Seniors Facility Program Guidelines for the Port of Long Beach Grant Programs (\$1 million). The distribution of these funds to potential applicants and projects will be determined through a public evaluation process and approved by the Board of Harbor Commissioners (see detailed discussion in Chapter 3, Section 3.2.2.4, for discussion of methodology for determining contribution amount).  The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes the commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Project Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication.	Temporary Adverse	Significant
<b>Biological Environment (see Section 2.3)<sup>2</sup></b>						
√	√	X	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-1: <b>Artificial Nest Boxes (Peregrine Falcon):</b> A minimum of two nesting ledges with artificial nest boxes will be installed on the new bridge in different locations prior to demolition of the existing bridge. The boxes will be available prior to the nesting season. The new nest locations will be approved by CDFG and will be selected to minimize disturbance to the extent feasible. Should the peregrine falcons not use the new bridge for nesting despite the nest boxes, alternate suitable nesting sites are available in the project vicinity (e.g., hotels, silos, bridges, Long Beach City Hall).	Minor Impact	Less than Significant
√	√	X	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-2: <b>Precluding Nesting on the Existing Bridge (Peregrine Falcon):</b> Once the nest boxes are in place on the new bridge, and a minimum of 2 months prior to initiation of demolition activities within 500 ft (152 m) of the existing nesting locations, measures and/or structures approved by CDFG to discourage nesting at the previously used nest sites would be implemented under the supervision of a CDFG-approved raptor biologist. If existing nest sites are occupied, then exclusion activities could not occur until 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first (see No Work Zone under BR-3 Monitoring Program).	Minor Impact	Less than Significant
√	√	X	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites on the Gerald Desmond Bridge.	BR-3: <b>Monitoring Program (Peregrine Falcon):</b> The proposed monitoring program is based on measures from the Peregrine Falcon Monitoring and Mitigation Program (PFMMP) for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP as proposed for the North- and South-side Alignment Alternatives are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of construction activities.  <ul style="list-style-type: none"> <li><i>Timing of Monitoring:</i> A raptor biologist will initiate monitoring at least 1-year prior to the beginning of construction and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing and new bridge and begin prior to the placement of artificial nest boxes on the new bridge and prior to attempts to preclude nesting at the existing bridge. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first.</li> <li>Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the new bridge.</li> <li><i>Biological Monitor:</i> A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring.</li> <li><i>Monitoring Effort:</i> All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the existing and new bridge. Monitoring during construction will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting on the old bridge, or if they have relocated to an alternate nesting site.  If peregrines attempt to nest on the existing bridge while construction activities are occurring, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods as approved by CDFG would be implemented at the nesting locations. If nest abandonment occurs, then the Port, in coordination with CDFG, will determine the feasibility of creating temporary nesting ledges at alternate locations in areas with less intense construction activities. Nesting on the new structures shall be discouraged until construction of the new bridge is completed. The Port, in coordination with</li> </ul>	Minor Impact	Less than Significant

<sup>2</sup> On August 6, 2009 the California Fish and Game Commission voted to remove the peregrine falcon from the State's list of endangered species. Currently the ruling is under review by the State Office of Administrative Law. Pending approval of the ruling, the peregrine falcon would be removed from the endangered species list, but would remain a "fully protected" species. The final ruling on the matter may or may not result in a change in either/both the impact findings and/or proposed mitigation pertaining to the species. This information is expected to be available in time for inclusion in the final environmental document.



Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
				<p>CDFG, will develop measures to be implemented by a raptor biologist, where feasible, or under the direction of a raptor biologist, where precluded by construction site safety concerns, to discourage nesting. Such measures may include continued removal of nesting materials or installation of CDFG-approved exclusion devices.</p> <ul style="list-style-type: none"> <li><i>No Work Zone:</i> During construction of the new bridge and prior to exclusion efforts for bridge demolition activities, the existing nest ledges and boxes would be available for nesting. If a nesting attempt is made on the new bridge while under construction, then a “No Work Zone” of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting on the areas under construction.</li> </ul> <p>Prior to exclusion activities on the existing bridge, nesting ledges on the new bridge will be available for use. During demolition, if falcons attempt to nest on the existing bridge, despite efforts to deter nesting, then a “No Work Zone” of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to further exclude nesting on the Gerald Desmond Bridge during demolition activities.</p> <p>Should a nest be successfully established within the construction area during construction of the new bridge or demolition of the Gerald Desmond Bridge, the Port will instruct construction crews to adhere to a “No Work Zone” around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the Migratory Bird Treaty Act (MBTA). This “No Work Zone” will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized – 30 days after the last young leaves the nest or until nest abandonment, whichever occurs first. Demolition activities can continue at other locations outside of the “No Work Area.”</p> <ul style="list-style-type: none"> <li><i>Reporting:</i> Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during construction of the new bridge. During demolition, post-construction monitoring reports will be prepared to provide details on placement of artificial nest boxes and exclusion activities and use of the nesting ledges on the new bridge. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.</li> </ul>		
√	√	X	Potentially adverse impacts to the resident bat species include behavior modification caused by construction activities and changes in roost preferences and/or roosting sites on the Gerald Desmond Bridge.	<p>BR-4: <b>Placement of Bat Boxes:</b> Bat roosting boxes on the new bridge will be made available a minimum of 2 months prior to demolition activities within 500 ft (152 m) of active roosts at the existing bridge. Bat roosting boxes will be designed and built during construction of the new bridge, which is scheduled to occur before demolition of the existing bridge, to be ready for placement once the under-bridge structures are complete. The location and design of artificial roosts will also consider the temperature measured at roosts on the existing bridge during the preconstruction period. A variety of designs and recommendations are available (Langenstein <i>et al.</i>, 1998; Keeley and Tuttle, 1999).</p> <ul style="list-style-type: none"> <li>In addition to, or in lieu of, bat roosting boxes, the new bridge may be designed to incorporate potential roosts as part of the structure (Exhibit 2.3.5-5), or such structures may be designed and added to the new bridge post-construction (Exhibit 2.3.5-6). Bats prefer roosting sites with crevices 0.5- to 1.25 in. (1.27 to 3.175 cm) wide (Keeley and Tuttle, 2000). Bats also use soffits if they are left open; therefore, bridge design could also include soffits that could be left open without damaging the bridge or hindering access for maintenance or other ongoing bridge work. One such type of artificial roost is the Texas bat-abode, which has an external panel on either side and 1- by 2-in. (2.5- by 5.1-cm) wooden spacers sandwiched between 0.5- to 0.75-in. (1.2- to 1.9-cm) plywood partitions (Exhibit 2.3.5-6). The internal partitions will be designed to provide crevices 0.75-in. (1.9 cm) wide and at least 12 in. (31 cm) deep. Smooth roost surfaces need to be textured to provide footholds for bats on one or both sides of each plywood partition, creating irregularities at least every 0.125-in. (0.3-cm). Footholds for bats are constructed of rough-sided paneling, or panels coated with polyurethane or epoxy paint sprinkled with rough grit, or attaching plastic mesh with silicone caulk or rust-resistant staples.</li> </ul>	Minor impact	Less than Significant
√	√	X	Potential impacts associated with the elimination of bat roosting sites	<p>BR-5: <b>Precluding Roosting on the Existing Bridge:</b> Prior to demolition, bats must be excluded from the existing bridge. Methods for excluding bats include use of a chemical repellent (i.e., naphthalene), use of floodlights, high-frequency noise, and placement of physical barriers such as nets to prevent bats from using roost sites (Greenhall, 1982). The exclusion method will be approved by the Port, Caltrans, and CDFG. The mechanical exclusion device is considered the safest and the most reliable (Exhibits 2.3.5-2 through 2.3.5-4). These barriers are commonly screens of mesh, hardware cloth, or wire, with mesh openings no greater than 0.25-in. (0.64-cm). The best time for bat proofing is November through March, after juvenile bats have learned to fly (Bat Conservation and Management, Inc., 2005). Exclusion work will be performed by contractors approved by Caltrans as experienced with excluding bats on bridges. This exclusion process may require 1 to 2 weeks, or potentially longer, given the size of the existing bridge.</p> <p>Bat exclusion via netting is accomplished by first affixing mesh netting over known entry points using I-bolts, which allows bats to exit the bridge but not return. Bats returning to the bridge would first return to their normal point of entry, and then they would seek new roosts once they have determined that it is not possible to return to their old roosting site. This process will be monitored by a CDFG-approved bat biologist each night for at least 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that bats do not discover and use new roosts on the existing bridge and that no bats become entangled in netting. If any new roosts are discovered on the existing bridge, they will be covered with mesh according to the above procedure. Very small crevices or fissures in the bridge may be sealed using caulk or a similar filling agent. Should numerous bats still be observed exiting the bridge at night after installation of exclusion cloth, it may be necessary to add another exclusion method, such as floodlights illuminating access points or crevices used by attract bats (bats will not roost in a well-lit area).</p>	Minor Impact	Less than Significant
√	√	√	Various sensitive species of bats may be displaced during rehabilitation or construction and demolition activities.	<p>BR-6: <b>Bat Monitoring Program:</b> A monitoring program will be implemented throughout the construction phases of the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/ survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification, locations of bat roosts, and documentation of roost characteristics based on Fenton (2003) and O’Shea <i>et al.</i> (2003). If CDFG species of special concern are identified, the Port will coordinate with CDFG and incorporate additional monitoring/protection measures as applicable.</p> <p>Timing of Monitoring: Bat preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of construction. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season).</p>	Minor Impact	Less than Significant

√ - Impact associated with alternative; X – Impact not associated with Alternative





Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
				<p>Each survey will include daytime and nighttime surveys (see Monitoring Effort) focused on identifying specific locations of bat roosts and roost access points.</p> <p>One month prior to the initiation of demolition of the existing bridge, the frequency of preconstruction surveys at the existing bridge and new bridge will increase to once weekly. This will coincide with placement of bat roosts on the new bridge. Quarterly construction monitoring will be completed. If CDFG sensitive bat species are identified during the preconstruction surveys or during quarterly surveys, then monthly monitoring during the bat breeding season will be completed and will focus on construction effects on bats. If it is determined that construction disturbance is affecting CDFG sensitive species, then the Port will coordinate with CDFG to incorporate additional protection measures, as applicable.</p> <p>Monitoring during the demolition phase will focus on ensuring that all bats have been excluded after installing the bat boxes on the new bridge and prior to initiating demolition activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, exclusion netting will be installed, and the monitoring process will continue until bats have been excluded from the bridge.</p> <p>Post-construction monitoring will be conducted quarterly for 3 years and will document use of new bat roosts.</p> <ul style="list-style-type: none"> <li>• <i>Biological Monitor:</i> A qualified bat biologist thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port will conduct all bat monitoring and supervise the design and placement of new bat roosts and bat exclusion methods and devices.</li> <li>• <i>Monitoring Effort:</i> The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat device (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices on the existing bridge.</li> </ul> <p>During the quarterly preconstruction surveys, once the specific locations of bat roosts are determined, temperatures of existing roosting sites will be recorded so that selection of the location and type of artificial roosts on the new bridge can ensure duplication to the extent feasible of the thermal regime at existing bat roosts.</p> <p>Monitoring during construction and demolition will focus on whether construction activities are disturbing bats at the existing and new bridge. If disturbances to bats are documented, and monitoring has identified the presence of maternity roosts or CDFG sensitive species, then the Port will coordinate with CDFG to identify measures to minimize effects on the maternity roosts and sensitive species.</p> <ul style="list-style-type: none"> <li>• <i>Reporting:</i> Quarterly reports summarizing the monitoring efforts and observations at the new and existing bridge will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, the type of artificial bat roosts used at the new bridge, and exclusion devices at the existing bridge. The final report will also include photos and detailed observations, and a conclusions and recommendations section for agency use in future projects.</li> </ul>		
√	√	X	Potential impacts to cormorants associated with SCE transmission line relocation.	BR-7: Initial construction activities for the new transmission towers/lines shall not begin during the nesting season (April through August) if double-crested cormorants have active nests on the transmission towers. Construction activities associated with the transmission tower/lines will be initiated prior to or after the breeding season or after the young have fledged	Minor Impact	Less than Significant
√	√	X	Potential impacts to migratory birds associated with potential night time construction and installation of new lighting for operation.	BR-8 Construction and operational bridge lighting during and following construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting types known to minimize adverse effects (i.e., low-pressure sodium lights, high-pressure sodium lights, or light-emitting diode [LED] lights) will be used, and lighting types known to be disruptive to migrating wildlife, such as mercury vapor lamps (Jones, 2000), will be avoided. Additionally, lighting will be shielded to ensure that light is focused where it is needed, focusing lighting inward and minimizing the amount of lighting used to the maximum extent possible.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-1b: <b>Artificial Nest Boxes:</b> Prior to the final design phase, the Port, in coordination with CDFG, will select temporary locations for alternate nesting sites on the Gerald Desmond Bridge that would minimize the amount of disturbance within 250 ft (76 m) of new perch locations. Construction will be phased to complete adjacent seismic retrofit activities and painting operations at the new nesting locations outside of the nest site selection and breeding periods. Subsequent to completing the adjacent seismic retrofit activities, the temporary nesting ledges will be installed, and be continually available for use.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-2b: <b>Precluding Nesting on the Existing Bridge:</b> To ensure no mortality of peregrines due to construction-related mishaps associated with bridge deck replacement, CDFG-approved exclusion methods will be installed at existing nest sites under the supervision of a CDFG-approved raptor biologist before initiating rehabilitation activities. Exclusion will occur prior to the nest site selection or after the breeding season. Due to the proximity of the bridge deck replacement activities to the existing nest sites, exclusion devices will remain until completion of the rehabilitation activities.	Minor Impact	Less than Significant



Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
X	X	√	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	<p>BR-3b: <b>Monitoring Program:</b> The proposed monitoring program is based on measures from the PFMMP for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP, as proposed for the Rehabilitation Alternative, are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of rehabilitation activities.</p> <ul style="list-style-type: none"> <li>• <i>Timing of Monitoring:</i> A raptor biologist will initiate monitoring at least 1-year prior to the beginning of rehabilitation and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing nesting locations and at the alternate nesting locations after placement of artificial nest boxes. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first.</li> </ul> <p>Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the existing sites.</p> <ul style="list-style-type: none"> <li>• <i>Biological Monitor:</i> A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring.</li> <li>• <i>Monitoring Effort:</i> All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the bridge. Monitoring during bridge rehabilitation will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting at the temporary locations, or if they have relocated to an alternate nesting site.</li> </ul> <p>If peregrines attempt to nest at the temporary nesting locations during rehabilitation activities, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods approved by CDFG would be implemented at the nesting locations.</p> <p>Nesting on the Gerald Desmond Bridge in locations other than the temporary nesting locations shall be discouraged until rehabilitation activities are complete. The Port, in coordination with CDFG, will develop measures to be implemented by a raptor biologist, where feasible, or under the direction of a raptor biologist, where precluded by construction site safety concerns, to discourage nesting within areas under construction. Such measures may include continued removal of nesting materials or installation of additional CDFG-approved exclusion devices.</p> <ul style="list-style-type: none"> <li>• <i>No Work Zone:</i> During bridge rehabilitation activities, alternate nest ledges and boxes will be available for nesting. If a nesting attempt is made at a new location that would be under construction during the nesting season, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting at the new location.</li> </ul> <p>Should a nest be successfully established within the construction area during bridge rehabilitation, the Port will instruct construction crews to adhere to a "No Work Zone" around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the MBTA. This "No Work Zone" will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized or 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first. Rehabilitation activities can continue at other locations outside of the "No Work Area."</p> <ul style="list-style-type: none"> <li>• <i>Reporting:</i> Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during bridge rehabilitation activities. During post-construction monitoring, quarterly reports will provide details on nesting attempts, breeding behavior, and reproductive success. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.</li> </ul>	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident bat species include behavior modification caused by construction activities and changes in roost preferences and/or roosting sites on the Gerald Desmond Bridge.	BR-5b: <b>Precluding Roosting on the Existing Bridge:</b> Prior to beginning construction activities on each section of the bridge, bats will need to be excluded from that section. Bat proofing will occur outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly. Bat exclusion will be staged to ensure that roosting sites in areas not currently under construction will be available at all times during the project to minimize the potential effects on bats. Exclusion methods for the Rehabilitation Alternative will be the same as discussed under BR-5.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident bat species include behavior modification caused by construction activities and changes in roost preferences and/or roosting sites on the Gerald Desmond Bridge.	<p>BR-6b: <b>Bat Monitoring Program:</b> A monitoring program will be implemented throughout the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification and locations of bat roosts and access points. If CDFG species of special concern are identified during preconstruction surveys, then the Port will coordinate with CDFG and incorporate additional monitoring and protection measures, as applicable. During exclusion activities, monitoring of the exclusion devices will occur to ensure that entanglement of bats is not occurring. Monitoring will continue as long as bats are observed exiting the existing bridge. Subsequent to exclusion, monitoring during bridge rehabilitation activities will continue, focusing on locations where additional exclusion may be required. Post-construction monitoring will document re-colonization of the bridge and former roost areas.</p> <ul style="list-style-type: none"> <li>• <i>Timing of Monitoring:</i> Preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of bridge rehabilitation activities. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season). One month prior to rehabilitation activities, surveys will increase to weekly and consist of daytime and nighttime surveys (see Monitoring Effort) focused on species identification, identifying specific locations of bat roosts, access points, and roost characteristics.</li> </ul> <p>Monitoring during the bat exclusion phase will focus on ensuring that all bats have been excluded prior to initiating bridge rehabilitation activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights or until no bats are</p>	Minor Impact	Less than Significant

√ - Impact associated with alternative; X – Impact not associated with Alternative



**Table ES-1 Summary of Potentially Adverse/Significant Impacts**

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
				<p>observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, then exclusion netting will be installed, and the monitoring process will continue until bats have been excluded from the bridge. Post-construction monitoring will be conducted quarterly for 3 years to document the post-construction bat re-colonization of the bridge.</p> <ul style="list-style-type: none"> <li>• <i>Biological Monitor:</i> A qualified bat biologist, thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port, will conduct all bat monitoring and supervise the design and placement of bat exclusion methods and devices.</li> <li>• <i>Monitoring Effort:</i> The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices for the bridge. Monitoring during construction will focus on the presence of bats in the bridge area and to identify areas that would require further exclusion.</li> <li>• <i>Reporting:</i> Quarterly reports summarizing the monitoring efforts and observations will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, and exclusion devices used. The final report will also include photos and detailed observations, and conclusions and recommendations for agency use in future projects.</li> </ul>		
√	√	X	Potential impacts to nesting double-crested cormorants during initiation of construction activities for new transmission towers/lines.	BR7: Initial construction activities for the new transmission towers/lines shall not begin during the nesting season (April through August) if double-crested cormorants have active nests on the transmission towers. Construction activities associated with the transmission tower/lines will be initiated prior to or after the breeding season or after the young have fledged.	Minor Impact	Less than Significant
X	X	√	Potential impacts to migratory birds associated with night time construction lighting during bridge rehabilitation.	BR-8b: Bridge lighting during construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting will be shielded to ensure that light is focused inward on the construction area and minimize spillover that could affect migratory birds.	Minor Impact	Less than Significant
√	√	√	Potential for project to spread invasive species.	BR-9: Project landscaping will be limited to slopes near the bridge ramps and will follow the provisions set forth in Executive Order (EO) 13112, which mandates preventing the introduction of and controlling the spread of invasive plant species on highway rights-of-way (ROWs). No invasive species listed in the National Invasive Species Management Plan or the State of California Noxious Weed List shall be used in the landscaping plans for the proposed project.	Minor Impact	Less than Significant
<b>Climate Change (see Section 3.3)<sup>3</sup></b>						
√	√	X	Project-related increases in greenhouse gas (GHG) emissions are considered an unavoidable significant project impact.	There are no feasible mitigation measures to address GHG for transportation projects. GHG transportation emission reductions will come from three overarching strategies: more-efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. The GHG emission reductions in the transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy.	N/A	Significant
√	√	X	Project-related increases in GHG emission would contribute to regional cumulative increases in GHG emissions and are considered an unavoidable significant project impact.	<p>CEQA (GHG)-1: <b>Greenhouse Gas Emission Reduction Program Guidelines (GHG Program).</b> To partially address the cumulative GHG impacts of the Gerald Desmond Bridge Replacement Project, the Port will require this project to contribute \$400,000 to the GHG Program (see detailed discussion in Chapter 3, Section 3.2.2.4, for discussion of methodology for determining contribution amount). This contribution will be used to pay for measures pursuant to the GHG Emission Reduction Program Guidelines, which include, but are not limited to, generation of green power from renewable energy sources, ship electrification, goods movement efficiency measures, cool roofs to reduce building cooling loads and the urban heat island effect, building upgrades for operational efficiency, tree planting for biological sequestration of CO<sub>2</sub>, energy-saving lighting, and purchase of renewable energy certificates (RECs).</p> <p>The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes the commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication. At the project level, there are common measures that have the potential to reduce GHG emissions. These measures include using reclaimed water, landscaping, energy-efficient lighting, and idling restrictions.</p>	N/A	Significant

<sup>3</sup> Climate change analysis is not required by Caltrans pursuant to NEPA. Climate change impacts and mitigation were developed by the Port pursuant to CEQA.

√ - Impact associated with alternative; X - Impact not associated with Alternative



*Chapter 1*  
*Project Description*  
*and Alternatives*





# CHAPTER 1

## PROJECT DESCRIPTION AND ALTERNATIVES

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### 1.1 INTRODUCTION

The proposed project is located in the southwest portion of Long Beach at the southern end of State Route (SR) 710 in Los Angeles County (Exhibit 1-1).

This Final Environmental Impact Report (EIR)/Environmental Assessment (EA) includes some refinements since release of the February 2010 revised Draft EIR/EA, as required, to provide updated information and/or supplemental analysis presented in the draft document as a result of considering public comments received during circulation of the revised Draft EIR/EA. No new impacts have been identified within this Final EIR/EA, the severity of the impacts identified in the revised Draft EIR/EA remain as they were previously described, and no feasible alternatives or mitigation measures have been identified that would clearly lessen the environmental impacts of the proposed project. All comments and responses to comments are provided within Chapter 4 of this Final EIR/EA.

Based on the project-specific impacts described in the revised Draft EIR/EA for the proposed Gerald Desmond Bridge Replacement Project (project) and after consideration of the public comments and associated refinements, the Port of Long Beach (Port or POLB) and California Department of Transportation (Caltrans) have identified the North-side Alignment Alternative as the preferred alternative.

This document has been prepared by the City of Long Beach acting by and through its Board of Harbor Commissioners (BHC) (POLB) as lead agency for the EIR and Caltrans as lead agency for the EA, in accordance with Section 6005 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (23 United States Code [U.S.C.] 327[a][2][A]), the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality (CEQ) Regulations implementing NEPA (40 *Code of Federal Regulations* [CFR] 1500-1508); Federal Highway Administration (FHWA) Environmental Regulations (23 CFR 771); and the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code [PRC] 21000 *et seq.* as amended) and implementing guidelines (California Code of Regulations [CCR], Title 14, Section 15000 *et seq.*).

Chapter 1 of this document presents the project objectives and the purpose and need for the proposed project, as well as discussion on the project alternatives and project history. Chapter 2 analyzes the potential effects of the project pursuant to NEPA. Chapter 3 utilizes the analysis in Chapter 2 and provides supplemental analysis, as applicable, to make a determination of significance of the potential impacts pursuant to CEQA. One of the primary differences between NEPA and CEQA is the way significance is determined. With NEPA, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important. NEPA does not require that a determination of significant impacts be stated in environmental documents. With NEPA, significance is used to determine whether an Environmental Impact Statement (EIS) or some lower level of documentation would 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.” This determination of significance is based on context and intensity of the project and its potential effects. Based on Caltrans’ consideration of the project impacts and consideration of the public comments included in this Final EIR/EA, Caltrans, as assigned by FHWA, has determined that the NEPA action does not significantly impact the environment and preparation of an EIS is not required. Caltrans will issue a Finding of No Significant Impact (FONSI) for the project in accordance with NEPA. Information supporting this determination is provided in Chapter 2.

CEQA, on the other hand, does require the lead agency 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 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 many mandatory findings of significance that also require preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. Some impacts determined significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Based on the determination that the project may have a significant effect on environmental resources, an EIR has been prepared for the proposed project

pursuant to CEQA. As described in Chapter 3, the project will result in significant impacts that can be mitigated and unavoidable and significant impacts that cannot be fully mitigated. In accordance with CEQA, the Port has prepared findings for all significant impacts identified and a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance. The Findings and Statement of Overriding Considerations will be forwarded to the BHC for consideration with a recommendation to approve the project and certifying that the project complies with CEQA.

### **1.1.1 Project Objectives**

The objectives of the proposed project include providing a structurally sound bridge linking Terminal Island and Long Beach/SR 710 over the next hundred years, given that the existing bridge is seismically deficient and could be seriously damaged in a major earthquake. Another objective is to provide sufficient roadway capacity to handle current and projected vehicular traffic volume demand, which the existing bridge cannot provide with only two through lanes and no shoulders. Lastly, the proposed project would provide sufficient vertical clearance for safe navigation through the Back Channel to the Inner Harbor, which the existing bridge, at only 156 feet (ft) (47.5 meters [m]) above mean high water level (MHWL), does not provide. (See Section 1.1.2.2 for detailed information supporting these objectives.)

The project would replace or rehabilitate the existing seismically deficient Gerald Desmond Bridge. Additionally, the North- and South-side Alignment Alternatives would improve vehicular traffic flow and marine vessel safety. The Bridge Replacement Alternatives would provide additional benefit to the Port and region by handling existing operations and forecasted growth in vehicular traffic, vessel traffic, and goods movement. The project objectives are consistent with similar goals addressed in the Port Master Plan (PMP), as amended.

### **1.1.2 Purpose and Need**

This project is included in the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP) and 2008 Regional Transportation Improvement Program (RTIP) for Local Highway Projects (Project ID LA000512).

The current estimated cost of the proposed North- and South-side Bridge Replacement Alternatives and the Rehabilitation Alternative is approximately \$983 million, \$1.0 billion, and \$289.3 million (in

2008 dollars), respectively. The Port would secure funding for the project from federal, state, regional, and local agency resources, and it would continue to pursue public-private partnerships to the extent required to supplement public funds.

#### **1.1.2.1 Project Purpose**

Based on the overall project objectives in Section 1.1.1 and the specific needs and deficiencies described below, the purpose of the proposed project is four-fold – to provide a bridge that would:

1. Be structurally sound and seismically resistant;
2. Reduce approach grades;
3. Provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and
4. Provide vertical clearance that would afford safe passage of existing container ships and for new-generation larger vessels currently being constructed.

Only the Bridge Replacement Alternatives would meet all four purposes of the project, as well as provide a structure that would meet the transportation needs of the Port and the region for its planned 100-year design life. The Rehabilitation Alternative would still require replacement after its 30-year design life (see Section 1.8 for additional discussion comparing the proposed alternatives).

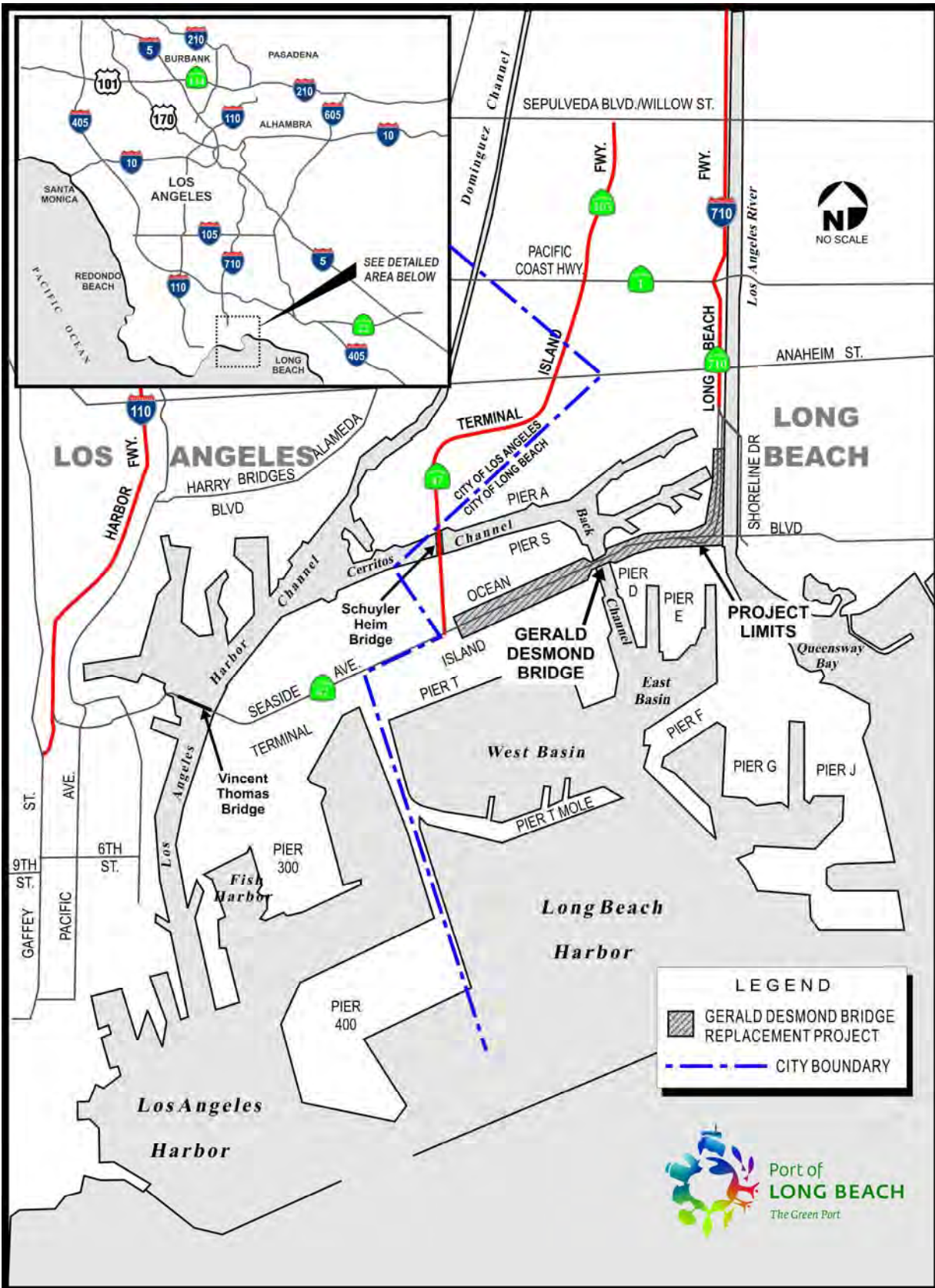
#### **1.1.2.2 Project Need**

The following discussion summarizes the present and projected deficiencies in the existing Gerald Desmond Bridge. These deficiencies explain the need for replacement of the bridge.

#### **Bridge Condition**

According to a County of Los Angeles Department of Public Works Bridge Inspection Report dated September 5, 2007, the bridge has a sufficiency rating of 43. Bridges that are found to be structurally deficient or functionally obsolete, as defined by FHWA, with a sufficiency rating of less than 80 are eligible for federal funding for rehabilitation. Bridges are eligible for replacement when they have a sufficiency rating of less than 50 (Caltrans, 2001).

The existing bridge is physically deteriorated. One of the major physical deficiencies of the bridge is that the concrete is spalling off the bridge in many areas. Pieces of fallen concrete weighing several pounds have been found, requiring the Port to install netting underneath the bridge to protect Port facilities and workers below.



**EXHIBIT 1-1**  
Project Vicinity and Project Location Map

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The bridge is also seismically deficient. It was designed in the early 1960s and completed in 1968. As with all bridges of that era in high seismic regions, its original construction has seismic performance issues that do not meet current seismic standards required by the American Association of State Highway and Transportation Officials (AASHTO), as well as Caltrans Seismic Design Criteria (SDC). Additional seismic deficiencies that do not meet current AASHTO or SDC requirements include the presence of lap splices at the base of columns and an insufficient amount of confinement reinforcement in the bridge columns. Both of these deficiencies will make it very difficult for the bridge to withstand a major earthquake without incurring significant damage to the columns and potentially threatening overall bridge integrity.

An assessment of the existing bridge was performed to evaluate whether it is in compliance with current AASHTO codes, as well as Caltrans seismic criteria, and to determine the extent of any bridge rehabilitation needed to comply with current codes.

Several reports, including a 2005 Inspection Report, 2002 Load Rating Report, and 1989 Fatigue Memorandum, were reviewed to confirm the condition of the existing bridge and estimate the amount of work and cost associated with bringing it up to the current AASHTO and Caltrans standards. A brief summary of findings from these reports is provided below:

- The Inspection Report cited the condition of the deck as “critical” and the condition of the paint as “extremely poor.” With the existing deck crossing seawater and now being 40 years old, the inspection found it would have to be replaced in the near future to protect the overall structural integrity of the bridge and improve its seismic response. Deck replacement would also necessitate replacement of all expansion joints. To prevent major deterioration of the bridge steel members, painting would also be required in the near future.
- The Load Rating Report indicated that the members of the arch main span were overstressed for all design truck loads and would need to be replaced.

The existing bridge underwent a seismic retrofit study in the early 1990s, followed by a seismic retrofit to improve its seismic performance. To minimize retrofit cost, partial steel column casings were added at select columns, such as Piers 15 and 16, to support the main steel truss span.

## **Traffic Capacity/Roadway Deficiencies**

### **Capacity**

In 2005, which is the Notice of Preparation (NOP) baseline year, approximately 38 percent of all traffic on the Gerald Desmond Bridge had an origin or destination in the Port of Long Beach and Port of Los Angeles (Ports) (Iteris, 2009). Of the approximately 59,700 vehicles per day (vpd) on the bridge, 15,200 or 25 percent were trucks (see Table 1-1).

The presence of substantial numbers of vehicles other than passenger cars (i.e., heavy-duty trucks) affects traffic flow in two ways: (1) these vehicles occupy more roadway space than passenger cars; and (2) the operational capabilities of these vehicles, including acceleration, deceleration, and maintenance of speed, are inferior to passenger cars and result in the formation of large gaps in the traffic stream, which reduces highway capacity. On long sustained grades and segments where trucks operate considerably slower, formation of these large gaps can have a profound impact on the traffic stream (Iteris, 2009).

The bridge is forecast to carry a substantial amount (39 percent) of non-port, regional through traffic in 2030 (Iteris, 2009). Regional traffic will increase due to several major development projects that have been constructed in downtown Long Beach, such as the Pike at Rainbow Harbor and the proposed San Pedro Waterfront Development in the Port of Los Angeles (POLA).

Year 2030 forecasted traffic volumes without the project are approximately 124,670 total trips per day (including 54,360 trucks or 43.6 percent of the total traffic) on the Gerald Desmond Bridge (Iteris, 2009). Table 1-1 summarizes the daily traffic and truck percentages over the project planning years.

<b>Year</b>	<b>Daily Trucks</b>	<b>Percent Trucks</b>	<b>Daily Traffic</b>
2005	15,200	25	59,700
2015 No Action	22,790	30	77,070
2015 Build	26,100	30	86,730
2030 No Action	54,360	44	124,670
2030 Build	59,730	44	135,930

### **Level of Service (LOS)**

LOS is defined in six levels, from A through F. Level A is free-flow, high-speed conditions. At Level D, speed and maneuverability are reduced due to congestion, and Level F is a breakdown in flow, with speeds and vehicular throughput potentially dropping to zero. In 2005, peak-hour (i.e., morning, midday, and evening) traffic on the uphill segments (i.e., base of bridge to the crest) of the existing Gerald Desmond Bridge operated at LOS B or C in both the westbound (WB) and eastbound (EB) directions. In 2030, without the project, operations during peak hours are projected to be LOS F WB toward Terminal Island and LOS C EB toward Long Beach (Iteris, 2009).

### **Deficiencies**

The primary roadway deficiencies are the lack of outside shoulders and the steep approach grades.

*Shoulders:* The lack of shoulders often results in broken-down trucks or passenger vehicles being stuck in the outside lane, effectively blocking or severely restricting the entire traffic flow in that direction of travel until the incident is cleared. The lack of shoulders also makes it more difficult for emergency vehicles and tow vehicles to gain access to the incidents. Providing outside shoulders would improve safety to the emergency responders and traveling public in these situations. The recent addition of climbing lanes on the bridge does not mitigate the need for breakdown shoulders because breakdowns still tie up the outside lanes as wider, slow-moving trucks must negotiate around incidents.

*Approach Grades:* The long, steep approach grades cause trucks to operate considerably slower, especially when passing, which creates large gaps in the traffic stream and further reduces highway capacity. The current approach grades are 5.5 percent on the west side of the bridge and 6 percent on the east side.

### **Vertical Clearance**

The existing bridge is located over the main federal navigation channel (i.e., Back Channel) that serves the Port. It provides a vertical clearance of 156 ft (47.5 m) above MHWL, which is insufficient for the clearance of some existing container ships, as well as new vessels currently being constructed. The Gerald Desmond Bridge is one of the lowest bridges in any large commercial port in the world.

In addition, the vertical clearance afforded by the Southern California Edison (SCE) transmission lines crossing Cerritos Channel north of the bridge is only 153 ft (46.6 m) above MHWL. These

transmission lines would be the primary vertical clearance hazard to navigation if the bridge clearance were to be increased.

## **1.2 SUMMARY OF CHANGES TO THE PROJECT FOLLOWING CIRCULATION OF THE JUNE 2004 DRAFT EIR/EA**

Subsequent to the public comment period for the previously circulated Draft EIR/EA in June 2004, the Port elected to consider two additional alternatives: a bridge rehabilitation alternative and a tolling alternative (i.e., using tolls to fund bridge construction and operation). In addition, the Port updated the analysis of existing and future traffic conditions by collecting more recent traffic data and updating the projection of future traffic conditions based on recent forecasts of marine terminal activity and configuration.

The Bridge Rehabilitation Alternative would seismically retrofit the existing bridge by replacing the bridge deck and expansion joints, adding steel casings at all columns, foundation retrofit, replacing sway bracings, and painting of all steel members. After bridge rehabilitation, roadway operations within the project area would be the same as existing.

The proposed project limits (i.e., new bridge and related improvements, and SCE transmission line relocation) remain the same as that presented in the 2004 Draft EIR/EA; however, the study area was expanded, as described in the 2005 revised NOP, to address the tolling alternative as follows: Willow Street/Sepulveda Boulevard on the north end and Interstate 110 (I-110) on the west end. The tolling alternative was found to have effects beyond these expanded study limits, extending to Interstate 405 (I-405) to the north, I-110/SR 91 to the west, and into downtown Long Beach at Pine Avenue to the east (see Section 1.7.1). The south end of the project study area has not changed, terminating at Pico Avenue south of the Ocean Boulevard interchange.

Subsequently, the tolling alternative was not carried forward for further consideration, as discussed in Section 1.7. The study area was then reduced and is now slightly larger than the study area discussed within the 2004 Draft EIR/EA. The study area now extends along Ocean Boulevard from just west of Navy Way/Seaside Avenue on Terminal Island to Pine Avenue in downtown Long Beach. Project limits to the north and south have not changed from the 2004 Draft EIR/EA and extend to 9<sup>th</sup> Street on SR 710 to the north and to Pico Avenue south of Ocean Boulevard to the south.

With the addition of the tolling alternative, the rehabilitation alternative, the expanded study area limits, and updated traffic forecasts, the Port elected to update several technical studies supporting this revised Draft EIR/EA. These consisted of the Air Quality Analysis, Traffic Impact Analysis, Noise Study, Natural Environment Study, Visual Impact Analysis, Water Resources, and Hazardous Waste Initial Site Assessment (ISA). The revised Draft EIR/EA also includes a Health Risk Assessment (HRA). POLB issued the revised NOP in December 2005 and

made it available to the public and responsible/trustee agencies to provide comments regarding the revisions to the proposed project. No comments were received from either the public or responsible/trustee agencies during the public review period of the revised NOP.

Table 1-2 summarizes the major differences between the June 2004 Draft EIR/EA and the revised Draft EIR/EA for the Gerald Desmond Bridge Replacement Project.

<b>Subject</b>	<b>2004 Draft EIR/EA</b>	<b>2010 Revised Draft EIR/EA</b>
Alternatives	Analyzed a North-side Alignment Alternative, a South-side Alignment Alternative, and the No Action Alternative.	Analyzes a North-side Alignment Alternative, a South-side Alignment Alternative, a Bridge Rehabilitation Alternative, and the No Action Alternative. Also considers a Toll-Operation Alternative, but is not carried forward for further analysis (see Section 1.7.1).
Study Limits	Route 710 approximately 2,630 ft (801 m) north of Ocean Boulevard on the north end; the Terminal Island Freeway (SR 47) intersection on the west end; Los Angeles River on the east end; and Pico Avenue south of the Ocean Boulevard interchange on the south end.	The study limits are expanded along Ocean Boulevard to Navy Way/Seaside Avenue to the west and Pine Avenue in downtown Long Beach to the east.
New Bridge Vertical Clearance	Considered both 185-ft (56-m) and 200-ft (61-m) vertical clearance options.	Considers only a 200-ft (61-m) vertical clearance option, concluding that the 185-ft (56-m) clearance option does not provide sufficient vertical clearance for the design ship. <sup>1</sup>
Traffic Study, Air Quality Study, Noise Study, and Energy Analysis	Forecasted project effects to 2025 design year.	Forecasts project effects to 2030 design year. Also includes 2015 interim/opening year horizon, specifically for analysis of traffic and air quality effects.
CEQA Baseline	Compared traffic and relevant environmental effects based on analysis of future 2025 Build versus No Action Alternatives.	Compares traffic and relevant environmental effects to 2005 conditions (CEQA baseline – date of revised NOP).

<sup>1</sup> The Danish Maritime Institute (DMI) performed a study of the next generation of cargo vessels expected to be coming online. The purpose of the study was to define the design ship to use for establishing the height of the replacement bridge, given the proposed 100-year design life for the new bridge. The DMI recommended a 12,500 twenty-foot equivalent unit (TEU) ship as the design ship for the bridge replacement (FORCE Technology-DMI, 2002). This vessel has a vertical clearance of 180 ft (54.5 m). The design team concluded that a 5-ft (1.5-m) clearance was sufficient for the 100-year life of the new bridge and dropped the 185-ft (56-m) alternative from further consideration.

<b>Table 1-2 Summary of Key Differences between 2004 Draft EIR/EA and 2010 Revised Draft EIR/EA</b>		
<b>Subject</b>	<b>2004 Draft EIR/EA</b>	<b>2010 Revised Draft EIR/EA</b>
Traffic Forecasts	Based on the previous traffic study, 70 percent of all traffic generated at the Ports was reported to use the Gerald Desmond Bridge. This equated to approximately 55,030 vpd, with 36 percent truck use during peak hours. By 2020, the number of containers in both ports was estimated to increase by approximately 276 percent. Forecasted traffic volumes were approximately 79,180 trips per day (including 27,700 trucks or 35 percent of total traffic) under the No Action Alternative and 88,690 under the Build Alternative on the Gerald Desmond Bridge by 2025.	Current traffic forecasts indicate that approximately 38 percent of all traffic generated at the Ports used the Gerald Desmond Bridge in 2005 (NOP baseline year). This equates to approximately 59,700 vpd with 25 percent truck use. Forecasted daily traffic volumes are approximately 124,670 (including 54,360 trucks or 44 percent of the total traffic) in 2030 under the No Action Alternative and 135,930 (including 59,730 trucks or 44 percent of total traffic) in 2030 under the Build Alternative.
Traffic Baseline	Existing year was 2002.	Existing year is 2005. As a consequence, the "existing condition" LOS analysis is different.
Traffic Operations	Two (2) intersections were analyzed for impacts.	Eleven (11) intersections are analyzed for impacts.
Traffic Analysis Methodology	The operational analysis for Ocean Boulevard was conducted using the Highway Capacity Manual (HCM) procedures. The HCM method cannot model a discontinuous lane (i.e., the truck climbing lane), resulting in the existing bridge being analyzed with two lanes in each direction. Also, the HCM method is limited to 25 percent trucks, so the additional truck percentage was analyzed by converting the additional trucks to passenger car equivalents (PCEs).	The operational analysis for Ocean Boulevard uses CORSIM (Corridor Simulation) software developed by FHWA. CORSIM tracks each vehicle independently through the modeled network of roadways. The method accounts for upstream and downstream segment operational effects on each roadway, whereas the HCM treats each segment in isolation. CORSIM can model a discontinuous lane, resulting in the existing bridge being analyzed with the truck climbing lanes (see below). (Use of CORSIM resulted in analysis with three lanes on the bridge upgrade and two lanes on the downgrade.) Also, the CORSIM model has no limitation on truck percentage.
Traffic LOS Analysis <sup>2</sup>	<p>Bridge – Existing (4-lane):</p> <ul style="list-style-type: none"> <li>• WB LOS F (AM)</li> <li>• WB LOS F (Midday)</li> <li>• WB LOS F (PM)</li> <li>• EB LOS F (AM)</li> <li>• EB LOS F (Midday)</li> <li>• EB LOS F (PM)</li> </ul> <p>Bridge – 2025 No Action (4-lane):</p> <ul style="list-style-type: none"> <li>• EB LOS F (AM)</li> <li>• EB LOS F (Midday)</li> <li>• EB LOS F (PM)</li> </ul> <p>Pico Avenue/Pier E Street/EB Ocean Boulevard Ramps (2025 No Action):</p> <ul style="list-style-type: none"> <li>• LOS B (AM)</li> <li>• LOS C (Midday)</li> <li>• LOS D (PM)</li> </ul>	<p>Bridge – Existing (4-lane with climb lanes):</p> <ul style="list-style-type: none"> <li>• WB LOS C (AM)</li> <li>• WB LOS C (Midday)</li> <li>• WB LOS C (PM)</li> <li>• EB LOS C (AM)</li> <li>• EB LOS C (Midday)</li> <li>• EB LOS C (PM)</li> </ul> <p>Bridge – 2030 No Action (4-lane with climb lanes):</p> <ul style="list-style-type: none"> <li>• EB LOS C (AM)</li> <li>• EB LOS C (Midday)</li> <li>• EB LOS C (PM)</li> </ul> <p>Pico Avenue/Pier E Street/EB Ocean Boulevard Ramps (2030 No Action):</p> <ul style="list-style-type: none"> <li>• LOS C (AM)</li> <li>• LOS C (Midday)</li> <li>• LOS E (PM)</li> </ul>

<sup>2</sup> Differences between the 2004 and 2010 revised Draft EIR/EA LOS are attributable to addition of PierPASS in later analysis (which reduced daytime truck volumes), change of the forecast year from 2025 to 2030, and new forecasts incorporating improvements made to the forecasting model, including throughput of TEUs at the ports, rail use, truck traffic data by shift, empty container traffic, an updated SCAG model forecast, a change in the existing year, and updated trip distribution.



<b>Table 1-2 Summary of Key Differences between 2004 Draft EIR/EA and 2010 Revised Draft EIR/EA</b>		
<b>Subject</b>	<b>2004 Draft EIR/EA</b>	<b>2010 Revised Draft EIR/EA</b>
	<p>New Bridge – 2025:</p> <ul style="list-style-type: none"> <li>• WB LOS D (AM)</li> <li>• WB LOS D (Midday)</li> <li>• WB LOS D (PM)</li> <li>• EB LOS D (AM)</li> <li>• EB LOS D (Midday)</li> <li>• EB LOS D (PM)</li> </ul> <p>New Ramp Junctions – 2025:</p> <ul style="list-style-type: none"> <li>• Pico Avenue to SR 710 Connector: <ul style="list-style-type: none"> <li>– LOS B (AM)</li> <li>– LOS C (Midday)</li> <li>– LOS B (PM)</li> </ul> </li> <li>• Off-ramp from SR 710 Connector to Pico Avenue: <ul style="list-style-type: none"> <li>– LOS C (AM)</li> <li>– LOS C (Midday)</li> <li>– LOS C (PM)</li> </ul> </li> </ul> <p>Pico Avenue/Pier E Street Intersection – 2025:</p> <ul style="list-style-type: none"> <li>• LOS B (AM)</li> <li>• LOS C (Midday)</li> <li>• LOS D (PM)</li> </ul>	<p>New Bridge – 2030:</p> <ul style="list-style-type: none"> <li>• WB LOS C (AM)</li> <li>• WB LOS C (Midday)</li> <li>• WB LOS C (PM)</li> <li>• EB LOS D (AM)</li> <li>• EB LOS C (Midday)</li> <li>• EB LOS D (PM)</li> </ul> <p>New Ramp Junctions – 2030:</p> <ul style="list-style-type: none"> <li>• Pico Avenue to SR 710 Connector: <ul style="list-style-type: none"> <li>– LOS B (AM)</li> <li>– LOS B (Midday)</li> <li>– LOS B (PM)</li> </ul> </li> <li>• Off-ramp from SR 710 Connector to Pico Avenue: <ul style="list-style-type: none"> <li>– LOS B (AM)</li> <li>– LOS C (Midday)</li> <li>– LOS C (PM)</li> </ul> </li> </ul> <p>Pico Avenue/Pier E Street Intersection – 2030:</p> <ul style="list-style-type: none"> <li>• LOS A (AM)</li> <li>• LOS A (Midday)</li> <li>• LOS C (PM)</li> </ul>
Water Resources	Identified three (3) locations where treatment best management practices (BMPs) were proposed. The potential treatment BMPs identified were media filters, multi-chambered treatment trains, or detention basins.	Proposes eight (8) locations for treatment BMPs. The potential treatment BMPs identified are media filters and biofiltration swales.
Utilities and Service Systems – SCE Transmission Tower and Line Relocation	Disclosed it would be necessary to raise or otherwise relocate the SCE transmission towers and lines between the Long Beach Generating Station (LBGS) and Pier A. No specific plan was developed.	Discloses that it will be necessary to raise or otherwise relocate the SCE transmission towers and lines between the LBGS and Pier A. A detailed analysis was completed and recommended Option 3 as the most feasible solution for relocating the transmission lines.
NEPA Lead Agency	Approved by FHWA, as lead agency under NEPA.	Caltrans will be lead agency under NEPA due to passage of the Surface Transportation Project Delivery Pilot Program (Section 6005), under SAFETEA-LU.

### 1.3 PROJECT DESCRIPTION

#### 1.3.1 Bridge Replacement

As previously noted, the proposed project would construct a new bridge across the Back Channel and associated roadway connectors, demolish the existing Gerald Desmond Bridge, and relocate the SCE transmission lines crossing Cerritos Channel north of the bridge (see Exhibit 1-2).

The new bridge, excluding approach structures, would be 2,000 ft (610 m) long, and it would be elevated 200 ft (61 m) above the MHWL of the Back Channel (see Section 1.6 for a detailed description). Bridge replacement would also

necessitate reconfiguration of adjacent freeway and arterial interchanges.

#### 1.3.2 Bridge Replacement Concepts

A study of the various types of possible bridges determined that a cable-stayed bridge would be the best option. A cable-stayed bridge consists of a continuous girder with one or more towers erected above piers in the middle of the span. From these towers, cables stretch down diagonally (usually to both sides) and support the girder. A design team consisting of Port staff representatives, an architect, and project engineers began the aesthetic design process

with a review of the overall design parameters, such as the context of the surrounding site, the bridge roadway geometry, the recommended height and span for the bridge, and the estimated dimensions of the major structural members.

The team next considered aesthetics, cost, constructability, seismic performance, right-of-way (ROW) issues, schedule risk, impact to Port operations, and maintenance.

Based on the results of the design review, four cable-stayed alternatives were chosen for further consideration (see Exhibits 1-3 and 1-4):

- Single Mast Tower
- Delta Tower
- H-Tower with Vertical Legs
- H-Tower with Slanted Legs

An in-depth study of these four design options was conducted over an 8-month period and included more detailed analysis and design for each alternative. Concepts for architectural lighting of the bridges were developed. Additionally, the potential ROW impacts to third-party properties were more fully defined.

Based on this in-depth study, two design options were selected to be carried forward for further development: Single Mast Tower and H-Tower with Slanted Legs. With further refinements to the bridge concept study, the Port staff elected to proceed with the development of the Single Mast Tower with a steel composite deck.

### 1.3.3 SCE Transmission Line Relocation

Because the new bridge would be 200 ft (61 m) above the MHWL, in contrast to the existing bridge at 156 ft (47.4 m) above MHWL, the project also requires that the SCE high-voltage transmission towers and lines that cross the Cerritos Channel north of the bridge be raised (see Section 2.1.4 [Utilities and Service Systems] and Appendix I). The vertical clearance afforded by the existing transmission lines is approximately 153 ft (46.6 m); therefore, the transmission lines would be the primary vertical clearance hazard to navigation if the bridge is raised. Exhibit 1-5 shows the location of the existing SCE transmission lines, Gerald Desmond Bridge, and other relevant features.

## 1.4 PROJECT BACKGROUND

The existing Gerald Desmond Bridge was constructed in 1968 and seismically upgraded in 1995. It provides four through travel lanes (i.e., two in each direction). On the uphill segments, climbing lanes were added by reconstructing the

roadway area of the bridge to handle container trucks and improve LOS on the bridge. This improvement resulted in three ascending lanes and two descending lanes in each travel direction. Each climbing lane ends at the crest of the bridge. The bridge is a steel tied-arch truss structure, in which the horizontal forces of the arch are borne by the bridge deck, rather than the ground or the bridge foundations. The bridge has a 409.5-ft-long (124.8-m-long) suspended span that crosses the deep-water navigable channel connecting the middle and inner harbors of the Port (Parsons-HNTB, 2002a).

As the fifth largest seaport complex in the world, the Ports handle more than 30 percent of U.S. waterborne container cargo (POLB, 2006a). The bridge is a vital link in Port-area goods movement infrastructures because it is the westerly extension of SR 710, which is the primary access route for the ports and carries approximately 15 percent of all U.S. port-related container traffic (Caltrans *et al.*, 2005).

## 1.5 PROJECT LOCATION AND SETTING

The Gerald Desmond Bridge is one of three bridges connecting surface highways to Terminal Island in the harbor area. The bridge is located within the Port in an area zoned industrial. All land within the project limits is developed for port-related uses, and there is no special habitat or other environmental resource in the area. All areas surrounding the site are designated as industrial or commercial land use by Wilmington's Community Plan. There are several residences located east and north within 1-mile (mi) (1.6 kilometers [km]) of the site. The nearest receptor is the Golden Shores recreational vehicle (RV) park located approximately 0.3-mi (483 m) southeast of the eastern boundary of the project, across the Los Angeles River.

The Port owns most of this land, with several relatively small, privately owned properties located in the Inner Harbor area and northernmost sections of the Port. The bridge crosses the Back Channel and generally runs east-west across Pier D. It is located in three different Planning Districts in the Long Beach Harbor. These include the Northeast Harbor Planning District, the Terminal Island Planning District, and the Middle Harbor Planning District (POLB, 1999).

The proposed project and alternatives are located in the southwest portion of Long Beach at the southern end of Interstate 710 (I-710). I-710 is classified as SR 710 south of Pacific Coast Highway (PCH) in the State of California's Streets and Highways Code.



**View of Gerald Desmond Bridge Looking Southwest**



**View of Gerald Desmond Bridge and SCE Transmission Towers Looking Southeast  
Exhibit 1-2**

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**Single Mast Tower**



**Delta Tower**

**Exhibit 1-3  
Bridge Design Options**

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**H-Tower with Vertical Legs**



**H-Tower with Slanted Legs**

**Exhibit 1-4  
Bridge Design Options**

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47

710

PIER B

PIER A

PIER C

CHANNEL No. 3

PICO AVE

LOS ANGELES RIVER

SCE TRANSMISSION TOWERS

INNER HARBOR TURNING BASIN

CERRITOS CHANNEL

BACK

PIER S

PIER D

PIER E

GERALD DESMOND BRIDGE

CHANNEL

TERMINAL ISLAND FWY

OCEAN BLVD

PIER T



No Scale



Exhibit 1-5  
EXISTING CONDITIONS



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Under the Bridge Replacement Alternatives, the bridge and Ocean Boulevard, would become part of SR 710 and would operate as a freeway facility with controlled access. The improvements between the existing SR 710 and SR 47, including the bridge, would be transferred to Caltrans by easement following route adoption and execution of a freeway agreement. It is estimated that the transfer would be completed within 2 years after construction.

The proposed project is in the Back Channel/Cerritos Channel area of the Port. It is centered along Ocean Boulevard from the intersection of the Terminal Island Freeway (SR 47) at the western end to its eastern terminus at the westerly end of the bridge over the Los Angeles River. The southern limit of the project is located on Pico Avenue approximately 660 ft (201 m) south of the Ocean Boulevard interchange. The northern limit of the project is along SR 710, approximately 2,630 ft (801 m) north of Ocean Boulevard, and to the southernmost SCE tower on Pier A. Ocean Boulevard spans the Back Channel via the Gerald Desmond Bridge. The Ocean Boulevard/ Gerald Desmond Bridge portion of the project is located in the Middle Harbor and Terminal Island Harbor Planning Districts of the Port, and the SR 710 portion is located in the Northeast Harbor Planning District.

## **1.6 ALTERNATIVES**

Like the revised Draft EIR/EA, this Final EIR/EA fully analyzes the North-side Alignment Alternative (identified as the preferred alternative [see Section 1.8.1]), the South-side Alignment Alternative, the Rehabilitation Alternative, and the No Action Alternative. Exhibit 1-6 shows the North-side Alignment Alternative, and Exhibit 1-7 depicts the South-side Alignment Alternative.

### **1.6.1 Bridge Replacement Alternatives**

#### **1.6.1.1 North-side Alignment Alternative (Preferred Alternative)**

The North-side Alignment Alternative would provide a new bridge located approximately 140 ft (42.7 m) north of the existing bridge (measured from centerline to centerline). This bridge alignment would have a vertical profile over the Back Channel of 200 ft (61 m) above the MHWL. The roadway grades would be 5 percent in both directions.

The new bridge would be a cable-stayed design. The total bridge length would be 2,000 ft (610 m) long, with a main span opening across the channel of 1,000 ft (306 m), tower to tower. The west and

east approach structures would be 3,117 ft (950 m) and 3,025 ft (925 m) in length, respectively.

The bridge cross section and approaches to the new bridge would include the following project features:

- Three 12-ft-wide (3.6-m) lanes in each direction
- A 10-ft-wide (3-m) outside shoulder in each direction
- A 10-ft (3-m) to 12-ft-wide (3.6-m) inside shoulder in each direction
- A 32-inch (in.)-high (81.3-centimeter [cm]) barrier that would run along the outside of each shoulder
- Reconstruction of the existing Horseshoe interchange ramp connectors
- Reconstruction of the existing connectors to SR 710 and the two ramp connections to Pico Avenue

The approach spans would be of concrete box girder construction, either segmental or cast-in-place.

This alignment alternative would use the land between the existing bridge and the LBGS (former SCE plant), and it would require construction of new ramps for the existing Horseshoe interchange. The proposed alignment would transition to join Ocean Boulevard approximately 3,280 ft (1,000 m) east of the channel, and the new connections would join SR 710 approximately 2,630 ft (801 m) north of Ocean Boulevard.

The Horseshoe interchange would use reconfigured ramps to provide access from the WB Gerald Desmond Bridge to Pier T Avenue and from Pier T Avenue to the EB Gerald Desmond Bridge. Additional ramp connections would be provided between Pier T Avenue and both Ocean Boulevard and the one-way frontage roads created by the newly constructed POLB Ocean Boulevard and SR 47 Interchange Project. These ramps would allow full access between Pier T Avenue and Ocean Boulevard in all directions.

At the SR 710 interchange, a new median connection to Ocean Boulevard in downtown Long Beach would be constructed, as would a new pair of connector ramps between SR 710 and the new bridge. A new hook ramp or loop ramp would be used to replace the existing on-ramp between Pico Avenue and the WB Gerald Desmond Bridge. The current ramps between Pico Avenue would be partially reconstructed to join the new connectors from SR 710. This interchange concept would enable trucks traveling to and from

SR 710 to remain in the outside lanes, while cars traveling to and from downtown Long Beach via Ocean Boulevard would remain in the inside lanes. This approach would minimize the intermixing of cars and trucks accessing the above-mentioned facilities. The estimated cost for this alternative is approximately \$983 million.

**1.6.1.2 South-side Alignment Alternative**

The South-side Alignment Alternative would provide a new bridge located approximately 177 ft (53.9 m) south of the existing bridge (measured from centerline to centerline). As for the North-side Alignment Alternative, this bridge alignment would have a vertical profile over the Back Channel of 200 ft (61 m). The main span bridge design options would be the same as those proposed for the North-side Alignment. The bridge cross section and approaches to the new bridge would include the same project features as described for the North-side Alignment Alternative.

The proposed alignment would transition to join existing Ocean Boulevard approximately 3,280 ft (1,000 m) west of the channel. This alignment would require reconstruction of all ramps for the existing Horseshoe interchange and a portion of the existing Pier T terminal main gate facility. The proposed alignment would transition to join existing Ocean Boulevard approximately 3,280 ft (1,000 m) east of the channel, and the new connections would join existing SR 710 approximately 2,820 ft (860 m) north of Ocean Boulevard. The four existing ramp connections to Pico Avenue would have to be reconstructed for this alternative. The interchange design variations

used for the North-side Alignment Alternative would also be applied to the South-side Alignment Alternative. The estimated cost for this alternative is approximately \$1.0 billion.

**1.6.1.3 Proposed Construction and Phasing**

Construction of the new bridge, for either the North-side Alignment Alternative or the South-side Alignment Alternative, would take approximately 48 months, in five overlapping phases (Table 1-3; Phase 6 Gerald Desmond Bridge demolition would take 15 months, as discussed in Section 1.6.1.4). Construction is currently estimated to commence in September 2011 and terminate by September 2015, but the actual schedule is contingent upon the completion of final design and the availability of funding for the project.

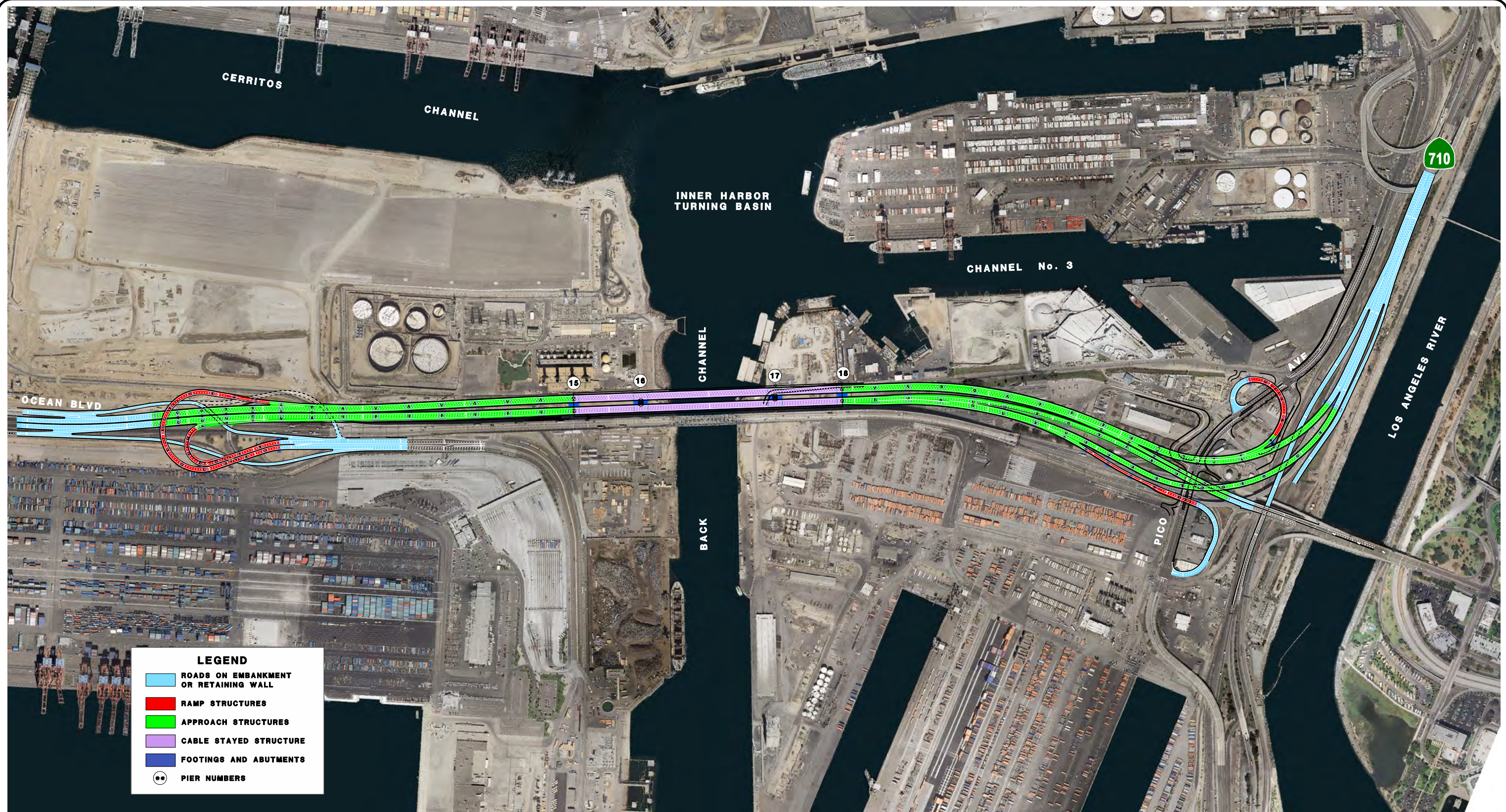
At this time, it is envisioned that there would be two potential contractor staging areas. One could be located in or around the lumberyard located on the southwest side of the existing Gerald Desmond Bridge on Pier T Avenue, and the other at the current location of the Port Maintenance Yard on the east side of the existing bridge on Broadway. The Port Maintenance Yard is proposed to be relocated prior to construction of the new bridge.

Construction Phasing

Each construction phase is anticipated to take approximately 1-year (Table 1-3), but it is expected that the latter part of each phase would overlap with the beginning of the next phase, so that the total construction time would be approximately 48 months.

<b>Table 1-3 Draft Construction Schedule: Gerald Desmond Bridge Replacement</b>																			
<b>Months</b>																			
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
<b>Phase 1</b>																			
			<b>Phase 2</b>																
						<b>Phase 3</b>													
									<b>Phase 4</b>										
												<b>Phase 5</b>							
															<b>Phase 6</b>				
<b>Phase 1: Utilities</b>																			
<b>Phase 2: Detours and Main Span</b>																			
<b>Phase 3: SR 710/Horseshoe Interchange</b>																			
<b>Phase 4: Connectors and Main Span</b>																			
<b>Phase 5: Tie-ins</b>																			
<b>Phase 6: Demolition (15 Months)</b>																			





**LEGEND**

- ROADS ON EMBANKMENT OR RETAINING WALL
- RAMP STRUCTURES
- APPROACH STRUCTURES
- CABLE STAYED STRUCTURE
- FOOTINGS AND ABUTMENTS
- \*\* PIER NUMBERS



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DRAWN	DWP	DATE	03/28/08	ASS'T CHIEF HARBOR ENGR. P.E. NO. C-25677	DATE
DESIGNED	P.E. NO.	PROJ. MGR.	P.E. NO.	CHIEF HARBOR ENGINEER	P.E. NO. C-43065
SECT. HEAD	P.E. NO.				



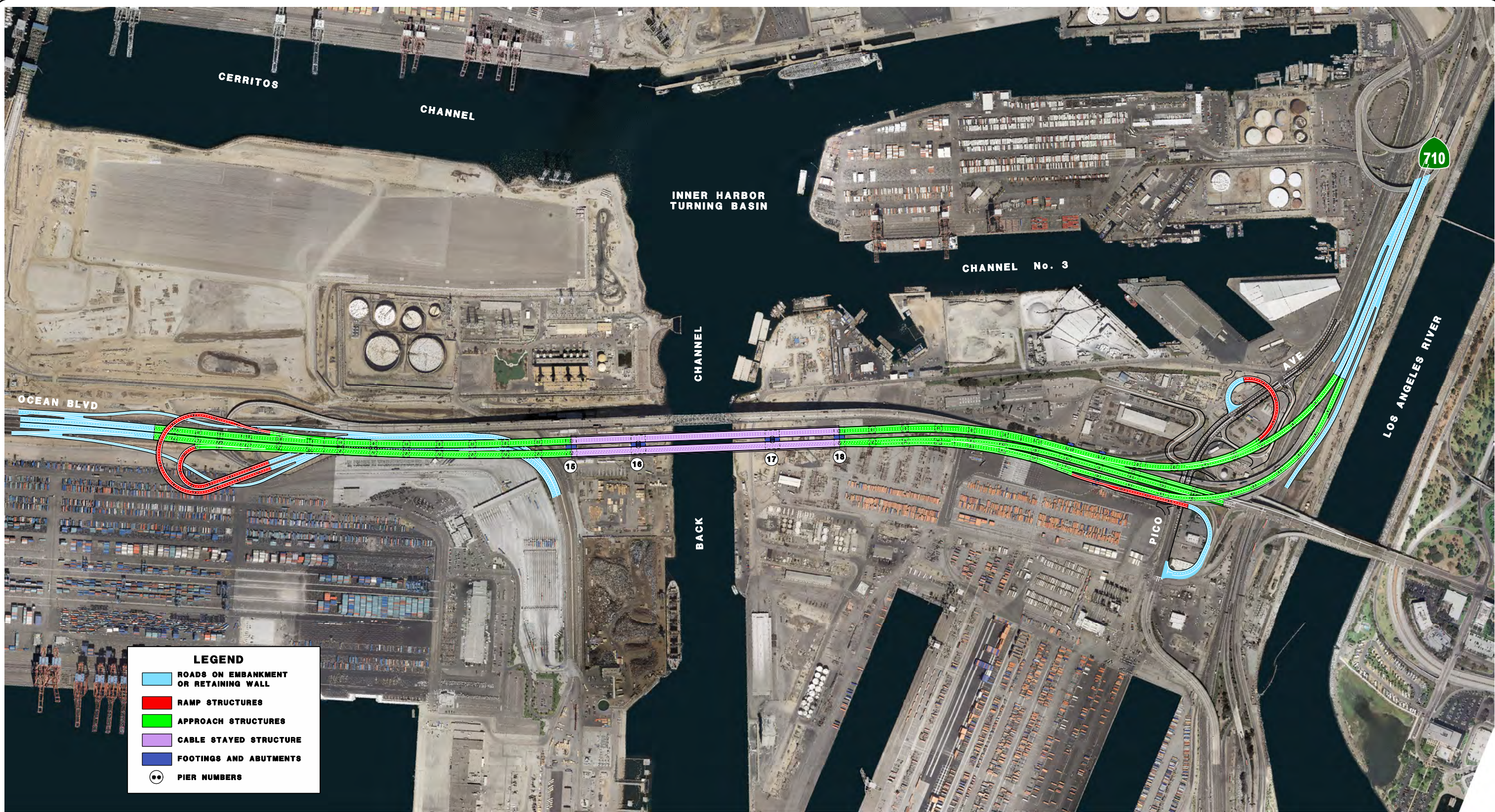
**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
**NORTH-SIDE ALIGNMENT ALTERNATIVE**

SCALE	SHEET _____ OF _____
SPECIFICATION NUMBER	
DRAWING NUMBER	



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**LEGEND**

- ROADS ON EMBANKMENT OR RETAINING WALL
- RAMP STRUCTURES
- APPROACH STRUCTURES
- CABLE STAYED STRUCTURE
- FOOTINGS AND ABUTMENTS
- \*\* PIER NUMBERS



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EXHIBIT 1-7

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 USER: P0033148

MARK	DATE	BY	REVISIONS

DRAWN DWP DATE 03/28/08  
 DESIGNED \_\_\_\_\_ P.E. NO. \_\_\_\_\_  
 PROJ. MGR. \_\_\_\_\_ P.E. NO. \_\_\_\_\_  
 SECT. HEAD \_\_\_\_\_ P.E. NO. C

ASS'T CHIEF HARBOR ENGR. P.E. NO. C-25677 DATE \_\_\_\_\_  
 CHIEF HARBOR ENGINEER P.E. NO. C-43065 DATE \_\_\_\_\_



**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
**SOUTH-SIDE ALIGNMENT ALTERNATIVE**

SCALE \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_

SPECIFICATION NUMBER \_\_\_\_\_

DRAWING NUMBER \_\_\_\_\_



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Phase 1:

In the first phase, the utilities in the project area would be relocated, and the railroad that parallels Ocean Boulevard on Pier S would be realigned. A WB ramp would be constructed to connect Pier T Avenue to SR 47, replacing the existing WB lane. Traffic would be diverted to the new ramp. Detour routes would be installed at Ocean Boulevard and the WB Ocean Boulevard/Pico Avenue on- and off-ramps. The inner left lane of southbound (SB) traffic on Harbor Scenic Drive would be maintained during construction of a SB on-ramp connecting Harbor Scenic Drive with Ocean Boulevard. Buildings and appurtenances at the Port Maintenance Yard facility would be demolished and removed in this phase for the North-side Alignment Alternative only. Relocation of the Port Maintenance Yard operations would temporarily be moved to an interim site and separately permitted by the Port. Ultimately, the Maintenance Yard would be co-located with the Administration Building Complex, as identified in the Final EIR for the Administration Building and Maintenance Facility Project. This phase would also involve the bridge Pier 16 foundation construction, including excavation, sheet pile installation, cast-in-steel shell pile placement, and construction of footings.

Phase 2:

The second phase would involve routing traffic onto the detour routes installed in Phase 1, establishing additional detours and temporary closures, and beginning work on the new main-span bridge and high-level approaches. This phase would also involve preparatory roadway work at each interchange. The following tasks describe construction of the main span and high-level approaches (see Exhibits 1-6 and 1-7 for the locations of the bridge piers referred to below):

- Task 1 – Main-span tower construction at Pier 16, proceeding from the foundation to the top of the tower.
- Task 2 – Construction of the steel composite deck at Pier 16.
- Task 3 – Bridge Pier 17 foundation construction; Pier 17 construction activities would follow Pier 16 construction by approximately 6 months and would involve similar activities.
- Task 4 – Main-span tower construction at Pier 17.
- Task 5 – Construction of steel composite deck at Pier 17.

- Task 6 – Bridge Pier 15 foundation construction; foundation construction would follow Pier 17 construction by approximately 6 months and would involve similar activities.
- Task 7 – Bridge Pier 15 construction; bridge pier construction would occur approximately midway during main span construction and involve construction of columns and pier cap.
- Task 8 – Bridge Pier 18 foundation construction; foundation construction would follow Pier 15 construction by approximately 6 months and would involve similar activities.
- Task 9 – Bridge Pier 18 construction; bridge pier construction would follow Task 8 Bridge Pier 15 construction by approximately 6 months and would involve similar activities.
- Task 10 – Main-span superstructure completion, including structure closure, deck overlay, and traffic barrier construction.
- Task 11 – High-level approach foundation construction would start in parallel with the main span construction, involving similar activities for main span foundation construction with smaller diameter piles.
- Task 12 – High-level approach columns construction would follow and stagger as each foundation is complete.
- Task 13 – High-level approach superstructure construction would follow using the balanced cantilever segmental construction method. Cast-in-place or precast segments may be used.

Phase 3:

In the third construction phase, a portion of the SR 710 and Horseshoe interchange structures on either side of the channel would be reconstructed. A portion of Harbor Scenic Drive roadway would be constructed.

Phase 4:

The fourth phase would involve removal and reconstruction of the EB mainline curve to northbound (NB) SR 710, the WB Horseshoe off-ramp, and the east and west tie-ins of the EB mainline. A retaining wall would be constructed at the south side of Ocean Boulevard near SR 47. During this phase, the WB Ocean Boulevard traffic would be shifted onto the new Gerald Desmond Bridge, and one lane of traffic on EB Ocean Boulevard would be maintained. The

remaining portion of Harbor Scenic Drive would also be constructed.

Phase 5:

In this last construction phase, the final tie-ins with the existing ramps and mainline curves would be constructed, equipment would be demobilized, all detours would be removed, and final grading would be completed. In this phase, WB and EB Ocean Boulevard traffic would be utilizing the new Gerald Desmond Bridge.

**1.6.1.4 Proposed Demolition and Phasing**

**Existing Bridge Demolition**

Demolition of the existing bridge in Phase 6 would be the same for either the North-side Alignment Alternative or the South-side Alignment Alternative. Demolition would be completed in approximately 15 months. It would include removal of the main steel truss spans, the steel plate girder approaches, and the ramps, including both superstructure and bents.

No explosives would be allowed for removing any part of the bridge. Space under the bridge would be available to allow sections of the superstructure to be lowered onto the ground for more efficient demolition and removal. The navigational channel under the main span may be temporarily closed during demolition. The suspension spans of the truss spans can be lowered onto barges, towed to shore, and off-loaded to the same space under the bridge used for demolition and removal of the sections over land. Substructure columns would be removed to an elevation 2 ft (0.6-m) below existing grade, leaving the existing pile caps and piles in place. Steel salvaged from the demolition would become the property of the demolition contractor to offset some of the cost. Lead-based paint (LBP), asbestos-containing materials (ACM), or any other hazardous materials would be handled and disposed of in accordance with federal, state, and local laws and ordinances.

**Demolition of Main Steel Truss Spans**

Stage 1:

The main span truss structure would be removed beginning with the "suspended" portion of the deck, which is located over the channel. The concrete deck slab and steel floor beams supporting the deck slab would be removed progressively from midspan toward each end of the suspended portion of the span. The truss members and lateral sway bracing would not be removed at this stage to ensure stability during deck removal.

Stage 2:

Once the deck was removed in the suspended portion of the bridge, the suspended truss section would be cut loose from the remaining truss and suspenders and lowered onto a barge as one unit. This section would be disassembled at a remote site.

Stage 3:

With the suspended section now removed, removal of the remaining deck slab and floor beams would progress from the suspended span toward the ends of the main span truss. As for the suspended span, the truss and sway bracing would remain in place for stability during this process.

Stage 4:

Once all of the deck is removed, the remaining truss would be disassembled beginning near the midspan section over the channel and progressing toward each end of the truss. It is likely that large sections of the truss would be cut loose and lowered to the ground where they would be cut up and transported offsite. Temporary support towers would be used for the anchor spans, as needed, to stabilize the existing truss as sections were removed.

Stage 5:

The temporary support towers and existing concrete columns would be removed to 2 ft (0.6-m) below the finished ground elevation.

**Demolition of Steel Plate Girder Approaches and Ramp**

Stage 1:

The concrete deck of the approach spans would be saw cut and removed.

Stage 2:

The steel plate girders at every other span would be cut off near the hanger assembly and removed.

Stage 3:

The remaining steel plate girders would be removed.

Stage 4:

The concrete columns would be removed down to 2 ft (0.6-m) bgs.

During all phases of construction and demolition over the Back Channel, protective netting would be utilized to prevent debris from falling into the channel. Heavy construction activities over the

channel would be coordinated with shipping activities to ensure safety for vessels and construction workers.

All demolition materials would be recycled to the extent feasible, in accordance with the City of Long Beach Construction and Demolition Recycling Program.

### **Other Demolition Requirements**

Both the North- and South-side Alignments would require demolition and/or relocation of adjacent structures within the proposed new bridge alignments. The North-side Alignment would affect several buildings on Port-administered property and one building on privately owned property. The South-side Alignment would affect several buildings on Port-administered land. The environmental consequences related to demolition and/or relocation of adjacent facilities are addressed in Chapter 2. A determination of significance of the potential environmental consequences resulting from the proposed alternatives pursuant to CEQA is provided in Chapter 3.

#### **1.6.1.5 SCE Transmission Line Relocation**

The proposed project, with either of the bridge replacement alternatives, also includes raising the SCE lines (12.5 kilovolt [kV], 66-kV, and 220-kV) that cross the Cerritos Channel from Pier S to Pier A, north of the bridge (see Section 2.1.4 [Utilities and Service Systems] and Appendix I). The timing of the transmission line relocation is not known at this stage of project development, but it can be assumed that this action would not be required until the bridge replacement is completed.

The recommended option for raising the SCE lines is to construct new towers on Piers S and A next to the existing towers. The new towers would increase the clearance over the Back Channel from 153 ft to 200 ft. Subsequent to construction of the new towers, all lines would be relocated to the new towers (see Exhibit 2.1.4-1 for the proposed configuration under this scenario). Although the transmission lines would be relocated to the new towers, the existing towers, which have been determined to be eligible for listing on the National Register of Historic Places (NRHP) (see concurrence letter from State Historic Preservation Officer [SHPO], July 21, 2003, Appendix C) would remain in place.

#### **1.6.2 Bridge Rehabilitation Alternative**

With this alternative, the existing bridge would be rehabilitated to improve its seismic performance

and to extend its operational life span. No new traffic lanes would be added, and the height of the bridge would remain at 156 ft (47.5 m) above the MHWL. To comply with current seismic detailing standards for new bridges, the lap splices at the base of the columns would need to be eliminated and the amount of confinement reinforcement increased. Because there are no practical means to accomplish this, the best solution would be to add steel casings at all columns. Lacking a detailed seismic performance study, it is assumed that the casings would be placed along the full height of the columns. These retrofit measures would allow for the level of deformation needed for the bridge to withstand a major earthquake and to comply with Caltrans SDC requirements for capacity protection of column foundations and bent caps.

Main span trussed arch members would likely require strengthening and connection retrofit to meet SDC joint capacity protection requirements. Typical for this type of bridge in the state of California, retrofit measures for truss members include member strengthening and installation of additional bolted through steel plates at truss joints, similar to the retrofit of the existing Carquinez Bridge, San Francisco Oakland Bay Bridge Main Span, and others.

In summary, to bring the existing Gerald Desmond Bridge up to current AASHTO standards and to mitigate continuous bridge deterioration would require the following construction activities:

- Replacement of the bridge deck
- Replacement of expansion joints
- Replacement of the sway bracings for the main span
- Painting of all steel members
- Seismic retrofit of foundations, columns, bent caps, abutments, and superstructure

The bridge rehabilitation activities would occur within the footprint of the existing bridge. This alternative would not require demolition of any structures on adjacent properties and would also not require any modifications to the SCE towers. The estimated cost for these corrective measures is approximately \$289.3 million.

All of the above measures would be consistent with the level of retrofit undergone by major bridges in California, where retrofit measures were designed for a “No Collapse” design criteria. The “No Collapse” criteria imply that the bridge would survive the maximum credible earthquake

(MCE) without collapse and loss of life, but it would have a high probability of being condemned after an extreme seismic event such as the MCE. Thus, even with implementation of the above seismic retrofit measures, the existing bridge seismic performance would not be on par with the proposed new bridge. The new bridge would be designed to withstand the MCE with only repairable damage allowed and an ability to be in service within days after the MCE event. Although seismic safety of the channel crossing would be enhanced with a rehabilitated bridge, forecasted increases in future traffic volumes would still result in steadily deteriorating levels of service.

### **1.6.3 No Action Alternative**

Under the No Action Alternative, the Gerald Desmond Bridge would not be replaced or rehabilitated. It would remain in its existing deteriorated condition until a retrofit schedule is established. It would remain with insufficient roadway capacity to handle projected car and truck traffic volumes, and inadequate channel clearance for safe passage of some existing and new-generation container ships.

Under the No Action Alternative, the existing bridge would continue in use as the sole direct connection between SR 710, Long Beach, and Terminal Island. Existing measures to protect against falling structural elements would need to be enhanced as the bridge continues to deteriorate, and the related safety issues would increase in severity. Seismic safety of the channel crossing would not be enhanced with a new or rehabilitated bridge meeting current seismic standards. Increasing traffic volumes would result in steadily deteriorating levels of service.

Under the No Action Alternative (as with the Rehabilitation Alternative), the existing SCE transmission lines would not be removed or relocated.

## **1.7 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR ANALYSIS**

The June 2004 Draft EIR/EA evaluated several other alternatives, including tunnel options, main span and approach span options, design options, and interchange options, that were all withdrawn from further evaluation. In addition, a Toll-Operation Alternative was considered in the revised Draft EIR/EA; however, it was withdrawn from further evaluation based on the findings discussed below. The rationale for withdrawal of the Toll-Operation Alternative, as well as the other

alternatives previously considered, is discussed in this section.

### **1.7.1 Toll-Operation Alternative**

A tolling alternative was considered because the Port is looking at various funding sources (including federal, state, and local sources) to help pay for the cost of the new bridge. This alternative was considered given that tolling is used on many northern California bridges as a primary revenue source; therefore, POLB and POLA jointly sponsored a Terminal Island Traffic and Toll Revenue Study to assess the following options:

1. Tolling the Gerald Desmond Bridge replacement structure alone; and
2. Tolling all three bridges that provide access to Terminal Island (i.e., Gerald Desmond replacement, Vincent Thomas, and Schuyler Heim) in a toll district.

Based on the tolling study, solely tolling the Gerald Desmond Bridge would result in much greater traffic diversion to non-tolled facilities and alternative routes than discussed in Section 1.7.1.2 and would generate 75 percent less toll revenues over the 30-year study period; therefore, tolling only the Gerald Desmond Bridge was not recommended as a viable Toll-Operation Alternative variation during project development.

The Toll-Operation Alternative was introduced in the revised NOP (December 2005), and it has the same footprint as the North-side Alignment Alternative. Under this alternative, vehicles that enter/leave Terminal Island on any of the three bridges (i.e., Gerald Desmond replacement, Vincent Thomas, or Schuyler Heim) would be assessed a toll in each direction. Except for the toll element, which would involve placement of sensors on all three bridges, the bridge design features would be the same as described for the North-side Alignment Alternative.

The Toll-Operation Alternative would utilize both automatic License Plate Recognition (LPR) and transponder technologies, and it would operate without toll booths. The LPR technology would assess tolls to the vehicles that do not have a transponder.

#### **1.7.1.1 Implications of Toll-Operation Alternative**

The Gerald Desmond Bridge Traffic Study identified substantial traffic diversions from this alternative (Iteris, 2009). The diversion resulting from tolling all three bridges would principally affect regional traffic – traffic with neither an origin

nor a destination on Terminal Island, but simply passing through the island. Some regional traffic passing through Terminal Island with free bridges would be induced to avoid Terminal Island when tolls are imposed on the bridges. Little diversion of traffic with one trip end on Terminal Island would result from tolling all three bridges because this traffic must cross one of the three bridges. The following provides a summary of both the traffic diversion and environmental issues associated with the Toll-Operation Alternative.

### **1.7.1.2 Traffic Diversion**

The 2030 traffic diversion impacts associated with this alternative compared to the North-side Alignment Alternative (non-toll) and the No Action Alternative for a series of key roadway links are summarized below. Year 2030, rather than the 2015 opening year horizon, was analyzed due to higher forecast traffic volumes in 2030 simulating the worst-case scenario.

- I-405: This freeway would experience an increase of approximately 1,500 to 2,600 autos, or approximately 3 to 5 percent, directionally during the peak periods. Truck volumes would increase roughly 3 to 4 percent.
- I-110: This freeway would experience an increase in auto volumes of up to 20 percent, or nearly 3,500 vehicles in one direction during the PM peak period. Truck volumes would increase up to 41 percent during all peak periods.
- SR 710: This freeway would experience a decrease in auto volumes of up to 16 percent directionally, which equates to nearly 3,500 autos during the PM peak period. Truck volumes would decrease up to 7 percent directionally, or approximately 1,200 trucks during the peak period.
- SR 91: This freeway would experience an increase of nearly 2,000 autos directionally during the PM peak period, which represents a 5 percent increase. Truck volumes would increase more than 340 vehicles in one direction, which is an increase of more than 18 percent in truck flow.
- SR 47/103: This freeway would experience an 11 to 28 percent decrease in auto volumes near Terminal Island and a decrease in truck volume of up to 13 percent.
- PCH and Anaheim Street: These local arterials would experience an increase in auto volumes from 500 to 1,000 vehicles during the

peak periods. Between SR 710 and SR 47, auto volumes on both facilities would increase up to 24 percent directionally. Truck volumes on both of these routes would increase approximately 10 percent.

- Ocean Boulevard/Seaside Avenue: The traffic modeling results indicate an auto volume decrease of approximately 40 to 45 percent, or up to 5,400 peak-period vehicles in each direction. The drop in auto volumes would be similar on both the Vincent Thomas Bridge and the replacement bridge. Truck volumes would drop 12 percent, or 485 peak-period trucks, on the replacement bridge.

Due to the traffic diversion discussed above, the following roadway segments would require mitigation in the form of an additional travel lane in each direction:

- I-405 between SR 710 and I-110
- I-110 south of SR 91
- SR 91 between SR 710 and I-110
- Anaheim Street between 9th Street and I-110
- PCH between SR 47/103 and I-110

The above improvements equate to approximately 41.2 lane miles of additional capacity needed on the freeways and 13.6 additional lane miles on the arterials. To provide the additional lane capacity along the arterials, existing on-street parking would be restricted during the peak periods. At locations where on-street parking is already restricted during the peak periods, or there is insufficient width to handle the additional lane, then outside widening would be necessary and ROW impacts would occur.

### **1.7.1.3 Environmental Effects**

The Toll-Operation Alternative would result in substantial unavoidable adverse impacts to the environment, when compared with the non-toll North-side Alignment Alternative, which would be necessitated by the widening of major arterials and freeway segments in the affected areas to handle the traffic diversion that would occur. The following discussion highlights the expected ROW and land use impacts due to this traffic diversion.

- Anaheim Street: Widening would lead to environmental impacts, including ROW acquisitions and relocations, hazardous wastes exposure, community impacts, utility relocations, and use of Section 4(f) properties (i.e., public parks and recreation areas, which are protected under the U.S. Department of Transportation Act of 1966). Approximate ROW displacements would be as follows:

- 10 residential apartment complexes, primarily on the north side. These apartment complexes range in size from 10 to 50 units. They are set back approximately 6 to 10 ft (1.8 to 3 m) from the edge of the street. Given the demographics of this area, with a higher population of low-income and minority residents, these apartment complexes would likely be inhabited by a higher percentage of low-income residents, who are subject to federal environmental justice provisions.
- 50 businesses (e.g., used car sales, fast food, auto parts, check cashing, adult entertainment uses, liquor stores, and small retail).
- 40 auto wrecking yards/auto repair and gas stations.
- Saints Peter and Paul School ball field located on the south side of Anaheim Street. This would be a potential Section 4(f) use.
- PCH: Widening would lead to environmental impacts, including ROW acquisitions, hazardous wastes, community impacts, utilities, and Section 4(f) use. Approximate ROW displacements would be as follows:
  - 10 residential apartment complexes. These apartment complexes range in size from 10 to 30 units. They are set back approximately 6 to 10 ft (1.8 to 3 m) from the edge of the street. Given the demographics of this area, with a higher population of low-income and minority residents, these apartment complexes would likely be inhabited by a higher percentage of low-income residents, who are subject to federal environmental justice provisions.
  - 35 businesses (e.g., used car sales, fast food, motels, auto parts, check cashing, adult entertainment, liquor stores, and small retail).
  - 30 auto wrecking yards/auto repair and gas stations.
  - Banning High School is located on the north side of PCH, and Banning Park is located on the south side, both near Avalon Boulevard. There would be impacts to the ball field that is adjacent to PCH, which could constitute a Section 4(f) use.
- Senior Citizen Community Center, which is located near Eubank Avenue, could be impacted by the street widening.
- I-110, I-405, and SR 91: Widening these freeways to handle traffic diversion from the tolling alternatives would likely require acquisition of adjacent residential and commercial properties at arterial interchanges.

### 1.7.2 Tunnel Options

Two types of tunnels were evaluated: (1) a concrete immersed tube tunnel; and (2) a bored tunnel through grouted soils. While both tunnel options were determined to be constructible, they were found to have more Port operational problems than any of the bridge options that were considered. The tunnel alternatives would cost approximately 3.5 times more to construct than either the North- or South-side Alignment Alternatives. In addition, the cost of the operation and maintenance of the tunnel alternative would be approximately 2 times the cost of the bridge alternative (Parsons Brinckerhoff Quade & Douglas, Inc., 2001). The tunnel options would have required Back Channel closure during construction.

Environmental impacts included containment and disposal of contaminated bay muds, hazardous materials control, and a new source of air pollution at the tunnel portals. In addition, water infiltration of tunnels and approaches below the water table would have been inevitable; therefore, the system would require a drainage system (Parsons Brinckerhoff Quade & Douglas, Inc., 2001).

The design of a tunnel would have required a 6 percent grade, 1-percent greater than the bridge alternative, which would have slowed down truck traffic. Also, the tunnel roadway would have been narrower than that of the bridge, as full-width shoulders could not have been handled. A tunnel option would have required work to be performed from barges in the Back Channel. This would have impeded access for vessels trying to reach piers in the Inner Harbor. The channel would have been closed at various times during the approximate 5 years of construction. Channel closures and access restrictions would have caused a slowdown in Port operations, as cargo would not have been loaded/unloaded to and from the vessels in a timely manner. Several existing piers and other facilities would have had their access blocked by the construction as well.

For the above reasons, tunnel options were withdrawn from further consideration as infeasible.

Detailed information on the above tunnel options is presented in the Draft Alternative Bridge Evaluation Study (Parsons-HNTB, 2002b).

### **1.7.3 Bridge Design Options**

A variety of bridge and approach span options were examined, and they are described in the Draft Alternative Bridge Evaluation Study (Parsons-HNTB, 2002b). Potential environmental impacts of the main-span and approach span options were not examined, but they would not have differed among the options considered or from those identified for the build alternatives studied in detail. Several options were determined to be unsuitable for the project, as noted below.

#### **1.7.3.1 Main-Span Options**

Five types of main-span bridges were examined: movable bridge, steel box girder, cable-stayed, steel truss, and steel tied arch. Additionally, a suspension bridge crossing was considered but not pursued because a conventional suspension bridge would not be possible at the location of the Gerald Desmond Bridge due to poor soil conditions, while a self-anchored suspension bridge would be prohibitively expensive compared to a cable-stayed bridge for a project of this type.

The movable bridge was determined to be unsuitable for the Gerald Desmond Bridge site due to its impacts to traffic operations, large annual operating and maintenance (O&M) costs, susceptibility to seismic events, and restrictions on horizontal navigation clearance. A movable bridge would also cause substantial disruptions to Port operations. The steel box girder was also found to be unsuitable, as it requires more structural depth than the other options, resulting in the need for more than 600 ft (183 m) in additional approach span length on each end of the bridge.

Preliminary design was performed on the cable-stayed, steel truss, and steel tied arch bridges so that estimated costs could be calculated and weighed along with the aesthetics and maintenance requirements of each bridge, as well as their possible impact upon Port operations. The cable-stayed bridge was found to be the most suitable option for the new bridge, as it had the lowest cost, required the least maintenance, would affect Port operations the least during its construction, and was most aesthetically pleasing. Consequently, the steel truss and steel tied-arch options were also removed from further consideration.

#### **1.7.3.2 Approach Span Options**

Five types of approach spans were evaluated: pre-cast concrete bulb-tee girder, concrete segmental box girder, cast-in-place concrete box girder, steel I-girder, and steel box girder. Preliminary design was performed for each approach span to determine the size of bridge members and quantities so that estimated costs could be calculated. The approach span options were then compared on the basis of cost, aesthetics, maintenance requirements, and impact on Port operations. Based on the above analysis, concrete segmental box girders were selected for the high-level approaches, and cast-in-place concrete box girders were selected for the low-level approaches.

#### **1.7.4 Horseshoe Interchange Variations**

Two variations were examined for integrating the new bridge with a reconstructed Horseshoe interchange: the "Modified Parclo" interchange and the "Modified Diamond" interchange. Potential environmental impacts of the Horseshoe interchange variations were not examined, but they would not have differed among the variations considered or from those identified for the build alternatives studied in detail.

A "Parclo" interchange ("partial-cloverleaf") provides grade separation for the through lanes of two intersecting roadways, typically a local street crossing a freeway, and it provides a combination of ramps and traffic signal-controlled intersections to facilitate traffic flow between the two roads. A Parclo interchange provides two loop-ramps located in opposite quadrants such that both off-ramps from the freeway (in both directions) are handled by loop ramps. The on-ramps are provided using "direct ramps" that terminate at signalized intersections on the local street. Conversely, a Parclo may also be configured to have the loop ramps serve the on-ramps in both directions, and the other movements facilitated using ramps that terminate at signalized intersections on the local cross street. A "Modified Parclo" is a variation for the standard Parclo configuration such that one or more of the typical ramps or typical configuration is modified in some way.

A "Diamond" interchange provides grade separation for the through lanes of two intersecting roadways, typically a local street crossing a freeway, and it provides a combination of ramps and two traffic signal-controlled intersections at the intersection of the ramps with the cross street to facilitate traffic flow between

the two roads. The left- and right-turn movements to the on-ramps and from the off-ramps are facilitated at the traffic signal-controlled ramp/local street intersections. A "Modified Diamond" is a variation of a "Standard Diamond" configuration where one or more of the ramps or the typical geometry is modified in some way.

The "Modified Parclo" and "Modified Diamond" designs for the Horseshoe interchange were called "modified" because the cross street (i.e., Pier T Avenue) is parallel to Ocean Boulevard; hence, providing ramps and interconnection between the two roadways did not result in standard "Parclo" or "Diamond" configurations.

#### 1.7.4.1 Modified Parclo

The "Modified Parclo" interchange would use a loop ramp from WB Ocean Boulevard to provide access to Pier T Avenue, carrying traffic off of the new bridge and then under Ocean Boulevard to meet Pier T Avenue. An on-ramp for accessing EB Ocean Boulevard from Pier T Avenue, similar to the current ramp, would also be established. Additional ramp connections would be provided between Pier T Avenue and both Ocean Boulevard and the one-way frontage roads created by the Ocean Boulevard and SR 47 Interchange Project. These ramps would allow for full access between Pier T Avenue and Ocean Boulevard in all directions. Due to the additional ROW impacts to Pier S associated with the loop ramp, this alternative was removed from further consideration.

#### 1.7.4.2 Modified Diamond

The "Modified Diamond" interchange would use diamond ramps from the WB replacement bridge to a new road that would pass underneath the elevated Ocean Boulevard, and from that road to the EB replacement bridge. This new road would provide access to the new Pier T Avenue and would be linked by a one-way frontage road to the signalized intersection at the end of SR 47 to the west. Due to the additional delays created by the new intersections with this alternative and the operational inefficiencies to the trucks accessing the Pier T terminal facility at this interchange, the "Modified Diamond" was removed from further consideration.

#### 1.7.5 Route 710 Interchange Variations

Two variations were examined for integrating the new bridge with a reconstructed Route 710 interchange: the "Mainline Connection to Route 710" and the "Connector Connection to Route 710." Potential environmental impacts of the

Route 710 interchange variations were not examined, but they would not have differed among the variations considered or from those identified for the build alternatives studied in detail.

#### 1.7.5.1 Mainline Connection to Route 710

The "Mainline Connection to Route 710" design variation called for the construction of a new six-lane mainline connector between the median of Route 710 and new connector ramps to downtown Long Beach via Ocean Boulevard. The new connections to downtown Long Beach would be relocated to/from the right of the new bridge. Elevated hook ramps supported on bridge structures would replace the existing WB ramps from the replacement bridge to Pico Avenue. The existing hook ramps for the EB replacement bridge would remain in place. Due to the unmitigatable LOS F operating conditions that would occur at the merge of the Ocean Boulevard ramps to/from downtown Long Beach, this design variation was removed from further consideration.

#### 1.7.5.2 Connector to Route 710

The "Connector to Route 710" would replace the existing two-lane connector from the EB Gerald Desmond Bridge to NB Route 710 with a new 2-lane connector at the same location. The existing 2-lane connector from SB Route 710 to the WB Gerald Desmond Bridge would be retained, as would the current ramps between EB Ocean Boulevard and Pico Avenue. The existing diamond ramp from Pico Avenue to WB Ocean Boulevard would be replaced by a loop ramp. This variation, known as the "minimum service alternative," would also require 6 percent approach grades on the new bridge and be limited to a vertical clearance of 185 ft (56 m). Due to the desire to provide improved truck operations on the new bridge (i.e., having approach grades of less than 6 percent), this alternative was removed from further consideration.

### 1.8 COMPARISON OF ALTERNATIVES

The North-side Alignment Alternative would achieve the project's purpose and need. Specifically, this alternative would:

1. Provide a new bridge that is structurally sound and seismically resistant;
2. Reduce approach grades;
3. Provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and



4. Provide vertical clearance that would afford safe passage of existing container ships and for new-generation vessels currently being constructed.

The North-side Alignment Alternative would affect Port and private properties, including tenant businesses and utilities. It would require demolition of the Port Maintenance Yard and temporary relocation of Fireboat Station No. 20. The North-side Alignment Alternative would result in the conversion of approximately 0.7-acre (0.3-hectare [ha]) of privately held Port-related industrial land to public/transportation use. Privately owned facilities affected include Los Angeles County Flood Control District (LACFCD); LBGS; SCE; Connolly Pacific; and Pacific Energy Resources. Potential effects on these properties could include loss of land due to acquisition, modified access due to bridge footings and easements, and relocation/replacement of utilities and/or facilities. The current estimate for the value of the land for the affected private properties is \$2.0 million (see Section 2.1.3.2 [Relocations], for further discussion).

The South-side Alignment Alternative would also achieve the project's purpose and need as discussed under the North-side Alignment Alternative. This alternative would impact primarily Port properties, utilities, and tenant businesses. This alternative would require reconfiguration of both the California United Terminals and Total Terminal International, Inc. (TTI), operations on Piers D, E, and T. The Pier E gate at the California United Terminal facility would require relocation and would include reconfiguration of the following elements: entrance and exit roadways, inbound optical character recognition (OCR) devices, receiving gate lanes with pedestals, scales, cameras and queuing area, the trouble resolution building and parking area, outbound primary radiation portal monitors (RPMs) and OCR devices, outbound secondary RPM, exit gate lanes with pedestals and cameras, and associated underground electrical, communication lines, and pavement markings/barriers. It is estimated that the reconfiguration on Piers D and E would cost approximately \$10.0 million. With demolition of the existing bridge, there would be no loss of leasable Port acreage in the Middle Harbor area. Reconfiguration of Pier T would result in the permanent loss of 2.4 acres (1-ha) within the TTI terminal storage facility currently used for refrigerated container storage. Additionally, reconfiguration on Pier T would require modification to the following elements: relocation of a portion of the main gate canopy,

driver's service building and trouble parking, steel high mast light poles, chassis storage, and associated utilities, barriers, and pavement markings. It is estimated that the reconfiguration on Pier T would also cost approximately \$10.0 million. The estimated present value of 2.4 acres (1-ha) of lost Port lease revenue would be \$7.0 million over a typical 20-year lease (see Section 2.1.3.2 [Relocations], for further discussion).

Under the Rehabilitation Alternative, the bridge would survive an extreme seismic event without collapse and loss of life, but it would have a high probability of being condemned and taken out of service. Thus, even with implementation of the retrofit measures in the Rehabilitation Alternative, at an estimated cost of \$289.3 million, the bridge seismic performance would not be on par with a new bridge. Furthermore, bridge rehabilitation would not handle future traffic volumes, nor would it provide the vertical clearance needed for safe passage of container ships. Also, a life-cycle cost analysis for the project was completed to evaluate the costs of bridge rehabilitation versus replacement over a 130-year time horizon. The two scenarios evaluated in the life-cycle cost included the following:

- A. Build the new bridge now, which would open to traffic in 2015 and have a design life of 100 years. Rehabilitation of the new bridge would take place in 2115, which would extend its service life to 2145.
- B. Rehabilitate and seismically retrofit the existing bridge now to meet current AASHTO code requirements with completion in 2015, which would extend its service life to 2045. Replace the rehabilitated bridge in 2045 with a new bridge identical to the one assumed in Scenario A. The new bridge would have a design life of 100 years, thus lasting until 2145.

The results of the life-cycle cost analysis showed that the Bridge Rehabilitation Alternative (Scenario B) has a greater net present value cost (\$208 million) than the Bridge Replacement Alternatives (Scenario A).

The No Action Alternative would not meet the purpose and need for the proposed project and would not eliminate the need for rehabilitation or replacement of the Gerald Desmond Bridge. The No Action Alternative would not improve clearance for the safe passage of container ships or handle current or forecasted traffic volumes. Under the No Action Alternative, the bridge would likely be severely damaged during an MCE and would endanger life and property for those using

the bridge, ships in the Back Channel, and adjacent Port and private facilities.

### **1.8.1 Preferred Alternative**

After considering all public comments received on the Draft EIR/EA, the potential effects of the project alternatives as described in the Final EIR/EA, and the potential benefits resulting from implementing the project alternatives, the Port and Caltrans have identified the North-side Alignment Alternative as the preferred alternative. The EIR/EA has compared the three Build Alternatives and the No Build Alternative and has concluded: (1) the No Build Alternative does not satisfy the project purpose and need; (2) the North-side and South-side Alignment Alternatives, when compared with the Rehabilitation Alternative, better satisfy the project purpose and need because they better provide for future traffic demand and meet all of the project objectives; (3) the environmental effects associated with the North-side and South-side Alignment Alternatives (both during construction and operation) are reasonably equivalent; and (4) the North-side Alignment Alternative is more cost effective than the South-side Alignment Alternative. Accordingly, the North-side Alignment Alternative has been

selected as the preferred alternative for further development.

In accordance with CEQA, the Port has prepared findings for all significant impacts identified and a Statement of Overriding Considerations for impacts that cannot be mitigated to below a level of significance. The Findings and Statement of Overriding Considerations will be forwarded to the BHC for consideration with a recommendation to approve the project and certifying that the environmental document complies with CEQA. Caltrans, as assigned by FHWA, has determined that the NEPA action does not significantly impact the environment, and the Department will issue a FONSI in accordance with NEPA.

Therefore, after comparing and weighing the benefits and impacts of all the feasible alternatives summarized above, the Port and Caltrans have identified the North-side Alignment Alternative as the preferred alternative

### **1.9 PERMITS AND APPROVALS NEEDED**

Table 1-4 lists the permits, reviews, and approvals that would be required for project construction.

<b>Table 1-4 Permits and Approvals</b>		
<b>Agency</b>	<b>Permit/Approval</b>	<b>Comment</b>
<b>Federal</b>		
FHWA	Air Quality Conformity	
U.S. Coast Guard (USCG)	Bridge Permit (Section 9, Rivers and Harbors Appropriations Act)	
<b>State</b>		
California Department of Fish and Game (CDFG)	California Endangered Species Act (CESA) Incidental Take Permit	Required only if listed bats are present during preconstruction surveys
Caltrans	EA and Project Report Approval Encroachment Permits	
California Coastal Commission (CCC)	Coastal Development Permit	Required only if local Coastal Development Permits are appealed
State Historic Preservation Officer (SHPO)	Consultation; Concurrence under Section 106 (National Historic Preservation Act [NHPA])	
Regional Water Quality Control Board (RWQCB)	Section 402 National Pollutant Discharge Elimination System (NPDES) Permit (Clean Water Act [CWA]) Report of Waste Discharge	
Southern California Association of Governments (SCAG)	Transportation Conformity Working Group (PM <sub>2.5</sub> / PM <sub>10</sub> ) approval	
State Water Resources Control Board (SWRCB)	Compliance with Statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Order No. 99-08-DWQ, NPDES No. CAS000002	
SWRCB	Compliance with Caltrans Statewide NPDES Storm Water Permit, Order No. 99-06-DWQ, NPDES No. CAS000003	
California Department of Conservation – Division of Oil Gas and Geo Thermal Resources (DOGGR)	Approval of plan to relocate, abandon, and/or reabandon oil wells within the construction footprint	
California Public Utilities Commission (CPUC)	Compliance with CPUC General Order 131-D regarding relocation of transmission towers	
<b>Local</b>		
City of Long Beach	Discretionary approvals	
Port of Long Beach	Harbor Development Permit	

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*Chapter 2*  
*Affected Environment,*  
*Environmental Consequences, and*  
*Avoidance, Minimization and/or*  
*Mitigation Measures*



*Section 2.1*  
*Human Environment*





## CHAPTER 2

### AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

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Chapter 2 evaluates potential effects on environmental resources resulting from the proposed construction, demolition, and operation of the Gerald Desmond Bridge Replacement, Rehabilitation, and No Action Alternatives. Presented for each environmental topic analysis are the following subject areas:

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

When the project effects on the environment are found to be potentially adverse, pursuant to NEPA, then avoidance, minimization, and/or mitigation measures are identified. A Minimization/Mitigation Monitoring Program is provided in Appendix H. Unavoidable adverse effects of the project are discussed if the residual effects after avoidance and minimization would still be considered adverse. Environmental analyses presented in this chapter are primarily based on a series of technical studies prepared for environmental topics of concern for the project, including:

- Air Quality Technical Study<sup>3</sup> (Parsons, 2009)
- Draft Project Study Report (Parsons-HNTB, 2002a)
- Historic Properties Survey Report (Parsons, 2003f)
- Initial Site Assessment (Diaz Yourman & Associates, 2008)
- Natural Environment Study (Parsons, 2009)
- Noise Technical Study (Parsons, 2009)
- Traffic Analysis Report (Iteris, 2009)
- Visual Impact Assessment (Parsons-HNTB, 2008)
- Water Resources (Parsons, 2009)

During the preparation of this revised Draft EIR/EA, several technical studies that were prepared for the June 2004 Draft EIR/EA were updated to reflect changes to the existing environment, addition of the tolling alternative and associated expanded study area, addition of the Rehabilitation Alternative, and the Port's new environmental protocols. The technical studies that were updated consist of Air Quality, Traffic Analysis, Natural Environment Study, Noise, Water Resources, and Visual Impact Assessment.

The above technical studies are incorporated by reference into this EIR/EA document, and they are available for review at the Port office (contact Ms. Stacey Crouch at 562-590-4160) and Parsons office (contact Mr. Jeffery Bingham at 949-233-8912).

As part of the scoping and environmental analysis conducted for the proposed project, the following environmental issues were considered, but no potential for adverse effects was identified. Consequently, there is no further discussion in this document regarding the following issues:

- Wild and Scenic Rivers: There are no wild and scenic rivers within the project study area. No impacts to wild and scenic rivers would result from the proposed project.
- Farmlands/Timber/Agricultural Resources: The proposed project is not located on existing farmland or on land within the immediate vicinity of agricultural operations; therefore, the project would not have the potential to affect any farmlands or other agricultural operations. No impacts to agricultural resources would result from the proposed project.
- Paleontology: The land on which the project would be built roughly coincides with the former shoreline; thus, it would be unlikely to contain fossils. Furthermore, the area is heavily subsided and over the past 100 years has been covered by up to 30 ft (9 m) of imported structural fill and stabilizing materials, and it has been redeveloped several times as the Port has grown and modernized. Accordingly, it is highly unlikely that impacts to paleontological resources would result from the proposed project.

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<sup>3</sup> This and all "Parsons" references are referring to Parsons-HNTB joint venture.

## **2.1 HUMAN ENVIRONMENT**

### **2.1.1 Land Use, Recreation, and Coastal Zone**

Within this section, land use effects are evaluated based on consistency with local and regional plans, as well as compatibility with existing and planned development and land uses.

#### **2.1.1.1 Regulatory Setting**

##### **City of Long Beach General Plan**

Land use within the project study area, as discussed in Chapter 1, is designated by the City of Long Beach General Plan. The Long Beach Harbor area falls within General Plan Land Use District Number 12. This district includes existing freeways, the Port, and the Long Beach Airport. The General Plan indicates that the water and land use designations within the harbor area are separately formulated and adopted by due process known as the Specific Plan of the Long Beach Harbor (also known as the PMP, as amended). The General Plan indicates that the responsibilities for planning within legal boundaries of the harbor lie with the Board of Harbor Commissioners.

##### **Port Master Plan**

The PMP has nine designated land uses and four designated water uses consisting of:

- Primary Port facilities
- Hazardous cargo facilities
- Port-related industries and facilities
- Ancillary Port facilities
- Commercial recreational facilities
- Federal use
- Oil and gas production
- Utilities
- Non-Port-related areas
- Anchorage area
- Maneuvering areas
- Navigable corridors
- Recreational/sportfishing

The PMP Land Use Element has six goals for developing policies involving future Port development and expansion. The goals are also shaped by the influences of the California Coastal Act, legislative grants of the Tide and Submerged Lands, City of Long Beach Charter, Municipal Code, and the City of Long Beach General Plan (POLB, 1999). The land use goals noted in this element include:

Goal 1: Consolidate similar and compatible land and water areas.

Goal 2: Encourage maximum use of facilities.

Goal 3: Improve internal circulation involving roadways and rail.

Goal 4: Provide for the safe cargo handling and movement of vessels within the Port.

Goal 5: Develop land for primary Port facilities and Port-related uses.

Goal 6: Protect, maintain, and enhance the overall quality of the coastal development.

The Land Use Element also provides a summary of long-range plans for cargo facility and infrastructure requirements to the year 2020. The long-range plans are informational discussions that would not be considered by the California Coastal Commission (CCC) as a submission for certification (POLB, 1999).

##### **Coastal Zone Management Act**

The Coastal Zone Management Act of 1972 (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; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The CCC is responsible for implementation and oversight under the California Coastal Act.

Uses of land and water within the Ports have been outlined in the PMP (POLB, 1999). The first PMP was prepared to conform with the California Coastal Act of 1976, and it was finalized in June 1978. Thereafter, the PMP has been amended several times. The latest amended PMP was approved by the Board of Harbor Commissioners in 1999.

### **2.1.1.2 Affected Environment**

The Gerald Desmond Bridge is located within the Port in an area zoned Port-related Industrial (IP, see Exhibit 2.1.1-1). The Port owns most of this land; however, there are several relatively small privately owned and operated landholdings located in the Inner Harbor area and northernmost sections of the Port (see Exhibit 2.1.1-2). The Gerald Desmond Bridge crosses the Back Channel and generally runs east-west dividing Pier D into two separate sections. The Gerald Desmond Bridge encroaches upon approximately 92 acres (37 ha) of three different Planning Districts in the Long Beach Harbor (see Exhibit 2.1.1-3). These include the Northeast Harbor Planning District, the Terminal Island Planning District, and the Middle Harbor Planning District (POLB, 1999).

The Northeast Planning District is the oldest part of the Long Beach Harbor and contains privately owned land – Pier C and a portion of Pier S. Permitted land uses include primary port facilities; port-related industries and facilities that do not require access to berthing facilities or water frontage; hazardous cargo facilities; ancillary port facilities; oil production uses; navigable corridors; utilities; and non-port-related uses.

The Terminal Island Planning District consists of property that was originally occupied by the U.S. Naval Complex. With the closure of the naval facilities in 1997, the Port currently has title to or a lease for most of the former Naval Complex property. Most of this land has been rededicated to be part of the Pier T complex. The Terminal Planning District also includes Pier S. Permitted land uses within the District include primary port facilities; port-related industries and facilities that do not require access to berthing facilities or water frontage; hazardous cargo facilities; ancillary port facilities; oil production uses; navigable corridors; utilities, including the LBGS; and federal uses, such as the Navy Fuel Depot on the Pier T Mole.

The Middle Harbor Planning District is bound on the north by the Gerald Desmond Bridge and Ocean Boulevard. This Planning District includes Piers D, E, and a portion of F. Permitted land uses include primary port facilities; port-related industries and facilities that do not require access to berthing facilities or water frontage; ancillary port facilities; oil production uses; and utilities.

#### **Parks and Recreation Facilities**

San Pedro Bay supports recreational uses such as marinas, sportfishing facilities, and other public access areas (Exhibit 2.1.1-4). Most public and

commercial recreational opportunities are located by design within the Queensway Bay Planning District. The District acts as a buffer between the higher-industrialized inner port complex and the waterfront recreation activities of the Port and City of Long Beach (POLB, 1999).

Recreational amenities within the area include the Long Beach Marina, Queen Mary, Queensway Bay, Golden Shore RV Resort, public fishing access on the eastern side of Pier J, and Long Beach Sportfishing on Berth 55. None of these recreational facilities and attractions or any parks, recreational hiking, or biking trails are located within the immediate project vicinity.

Recreational boating is the major water-related recreational activity within Long Beach Harbor. The City's three marinas include more than 5,800 slips for boats between 18 and 80 ft (5.5 and 24 m) long, and they have an overall 20.6 percent slip vacancy rate.

Several recreational boating organizations, including yacht clubs, sponsor boating activities within Long Beach Harbor and San Pedro Bay. Private boats provide fishing and scuba diving opportunities year-round throughout San Pedro Bay. Queen's Wharf Sportfishing, located at the terminus of Channel 3, is a major sportfishing landing in the Long Beach area. Several major tour boat companies based in San Pedro Bay operate cruises to Santa Catalina Island and conduct harbor tours. No public boat ramps or dockside facilities are located within the immediate vicinity of the proposed project site or along the Back Channel; however, boats chartered from Long Beach Sportfishing pass under the Gerald Desmond Bridge several times a day.

**Section 4(f) Resources:** Public park and recreational resources may be eligible for special consideration under Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303. Section 4(f) declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Resource criteria for special consideration under Section 4(f) require that the resource is a public park, recreation, wildlife and waterfowl refuge, or historic site.

No public parks, recreation, or wildlife and waterfowl refuges were identified within the proposed project footprint.

### 2.1.1.3 Environmental Consequences

#### Evaluation Criteria

An adverse effect upon land use would occur if the project:

- Introduces an activity that would be inconsistent with existing zoning regulation
- Results in activities conflicting with existing surrounding uses
- Is incompatible with nearby conforming areas, as determined by intensity, degradation of circulation through delay, inhibiting access, or nuisance activities
- Results in uses that jeopardize public safety
- Is inconsistent with the PMP

An adverse effect on recreation would occur if the project would:

- Be in conflict with the land use plan and policy outlined in the PMP and the California Coastal Act of 1976
- Be in conflict with any applicable habitat conservation plan or natural community conservation plan
- Permanently impair or indirectly affect parks or access to and from a park, recreational area, or wildlife/water fowl refuge

#### No Action Alternative

Under the No Action Alternative, the Gerald Desmond Bridge would continue in use in its existing condition. No construction activities would occur under this alternative, and there would be no changes to the existing land uses, or coastal zone access/resources along the footprint of the Gerald Desmond Bridge or recreational opportunities within the San Pedro Bay. The existing bridge footprint covers approximately 92 acres (37 ha).

#### Construction and Demolition Impacts

##### North-side Alignment Alternative

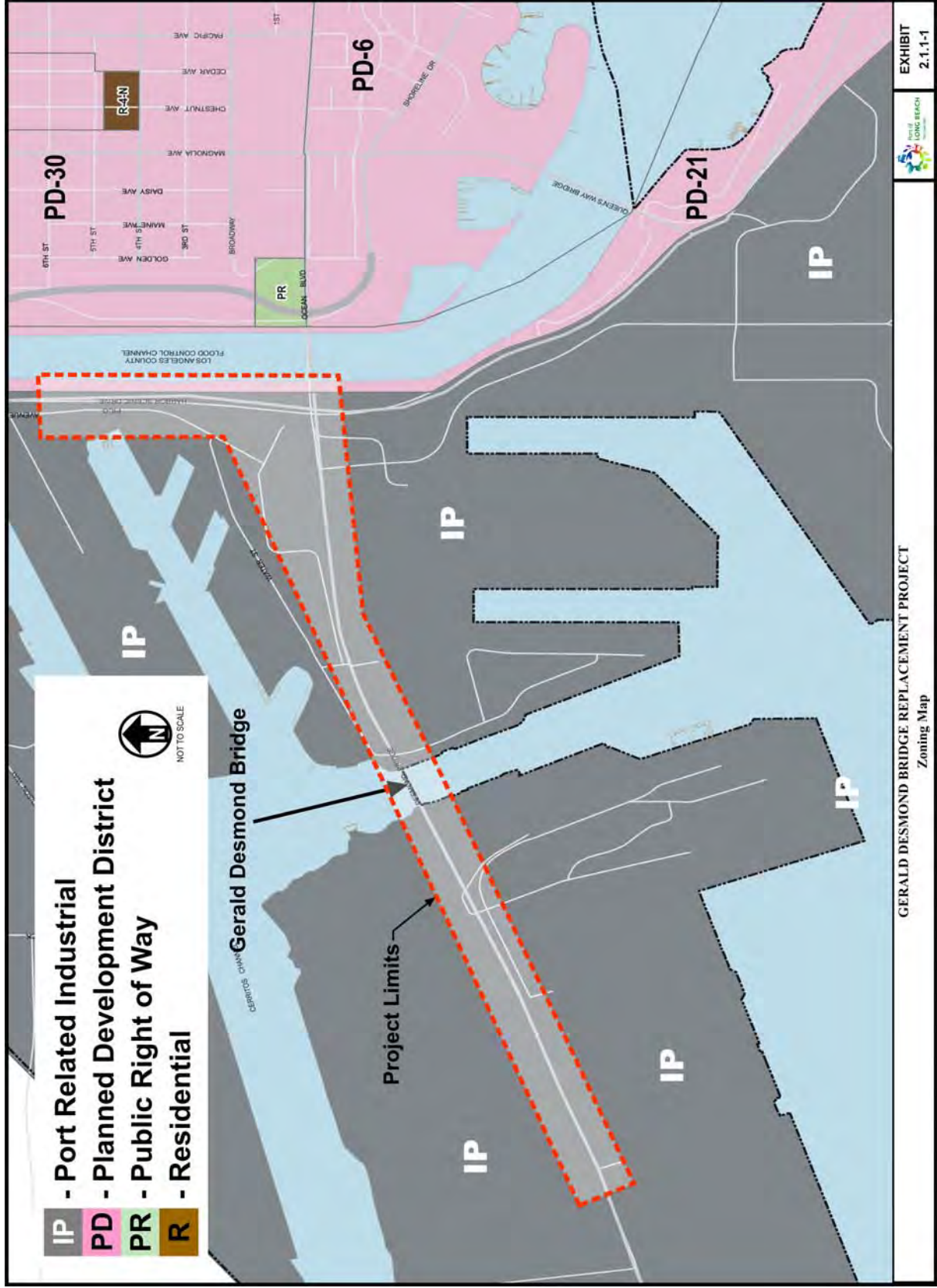
**Compatibility with Existing Land Use and Recreation:** Impacts associated with construction and demolition activities would be considered temporary, being confined to the construction phase. The proposed project would be constructed, as discussed in Chapter 1, in six phases over a period of approximately 62 months (including demolition of the existing Gerald Desmond Bridge). Construction of the new bridge would take approximately 48 months. Full demolition of the existing bridge would begin upon

completion of the new bridge. Demolition of the Gerald Desmond Bridge and structures would take an additional 15 months. The footprint of the proposed bridge and roadways would be approximately 124 acres (50 ha).

The North-side Alignment Alternative would be located within and adjacent to an existing transportation corridor. Excavation, grading, pile-driving, and other activities related to construction of roadway and bridge structures would result in temporary direct and indirect land use effects. Large areas within the construction footprint would be required exclusively for construction and would result in restricted, reduced, or modified land use. Facilities adjacent to the construction footprint would experience site-specific disruptions to land use, primarily related to construction traffic, site access modifications/disruptions, and increases in ambient noise and air pollutants (see Sections 2.2.5 [Air Quality] and 2.2.6 [Noise]). The entire alignment proposed under this alternative would be constructed within an existing industrial area zoned for Port-related industries (see Exhibit 2.1.1-1). Potential effects on facility operations within the project area are discussed in Section 2.1.3.2 (Relocations). The construction/demolition effects on land use would be short-term and/or intermittent and limited to daytime hours. Thus, construction and demolition land use effects would not be considered adverse.

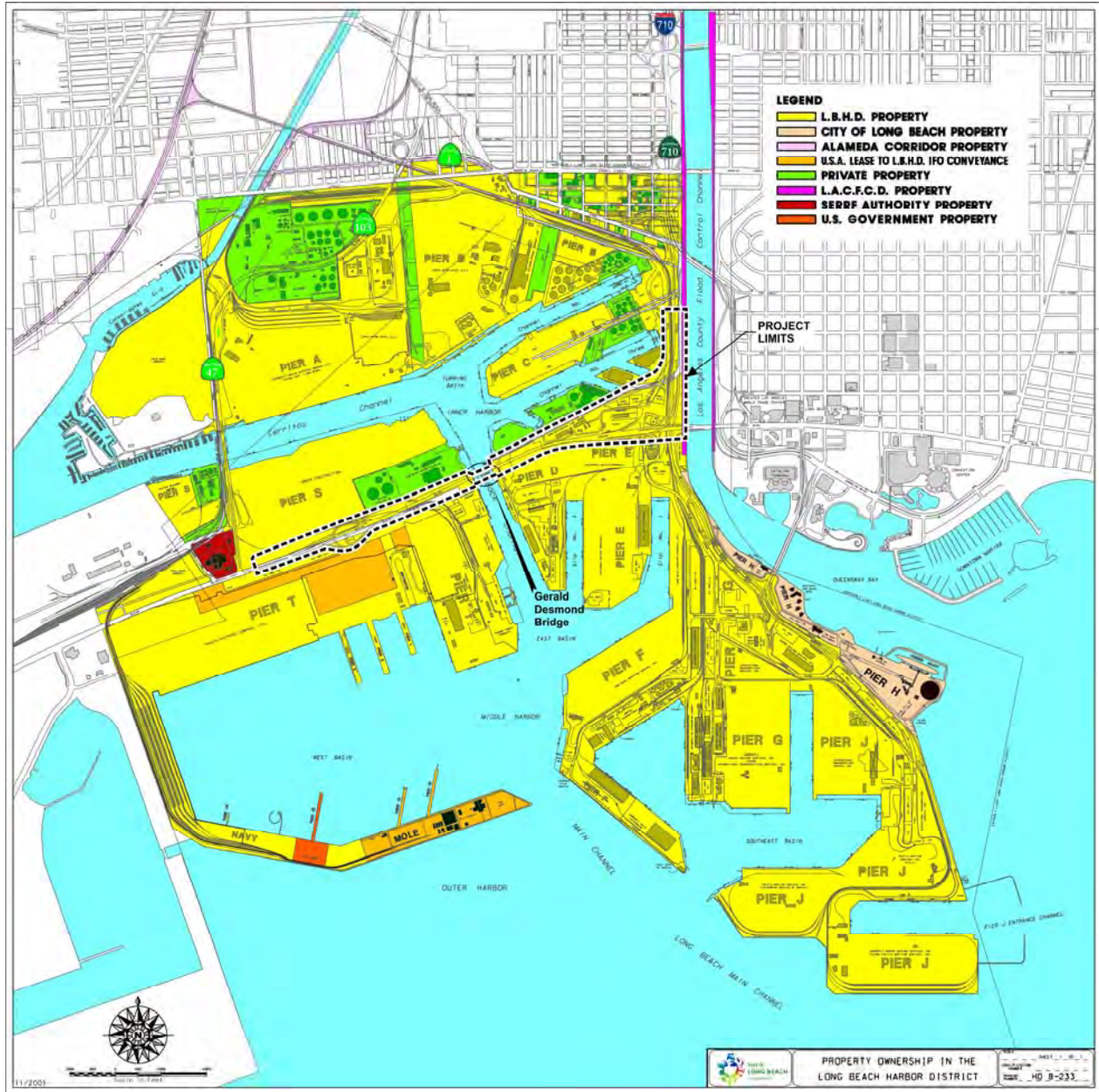
No park or recreation facilities would be used for construction staging or material laydown. The parks and recreation facilities located within 0.5-mi of project area include Cesar Chavez Park, located 0.5-mi (0.8-km) east of the project area, Queen's Wharf Sportfishing, Golden Shore Ramp Relocation Site, Golden Shore RV Resort, and Queen's Landing (see Exhibit 2.1.1-4). Potential construction effects on these areas would be temporary and would not likely affect recreational enjoyment of these areas. Thus, construction and demolition effects on recreational land use would not be considered adverse.

The North-side Alignment Alternative would not result in new or incompatible land uses. The alignment would pass through existing ROWs and industrial areas. No residential neighborhoods are located within the project area. The nearest residential areas are located more than 0.5-mi (0.8-km) from the proposed project area. Residential areas are located to the east of the Los Angeles River and to the north of Anaheim Street. Construction and demolition activities would be conducted in accordance with typical measures to minimize effects on adjacent facilities



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**EXHIBIT 2.1.1-2**  
Property Ownership Map

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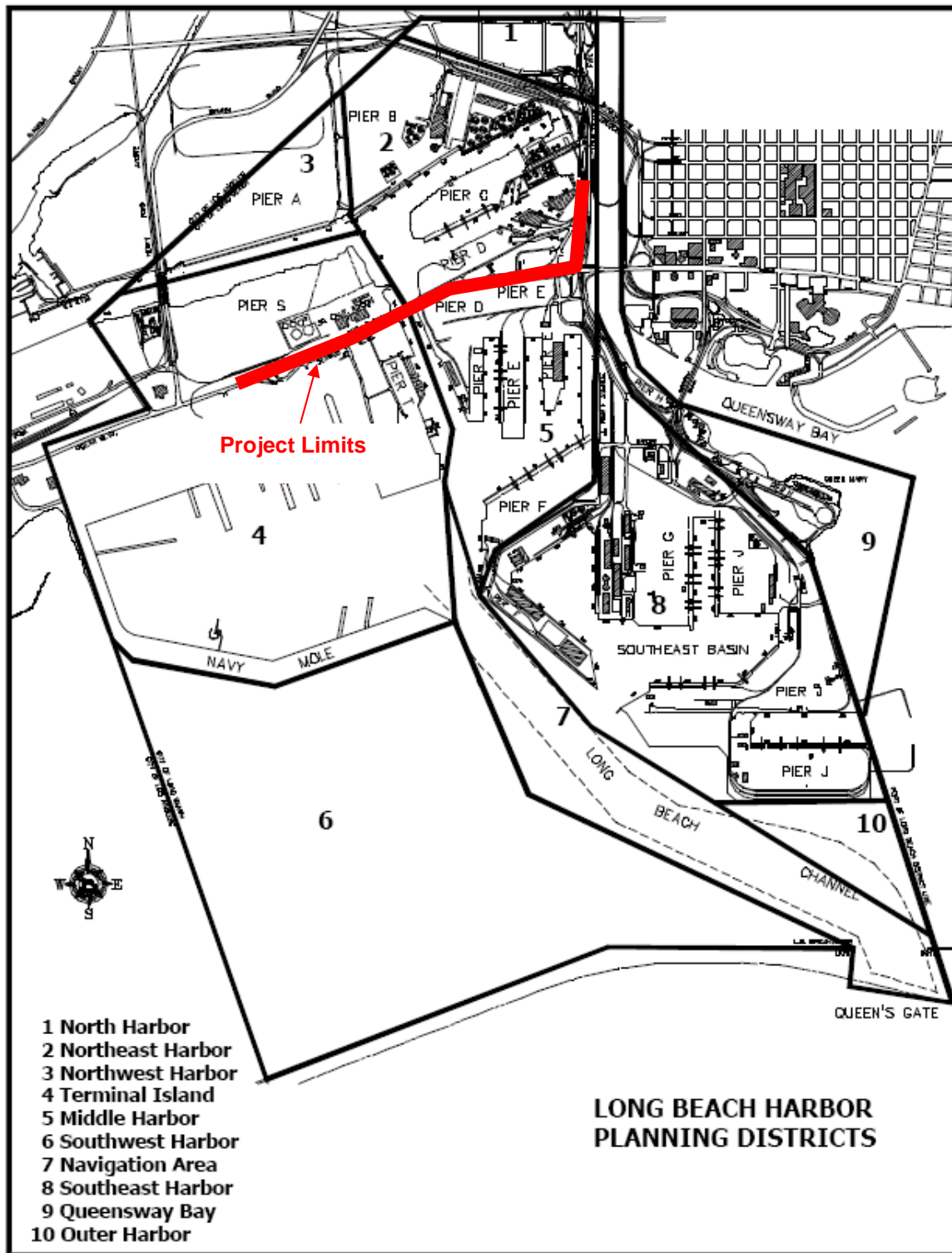
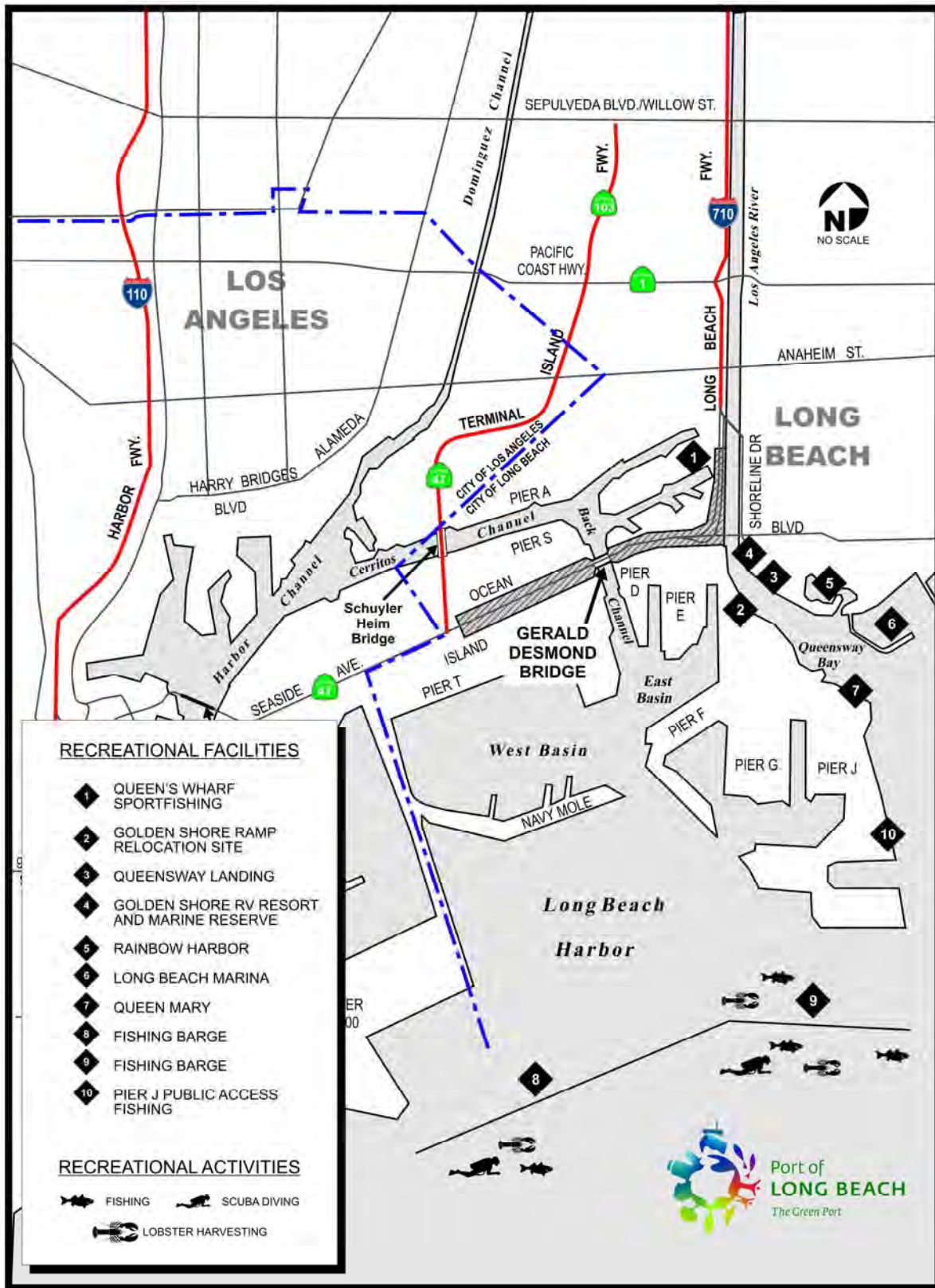


Exhibit 2.1.1-3  
Port of Long Beach Harbor Planning Districts

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**Exhibit 2.1.1-4  
Recreational Areas and Facilities  
in the Vicinity of the Gerald Desmond Bridge Replacement Project**

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and the surrounding communities during the construction and demolition phases; therefore, no adverse effects to land use are expected. Applicable construction and demolition minimization measures are discussed in more detail in Sections 2.1.2 through 2.4.4.

**Consistency with Plans and Policies:** The North-side Alignment Alternative is consistent with local land use plans, policies, and guidelines. Construction activities associated with this alternative would not materially conflict with any plans, policies, or guidelines.

**Coastal Zone:** Construction of the North-side Alignment Alternative would not prevent public or commercial access to Terminal Island. Traffic would be maintained on the existing bridge during construction and then would be transferred to the new bridge during demolition of the Gerald Desmond Bridge. Demolition of the existing bridge would occur after opening of the new bridge, allowing Ocean Boulevard to remain open to through traffic at all times. Therefore, no limitation on access to recreational resources within the harbor area would result; however, some travelers would experience periodic traffic slowdowns on major roadways within the project area due to construction material hauling and heavy equipment transportation. Potential traffic impacts and avoidance and minimization measures are discussed in Sections 2.1.5 (Traffic and Circulation) and 2.2.4 (Public Health and Safety).

Recreational users and businesses would be notified in advance of construction and demolition activities over the Back Channel. Delays or restrictions occurring during construction and demolition would be temporary and would not adversely affect recreational traffic or access within the Back Channel or Port. Demolition and construction effects of this alternative would have no effect on coastal zone public access or resources.

Additionally, demolition of the Gerald Desmond Bridge would eliminate the existing pedestrian sidewalk, and the proposed bridge would not be designed to accommodate pedestrians. Removal of pedestrian access at this location would have minimal effects on access to Terminal Island. Removal of pedestrian access is discussed in detail in Section 2.1.5 (Traffic and Circulation).

#### **South-side Alignment Alternative**

The South-side Alignment is located on the south-side of the Gerald Desmond Bridge. The footprint of the proposed bridge and roadways would be approximately 117 acres (47 ha).

Although this alternative would have different effects than the North-side Alignment Alternative on the operations of individual facilities within the Port, the construction and demolition effects on land use within the project would be very similar. The South-side Alignment Alternative would not adversely affect land use planning compatibility/consistency or recreation/coastal zone access or resources. See Section 2.1.3.2 (Relocations) for analysis of construction and demolition effects on existing facilities and operations.

#### **Rehabilitation Alternative**

The Rehabilitation Alternative would be constructed as discussed in Chapter 1. All construction land use effects would occur within and adjacent to the existing footprint of the Gerald Desmond Bridge. Construction activities would result in temporary direct and indirect land use effects adjacent to the existing columns, pile and bent caps, and abutments. Areas within the construction footprint and access to these areas may be required exclusively for construction and would result in a restricted, reduced, or modified land use during retrofit activities. In addition, facilities adjacent to the construction footprint could experience site-specific disruptions to land use, primarily related to construction traffic and site access modifications/disruptions. The construction effects on land use would be short term and/or intermittent. Most of the retrofit activities would occur during daytime hours; however, extensive work during bridge deck replacement activities would occur from 7:00 p.m. to 7:00 a.m. Construction land use effects would not be considered adverse.

No park or recreation facilities would be used for construction staging or material lay-down. The scope of the Rehabilitation Alternative, in regard to ground disturbance and construction equipment, would be considered minimal when compared to the scope of the bridge replacement alternatives. Potential effects of this alternative on parks and/or recreational enjoyment would also be considered minimal. Thus, construction effects on recreational land use would not be considered adverse.

The Rehabilitation Alternative would seismically upgrade an existing transportation facility. This alternative would not affect coastal zone access or resources or result in new or incompatible land uses. Construction activities for this alternative would be conducted in accordance with typical measures to minimize effects during the construction period; therefore, no adverse effects on land use would occur.

## **Operational Impacts**

### North-side Alignment Alternative

**Compatibility with Planned Land Use and Recreation:** Operation of the North-side Alignment Alternative would result in the conversion of approximately 0.7-acre (0.3-ha) of privately held Port-related industrial land to public/transportation use. Privately owned facilities affected include Pacific Pipelines, LLC; LBGS; SCE; Connolly Pacific; and Pacific Energy Resources. Potential effects on these properties could include loss of land due to acquisition, modified access due to bridge footings and easements, and relocation/ replacement of utilities and/or facilities. The current estimate for effects on private facilities is \$2.0 million (see Section 2.1.3.2 [Relocations] for further discussion).

Anticipated ROW requirements for this alternative would not have a substantial effect on facility operations and would not result in permanent land use conflicts. The proposed bridge would be consistent with designated land use within the Port. It would be an industrial-type transportation use located in an area where all surrounding land uses are designated Port-related Industrial. The operation of the bridge would be consistent with the six long-range planning goals and objectives for future port development and expansion, as stated in the PMP and as listed in the Application Summary Report in Chapter 8 of this document. The implementing objective is to promote efficient vehicular and vessel circulation and access to Terminal Island and within the Port. The new bridge would not adversely affect future land use planning or require Plan amendments for proposed minor changes in existing land use. During operation, areas within the former footprint of the Gerald Desmond Bridge and, where appropriate, beneath the new bridge, would be available for Port-related industrial uses. The North-side Alignment Alternative utilizes more support columns instead of fill, potentially resulting in a net increase of 4 acres (1.6 ha) of area that would be available for future Port-related industrial use. Most of this increase is associated with removal of fill during demolition of existing abutments and approach roadways. The new bridge would also result in a long-term, safe connection between Long Beach and Terminal Island even after an extreme seismic event; therefore, no adverse effects associated with the operation of the North-side Alignment Alternative are anticipated.

This alternative would not require acquisition of any nearby park or recreation land use areas.

Consequently, no direct effects to the surrounding parks and recreational facilities are expected. The project would not induce more population to reside in the Harbor District area; thus, it would not result in an increased use of existing recreational facilities within the area. The proposed project would not attract more tourists to visit the harbor than planned for by the City of Long Beach and the Port. Operation of the proposed project would have no effect on parks or recreational land uses.

This alternative 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; however, any potential increase in jobs would be temporary (related to construction) and come from throughout the region. Associated increases in permanent local residents would be considered minimal and would not likely result in new and expanded park/recreation services or facilities. Additionally, the North-side Alignment Alternative is intended to accommodate the anticipated growth in regional commuter and Port-related truck traffic. Local agencies are assumed to have already considered potential regional and Port-related growth in their capital facilities planning (see Section 2.1.2 [Growth]). No adverse effects related to the negligible indirect operational land use effects of this alternative are anticipated.

**Consistency with Plans and Policies:** The North-side Alignment Alternative is 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. This alternative would result in improved regional and local access to and from the port, as well as regional traffic in general, and it is consistent with local plans and policies (see Section 2.1.2 [Growth]). This alternative would not directly conflict with applicable plans and policies; therefore, it would not result in an adverse effect. The Long Beach General Plan states that the responsibilities for planning within legal boundaries of the harbor lie with the Board of Harbor Commissioners. Uses of land and water within the Port have been outlined in the PMP (POLB, 1999).

Operation of the North-side Alignment Alternative would not have an adverse effect on coastal zone management, the Long Beach General Plan, or its specific plan for the port as discussed within the PMP. Operation of the proposed project is

consistent with these plans and would not adversely affect current or future planning.

**Coastal Zone:** Operation of the North-side Alignment Alternative would not affect public access within the coastal zone. The Port areas within the coastal zone are utilized by heavy industry, and many of the areas are restricted to public access. Additionally, this alternative would improve safety for current and future vessels within the Back Channel. Operation of the North-side Alignment Alternative would improve access to existing industrial facilities located within the coastal zone. The alternative would not attract more tourists to visit the harbor than planned for by the City of Long Beach and the Port. Operation of the proposed project would have no effect on public coastal zone access or resources.

The North-side Alignment Alternative is consistent with the California Coastal Act, which states that all port-related developments shall be located, designed, and constructed so as to minimize substantial adverse environmental impacts; minimize potential traffic conflicts between vessels; give highest priority to the use of existing land space within harbors for port purposes including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities; provide for other beneficial uses consistent with the public trust including, but not limited to, recreation and wildlife habitat uses, to the extent feasible; and encourage rail service to port areas and multi-company use of facilities.

#### South-side Alignment Alternative

Operation of the South-side Alignment Alternative would require reconfiguration of operations at both the California United Terminals (Piers D/E) and TTI (Pier T) facilities. Estimates to reconfigure these terminals to accommodate the South-side Alignment Alternative are approximately \$10 million at each terminal. With demolition of the existing bridge, the South-side Alignment Alternative would not result in a loss of leasable Port acreage in the Middle Harbor area; however, it would permanently reduce the area available for container terminal operations within the TTI terminal and leasable Port acreage by approximately 2.4 acres (1-ha). The estimated present value of lost Port lease revenue would be \$7.0 million over a typical 20-year lease (see Section 2.1.3.2 [Relocations] for further discussion).

Anticipated ROW requirements for this alternative would not have a substantial effect on facility operations and would not result in permanent land use conflicts. The proposed bridge would be

consistent with designated land use within the Port. It would be an industrial-type transportation use located in an area where all surrounding land uses are designated Port-related Industrial. The operation of the bridge would be consistent with the six long-range planning goals and objectives for future port development and expansion, as stated in the PMP and as listed in the Application Summary Report in Chapter 8 of this document. The implementing objective is to promote efficient vehicular and vessel circulation and access to Terminal Island and within the Port. Although the South-side Alignment Alternative would permanently affect 2.4 acres (1-ha) of existing container terminal, the loss is along the edge of the terminal and would not affect long-range Port development plans. The new bridge would not adversely affect future land use planning or require Plan amendments for proposed minor changes in existing land use.

During operation, areas within the former footprint of the Gerald Desmond Bridge and, where appropriate, beneath the new bridge, would be available for Port-related industrial uses. The South-side Alignment also utilizes more support columns instead of fill, and it would also potentially result in a net increase of 4 acres (1.6 ha) of area that would be available for future Port-related industrial use. Most of this increase is associated with removal of fill during demolition of existing abutments and approach roadways. The new bridge would also result in a long-term, safe connection between Long Beach and Terminal Island even after an extreme seismic event.

Operational effects of the South-side Alignment Alternative on recreation/coastal zone access or resources would be the same as discussed under the North-side Alignment Alternative. The South-side Alignment Alternative would not result in adverse effects on land use planning compatibility/consistency or recreation/coastal zone access or resources.

#### Rehabilitation Alternative

Operation of the Rehabilitation Alternative would not result in any changes from the existing land use within the project area. Operation of this alternative would have no effect on existing or future land use planning, compatibility, or consistency on recreation or coastal zone access or resources.

#### **2.1.1.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.



## **2.1.2 Growth Inducement**

This section discusses the project's "land side" and maritime growth inducement potential, prepared by the POLB, related to the cargo capacity of the Ports and growth outside the ports in the adjacent communities.

### **2.1.2.1 Regulatory Setting**

The CEQ regulations, which implement NEPA, require evaluation of the potential environmental consequences of all proposed federal activities and programs. The regulations also include a requirement to examine indirect consequences that 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.

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..."

#### **City of Long Beach General Plan**

In the project study area, land uses and future planned growth are designated by the City of Long Beach General Plan. The Long Beach Harbor area falls within General Plan Land Use District Number 12. This district includes existing freeways, the POLB, and the Long Beach Airport. The General Plan indicates that the water and land use designations within the harbor area are separately formulated and adopted by due process known as the Specific Plan of the Long Beach Harbor [also known as the PMP, as amended]. The General Plan indicates that the responsibilities for planning within legal boundaries of the harbor lie with the Board of Harbor Commissioners.

#### **Port Master Plan**

The PMP has nine designated land uses and four designated water uses consisting of:

- Primary Port facilities
- Hazardous cargo facilities
- Port-related industries and facilities
- Ancillary Port facilities

- Commercial recreational facilities
- Federal use
- Oil and gas production
- Utilities
- Non-Port-related areas
- Anchorage area
- Maneuvering areas
- Navigable corridors
- Recreational/sportfishing

The PMP Land Use Element has six goals for developing policies involving future POLB development and expansion. The goals are also shaped by the influences of the California Coastal Act, legislative grants of the Tide and Submerged Lands, City of Long Beach Charter, Municipal Code, and the City of Long Beach General Plan (POLB, 1999). The land use goals noted in this element include:

Goal 1: Consolidate similar and compatible land and water areas.

Goal 2: Encourage maximum use of facilities.

Goal 3: Improve internal circulation involving roadways and rail.

Goal 4: Provide for the safe cargo handling and movement of vessels within the Port.

Goal 5: Develop land for primary Port facilities and Port-related uses.

Goal 6: Protect, maintain, and enhance the overall quality of the coastal development.

The Land Use Element also provides a summary of long-range plans for cargo facility and infrastructure requirements to the year 2020. The long-range plans are informational discussions that would not be considered by the California Coastal Commission (CCC) as a submission for certification (POLB, 1999).

### **2.1.2.2 Affected Environment**

The proposed project would provide a replacement surface transportation connection between Terminal Island, SR 710, and downtown Long Beach. Long Beach lies to the north and east of the existing Gerald Desmond Bridge, while the communities of San Pedro and Wilmington (both part of the City of Los Angeles) lie to the northwest and southwest, respectively.

The project site is located within the Port in an area zoned Port-related Industrial (IP). POLB owns most of this land; however, there are several relatively small privately owned and operated landholdings located in the Inner Harbor area and



northernmost sections of the Port. Refer to Section 2.1.1.2 (Land Use, Affected Environment) for information about the three Planning Districts in the Long Beach Harbor that encompass the project site.

### **2.1.2.3 Environmental Consequences**

#### **Traffic Growth Inducement Methodology and Assumptions**

The additional vehicle trips generated by planned transportation and land development projects (i.e., cumulative traffic growth) within the Ports and surrounding communities are included in the traffic forecasting model used for this study. Refer to Section 2.1.5 (Traffic and Circulation) for details on the development of the traffic forecasting model used for this study.

The traffic model used to develop the travel forecasts for development and growth in the region through the year 2030 is based upon the travel demand forecasting model developed for the Ports of Long Beach and Los Angeles Transportation Study (Ports Transportation Study). That model, completed in 2000, is based upon the SCAG Regional Travel Demand Forecasting Model. Elements of the SCAG heavy-duty truck model were used, as well as input data from the City of Long Beach model and the City of Los Angeles Transportation Improvement Mitigation Program models for Wilmington and San Pedro.

The year 2030 regional trip tables were developed using the SCAG 2030 regional trip tables. These regional trip tables were also augmented with focus area trips from non-port and port zones based on other major developments in the focus study area, as well as port trips based primarily on the Ports Transportation Study. The focus area and regional person trips were then converted into vehicle trips based on SCAG's trip distribution model, mode-split factors, and average auto-occupancy tables. The model was validated to 2005 base year conditions and used to project both year 2015 and year 2030 travel demand.

**Land-side Direct Growth Inducement Potential:** The North-side Alignment Alternative and the South-side Alignment Alternative (Bridge Replacement Alternatives) would not result in changes to zoning or land use designations that would have the potential to directly influence growth in the area. It is likely that adjacent areas would be utilized by the Port for marine terminals and infrastructure. These potential uses would compensate for the areas occupied by the new

bridge and would represent additional land-side growth pressure. In effect, the Bridge Replacement Alternatives would not result in a greater amount of land available for redevelopment within the Port than that which exists today. Future Port development projects would be evaluated per the Port's Environmental Protocol and approved as required by the PMP, as amended.

The congestion relief benefits of the Bridge Replacement Alternatives would not likely be a direct cause of new vehicle trips (i.e., traffic growth) in the region because the bridge in and of itself is not the destination of vehicle trips. Rather, the congestion relief benefits of the Bridge Replacement Alternatives are expected to redirect traffic to the bridge to avoid other more-congested roadways. This redistribution could have the effect of freeing up capacity on other roadways within the vicinity of the Port. This redistribution of traffic is expected to increase traffic on the bridge. As discussed in Section 2.1.5 (Traffic and Circulation), the improvements provided by the proposed Bridge Replacement Alternatives would result in an estimated 9 percent more traffic (135,930 vpd) on the new bridge in year 2030 than would be on the bridge under the No Action/Rehabilitation Alternatives (124,670 vpd). The additional traffic, approximately 11,260 vpd, would likely be the result of motorists changing their paths rather than the result of additional trips associated with additional land development directly induced by the Bridge Replacement Alternatives; therefore, the Bridge Replacement Alternatives would not be a direct cause of traffic growth.

**Land-side Indirect Growth Inducement Potential:** The proposed bridge replacement project likely would indirectly induce growth. When considered in the context of future cumulative development that is likely to occur within the Ports and surrounding communities, the traffic congestion relief benefits associated with the Bridge Replacement Alternatives would have the potential to indirectly influence growth as a result of more-efficient or improved access to and from areas within the Port and surrounding communities. Indirectly induced growth associated with future land development could result from the traffic congestion relief benefits provided by the new bridge and the lessening of congestion on other roadways within the vicinity of the Port as more vehicles utilize the bridge as a preferred route. Thus, the proposed new bridge would reduce future traffic congestion that might otherwise serve to limit future development or

cargo movement potential. This type of growth is highly speculative; therefore, it is extremely difficult to quantify in an urban environment that is already developed. In terms of land-site acreage, there are limited opportunities for additional development beyond what is already included in the land use forecasts used in the traffic forecasting process. The Ports themselves are assumed to reach build-out before year 2030. Any indirectly induced growth that involved a new project would be subject to the regulatory process at the time that it occurs.

It is possible that the improved access to and from areas within the Port could also contribute to more intense use of existing cargo terminals. The key question is whether the new bridge would have the potential to cause a greater amount of cargo to be brought in the Port than would otherwise occur with the existing bridge left in place. The amount of cargo brought into the Port directly influences the volume of truck and train trips needed to carry away the cargo to its ultimate destination. The maximum amount of cargo that can be accommodated by the Ports is directly related to the capacity of the marine terminals. The capacity of the Ports container terminals is generally considered to be a function of the following:

- The size and configuration of the wharfs and backland storage yards
- Labor practices
- The type and quantity of yard equipment
- The type of containers (imports/exports/empties and intermodal/local)
- The size distribution of the ships calling at the terminals

The maximum Ports container cargo capacity is estimated to be 42 million TEUs, which will be reached between years 2020 and 2025 based on projected market demand. The estimated capacity of the Ports would not be directly affected by the Bridge Replacement Alternatives. The market demand for goods would be neither directly nor indirectly affected by bridge replacement.

Because the truck traffic associated with the maximum capacity cargo volumes (42 million TEUs) has been provided to SCAG and is incorporated in SCAG's RTP, the regional transportation system already takes into account the estimated capacity of the Ports.

The new bridge would result in travel time savings (2.2 minutes per truck in both directions [Port of

Long Beach Traffic Model]) for trucks moving the cargo. This reduction on one small segment of the global distribution network is not likely to cause a shipper to shift cargo to POLB or POLA from other ports. The 2.2-minute savings is a negligible part of the total cargo transit time from manufacturer to the ultimate destination, which is measured in days (typically ranging from 9 to 15 days) (*Pacific Shipper Magazine*, 2006).

The *Port and Model Elasticity Study* (Leachman & Associates, 2005), which was prepared for SCAG, and supplemental analyses conducted by SCAG indicate that a container fee of under \$200 per forty-foot equivalent unit (FEU), combined with transportation congestion relief projects, would not alter shipper supply chain logistics. Another study, *Cargo on the Move through California* (Energy and Environmental Research Associates, 2006) prepared for the Natural Resources Defense Council (NRDC) concluded that a \$30 container fee for capital improvements would not result in the diversion of cargo. The estimated value of time for goods movement estimated by SCAG in their supplemental diversion study analyses indicates that the time savings for the proposed replacement bridge could equate to approximately \$2.66 per trip. Given the thresholds of elasticity estimated in the aforementioned studies, it is reasonable to assume that supply cost savings of \$2.66 would not result in the shifting of cargo from other ports.

The Port has concluded that the reduction in traffic congestion and the improved efficiency and enhanced capacity resulting from the Bridge Replacement Alternatives and the relatively small savings in overall cargo transit time attributable to the new bridge would not provide a meaningful incentive for shippers to divert their cargo from other ports to the POLB/POLA; however, it is not possible to predict whether the improved and enhanced access to and from areas of the Port would have other indirect effects on the intensity of cargo movement through existing Port terminals. Some of the factors that suggest there is unlikely to be an increase in cargo movement as a result of the new bridge and roadway improvements include (1) the capacity of the Ports' container terminals generally is limited by factors other than the surrounding roadway system, such as berth capacity, backland capacity, crane capacity, and terminal gate capacity; (2) the market demand for goods traveling through the Ports would be neither directly nor indirectly affected by bridge replacement; and (3) the potential travel time

savings is not sufficient to induce the shifting of cargo from other ports. Nonetheless, to be conservative, this DEIR/EA assumes there is a potential for indirect growth inducement associated with the Bridge Replacement Alternatives and that the Bridge Replacement Alternatives could result in some level of growth-related adverse effects on the environment. Quantifying any such effects would be highly speculative and is made more difficult by the fact that the project is occurring in an urban environment and port complex that are already highly developed with very limited opportunities for additional development. For this reason, while the potential for growth inducement in cargo movement is identified as a possible impact of the roadway improvements associated with the bridge replacement project, the effects are too speculative to reliably evaluate and essentially remain unknown.

It is also important to note that future development growth within the Port and surrounding communities is planned for in the PMP and the City of Long Beach General Plan. In addition, the additional vehicle trips generated by planned transportation and land development projects (i.e., cumulative traffic growth) within the Port and surrounding communities are included in the traffic forecasting model used for this study.

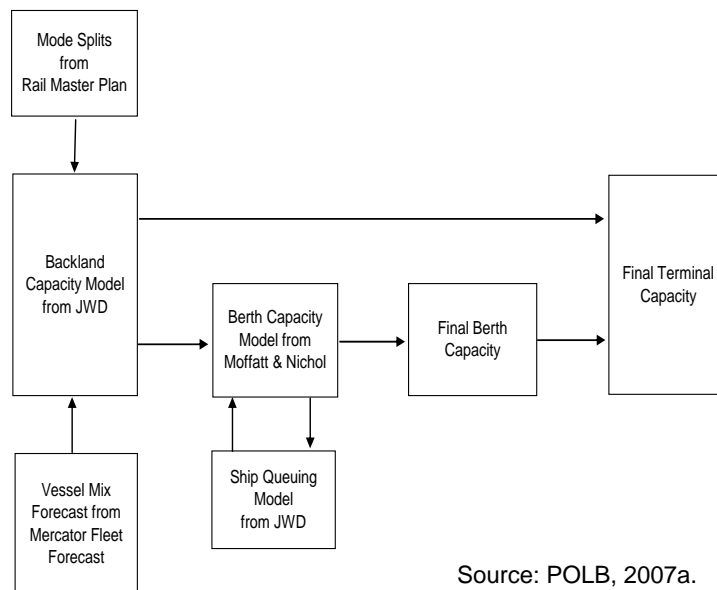
**Maritime Growth Inducement Potential**

Container Terminal Capacity

The key question in assessing the potential for the Bridge Replacement Alternatives to induce port growth is whether the additional 44 ft (13.4 m) of clearance for ships passing under the bridge will lead to more cargo being handled by the terminals upstream of the bridge. In other words, if the current bridge height had served as a constraint on cargo throughput at those upstream terminals, then the removal of that constraint would be “growth inducing.”

The Port’s process for determining the capacity of any Port container terminal begins by estimating the terminal’s backland throughput capacity. Given this estimate, a collection of vessels that can accommodate that throughput is determined from a container fleet forecast. The physical constraints of the terminal (e.g., wharf length, channel width, or air draft) will be accommodated by the selected vessels. The selected vessels are assigned an arrival schedule that is assessed for acceptable LOS at the berth, measured by the expected probability of queuing. Port terminal capacities reflect existing, known development and expansion plans.

Exhibit 2.1.2-1 summarizes the process for calculating container terminal capacity.



Source: POLB, 2007a.

**Exhibit 2.1.2-1  
Marine Terminal Capacity Flow Chart**

Backland Capacity

JWD Group (an engineering consulting group that specializes in marine planning capabilities) developed a spreadsheet model used by ports nationwide to calculate maximum container-yard capacity for a given existing or planned terminal.

Key model variables include the size of the storage area, how the containers are stored (i.e., chassis versus grounded) and how long the containers remain in storage. Container storage and dwell times<sup>4</sup>, in turn, are largely a function of where the container is destined and whether it is loaded with cargo. Tables 2.1.2-1 and 2.1.2-2 provide a list of assumptions about the types of containers handled and various backland operations that feed into the model.

The model uses these inputs along with the size of the container yard and expected split of cargo among the various container types (Table 2.1.2-1) to estimate the overall capacity of the yard.

Berth Capacity

The number and size of vessels expected to call at the terminal are taken from the San Pedro Bay distribution of vessels forecast for 2020. This forecast is taken from the 2005 fleet forecast prepared by Mercator Transport Group (MTG). This fleet forecast is designed to accommodate San Pedro Bay's expected 2020 container cargo (identified as the "Base-Case Scenario" in the MTG study). The projected fleet will be a representative subset of the San Pedro Bay fleet capable of handling the container yard capacity throughput.

An initial projected fleet is developed by selecting a diverse collection of ships from the 2020 Mercator distribution that can handle terminal throughput approximately equal to the estimated container yard capacity. (In certain cases, the collection of services for a given terminal may have an expected annual capacity greater than the capacity of the terminal's container yard.) This fleet is input to the Moffatt & Nichol (M&N) berth capacity model to determine if the initial fleet can be accommodated at the wharf. The model considers the overall length of each ship, the number of containers discharged and loaded, and various assumptions about berth operations to estimate how long each vessel will remain at berth and how much berth space it will use.

<sup>4</sup> Dwell Time: The number of days that a ton of cargo remains in port.

Container Type	Mean Dwell Time (days)	% Wheeled	Mean Stack Height
Import local load	4.0	10	3.5
Import on-dock intermodal load	2.0	10	3.5
Import off-dock intermodal load	1.5	10	3.5
Export local load	6.0	5	3.5
Export on-dock intermodal load	6.0	0	3.5
Export off-dock intermodal load	6.0	10	3.5
Import empty	NA	NA	5.5
Export empty	7.0	5	5.5

Source: POLB, 2007e.

Utilization rate for stocked storage area	1/ (peak/mean)	85%
Maximum wheeled utilization	–	90%
Wheel shape efficiency factor	–	80%
Slot density for wheeled storage	TEU slots per acre	50
Slot density for top and side pick (T/SP)*	TEU slots per acre	100
Slot density for rubber tire gantry (RTG)*	TEU slots per acre	115

\* Stacks of loaded containers to be handled by RTGs; Stacks of empty containers to be handled by T/SP.

Source: POLB, 2007.

The vessel distribution produced from this process is then evaluated to determine the probability of vessel queuing using JWD's terminal resources model. If the vessel distribution *exceeds a queuing probability of 5 percent*, then the distribution will be modified by adjusting the mix of vessels to find a combination of weekly services that can accommodate the container yard capacity throughput while avoiding a queuing expectation of 5 percent or greater. These modified vessel schedules may no longer be representative of the overall distribution of vessels forecast for San Pedro Bay; however, the POLB fleet should remain as close to representative of the San Pedro Bay total as possible.

The need for calculating queuing probability stems from the fact that a terminal wharf cannot be occupied 100 percent of the time (i.e., its theoretical capacity). To the extent that ship arrival times will vary, a certain amount of useable wharf will need to remain unoccupied for a period of time to avoid unacceptable ship queuing. JWD's terminal resources model calculates this queuing probability using vessel call schedules developed from the M&N model and empirical data on the frequency and length of time that container vessels calling San Pedro Bay arrive late due to weather and other factors.

Overall Capacity

Comparing the berth capacity to the container yard capacity reveals where terminal capacity constraints arise, the greater constraint will dictate the overall constraint of the terminal. A berth-constrained terminal has a container yard capacity greater than the berth capacity (i.e., the berth cannot accommodate the vessel activity required to deliver the entire throughput that the container yard could handle). A container yard-constrained terminal has a berth capacity greater than the capacity of the storage yard (i.e., the terminal's berths will be underutilized because the container yard cannot handle all of the containers that could be moved over the wharf).

**Maritime Growth Inducement Potential:** The existing Gerald Desmond Bridge is approximately 156 ft (47.5 m) above the Back Channel at MHWL. Given the size and type of existing and planned marine terminals located north of the Gerald Desmond Bridge, only the existing Pier A and the planned Pier S container terminals are potentially affected by the Bridge Replacement Alternatives. This is because the only other container terminal north of the Gerald Desmond Bridge is Pier C, which is a small facility leased by Matson Navigation Company primarily for its Hawaii trade, which does not warrant the use of larger container vessels. The other terminals north of the bridge are bulk or automobile terminals serviced by different types of vessels for which the height of the current Gerald Desmond Bridge is not expected to be a limitation in the foreseeable future.

The Port's pilots can navigate under the bridge with a minimum 3-ft (1-m) overhead clearance for their vessels. Accordingly, this guideline limits ships to a height, or air draft, of approximately 153 ft (46.6 m) (POLB, 2005a). Air draft is defined as the height of a vessel from the keel to the antenna, minus its draft in the water. The actual draft of a container vessel varies depending on

the cargo it carries. Generally this variation ranges from the design draft, or the draft associated with what the vessel is expected to carry, to the scantling draft, or the draft at maximum possible load.

The projected capacities of Piers A and S are approximately 2.1 and 1.4 million TEUs, respectively. These capacities were calculated using a computer modeling system developed for the Port in 2005 by JWD Group and M&N. Key model factors include the amount of container yard acreage, length of the wharf, and size of the ships expected to call at the terminal. A projection of the San Pedro Bay container fleet was prepared in 2005 for the Ports by MTG. Table 2.1.2-3 shows the distribution of all vessels by TEU capacity expected to call at the two ports by year 2020.

<b>Vessel Size Categories (TEUs)</b>	<b>Number of Weekly Services</b>
1000-1099	1
2000-2999	9
3000-3999	10
4000-4999	23
5000-5999	16
6000-6999	15
7000-7999	12
8000-8999	11
11000-11999	11
Total	108

Both Piers A and S would be capable of handling any forecasted vessel above if there were no navigational constraints; however, the expectation is that ships in the largest size category would not likely call at Pier S given that in year 2020 Pier S would be one of the smallest container terminals in San Pedro Bay. Excluding Pier C, the San Pedro Bay Ports will have 13 container terminals, but they project only 11 weekly services of the largest vessels (see Table 2.1.2-3). Because not every terminal will have a weekly service of the largest vessels, it is highly unlikely that these vessels will call at a smaller terminal such as Pier S.

Given the current plans for Pier A, which for the purpose of this analysis was assumed to include the 30 acres (12 ha) of the old Wilmington Rail

yard to the east that currently are not part of Pier A, the facilities are constrained by the size of the container storage yard (i.e., the berth can accommodate more cargo than the container storage yard can handle). Table 2.1.2-4 shows a projected fleet for Terminal A that provides cargo flows equal to container yard capacities. The projected fleet is consistent with the overall San Pedro Bay fleet distribution, as well as the assumption that Pier A would be able to receive the largest vessels.

are not considered feasible or cost effective for the foreseeable future; however, this growth inducement analysis considered larger ships in case the channel constraints are removed in the future.

Table 2.1.2-5 shows that a distribution of ships from the current San Pedro Bay fleet can provide terminal throughput within the capacity of Pier A and is not substantially constrained by the existing bridge height. According to the Port's model, which calculates each vessel's time at berth and factors in periodic late ship arrivals, even with the two additional weekly services, there would be no ship queuing problem. Based on this modeling, it does not appear that the Bridge Replacement Alternatives will meaningfully enhance terminal capacity at Pier A even though they facilitate larger ships calling at the terminal. In other words, even though the height constraint on larger ships getting into the Back Channel would be removed with the Bridge Replacement Alternatives, this does not appear to translate into substantially more cargo being handled through Pier A. Thus, raising the height of the bridge does not appear to serve to generate meaningfully more container throughput than would occur without the project. Based upon the modeling shown in Tables 2.1.2-4 and 2.1.2-5, it is possible that there would be some modest increase in throughput. This potential increase in throughput would likely have environmental effects typically associated with cargo transport. The effects would typically include additional truck, train, ship, and cargo

**Table 2.1.2-4  
Pier A Vessel Forecast at Capacity –  
No Navigational Constraints**

Vessel Size Categories (TEUs)	Pier A	
	Number of Weekly Services	Annual TEUs
1000-1099	–	–
2000-2999	–	–
3000-3999	–	–
4000-4999	1	173,160
5000-5999	–	–
6000-6999	1	509,860
7000-7999	1	596,440
8000-8999	–	–
11000-11999	1	822,510
Total	4	2,101,970

Without the proposed bridge replacement project, it is assumed that the weekly service by vessels in the 11,000 to 11,999 TEU size category would not service Pier A due to air draft constraints; however, it should be noted that the Gerald Desmond Bridge is not the only navigational constraint for Piers A and S. As identified in the Port's Pier S Marine Terminal and Back Channel Navigational Safety Improvements Project, navigational safety concerns would require the Port to widen the navigable width of the channel to approximately 315 ft (96 m) at a minimum and maximum water depth of 52 ft (15.8 m) and 54 ft (16.5 m), respectively, at mean lower low water (MLLW). Even with the proposed bridge replacement, the largest ship that would be able to navigate the channel safely would be between 8,000 and 8,999 TEUs. Larger vessels would require a wider channel and deeper water, which

**Table 2.1.2-5  
Pier A Vessel Forecast at Capacity –  
Air Draft Constraints**

Vessel Size Categories (TEUs)	Number of Weekly Services	Annual TEUs
1000-1099	–	–
2000-2999	–	–
3000-3999	1	211,640
4000-4999	2	346,320
5000-5999	1	384,800
6000-6999	1	509,860
7000-7999	1	596,440
8000-8999	–	–
11000-11999	–	–
Total	6	2,049,060

handling equipment operational emissions and cumulative contribution to greenhouse gases (GHGs) and additional effects on the Port, City, and State roadways to accommodate potential additional truck trips to move the additional throughput into the State and national distribution networks. Because predicting the level of any such increase in throughput is speculative, further analysis of the environmental impacts associated with any possible increase cannot be performed. This is consistent with the recommendation of CEQA Guidelines 15145 and NEPA.

**No Action/Rehabilitation Alternatives**

Under the No Action/Rehabilitation Alternatives, the Gerald Desmond Bridge would continue to

operate in its existing configuration. There would be no changes in land use or zoning, no changes to the existing surface transportation system or terminal cargo capacity in the vicinity of the existing bridge, no congestion relief associated with additional traffic capacity on the bridge, and no travel time savings achieved. As such, there would be no potential for the No Action or Rehabilitation Alternatives to directly or indirectly induce growth in the project area.

**2.1.2.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

### **2.1.3 Community Impacts**

This section addresses potential effects on community character and cohesion (Section 2.1.3.1), relocations (Section 2.1.3.2), and low-income and minority populations (Section 2.1.3.3) associated with the construction and operation of the proposed build alternatives. Because there are no specific guidelines under NEPA or CEQA for determining potential areas of influence of community impacts, the Caltrans Environmental Handbook, Volume 4 (1997) – Community Impact Assessment was consulted. The handbook states that the boundary of potentially affected social and economic environments should be drawn to include surrounding buildings, transportation facilities, land, and neighborhood and community features. On this basis, the project study area was delineated to include the Port and those portions of the adjacent communities potentially affected within the cities of Long Beach and Los Angeles. The project study area includes all census tracts within 0.75-mi (2.4 km) of the project corridor (0.75-mi [2.4 km] on both sides of the project corridor, as shown in Exhibit 2.1.3-1).

#### **2.1.3.1 Community Character and Cohesion**

##### **2.1.3.1.1 Regulatory Setting**

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 U.S.C. 4331(b)(2)]. FHWA, in its implementation of NEPA [23 U.S.C. 109(h)], directs that final decisions regarding projects are 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 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. Because this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

#### **2.1.3.1.2 Affected Environment**

##### **Study Area**

The EIR/EA was reviewed to identify potentially adverse effects of the project on the adjacent communities within the project area. Based on consideration of the potential project effects as discussed within this EIR/EA, traffic effects were determined to have the largest potential direct effects area, extending into downtown Long Beach. The 0.75-mi (2.4-km) study area is centered on the project corridor within the project limits and encompasses the entire traffic study area (see Section 2.1.5, Exhibit 2.1.5-1). The 0.75-mi (2.4-km) study area includes the proposed project area, its immediate surrounding areas, and an additional area to account for potential project effects on community character and cohesion.

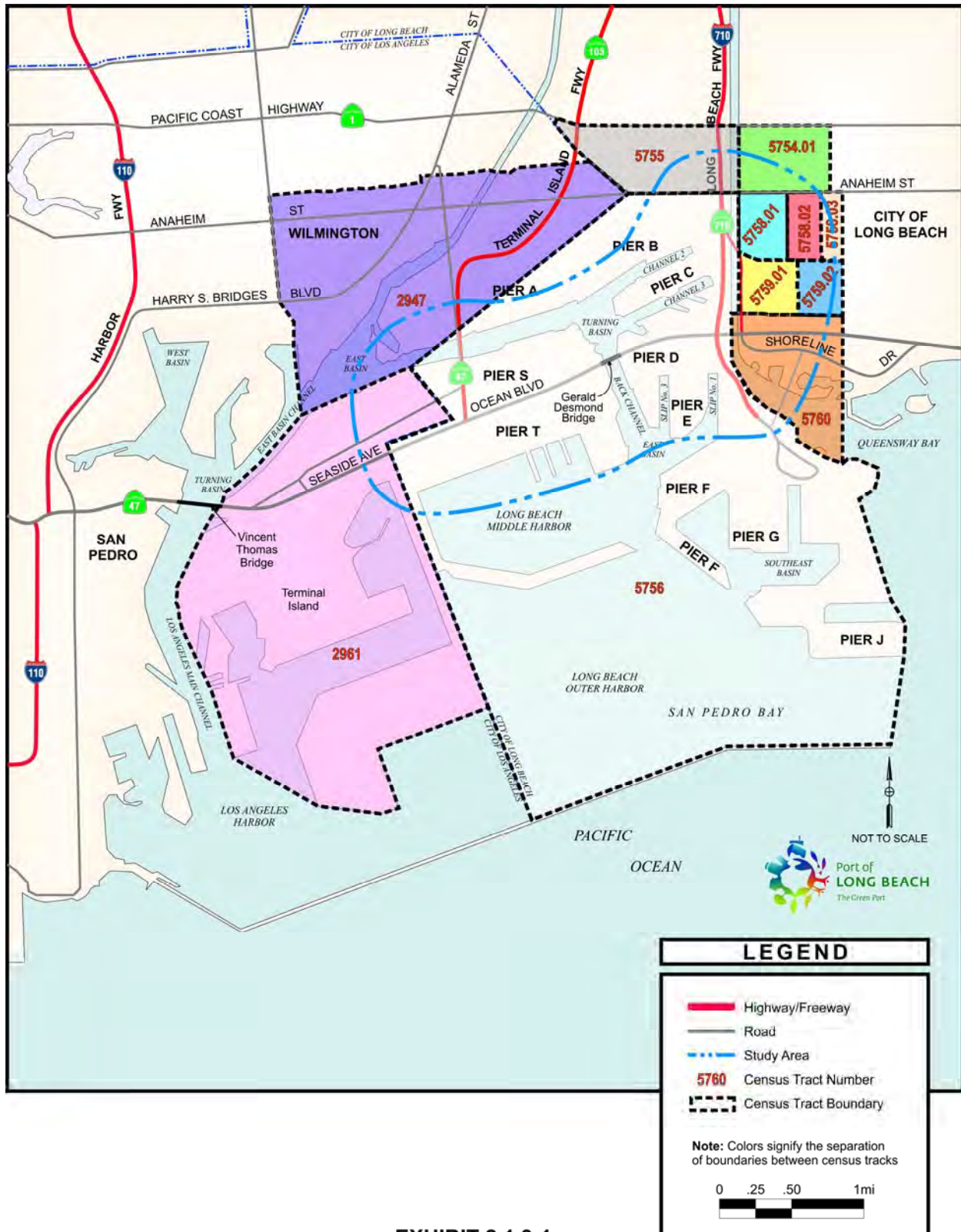
The study area consists of 11 census tracts (see Exhibit 2.1.3-1). Due to the irregular shape of the census tracts, some tracts extend outside of the 0.75-mi (2.4-km) project study area. Census data were not adjusted to account for this; therefore, census data presented for the study area actually account for an area slightly larger than the project study area. It should also be noted that Tracts 5756 and 2961 are located within the Ports of Long Beach and Los Angeles.

In addition to the planning areas of the Ports of Long Beach and Los Angeles, the study area census tracts include portions of the community of Wilmington and the City of Long Beach. Socioeconomic and demographic data for the study area census tracts discussed below were obtained from the 2000 census data. The City of Long Beach and the County of Los Angeles are also discussed for comparison to provide local and regional socioeconomic and demographic context for the study area.

##### **Community Facilities and Services**

The Cities of Long Beach and Los Angeles supply water and sewer services to the project site and the entire study area. Electricity and natural gas within the study area are provided by SCE and Long Beach Energy, respectively. Solid waste collection within the Port is handled by private contractors. Trash and other nontoxic solid waste are disposed of at various landfills in Los Angeles County. No shortages of these facility capacities in the Port or the larger study area currently exist or are anticipated.





**EXHIBIT 2.1.3-1**  
Census 2000 Tracts

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Other community resources located within the study area include schools and recreational facilities. The nearest schools to the project are located within the City of Long Beach and are located approximately 0.3-mi (0.5-km) from the eastern edge of the proposed project: Edison Elementary is a public school at 625 Maine Avenue, and Cesar Chavez Elementary School is a public school located at 730 West 3rd Street.

**Recreational Amenities**

San Pedro Bay supports recreational uses such as marinas, sportfishing facilities, and other public access areas (POLB, 1999). Specific recreational amenities within the area include the Long Beach Marina, Queen Mary, Queensway Bay, Golden Shore RV Resort, public fishing access on the eastern side of Pier J, and Long Beach Sportfishing on Berth 55. None of these recreational facilities and attractions is located within the immediate project vicinity (see Section 2.1.1 [Land Use] for further discussion)

**Study Area Socioeconomic and Demographic Characteristics**

Population socioeconomic data from the U.S. Census Bureau (U.S. Census, 2000) were analyzed at the census tract level. A census tract is a statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tract boundaries normally follow visible features, but they may follow governmental unit boundaries and other nonvisible features in some instances. During their development, census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions. Each census tract contains an average of 4,000 inhabitants (U.S. Census, 2000), and it may be split by any subcounty geographic entity. As previously

discussed, the study area consists of 11 census tracts. All but 2 of the 11 census tracts, Tracts 2947 and 2961, are located within the City of Long Beach (see Exhibit 2.1.3-1).

**Study Area Population Demographics**

Population reported for the study area census tracts are provided in Table 2.1.3-1, and study area population age and racial composition are provided in Tables 2.1.3-2 and 2.1.3-3. The reported population of the 11 census tracts is approximately 31,000 people. The percentage of working age (19 to 64) adults within the study census tracts range from a low of 50.4 (Tract 5758.01) to 90.6 (Tract 5760). Overall, 58.4 percent of the study area population is working age adults. This compares to 58.6 percent and 59.3 percent for the City of Long Beach and the County of Los Angeles, respectively.

With the exception of Census Tract 5760, persons classified as Hispanic or Latino constitute most of the population in the study area census tracts. The percentage of Hispanic or Latino populations ranges from 28.8 percent (Tract 5760) to 86.7 percent (Tract 5758.01). Overall, 64 percent of the study area census tract population is Latino or Hispanic. This compares to 35.8 percent and 44.6 percent for the City of Long Beach and the County of Los Angeles, respectively; however, all census tracts have majority minority populations. Minority percentages of the study area census tracts range from 60.4 percent (Tract 5760) to 95.4 percent (Tract 574.01). Overall, 85.6 percent% of the study area census tract population is minority (not white). This compares to 66.9 percent and 68.6 percent for the City of Long Beach and the County of Los Angeles, respectively. Except for Tracts 2961, 5759.02, and 5760, the percentage of white persons is much lower in the study area census tracts than the City of Long Beach and the County of Los Angeles. Based on the information

<b>Communities</b>	<b>1990</b>	<b>2000</b>	<b>2006 Estimates</b>	<b>Percent Change 1990-2000</b>	<b>Percent Change 2000-2006</b>
Study Area <sup>1</sup>	--- <sup>2</sup>	30,978	N/A*	0.2	N/A
City of Long Beach	429,433	461,522	466,520	7.5	1.1
County of Los Angeles	8,863,164	9,519,338	8,878,554	7.4	-6.7

<sup>1</sup>Project study area includes all census tracts within 0.75-mi (2.4 km) of the project area.

<sup>2</sup>Census tract boundaries in 1990 Census are different from census tract boundaries for 2000 Census.

\*N/A: data not available for census tracts.

Sources: U.S. Census, 2000; and U.S. Census, 1990.

provided in Table 2.1.3-3, the study area is considered a predominantly minority community when compared to the City of Long Beach and County of Los Angeles

#### Study Area Socioeconomic Demographics

Socioeconomic demographic data for the study area census tracts are provided in Tables 2.1.3-4 and 2.1.3-5. The information is summarized below.

According to the 2000 census data, 9,973 households and 5,740 families are within the study area census tracts. Average household and family size within the study area range from 1.67 (Tract 2961) to 5.09 (Tract 5755) and 2.14 (Tract 5760) to 4.51 (Tract 5758.01), respectively. This compares to 2.77 and 3.55 for the City of Long Beach and 2.98 and 3.61 for the County of Los Angeles. Median family and household incomes within the study area census tracts range from \$0 (Tract 5756; no families) to \$69,375 (Tract 2961) and \$13,750 (Tract 5755) to \$152,338 (Tract 5756), respectively. This compares to \$40,002 and \$37,270 for the City of Long Beach and \$46,492 and \$42,189 for the County of Los Angeles. Even when leaving out the study area census tracts that contain the Ports (2961 and 5756), the median family and household incomes reported for the study area are much lower than those reported for the City of Long Beach and the County of Los Angeles.

The study area census tracts contain 9,693 housing units. No housing or residential communities are located within the project footprint or larger Port area (Tract 5756). Residential neighborhoods are located within the bordering census tracts in the City of Long Beach. According to U.S. Census 2000 data, residential communities are found east of the Los Angeles River (8,626 units) and also north of Anaheim Street (100 units). Housing units within the study area vary from high-density apartments to single-family homes built on individual lots. Approximately 84 percent of the housing units within the study area census tracts are classified as renter occupied. This compares to 59 percent of renter-occupied housing units in the City of Long Beach and 52 percent of renter-occupied housing units in the County of Los Angeles.

According to the City of Long Beach Housing Authority and Los Angeles County Community Development Commission, six low-income affordable housing developments that provide affordable housing for seniors, disabled, and

people with HIV/AIDS are located within the study area census tracts.

Employment data for the study area census tracts show that there are 11,306 individuals in the civilian labor force (i.e., does not include military). Unemployment within the study area census tracts range from zero percent (Tracts 5755 and 5756) to 27.8 percent (Tract 5754.01). Overall unemployment within study area census tracts is 16.9 percent. This compares to 9.4 percent and 8.2 percent for the City of Long Beach and County of Los Angeles, respectively.

Individual earnings in 1999 that are below the poverty level within study area census tracts range from 21.9 percent (Tract 5760) to 53.4 percent (Tract 5754.01). With the exception of Tract 5760, all study area tracts have greater percentages of individuals earning below the poverty level than both the City of Long Beach (22.8 percent) and County of Los Angeles (17.9 percent).

The U.S. Census Bureau uses a set of income thresholds that vary by family size and composition to determine poverty status. If a family's total income is less than the poverty threshold income, then that family is considered impoverished. The poverty thresholds do not vary geographically, and they are updated annually to reflect inflation using the Consumer Price Index (CPI). The official poverty definition considers monetary income before taxes and does not include capital gains and non-cash benefits (e.g., public housing, Medicaid, and food stamps). Poverty is not defined for people in military barracks, institutional group quarters, or for unrelated individuals under age 15 (e.g., foster children) (Dalaker and Proctor, 1999).

Except for tracts 2961, 5756, and 5760 (no families or no families below the poverty level), percentages of families with incomes below the poverty level ranged from 32.4 percent (Tract 5759.02) to 77.3 percent (Tract 5755). Overall, 40.1 percent of the families within study area census tracts have incomes that fall below the poverty level, and is much higher than the City of Long Beach (19.3 percent) and County of Los Angeles (14.4 percent). Based on the higher percentages of individuals and families living below the poverty level when compared to the City of Long Beach and County of Los Angeles, all study area tracts, except for 2961 (located in the Port of Los Angeles), 5756 (located in the Port of Long Beach), and 5760, are considered low-income populations.

**Table 2.1.3-2  
Study Area Age Composition**

Demographic	Study Area Census Tracts																				Comparison Areas					
	2947		2961		5754.01		5755		5756		5758.01		5758.02		5758.03		5759.01		5759.02		5760		City of Long Beach		County of Los Angeles	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Total Population	3,270	100.0	1,434	100.0	5,476	100.0	252	100.0	46	100.0	2,721	100.0	5,433	100.0	2,968	100.0	3,825	100.0	5,108	100.0	445	100.0	461,522	100.0	9,519,338	100.0
Population 19 or younger	1,242	38.0	81	5.6	2,527	46.1	71	28.2	16	34.8	1,298	47.7	2,345	43.2	833	28.1	1,452	38.0	1,239	24.3	31	7.0	149,119	32.3	2,946,796	31.0
Population 19 to 64	1,881	57.5	1,296	90.4	2,835	51.8	176	69.8	28	60.9	1,372	50.4	2,949	54.3	1,567	52.8	2,259	59.1	3,353	65.6	403	90.6	270,501	58.6	5,645,869	59.3
Population 65+	147	4.5	57	4.0	114	2.1	5	2.0	2	4.3	51	1.9	139	2.6	568	19.1	114	3.0	516	10.1	11	2.5	41,902	9.1	926,673	9.7

Source: U.S. Census, 2000.

**Table 2.1.3-3  
Study Area Racial Composition**

Demographic	Study Area Census Tracts																				Comparison Areas					
	2947		2961		5754.01		5755		5756		5758.01		5758.02		5758.03		5759.01		5759.02		5760		City of Long Beach		County of Los Angeles	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Total Population	3,270	100.0	1,434	100.0	5,476	100.0	252	100.0	46	100.0	2,721	100.0	5,433	100.0	2,968	100.0	3,825	100.0	5,108	100.0	445	100.0	461,522	100.0	9,519,338	100.0
White	224	6.9	459	32.0	251	4.6	55	21.8	7	15.2	176	6.5	466	8.6	617	20.8	565	14.8	1,554	30.4	176	39.6	152,899	33.1	2,959,614	31.1
Black or African American	205	6.3	337	23.5	485	8.9	19	7.5	11	23.9	114	4.2	518	9.5	478	16.1	815	21.3	965	18.9	81	18.2	66,836	14.5	901,472	9.5
American Indian or Native American	6	0.2	12	0.8	19	0.3	3	1.2	1	2.2	7	0.3	10	0.2	25	0.8	25	0.7	41	0.8	2	0.4	1,772	0.4	25,609	0.3
Asian	36	1.1	40	2.8	272	5.0	7	2.8	1	2.2	31	1.1	238	4.4	314	10.6	267	7.0	318	6.2	35	7.9	54,937	11.9	1,124,569	11.8
Native Hawaiian and other Pacific Islander	27	0.8	12	0.8	52	0.9	2	0.8	4	8.7	3	0.1	12	0.2	18	0.6	31	0.8	47	0.9	5	1.1	5,392	1.2	23,265	0.2
Other (not Hispanic or Latino)	0	0.0	0	0.0	5	0.1	4	1.6	0	0.0	1	0.0	7	0.1	5	0.2	5	0.1	14	0.3	2	0.4	1,013	0.2	19,935	0.2
Two or more races	38	1.2	30	2.1	83	1.5	2	0.8	1	2.2	31	1.1	67	1.2	67	2.3	88	2.3	185	3.6	16	3.6	13,581	2.9	222,661	2.3
Hispanic or Latino	2,734	83.6	544	37.9	4,309	78.7	160	63.5	21	45.7	2,358	86.7	4,115	75.7	1,444	48.7	2,029	53.0	1,984	38.8	128	28.8	165,092	35.8	4,242,213	44.6

Source: U.S. Census, 2000.

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**Table 2.1.3-4  
Study Area Socioeconomic and Housing Characteristics**

Demographic	Study Area Census Tracts																				Comparison Areas						
	2947		2961		5754.01		5755		5756		5758.01		5758.02		5758.03		5759.01		5759.02		5760		City of Long Beach		County of Los Angeles		
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number
Total Population over 16 Years Old	2,222	100.0	1,281	100.0	3,312	100.0	175	100.0	2	100.0	1,607	100.0	3,431	100.0	2,305	100.0	2,681	100.0	4,802	100.0	533	100.0	339,395	100.0	7,122,525	100.0	
In Labor Force over 16 Years Old	1,150	51.8	71	5.5	1,777	53.7	105	60.0	2	100.0	763	47.5	1,960	57.1	1,087	47.2	1,699	63.4	2,458	60.2	273	51.2	209,485	61.7	4,312,264	60.5	
Per Capita Income	9,622		7,639		6,128		6,992		171,900		7,285		7,100		9,656		15,207		15,323		16,407		19,040		20,683		
Total Poverty-Based Population	3,242	100.0	155	100.0	5,305	100.0	208	100.0	2	100.0	2,737	100.0	5,410	100.0	2,918	100.0	3,817	100.0	5,108	100.0	370	100.0	453,065	100.0	9,349,771	100.0	
Individuals below Poverty Level	1,324	40.8	48	31.0%	2,674	50.4	111	53.4	0	0	1,190	43.5	2,723	50.3	1,289	44.2	1,448	37.9	1,704	33.4	81	21.9	103,434	22.8	1,674,599	17.9	
Total Families	629	100.0	42	100.0	1,052	100.0	22	100.0	0	100.0	540	100.0	1,165	100.0	487	100.0	841	100.0	945	100.0	17	100.0	100,866	100.0	2,154,311	100.0	
Average Family Size	4.2		2.95		4.42		4.06		3.20		4.51		4.23		3.66		3.78		3.18		2.14		3.55		3.61		
Median Family Income	23,179		69,375		19,199		12,115		0		22,667		19,265		20,613		25,262		23,935		12,361		40,002		46,452		
Families below Poverty Level	250	39.7	0	0	498	47.3	17	77.3	0	0	250	46.3	513	44.0	185	38.0	284	33.8	306	32.4	0	0	19,512	19.3	311,226	14.4	
Total Households	946	100.0	104	100.0	1,191	100.0	38	100.0	2	100.0	725	100.0	1,419	100.0	1,094	100.0	1,374	100.0	2,614	100.0	286	100.0	163,279	100.0	3,136,279	100.0	
Average Household Size	3.39		1.67		4.25		5.09		2.00		4.17		3.65		2.41		2.76		1.95		1.70		2.77		2.98		
Median Household Income	21,914		31,500		19,789		13,750		152,338		23,750		19,349		17,109		25,898		23,170		28,750		37,270		42,189		
Total Housing Units	941	100	93	100	1,189	100	32	100	1	100	655	100	1,479	100	1,077	100	1,375	100	2,618	100	233	100	163,107	100	3,133,774	100	
Owner Occupied	139	14.8	93	100.0	70	5.9	0	0.0	0	0.0	80	12.2	132	8.9	156	14.5	465	33.8	418	16.0	25	10.7	66,971	41.1	1,499,694	47.9	
Renter Occupied	802	85.2	0	0.0	1,119	94.1	32	100.0	1	100.0	575	87.8	1,347	91.1	921	85.5	910	66.2	2,200	84.0	208	89.3	96,136	58.9	1,634,080	52.1	

Source: U.S. Census, 2000.

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**Table 2.1.3-5  
Study Area Employment Status, Work Location, and Means of Transportation to Work**

Demographic	Study Area Census Tracts																				Comparison Areas						
	2947		2961		5754.01		5755		5756		5758.01		5758.02		5758.03		5759.01		5759.02		5760		City of Long Beach		County of Los Angeles		
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number
<b>Employment Status</b>																											
Total Population over 16 in Labor Force	1,150	100.0	71	100.0	1,777	100.0	105	100.0	2	100.0	763	100.0	1,960	100.0	1,087	100.0	1,699	100.0	2,458	100.0	273	100.0	209,485	100.0	4,312,264	100.0	
Employed	1,001	87	56	78.9	1,283	72.2	105	100	2	100	649	85.1	1,556	79.4	885	78.7	1,442	84.9	2,183	90.2	266	97.4	189,487	90.6	3,953,415	91.8	
Unemployed	149	13	15	21.1	494	27.8	0	0	0	0	114	14.9	404	20.6	232	21.3	257	15.1	236	9.8	7	2.6	19,680	9.4	354,347	8.2	
<b>Work Location</b>																											
Work in Residence	458	46.3	0	0.0	434	35.4	91	90.1	2	100.0	121	19.3	543	37.3	272	34.4	506	36.7	805	36.5	106	39.8	61,685	33.4	1,382,500	36.5	
Work outside of Residence	531	53.7	48	100.0	792	64.6	10	9.9	0	0.0	506	80.7	914	62.7	518	65.6	871	63.3	1,401	63.5	160	60.2	122,794	66.6	2,402,195	63.5	
<b>Transportation to Work</b>																											
Car, Truck, or Van	767	77.6	48	100.0	799	65.2	16	15.8	2	100.0	505	80.5	981	67.3	532	67.3	1,065	77.3	1,565	70.9	224	84.2	159,133	86.3	3,296,964	87.5	
Public Transportation	110	11.1	0	0.0	276	22.5	10	9.9	0	0.0	62	9.9	318	21.8	202	25.6	198	14.4	307	13.9	11	4.1	12,260	6.6	254,091	6.7	
Walk, Bike, Motorcycle, or Other	108	10.9	0	0.0	124	10.1	75	74.3	0	0.0	53	8.5	139	9.5	48	6.1	81	5.9	305	13.8	31	11.7	7,798	4.2	81,906	2.2	
Work at Home	4	0.4	0	0.0	27	2.2	0	0.0	0	0.0	7	1.1	19	1.3	8	1.0	33	2.4	29	1.3	0	0.0	5,288	2.9	134,643	3.6	

Source: U.S. Census, 2000.

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### **2.1.3.1.3 Environmental Consequences**

#### **Evaluation Criteria**

NEPA requires consideration of social and economic impacts of projects in the preparation of environmental documents. NEPA states that consideration is to be given to qualitative factors and unquantifiable environmental amenities and values, along with economic and technical considerations, in decision making that may affect the following:

- Human-made and natural resources and/or aesthetic values
- Community cohesion and the availability of public facilities and services
- Adverse employment effects and tax and property value losses
- Disruption of desirable community and regional growth

#### **No Action Alternative**

Continued operation of the Gerald Desmond Bridge would have no effect on community character. It would not divide or weaken the cohesion of any established communities or affect any community or recreation facilities or services or access to facilities or services.

#### **Construction and Demolition Impacts**

##### North-side Alignment Alternative

**Community Facilities and Services.** Approximately 150 construction workers would be required to build the North-side Alignment Alternative. It is likely, as is the case with most construction projects in southern California, that the construction workforce would consist of workers from existing regional labor pools. Due to the temporary nature of construction industry jobs, the relatively large regional construction industry, and the fact that construction workers do not typically relocate to near the jobsite, it is unlikely that new construction jobs would lead to increases in local or regional population; however, it should be noted that even if the workforce resulted in a permanent relocation of the workforce to the City of Long Beach, the increase associated with 150 construction workers and their families would not likely result in a measurable increase in demand on local facilities and services or cause a substantial increase in the demand for existing electrical sources or require the development of new sources.

Construction of the North-side Alignment Alternative would not substantially increase

demand for public utilities in the Port or region (see Section 2.1.4 [Utilities and Service Systems]). Based on the temporary nature of construction industry jobs, construction of the North-side Alignment Alternative is not anticipated to have a substantial effect on local school enrollments, hospital admissions, or other demand-sensitive facilities or services. Demand-sensitive public services and facilities would not be substantially affected by the small workforce anticipated for construction of the North-side Alignment Alternative.

Demolition of the existing bridge would not occur until after the opening of the new bridge, allowing Ocean Boulevard to remain open to through traffic at all times; however, there would be some temporary closures of lanes and adjacent roads, as well as access changes or restrictions. To minimize delays and inconvenience, a Transportation Management Plan (TMP) identifying alternative routes would be developed. As part of the TMP, portable changeable message signs and advanced warning roadway signs would be used to direct traffic to these alternative routes. Emergency access would be maintained during construction. All affected emergency routes would be identified in the TMP and coordinated with all agencies prior to construction (see Section 2.1.5 [Traffic and Circulation]). Construction of this alternative would not adversely affect existing emergency facilities or services (see Section 2.2.4 [Public Health and Safety]).

The North-side Alignment Alternative would not result in any loss of public parking. The proposed demolition of the Gerald Desmond Bridge would eliminate the existing pedestrian sidewalk. Removal of the sidewalk would not adversely affect pedestrian access to community facilities or services because there are none within the Port areas. Removal of the pedestrian access is discussed in detail in Section 2.1.5 (Traffic and Circulation).

**Recreational Amenities.** There would be no limitation on access to recreational resources within the harbor during construction of the North-side Alignment Alternative; however, there may be some traffic slowdowns near the project area as a result of heavy equipment movement and material hauling. Recreational boating businesses that use the Back Channel would be notified of any restrictions to the Back Channel well in advance of construction and demolition activities

The North-side Alignment Alternative would not result in an increased use of existing recreational

facilities in the area. The North-side Alignment Alternative would not adversely affect recreational opportunities within the project study area (see Section 2.1.1 [Land Use]).

**Population.** Construction of the North-side Alignment Alternative is located within an area zoned for industrial use, would not result in the creation or elimination of permanent jobs, and would not result in any land use changes that would affect local or regional growth projections.

**Housing.** Construction of the North-side Alignment Alternative would not result in the removal of any residences or construction of additional residences. The project involves the replacement of an existing bridge in an industrial area, and it would not divide or weaken the cohesion of any established communities. There are no residential neighborhoods within the immediate project vicinity. Residential neighborhoods closest to the project site are found beyond the industrial use area, outside the Port to the north and east. The nearest residential development is at least 0.3-mi (0.5-km) east of the project site on the east side of the Los Angeles River near the Cesar Chavez Elementary School. No impacts to housing would result from construction or demolition activities associated with this alternative.

#### South-side Alignment Alternative

The South-side Alignment Alternative would essentially be a mirror image of the North-side Alignment Alternative. The potential construction and demolition effects of this alternative on community facilities and services, recreational amenities, population, and housing would be the same as those described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

**Community Facilities and Services.** Similar to the North- and South-side Alignment Alternatives, construction workers for the Rehabilitation Alternative would likely be drawn from existing regional labor pools, and would not measurably increase demand on local facilities and services. Construction of this alternative would not cause a substantial increase in the demand on existing electrical sources or require the development of new sources. The proposed bridge rehabilitation would not substantially increase demand on public utilities in the Port or region (see Section 2.1.4 [Utilities and Service Systems]).

The small increase in the number of workers in the Port during construction of this alternative is

not anticipated to affect local school enrollments, hospitals admissions, or other demand-sensitive facilities or services. Workers would likely be selected from existing local labor pools. Demand-sensitive public services and facilities would not be affected by this alternative.

During construction of the Rehabilitation Alternative, lane closures for roadway and bridge deck replacement would occur from 7:00 p.m. to 7:00 a.m. Two lanes of traffic would be open in each direction at all times on the bridge. Construction of this alternative would likely not require access changes or restrictions; however, to minimize delays and inconvenience, a TMP would be prepared to identify alternative routes as applicable. As part of the TMP, portable changeable message signs and advanced warning roadway signs would be used to direct traffic if additional lane closures or detour routes would be required. Emergency access would be maintained across the bridge at all times during construction; however, planning for alternative emergency routes would be included in the TMP and coordinated with all agencies prior to construction (see Section 2.1.5 [Traffic and Circulation]). Construction of the Rehabilitation Alternative would not adversely affect existing emergency facilities and services (see Section 2.2.4 [Public Health and Safety]).

Construction of the Rehabilitation Alternative would occur within the existing footprint of the Gerald Desmond Bridge and would not result in any loss of public parking.

**Recreational Amenities.** There are no recreational amenities within the footprint of the Gerald Desmond Bridge. No recreational amenities would be affected by construction activities associated with this alternative.

**Population.** Construction of the Rehabilitation Alternative would occur within an area zoned for industrial use and would not result in any land use changes that affect local or regional growth projections.

**Housing.** Construction of the Rehabilitation Alternative would occur within the footprint of the existing Gerald Desmond Bridge. There is no housing within the existing footprint, and construction of this alternative would have no effect on housing.

#### **Operational Impacts**

##### North-side Alignment Alternative

Operation of the North-side Alignment Alternative would not adversely affect community character or

cohesion. This alternative involves the replacement of an existing bridge in an industrial area, and it would not divide or weaken the cohesion of any established communities or affect any community recreation facilities or services, or access to those facilities or services. There are no residential neighborhoods within the immediate project vicinity. Residential neighborhoods closest to the project site are found beyond the industrial use area, outside the Port to the north and east. The nearest residential development or school is located at least 0.3-mi (0.5-km) from the project site. No effect on population or housing would result from operation of this alternative.

#### South-side Alignment Alternative

The South-side Alignment Alternative would essentially be a mirror image of the North-side Alignment Alternative. The potential operational effects of this alternative on community facilities and service, recreational amenities, population, and housing would be the same as those described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

Once construction is complete, the Rehabilitation Alternative would operate the same as the No Action Alternative. Operation of the rehabilitated Gerald Desmond Bridge would have no effect on community character or cohesion. It would not divide or weaken the cohesion of any established communities or affect any community or recreation facilities or services or access to community or recreation facilities or services.

#### **2.1.3.1.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

#### **2.1.3.2 Relocations**

##### **2.1.3.2.1 Regulatory Setting**

The Caltrans Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and 49 CFR Part 24.

The purpose of the Uniform Relocation Act is to “ensure that persons displaced as a direct result of federal or federally assisted projects are treated fairly, consistently, and equitably” so as not to suffer disproportionately from projects designed for the benefit of the public as a whole [49 CFR 24.1(b)]. Unlike for residential displacees, the Uniform Relocation Act does not require that nonresidential displacees (i.e., businesses, farms, nonprofit organizations) be made whole; thus,

they receive fewer benefits (Caltrans, 2001). To qualify for benefits, one must legally occupy the property as an owner or lessee/tenant when negotiations commence or when possession of the property is taken. Benefits are limited to moving and related expenses. The acquisition of replacement business property is not included in the provisions and is the responsibility of the displacee; however, the displacee may qualify for re-establishment payment to cover some of the costs involved in re-establishing their business.

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 U.S.C. 2000d, *et seq.*). See Appendix B for a copy of the Caltrans Title VI Policy Statement.

##### **2.1.3.2.2 Affected Environment**

The project site is completely surrounded by industrial uses associated with the Port. The Port is located in the southwestern portion of Long Beach, and it is adjacent to the downtown area. The project area is zoned for Port-related industrial. Only heavy industrial operations and associated facilities are located within the project area. Exhibits 2.1.3-2 and 2.1.3-3 provide an aerial view of the project area and identify the companies operating within the construction footprint of the proposed project. No residential neighborhoods or farms are located within the census tract (Census Tract 5756, see Exhibit 2.1.3-1) in which the project site is located.

The Port and industrial development that make up most of the study area are characterized by large areas of cargo container and bulk handling infrastructure. Some of the larger structures adjacent to the project limits are the Tidelands Oil Production Company warehouse (1370 W. Broadway) and the LBG power plant building north of Ocean Boulevard along the west approach to the Gerald Desmond Bridge. Two large areas at the western end of the project area are vacant or partially vacant, and they are undergoing/completed redevelopment: Pier S north of Ocean Boulevard is a former oil production property, which the Port is proposing to redevelop as a marine cargo terminal, and Pier T was the former Naval Complex, which is now occupied by TTI (Hanjin Shipping Company; see Exhibits 2.1.3-1 and 2.1.3-2).

**2.1.3.2.3 Environmental Consequences**

**Evaluation Criteria**

The proposed project may result in adverse effects if it would:

- Result in injurious displacement of people or businesses

**No Action Alternative**

The No Action Alternative would not result in acquisition of ROW and would not displace any people or businesses. The No Action Alternative would not require relocations.

**North-side Alignment Alternative:**

Most of the potentially affected businesses are located on lands owned and administered by the Port. The level of impact on the affected businesses could include rearrangement of onsite facilities within existing property boundaries, reconfiguration of access to properties, complete relocation of businesses to other areas within the Port, purchase of properties from private property owners, or termination of leases with affected Port tenants. Table 2.1.3-6 provides a list of businesses and associated features potentially affected by this alternative. Detailed descriptions of potential property effects follow the table.

No.	Facility Name	Facility Description	Property Ownership	Potentially Affected Features
1	Tidelands Oil Production Co.	Oil production facilities, oil wells, pipelines	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Gravel lot</li> <li>• Active oil wells (adjacent to the oil storage tank farm)</li> <li>• Aboveground pipelines</li> <li>• “W-strip” Oil Field near Ocean Boulevard and SR 47</li> <li>• Three active oil wells adjacent to LBGS (between the building and the existing bridge)</li> </ul>
2	Pacific Pipeline System, LLC	Oil storage tank farm	Pacific Pipeline System, LLC	<ul style="list-style-type: none"> <li>• Access road</li> </ul>
3	LBGS (NRG Energy)	Power station	Long Beach Generation, LLC	<ul style="list-style-type: none"> <li>• Access road</li> <li>• Pipelines (pipes are adjacent to fence)</li> </ul>
4	SCE	Substation, power lines, and towers	SCE	<ul style="list-style-type: none"> <li>• High-voltage transmission towers and lines</li> </ul>
5	Fireboat Station #20	Fireboat station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Air space over garage for fire truck</li> <li>• Air space over main building (1980 Pier D Street)</li> <li>• AC lot</li> </ul>
6	Connolly Pacific	Storage yard	L.G. Everist, Inc.	<ul style="list-style-type: none"> <li>• Gravel parking lot</li> <li>• Gravel lot (material storage)</li> <li>• Driveway and access road</li> <li>• Main office building (1925 Pier D Street) and office parking</li> </ul>
7	California United Terminals	Storage yard	COLB Harbor Department	<ul style="list-style-type: none"> <li>• PCC lot adjacent to terminal gate at northern end of terminal</li> </ul>
8	Port Maintenance Yard	Maintenance yard	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC lot (material storage)</li> <li>• Buildings (1401 W. Broadway)</li> <li>• 1 active oil well</li> </ul>

<b>Table 2.1.3-6 List of Facilities Potentially Affected by North-side Alignment Alternative</b>				
<b>No.</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Property Ownership</b>	<b>Potentially Affected Features</b>
9	Tidelands Oil Production Co. (Topko Yard)	Warehouse area	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC lot (material storage)</li> <li>• Main building (1370 W. Broadway)</li> <li>• Ancillary buildings</li> </ul>
10	COLB Harbor Department	Vacant office building	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC parking lot</li> </ul>
11	THUMS Long Beach Company	Gas processing facility and custody transfer station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Aboveground pipelines (adjacent to Pico Avenue)</li> <li>• Access</li> </ul>
12	Loren Scale Company, Inc.	Truck scales	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Main building (249 Pico Avenue)</li> <li>• Truck scale</li> <li>• AC parking lot</li> </ul>
13	Quick Stop Commercial Oil and Lube Service	Oil and lube service	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Main service building (180 Pico Avenue)</li> <li>• AC access road</li> </ul>
14	Pacific Energy	Offshore oil processing station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Concrete wall and fencing</li> <li>• Gravel lot</li> <li>• Oil storage tank (170 Pico Avenue)</li> </ul>
15	Port Petroleum, Inc.	Gas station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC access road</li> <li>• Fuel pumps</li> <li>• Truck scale</li> </ul>
16	International Seafarers Center Memorial Maritime Clinic Vacant Lot	Support services, clinic, and office building	COLB Harbor Department	<ul style="list-style-type: none"> <li>• No impact to International Seafarers Center permanent structure (trailer/sheds and construction impacts)</li> <li>• Memorial Maritime Clinic rear parking lot – Caltrans Maintenance Easement</li> <li>• Vacant lot</li> <li>• AC lot</li> </ul>
17	Pacific Energy Resources	Production facility	LACFCD	<ul style="list-style-type: none"> <li>• Gravel access road</li> <li>• Oil wells</li> <li>• Pipelines</li> </ul>
18	TTI	Storage and Office Facilities	U.S. Navy Lease to Port and COLB Harbor Department	<ul style="list-style-type: none"> <li>• Modified access</li> </ul>
19	Weyerhaeuser Company	Lumber yard and storage facility	COLB Harbor Department	<ul style="list-style-type: none"> <li>• New bridge footings and air space over lumber yard</li> <li>• Storage area during construction and demolition</li> </ul>

AC: Asphalt concrete

COLB: City of Long Beach

LACFCD: Los Angeles County Flood Control District

PCC: Portland cement concrete

Source: POLB, 2005d.

The North-side Alignment Alternative would potentially affect 19 properties within the project area (Exhibit 2.1.3-2). Five of these 19 properties are privately owned or owned by other public agencies. Private property owners would be compensated in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act. Property owners would be compensated at fair market value for their property, determined on the basis of the highest and best use. All effects of the proposed project on Port tenants would be resolved based on the terms and conditions of each tenant's agreement with the Port or negotiated with the Port. Discussion and negotiation between the affected businesses and the Port would take place well before the scheduled construction of the bridge to avoid any adverse economic impacts. This typically occurs during the final design phase when more detailed engineering is available.

Estimates of business displacements and acquisition requirements are based on review of preliminary engineering design plans, aerial photographs, and field reviews. Note that the potential ROW impacts described in Table 2.1.3-6 are based on the available preliminary engineering plans. The number of affected properties could change during final design as more detailed engineering is completed. The anticipated acquisition and, as necessary, site access and facility reconfiguration and relocation of potentially affected businesses would not displace a substantial number of businesses, but they may necessitate identification of replacement facilities or land elsewhere within the Port, as applicable.

Where building demolition is required, buildings would be surveyed for asbestos and LBP. Any ACMs would be removed and disposed of in accordance with state and federal guidelines prior to demolition. LBP debris would be disposed of in accordance with regulatory requirements prior to demolition (see Section 2.2.3 [Hazardous Materials/Wastes]).

In areas where the Port would be acquiring private property, the Port hopes to obtain the voluntary sale of these properties by entering into purchase-sales transaction and acquiring the properties for fair market value (an "Early Acquisition Program"). If voluntary sale is not feasible and the Port determines to proceed with condemnation, then the Port would pay fair market value to acquire the properties commensurate with statutory and constitutional requirements. Furthermore, California law requires the Port to provide

relocation benefits to the affected private property owners (or their tenants, if appropriate) either as part of an Early Acquisition Program, in the case of voluntary acquisitions, or as required by state law and regulations, in the case of involuntary acquisitions. Under California law and regulations, displaced businesses are entitled to reimbursement of certain actual, reasonable moving expenses pursuant to 25 CCR § 6090.

Potentially Affected Properties: North-side Alignment Alternative

Site No. 1: Tidelands Oil Production Co. facilities would be affected by the proposed bridge footings in areas between the bridge and LBGS and within the "W-Strip" at the location of the new loop ramps. Temporary construction impacts could include modified access to these areas to accommodate construction activities and equipment. Abandoned oil wells within the affected areas would require testing and reabandonment. Several active oil wells and aboveground pipelines would require relocation. Subsequent to construction, limited vertical clearance associated with proposed overhead structures and access for oil extraction and transport within and adjacent to the new loop ramps may restrict future operations in affected areas. Tidelands Oil Production Co. is located on land administered by the Port.

Site No. 2: No ROW would be required from the Pacific Pipeline System, LLC, tank farm; however, a temporary construction easement would be required along the southeast corner of the property. During construction, modified access from the tank farm to/from Pier T Avenue would be required. Access to this facility would be maintained during construction of the proposed project. Subsequent to construction, an easement for bridge maintenance would be required. Pacific Pipeline System, LLC, is located on privately owned land. The Port would enter negotiations with Pacific Pipeline System to address potential effects on access, as well as terms and conditions of the required construction and maintenance easements.

Site No. 3: A sliver of the property, currently occupied by LBGS pipeline facilities, located north of the existing bridge, would be permanently occupied by the proposed bridge footings, and pipeline facilities/utilities would require relocation. Access would be modified the same as discussed for Site No. 2. A construction easement would be required to accommodate construction activities and equipment. The proposed project would also affect LBGS air space, where the elevated bridge



No.	FACILITY NAME	No.	FACILITY NAME
1	Tidelands Oil Production Co.	11	Thums Long Beach Company
2	Pacific Pipeline System, LLC	12	Loren Scale Company, Inc.
3	Long Beach Generating Station (NRG Energy)	13	Quick Stop Commercial Oil and Lube Service
4	SCE	14	Pacific Energy, LLC.
5	Fireboat Station #20	15	Port Petroleum, Inc.
6	Connolly Pacific	16	International Seafarers Center Memorial Maritime Clinic Vacant Building (Formerly MSRC)
7	California United Terminals	17	Pacific Energy Resources
8	Port of Long Beach Maintenance Yard	18	Total Terminal International, LLC. (T.T.I.)
9	Tidelands Oil Production Co. (Topko Yard)	19	Weyerhaeuser Company
10	COLB Harbor Department		

Note: The colors signify the limits of the potentially impacted properties.

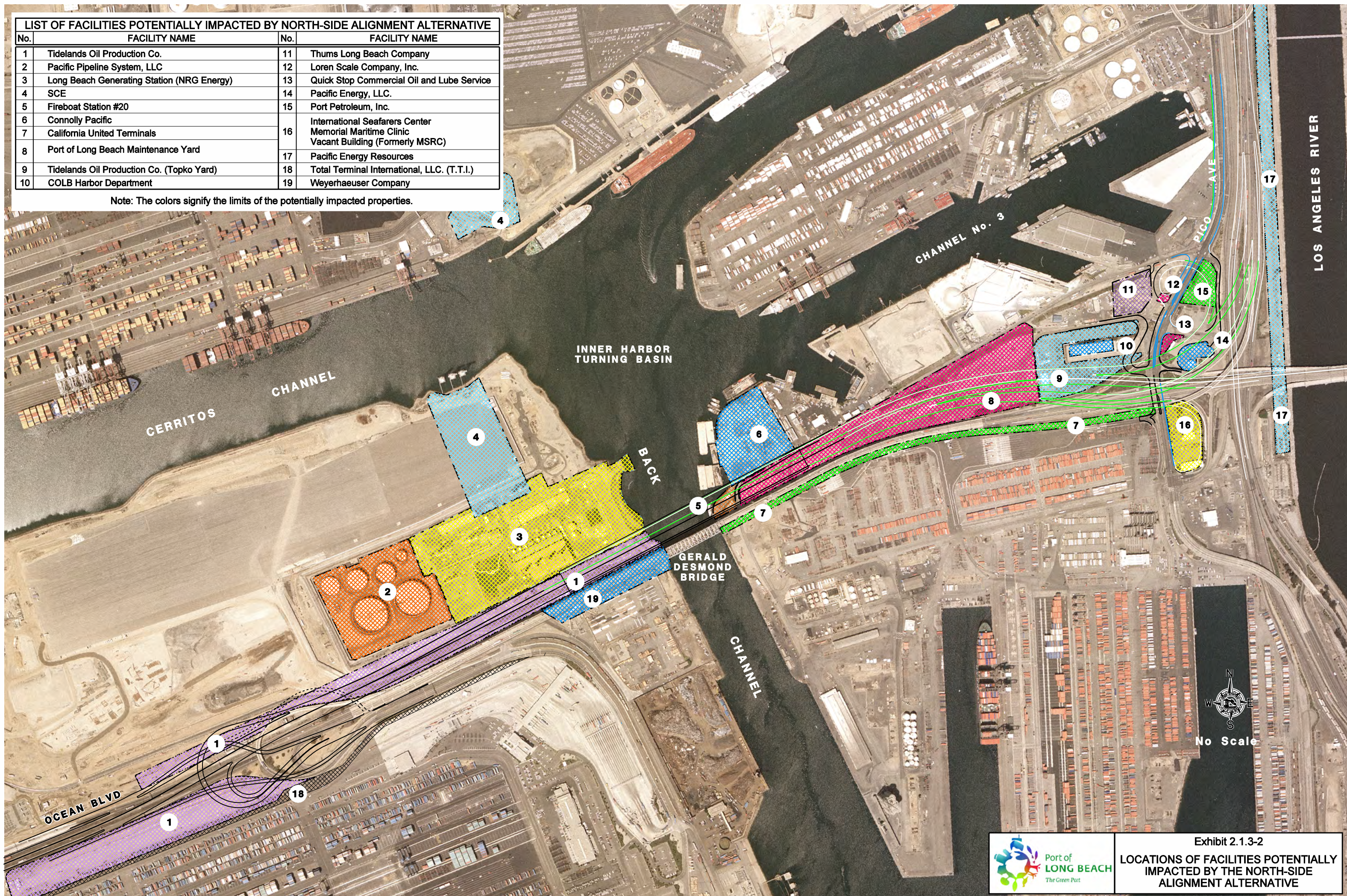


Exhibit 2.1.3-2  
LOCATIONS OF FACILITIES POTENTIALLY IMPACTED BY THE NORTH-SIDE ALIGNMENT ALTERNATIVE



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would encroach on the property, requiring an aerial easement. Additionally, an easement would be required for maintenance of the proposed transportation facility. Approximately 1.33 acres (0.54-ha) within the property would be required for the easements. LBGS is located on privately owned land. The Port would enter negotiations with LBGS to address potential effects of pipeline/utility relocation, as well as terms and conditions of the required aerial, construction, footing, and maintenance easements.

Site No. 4: SCE high-voltage transmission lines cross the Cerritos Channel from LBGS. The line elevation currently limits the air draft of vessels transiting to Piers A and S, and it is a potential hazard to navigation. The proposed project includes relocation of the SCE lines for the bridge replacement alternatives. The recommended relocation option would require building new, taller towers adjacent to the existing towers. The new towers would be constructed to increase the transmission line elevation to at least the vertical clearance of the proposed bridge. The existing towers would be left in place (see Section 2.1.8 [Cultural Resources]). Relocation would be completed in accordance with the applicable laws and regulations governing power transmission lines over navigable waters (see Section 2.1.4 [Utilities and Service Systems] and Appendix I for further discussion). SCE towers are privately owned. Site No. 5: The air space above the City of Long Beach Fireboat Station No. 20 would be temporarily affected during construction of the proposed project. The fire truck garage, which is the main building at 1980 Pier D Street, would be protected in place during construction. All essential operations for Fireboat Station No. 20 would be relocated to temporary facilities located approximately 100 ft (30.5 m) south of the Gerald Desmond Bridge during construction. After completion of the proposed project, Fireboat Station No. 20 would be relocated back to its existing location. The temporary relocation would have no effect on its services or response times. Fire Boat Station No. 20 is located on land administered by the Port. Relocation of this facility would be the responsibility of the local lead agency as a separate project development process.

Site No. 6: A temporary construction easement would be required within the Connolly Pacific facility to accommodate construction access. Construction would also temporarily affect the gravel parking lot, gravel lot, driveway, access road, and main office building and parking lot at

1925 Pier D Street. Construction access and proposed bridge footing locations would require demolition/relocation of an office building within the property. The proposed project would require an aerial easement over the Connolly Pacific yard space, along the north side of Ocean Boulevard at 1401 Pier D Street, and maintenance and footing easements. Approximately 0.47-acre (0.19-ha) within the yard would be required for the easements. The Connolly Pacific facility is located on privately owned land. The Port would enter negotiations with L.G. Everest Inc., (property owner) to address the potential effects of the proposed project on the property and facilities.

Site No. 7: The PCC lot adjacent to the terminal gate, located at the northern end of California United Terminal, would be permanently affected by the ramp structures for the hook off-ramp to Pico Avenue. During construction, modified access may be required to accommodate construction activities at this location. Additionally, a temporary construction easement for the area directly south of Ocean Boulevard along the northern boundary of this property would be required to accommodate demolition of the Gerald Desmond Bridge. A bridge maintenance easement would also be required. California United Terminal is located on land administered by the Port.

Site No. 8: The new bridge would occupy a portion of the Port Maintenance Yard, located along the north side of Ocean Boulevard and east of the existing bridge. This would require relocation of the maintenance yard, demolition of existing structures and ancillary buildings, and relocation/abandonment of an active oil well. The Port Maintenance Yard would be demolished as part of the proposed project, and operations would temporarily be moved to an interim site and separately permitted by the Port. Ultimately, the maintenance yard would be co-located with the Administration Building Complex, as identified in the FEIR for the Administration Building and Maintenance Facility Project. Two candidate locations for the temporary relocation of the Maintenance Building are as follows:

- At the proposed location for the new Port Administration Building (669 Harbor Plaza Drive).
- Former Long Beach Ironworks site south of Anaheim Street, west of 9th Street.

The relocation and replacement of this facility would be the responsibility of the Port as a separate project development process being

covered under the EIR for the Administration Building and Maintenance Facility Project. The Port Maintenance Yard is located on land administered by the Port.

Site No. 9: The new bridge would occupy a portion of the Tidelands Oil Production Co. Topko Yard and would require the demolition or relocation of the main office and ancillary buildings. During construction, storage areas and operations may be limited or restricted to accommodate construction activities and equipment. The easternmost portions of the site would be permanently affected by the realignment of West Broadway. The Tidelands Oil Production Co. Topko Yard is located on land administered by the Port.

Site No. 10: COLB Harbor Department Property AC lot would be affected by the realignment of West Broadway and would be occupied by portions of the approach structure footings. The vacant building on the property may be demolished to accommodate construction activities and equipment.

Site No. 11: The THUMS Long Beach Company's gas processing facility and custody transfer station would be avoided by the proposed bridge and ramp construction; however, some aboveground pipelines adjacent to Pico Avenue that connect to this facility would be affected by the bridge footings for the new Pico Avenue on-ramp and would require relocation. Additionally, access to the facility would be permanently relocated from Pico Avenue to Pier D Street. THUMS Long Beach Company is located on land administered by the Port.

Site No. 12: The Loren Scale Company, Inc., building at 249 Pico Avenue, the truck scales, and AC parking lot would be permanently affected by the proposed WB Ocean Boulevard on-ramp from Pico Avenue. Demolition/relocation of this facility would be required. Loren Scale Company, Inc., is located on land administered by the Port.

Site No. 13: The Quick Stop Commercial Oil and Lube Service station would experience temporary construction-related and permanent effects due to its proximity to the proposed bridge footings. The main service building, located at 180 Pico Avenue, may require relocation prior to construction of the SB SR 710 connector to WB Ocean Boulevard and the hook on-ramp from Pico Avenue. Quick Stop Commercial Oil and Lube Service is located on land administered by the Port.

Site No. 14: The Pacific Energy, LLC, offshore oil processing station would be affected by the proposed bridge construction. Effects would include falsework for bridge supports and an aerial easement for the proposed overhead structures above the valve assemblies. Some of the pipelines would be affected by the proposed bridge footings and would require relocation. The concrete wall and fencing surrounding the oil storage tank, portions of the gravel lot, and a building would also be affected. The oil storage tank might require relocation. Pacific Energy is located on land administered by the Port.

Site No. 15: Port Petroleum, Inc., located at 260 N. Pico Avenue, consists of a gas station with seven fuel pumps and a truck scale (Interstate Scales) located in the rear (northeast) portion of the lot. All facilities would be permanently affected by the realigned Pico Avenue on-ramp to Ocean Boulevard and would require demolition/relocation. Port Petroleum, Inc. is located on land administered by the Port.

Site No. 16: The International Seafarers Center, Memorial Maritime Clinic, and a vacant building (formerly the Marine Spill Response Corporation [MSRC] office building), currently located inside the hook off-ramp to Pico Avenue from EB Ocean Boulevard, would experience temporary construction-related and permanent effects due to their proximity to the off-ramp. Construction-related effects would require the partial and/or full relocation/demolition of several existing trailers/sheds located on the north portion of the lot. The vacant building located at 190 S. Pico Avenue and the metal storage containers to the rear portion of the lot (west side of the SR 710 ramp) are anticipated to be directly affected by the hook off-ramp. The Memorial Maritime Clinic rear parking lot would be closer to the west side of the hook ramp. There would be no effect on the permanent structures of the International Seafarers Center main building at 120 S. Pico Avenue. A Caltrans maintenance easement would be required in a portion of the rear parking area for the Memorial Maritime Clinic building at 150 S. Pico Avenue. The International Seafarers Center, Memorial Maritime Clinic, and vacant building are located on lands administered by the Port.

Site No. 17: Pacific Energy Resources' facilities may be affected by proposed improvements to the NB Harbor Scenic Drive and SR 710. Potential effects on this parcel could include modifications to the access/service roads during construction; however, access to the site would be maintained during construction. Additionally, some relocation

of existing facilities may be required. Pacific Energy Resources is on land owned by LACFCD.

Site No. 18: The TTI terminal would be temporarily affected by a proposed construction easement along the northern boundary of the site in the area containing the entry gate. This may require minor modification of access within the site during construction, but it would not require relocation of the gate. TTI is located on land administered by the Port.

Site No. 19: Weyerhaeuser Company, located south of the existing bridge adjacent to the Back Channel, would be affected by proposed bridge footings and aerial easement requirements. Temporary construction and permanent maintenance easements within the yard would be required during demolition of the Gerald Desmond Bridge and subsequent to construction of the new bridge. Weyerhaeuser Company is located on land administered by the Port.

**South-side Alignment Alternative**

Most of the businesses potentially affected by the South-side Alignment Alternative are also located on lands administered by the Port. The level of impact on the affected businesses include rearrangement of onsite facilities within existing property boundaries, reconfiguration of access to

properties, complete relocation of businesses to other areas within the Port, purchase of properties from private property owners, or termination of leases with affected Port tenants. Table 2.1.3-7 provides a list of businesses and associated features potentially affected by this alternative.

The South-side Alignment Alternative would potentially affect 16 properties within the project area (Exhibit 2.1.3-3). Similar to the North-side Alignment Alternative, potential effects on Port tenants and private property owners were considered. Potential ROW effects are described in Table 2.1.3-7, and detailed descriptions follow the table. Anticipated acquisition and, as necessary, site access and facility reconfiguration and relocation of potentially affected businesses would not displace a substantial number of businesses, but it may necessitate identification of replacement facilities or land elsewhere within the Port as applicable. Where building demolition is required, buildings would be surveyed for asbestos and LBP. Any ACMs would be removed and disposed of in accordance with state and federal guidelines prior to demolition. LBP debris would be disposed of in accordance with regulatory requirements prior to demolition (see Section 2.2.3 [Hazardous Materials/Wastes]).

<b>Table 2.1.3-7 List of Facilities Potentially Affected by South-side Alignment Alternative</b>				
<b>No.</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Property Ownership</b>	<b>Potentially Impacted Features</b>
1	Tidelands Oil Production Co.	Oil production facilities, oil wells, pipelines	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Gravel lot</li> <li>• Active and abandoned oil wells</li> <li>• Aboveground pipelines</li> <li>• “W-strip” Oil Field near Ocean Boulevard and SR 47</li> </ul>
4	SCE	Substation, power cables, and towers	SCE	<ul style="list-style-type: none"> <li>• High-voltage transmission towers and lines</li> </ul>
5	Fireboat Station #20	Fireboat station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Air space over garage for fire truck</li> <li>• Air space over main building (1980 Pier D Street)</li> <li>• AC lot</li> </ul>
7	California United Terminals	Storage yard	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Entrance and exit gates</li> <li>• Radiation detection area</li> <li>• Storage areas</li> <li>• Buildings</li> </ul>
8	Port Maintenance Yard	Maintenance yard	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Property access</li> </ul>

<b>Table 2.1.3-7 List of Facilities Potentially Affected by South-side Alignment Alternative</b>				
<b>No.</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Property Ownership</b>	<b>Potentially Impacted Features</b>
9	Tidelands Oil Production Co. (Topko Yard)	Warehouse area	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC lot (material storage)</li> <li>• Storage sheds</li> </ul>
10	COLB Harbor Department	Vacant office building	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC parking lot</li> <li>• Site access</li> </ul>
11	THUMS Long Beach Company	Gas processing facility and custody transfer station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Aboveground pipelines (adjacent to Pico Avenue)</li> <li>• Dirt lot</li> <li>• Access</li> </ul>
12	Loren Scale Company, Inc.	Truck scales	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Main building (249 Pico Avenue)</li> <li>• Truck scale</li> <li>• AC parking lot</li> </ul>
13	Quick Stop Commercial Oil and Lube Service	Oil and lube service	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Main service building (180 Pico Avenue)</li> <li>• AC access road</li> </ul>
14	Pacific Energy	Offshore oil processing station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Concrete wall and fencing</li> <li>• Gravel lot</li> <li>• Oil storage tank (170 Pico Avenue)</li> </ul>
15	Port Petroleum, Inc.	Gas station	COLB Harbor Department	<ul style="list-style-type: none"> <li>• AC access road</li> <li>• Fuel pumps</li> <li>• Truck scale</li> </ul>
16	International Seafarers Center Memorial Maritime Clinic Vacant Lot	Support services, clinic, and office building	COLB Harbor Department	<ul style="list-style-type: none"> <li>• No impact to International Seafarers Center permanent structure (trailer/sheds and construction impacts)</li> <li>• Memorial Maritime Clinic rear parking lot – Caltrans Maintenance Easement</li> <li>• Vacant lot</li> <li>• AC lot</li> </ul>
17	Pacific Energy Resources	Production facility	LACFCD	<ul style="list-style-type: none"> <li>• Gravel access road</li> <li>• Oil wells</li> <li>• Pipelines</li> </ul>
18	TTI	Storage and Office Facilities	U.S. Navy Lease to Port and City of Long Beach Harbor Department	<ul style="list-style-type: none"> <li>• Property access</li> <li>• Gates</li> <li>• Storage area</li> <li>• Weight readers</li> <li>• Administrative building</li> </ul>
19	Weyerhaeuser Company	Lumber yard and storage facility	COLB Harbor Department	<ul style="list-style-type: none"> <li>• Storage area</li> </ul>

AC: Asphalt concrete

COLB: City of Long Beach

LACFCD: Los Angeles County Flood Control District

PCC: Portland cement concrete

Source: POLB, 2005d.



LIST OF FACILITIES POTENTIALLY IMPACTED BY SOUTH-SIDE ALIGNMENT ALTERNATIVE			
No.	FACILITY NAME	No.	FACILITY NAME
1	Tidelands Oil Production Co.	11	Thums Long Beach Company
2	Pacific Pipeline System, LLC	12	Loren Scale Company, Inc.
3	Long Beach Generating Station (NRG Energy)	13	Quick Stop Commercial Oil and Lube Service
4	SCE	14	Pacific Energy, LLC.
5	Fireboat Station #20	15	Port Petroleum, Inc.
6	Connolly Pacific	16	International Seafarers Center Memorial Maritime Clinic Vacant Building (Formerly MSRC)
7	California United Terminals		
8	Port of Long Beach Maintenance Yard	17	Pacific Energy Resources
9	Tidelands Oil Production Co. (Topko Yard)	18	Total Terminal International, LLC. (T.T.I.)
10	COLB Harbor Department	19	Weyerhaeuser Company

Note: The colors signify the limits of the potentially impacted properties.

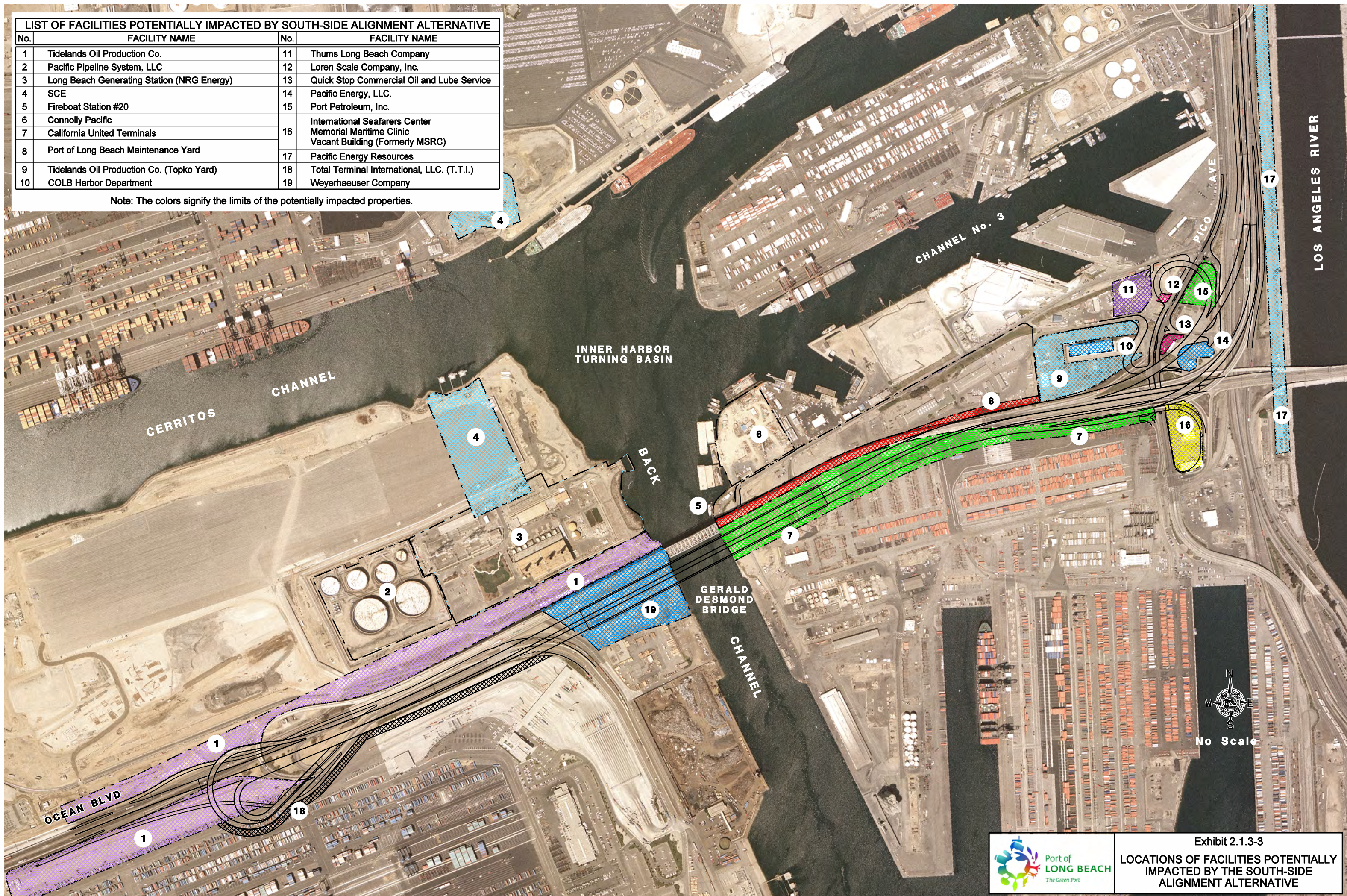


Exhibit 2.1.3-3  
LOCATIONS OF FACILITIES POTENTIALLY IMPACTED BY THE SOUTH-SIDE ALIGNMENT ALTERNATIVE



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Potentially Affected Properties: South-side  
Alignment Alternative

Construction of the South-side Alignment would have no effect on sites 2, 3, or 6, which are affected by the North-side Alignment Alternative. Similar construction/demolition effects, as described under the North-side Alignment Alternative, are anticipated for construction of the South-side Alignment Alternative at the western end of site 1 and for sites 4, 5, 10, 11, 12, 13, 14, 15, 16, and 17. This alternative would also potentially result in construction/demolition effects on the properties discussed below.

Site No. 1: A construction easement within Tidelands Oil Production Co. for the area between the Gerald Desmond Bridge and LBGS would be required during bridge demolition. Effects on the "W-strip" at the western end of the project would be the same as discussed under the North-side Alignment Alternative. Tidelands Oil Production Co. is located on land administered by the Port.

Site No. 7: For the California United Terminal (Piers D and E), the South-side Alignment Alternative would likely result in restricted use and modified access during construction and reconfiguration of operations subsequent to construction. Effects on operations would require relocation of the Pier E gate and reconfiguration of the following elements: entrance and exit roadways, inbound OCR, receiving gate lanes with pedestals, scales cameras and queuing area, trouble resolution building with parking area, outbound primary RPM and OCR, outbound secondary RPM, exit gate lanes with pedestals and cameras, and associated underground electrical, communication, and pavement markings/barriers. It is estimated that the reconfiguration on Piers D and E would cost approximately \$10.0 million. The California United Terminal is located on land administered by the Port.

Site No. 8: A construction easement within the Port Maintenance Yard along the alignment of the Gerald Desmond Bridge may be required during bridge demolition. Access to the yard from West Broadway and along an unnamed road to the south of the property would likely be closed/modified during bridge demolition. At this time, building demolition within the Port Maintenance Yard is not anticipated. The Port Maintenance Yard is located on land administered by the Port.

Site No. 9: A construction easement would be required along the southern property boundary of the Tidelands Oil Production Co. adjacent to the Gerald Desmond Bridge within the Topko Yard to accommodate construction and demolition

activities. These activities would likely require the relocation/demolition of several small storage buildings within this area. Footing, aerial, and maintenance easements would also be required within the same areas. The easternmost portions of the site would be permanently affected by the realignment of West Broadway. The Tidelands Oil Production Co. Topko Yard is located on land administered by the Port.

Site No. 18: For TTI (Pier T), the South-side Alignment Alternative would likely result in restricted use and modified access during construction and reconfiguration of operations subsequent to construction. Effects on operations would require reconfiguration of Pier T resulting in the permanent loss of 2.4 acres (1-ha) within the TTI terminal storage facility currently used for Reefer storage. Additionally, reconfiguration on Pier T would require reconfiguration of the following elements: relocation of a portion of the main gate canopy, driver's service building and trouble parking, steel high-mast light poles, chassis storage, and associated utilities, barriers, and pavement markings. It is estimated that the reconfiguration on Pier T would cost approximately \$10.0 million. The South-side Alignment Alternative would also permanently reduce leasable Port acreage by approximately 2.4 acres (1-ha). The estimated present value of lost Port lease revenue would be \$7.0 million over a typical 20-year lease. TTI is located on land administered by the Port.

Site No. 19: Weyerhaeuser Company storage space would be affected by the South-side Alignment Alternative due to restricted access resulting from the proposed alignment and footings and required aerial, construction, and maintenance easements. Operations at this facility would also be temporarily affected by construction and demolition access and easement requirements. If reconfiguration of Weyerhaeuser Company operations during construction or for long-term operation is not feasible, then total relocation of Weyerhaeuser Company operations would be required. The Weyerhaeuser Company is located on land administered by the Port.

**Rehabilitation Alternative**

This alternative would require improvements to the existing bridge and roadway structures only. Construction easements would be required on all properties adjacent to the existing bridge to provide access to column and footing locations. Additionally, this alternative would utilize similar areas for construction storage and staging areas identified for the North- and South-side Alignment

Alternatives. This alternative would not have any substantial effects on Port tenants or privately owned businesses. This alternative would not result in any permanent changes to facilities or facility operations within the project area.

#### **2.1.3.2.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

#### **2.1.3.3 Environmental Justice**

Over the last two decades, public awareness and concern has increased due to evidence that low-income and minority communities often suffer disproportionately from exposure to unhealthy environmental conditions. Key concerns for the environmental justice movement include exposure to lead, hazardous materials in the workplace, noise and air pollution, and location of industry and infrastructure within in these communities. In response, Executive Order (EO) 12898 was issued to raise awareness and bring environmental justice issues into public policy.

##### **2.1.3.3.1 Regulatory Setting**

###### **Federal**

All projects involving a federal action (funding, permit, or land) must comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

EO 12898 does not mandate special mitigation measures for environmental justice impacts; however, the Presidential Memorandum accompanying the Executive Order does direct federal agencies to include measures to mitigate disproportionately high and adverse environmental effects of proposed federal actions on minority and/or low-income populations. Federal agencies are also required to give affected communities opportunities to provide input into the NEPA process, including identification of mitigation measures.

EO 12898 focused attention on Title VI of the Civil Rights Act of 1964, which is a policy of the United States that prevents discrimination on the grounds of race, color, or national origin in connection with programs and activities receiving federal financial assistance, by providing that "each federal agency

shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The 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 B of this document.

###### Department of Transportation Order 5610.2

In accordance with EO 12898, in April 1997 the U.S Department of Transportation (DOT) issued DOT Order 5610.2 to Address Environmental Justice in Minority Populations and Low-Income Populations. The order generally describes the process for incorporating environmental justice principles into all DOT programs, policies, and activities, and it instructs each DOT agency to develop specific procedures to incorporate the goals of the DOT and Executive Orders with the programs, policies, and activities that they administer or implement.

###### FHWA Order 6640.23

As directed in DOT Order 5610.2, in December 1998 FHWA issued Order 6640.23 "FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." This Order establishes policies and procedures for FHWA to use in complying with EO 12898.

FHWA's environmental justice policy is dedicated to three fundamental principles (FHWA, 2000):

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations
- To ensure full and fair participation by all potentially affected communities in the transportation decision-making process
- To prevent denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

###### Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

Enacted in 2005, SAFETEA-LU placed additional emphasis on environmental stewardship as a part of metropolitan and statewide transportation planning. This strengthens the linkages between planning and environmental protection and

creates opportunities to examine the potential for environmental justice issues early on and throughout the project development process.

#### Federal-Aid Highway Act of 1970

This law established that agencies must assure that the adverse economic, social, and environmental effects of a federally supported highway project have been fully considered during project development, and final decisions on the project are made in the best overall public interest, taking into consideration the need for fast, safe, and efficient transportation; public services; and the costs of eliminating or minimizing such adverse effects.

#### Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency

EO 13166, signed by President Clinton in August 2000, requires federal agencies to “develop a system by which limited-English proficiency persons can meaningfully access...[federal] services [including participation in the project planning process] without unduly burdening the fundamental mission of the agency.” Federal agency response to this order has included the provision for oral language assistance, translating vital documents in languages other than English, and training staff to serve non-English speakers. As it applies to the proposed project, the Executive Order requires that written materials and oral presentations prepared for public dissemination be made available to limited-English speakers and readers.

#### **State and Local**

Environmental justice, as it pertains to EO 12898 and the Gerald Desmond Bridge Replacement Project, is a federal requirement as implemented by Caltrans and FHWA as the lead federal agency for the project; however the State of California also recognizes the concepts of environmental justice through the California Government Code Section 65040.12, which defines environmental justice slightly differently as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies.” While there is no requirement under CEQA to address environmental justice, a few pieces of state legislation have been signed into law since 1999 that address the topic. Legislative and executive actions relating to environmental justice in California have largely been procedural, including, but not limited to, formation of environmental justice advisory

committees and assigning coordinating roles and responsibilities to the Governor’s Office of Planning and Research and the California Environmental Protection Agency (Cal-EPA). Although there is no specific state law requiring the Port to assess environmental justice issues, Port projects may trigger the jurisdiction of two state agencies, California State Lands Commission (CSLC) and California Air Resources Board (CARB), which have adopted environmental justice review requirements consistent with the California Government Code Section.

The CSLC adopted an Environmental Justice Policy on October 1, 2002. In its policy, the CSLC pledges to continue and enhance its processes, decisions, and programs with environmental justice as an essential consideration. The policy also cites the definition of environmental justice in state law and points out that this definition is consistent with the Public Trust Doctrine principle that the management of trust lands is for the benefit of all of the people. To date, the CSLC has not issued any guidance to implement the policy, although environmental justice is discussed in CSLC environmental documents.

CARB was one of the first state entities to adopt an environmental justice policy (CARB, 2007e). CARB has taken various steps to implement the policy, such as publishing a public participation handbook for agencies in English and Spanish, developing an air quality handbook on land use, and convening a multi-stakeholder environmental justice group to serve as a forum to discuss its environmental justice program.

In 1997, the SCAQMD adopted a set of guiding principles of environmental justice to ensure environmental equity. The principles address, for example, the right of residents to live and work in an environment of clean air free of airborne health threats; the obligation of government to protect the public health; the right of public and private sectors to be informed about scientific findings concerning hazardous and toxic emission levels; and other principles.

The City of Long Beach has not adopted policies related to environmental justice.

#### **2.1.3.3.2 Affected Environment**

After consideration of potential effects associated with construction and operation of the proposed project, as discussed in Chapter 2 of this document, the study area for considering environmental justice is the same as previously described in Section 2.1.3.1 (see Exhibit 2.1.3-1).

The study area (i.e., affected community) is centered on the project corridor and extends along Ocean Boulevard from near the SR 47 interchange to Pine Street in the City of Long Beach, and also north along SR 710 (see Section 2.1.5). Race and income data from the 2000 U.S. Census for the affected community were previously discussed in Section 2.1.3.1. Pertinent information regarding environmental justice populations are summarized below.

The project site is located within the Port of Long Beach and is surrounded by industrial land uses associated with the Ports. No residential neighborhoods or communities are present within the census tract in which the project site is located (Census Tract 5756).

The communities outside of the Port area include the City of Long Beach and a portion of the community of Wilmington (located within the City of Los Angeles). All other areas within the study area are within the Ports of Long Beach and Los Angeles. The racial and ethnic composition of the affected community is shown in Table 2.1.3-3. The population of the study area census tracts is characterized as a predominantly Hispanic and Latino community, comprising 64 percent of the total population within the affected community. The overall makeup of the affected community is 85.6 percent minority. This compares with 66.9 percent and 68.9 percent for the City of Long Beach and County of Los Angeles, respectively.

Income and poverty data are shown in Table 2.1.3-4. When comparing the median incomes, the affected community has lower median family and household incomes and higher percentages of families and individuals below the poverty level than the City of Long Beach and County of Los Angeles. Considering the 2000 U.S. Census data for race and economic characteristics of the study area, it appears that the minority and low-income populations are in readily identifiable groups rather than dispersed pockets within the study area. Low-income and minority populations within the study area census tracts are considered relatively homogenous, and the affected community as a whole is considered both a low-income and minority population for the purpose of this environmental justice discussion.

The proposed project is a transportation project near the Ports of Long Beach and Los Angeles, which would reduce congestion and enhance goods movement within the region. Thus, the reference community, which consists of the population that will benefit from the proposed

project, is the southern California region. The reference community will be used as a comparison population in determining if potential project effects are disproportionately high and adverse on the affected community when considering both the project effects and benefits.

### **2.1.3.3.3 Environmental Consequences**

#### **Evaluation Criteria**

EO 12898 requires federal agencies to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations. Caltrans, through the FHWA NEPA delegation process, is the lead federal agency for the project. This environmental justice analysis has been prepared in accordance with the applicable guidance for addressing environmental justice. Consistent with FHWA policy and guidance, the environmental justice analysis will be based on the following:

- Potential adverse effects of the proposed project associated with construction and operation of the proposed project; and
- Disproportionately high and adverse effects on minority and low-income populations

The definition of “low-income,” “minority,” “disproportionately high and adverse effect,” “low income population,” and “minority population” for this environmental justice assessment are per FHWA Policy 6640.23 (FHWA, 1998) and are as follows:

- “Low-income” means a household income at or below the Department of Human Health Services poverty guidelines;
- “Minority” means a person who is:
  - Black (having origins in any of the black racial groups of Africa);
  - Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
  - Asian American (having origins in any of the original people of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
  - American Indian or Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).



- “Disproportionately high and adverse effect on minority and low-income populations” means an adverse effect that:
  - Is predominantly borne by a minority population and/or low-income population; or
  - Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and/or non-low-income population.
- “Low-income population” means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons who would be similarly affected by a proposed FHWA program, policy or activity.
- “Minority population” means any readily identifiable group of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons who would be similarly affected by a proposed FHWA program, policy or activity.

### **Methodology**

The potential adverse effects associated with the North- and South-side Alignment Alternatives (Bridge Replacement Alternatives) and the Rehabilitation Alternative associated with construction and operation of the proposed project are discussed in Chapter 2. As applicable and where feasible, Chapter 2 also includes avoidance, minimization, and/or mitigation measures to avoid and/or minimize potential adverse project effects on resources affected by the construction and operation of the proposed project.

For the proposed project, no distinct pockets or areas of low-income or minority populations were identified. The entire affected community is considered a low-income and minority population for the purpose of the environmental justice assessment; therefore, to the extent that adverse effects would be localized, resulting from either the construction or operation of the proposed project, they would be borne predominantly by a minority and low-income population. Based upon results of the impact analyses, and as described below, such localized effects would be temporary and confined to short-term construction activities. Where the project effects have been reduced to a level that is less than adverse, there is, by definition, no potential for the effect to be considered disproportionately high and adverse,

whether it be on minority or low-income populations or the general population. Thus, only potentially unavoidable adverse effects (i.e., those that remain potentially adverse after implementation of avoidance/minimization and or mitigation measures) would have the potential to be considered to have a disproportionately high and adverse effect on minority or low-income populations. This environmental justice analysis considers all potentially unavoidable adverse effects on the affected population, and the potential to result in disproportionately high and adverse effects on minority and low-income populations when considered together with the benefits of the proposed project.

This section also summarizes the planned public outreach, focusing on efforts to provide information and meaningful opportunities for participation for potentially affected minority and low-income populations. Chapter 4 discusses the project coordination with the interested parties to date.

### **No Action Alternative**

The Gerald Desmond Bridge was constructed in 1966. The Gerald Desmond Bridge was also constructed prior to the issuance of EO 12898; therefore, its requirements were not considered within the scope of an environmental justice evaluation. However, with the No Action Alternative, the transportation facility would continue to result in traffic congestion, as well as potential for increased emergency response times. Surface runoff from the transportation facilities would continue to enter Long Beach Harbor without treatment, potentially contributing to water quality impairment. Lack of shoulders and capacity on the bridge would continue to have increased potential for accidents resulting in releases of hazardous substances into the environment; therefore, potential effects associated with the No Action Alternative could affect all communities within the study area.

### **Summary of Unavoidable Adverse Effects: Bridge Replacement Alternatives**

#### Traffic and Circulation

The unavoidable adverse effects on traffic and circulation and minimization/mitigation measures are summarized below (see Section 2.1.5 for further discussion). Additionally, the proposed mitigation measures would be considered and implemented as part of the TMP required for the project. Prior to construction, the TMP would be submitted to the Port and Caltrans for approval. The TMP, at a minimum, would include detour routes, flagmen, traffic controls, signing, and

traffic lane closure scheduling to minimize impacts. Unavoidable adverse traffic and circulation effects summarized below are located within the Port planning area on roadways that are primarily used to provide local and regional access to facilities and roadways within the Ports (intersection of Pico Avenue, Pier B Street, and 9th Street; intersection of Pico Avenue and Pier D Street; WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange; and the north and south intersections of the Ocean Boulevard ramps and the Terminal Island Freeway). Adverse traffic and circulation effects at these locations would be highly localized; therefore, they would have little effect on the adjacent community. As previously discussed in Section 2.1.3.1, most of the residences are located north of Anaheim Street and east of the Los Angeles River. Persons within the affected community would be able to continue to access the City of Long Beach or the regional transportation system (i.e., SR 710 and SR 47) via Ocean Boulevard or Pacific Coast Highway.

- A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier B Street/9th Street intersection during construction Stages 3 and 4.

**TC-1** Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4: remove NB-SB split-signal phasing; restripe NB through lane to a NB left-turn lane; widen SB approach and provide two (2) left-turn lanes and one (1) through lane; and continue two (2) on-ramp lanes to NB SR 710.

- A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier D Street intersection during construction Stages 2, 3, and 4.

**TC-2** Prior to the start of construction Stage 2, a traffic signal will be installed at the intersection of Pico Avenue and Pier D Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of

construction of a Bridge Replacement Alternative.

**TC-3** During the design phase of the project, and after approval of the TMP, the Port shall identify those intersections requiring temporary signalization and shall implement the signalization.

- A short-term temporary adverse traffic condition effect attributable to the Bridge Replacement Alternatives would occur on WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange.

No feasible measures to minimize traffic effects at WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange have been identified; however, construction of the SR 47 Flyover as part of the SR 47 project would eliminate the temporary adverse traffic conditions effect.

- A temporary adverse traffic effect has been identified that would result from construction of the proposed Bridge Replacement Alternatives at the Ocean Boulevard and Terminal Island Freeway interchange.

The two intersections of the Ocean Boulevard ramps (north and south) and the Terminal Island Freeway would have temporary unavoidable adverse effects for 3 years, which is the approximate combined duration of construction Stages 2, 3, and 4 of either of the proposed Bridge Replacement Alternatives.

#### Air Quality

The unavoidable adverse air quality effects and associated minimization/mitigation measures are summarized below (see Section 2.2.5 [Air Quality] for further discussion). Construction emissions of nitrogen oxides (NO<sub>x</sub>) would exceed SCAQMD peak daily regional construction emission thresholds, based on worst-case construction activity scenarios during the 9<sup>th</sup> month of construction years 1 and 2 and the 3<sup>rd</sup> month of construction year 3 (see Section 2.2.5 [Air Quality]). The associated construction activities potentially occurring during these construction years (i.e., Phases 1, 2, and 3) are discussed in Section 1.6.1.3. This adverse effect is due to exceedance of the SCAQMD regional peak daily construction emission threshold and is associated with regional air quality. The exceedance would contribute to regional air quality degradation and is independent of sensitive receptors or uses.

Localized NO<sub>x</sub> effects due to construction activities would also result in offsite ambient NO<sub>x</sub>

concentrations that would exceed SCAQMD thresholds of significance during construction years 2 and 3 at a distance of up to 1,640 ft (500 m) from the construction area. This is based on the SCAQMD localized significance threshold look-up tables for Source Receptor Area Number 4. As discussed in Section 2.2.5, even with incorporation of the mitigation measures summarized below, the exceedance would occur during construction years 2 and 3. Areas with potential receptors within 1,640 ft (500 m) include areas within Census Tracts 5760 and 5759.01, primarily south of west 6<sup>th</sup> Street and west of Maine Avenue. Sensitive community receptors within these tracts include Cesar Chavez Park and Elementary School, the Golden Shore Marine Reserve, Edison Elementary School, and a few residences.

Emissions of NO<sub>x</sub> are mainly associated with exhaust emissions from heavy-duty construction equipment that operate simultaneously onsite. Temporary adverse ambient offsite exceedances would be intermittent over the 12-month period, occur only during the most intense construction activities, and be highly dependent upon construction vehicle mix, location of activities, and prevailing climactic conditions.

Exceedance of the SCAQMD daily operational threshold would occur during the opening year (2015) and would be below the threshold in the horizon year (2030). This is attributed to increased average daily traffic (ADT) within the project corridor for which there is no feasible mitigation. This adverse effect is also due to exceedance of a regulatory threshold associated with regional air quality in the SCAQMD. The exceedance during operation would contribute to regional air quality degradation, and is independent of sensitive receptors or uses.

- Construction emissions associated with the North- and South-Side Alignment Alternatives would exceed SCAQMD NO<sub>x</sub> regional and localized thresholds.

**AQ-C1** Construction processes shall adhere to all applicable SCAQMD rules and regulations concerning the operation of construction equipment and dust control.

**AQ-C2** Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

**AQ-C3** During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use

to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts.

**AQ-C4** To the extent feasible, use electricity from power poles rather than temporary diesel or gasoline power generators.

**AQ-C5** As part of the Port's commitment to promote the Green Port Policy and implement the Clean Air Action Plan (CAAP), proposed project construction would employ all applicable control measures included in the CAAP and relevant clean air technologies. Project heavy-duty construction equipment would use alternative clean fuels, such as ultra-low sulfur or emulsified diesel fuel, or compressed natural gas, with oxidation catalysts

**AQ-C6** Construction activities that affect traffic flow on the arterial roadways shall be scheduled to off-peak hours to the extent possible. Additionally, construction trucks shall be directed away from congested streets or sensitive receptor areas.

**AQ-C7** During the construction period, provide temporary traffic controls, such as flagger person, and improved signal flow for synchronization to maintain smooth traffic flow shall be provided.

**AQ-C8** Trucks used for construction prior to 2015 shall use engines with the lowest certified NO<sub>x</sub> emission levels, but not greater than the 2007 NO<sub>x</sub> emission standards.

**AQ-C9** Where feasible, use construction equipment that shall meet the EPA Tier 4 non-road engine standards. The equipment with Tier 4 engine standards become available starting in year 2012.

**AQ-C10** Where feasible, heavy-duty diesel-fueled construction equipment shall use diesel oxidation catalyst and selective catalytic reduction system for heavy-duty diesel-fuel construction equipment. This measure would reduce the NO<sub>x</sub> and diesel particulate matter (DPM) emissions by 40 percent and 25 percent, respectively.

- Operational emissions associated with the North- and South-Side Alignment Alternatives would exceed SCAQMD NO<sub>x</sub> daily operational thresholds.

There is no feasible mitigation. This exceedance is attributed to increased ADT within the project corridor. In the design horizon (2030), operational emissions are expected to be below the SCAQMD operational threshold. The future emissions reduction is due to future year modeling that incorporates a newer vehicle fleet composition and compliance with adopted regulations in the Air Quality Management Plan (AQMP) that are aimed at controlling emissions from mobile sources. Compliance measures include use of alternative or reformulated fuels, retrofit control on engines, and installing or encouraging the use of new engines and cleaner in-use heavy-duty vehicles.

**Summary of Unavoidable Adverse Effects:  
Bridge Rehabilitation Alternative**

There are no unavoidable adverse effects associated with the Bridge Rehabilitation Alternative; however, similar to the No Action Alternative, operations under this alternative would result in increased traffic congestion and potentially increased emergency response times due to congestion during major incidents on the roadway or at facilities on Terminal Island. Lack of shoulders and needed capacity on the bridge would continue to have increased potential for accidents, potentially resulting in releases of hazardous substances into the environment. These potential effects would continue to degrade the environment within the affected community.

It should be noted that the design life of the rehabilitation alternative is 30 years versus 100 years for the Bridge Replacement Alternatives. The existing transportation connection between Terminal Island, SR 710, and the City of Long Beach is locally and regionally important. It is reasonable to assume that an alternative similar to one of the Bridge Replacement Alternatives would still be necessary at the end of the design life of the Bridge Rehabilitation Alternative. It is also reasonable to believe that there is a potential for similar adverse effects for a future bridge replacement alternative.

**Project Benefits:  
Bridge Replacement Alternatives**

Implementation of either the North- or South-side Alignment Alternatives would have offsetting benefits that would accrue to the adjacent community and the region. The proposed project would result in a seismically superior bridge that could be returned to service shortly after a major seismic event. As discussed in Section 2.1.5 (Traffic and Circulation), the Bridge Replacement

Alternatives are expected to result in some local redistribution of traffic as Port and regional traffic modify their travel paths to take advantage of the congestion-relief benefits of the Bridge Replacement Alternatives. This redistribution would most likely occur from parallel roadways north of the Ports, such as Anaheim Street, Pacific Coast Highway, and Willow Street. Some trips that would otherwise seek local street routes may use the new bridge, thereby acting to improve local circulation in the area. In addition, all transportation users would be afforded a safer and more reliable bridge. Other potential benefits would include reduced regional congestion and improved air quality; surface water runoff treatment prior to being released into the Long Beach Harbor; and shoulders and additional capacity to enhance safety and minimize emergency response times and enhanced safety for workers and ships.

**Project Benefits:  
Bridge Rehabilitation Alternative**

Implementation of the Bridge Rehabilitation Alternative would provide a seismically safe bridge that would minimize the potential for loss of life during a major seismic event; however, it would likely be condemned and require replacement.

**Potential Disproportionately High  
and Adverse Effects**

When considering the potential for unavoidable adverse effects to also constitute disproportionately high and adverse effects on minority and low-income populations, two factors must be considered: (1) whether the effects of the project are predominantly borne by a minority population; or (2) whether the effects of the project are appreciably more severe or greater in magnitude on minority and low-income populations compared to the effect on non-minority and low-income populations.

The first consideration above would be the most appropriate for application to the proposed project, because the potential project effects are not substantially different in severity or magnitude than other past or present transportation projects within the region, and because they would be distributed relatively uniformly across the adjacent community, including areas of minority and low-income residents, as well as nearby residents of non-minority and/or low-income status.

The adverse effects that would occur, and which are largely confined to portions of the construction period, could be considered, at first observation,

to be predominantly borne by nearby minority and/or low-income residents, because of their higher proportion of the nearby resident population; however, when considering these effects, potential offsetting benefits of the proposed project must also be considered. A brief summary of the comparison of both sets of factors is as follows:

Traffic and Circulation

- Locations of potentially unavoidable adverse traffic effects previously discussed are all located within industrial areas and the port planning area. These locations are primarily used by Port and regional traffic to access the Ports and regional transportation facilities. All motorists using these intersections would be affected during the construction period. Adverse effects on traffic and circulation would therefore not be disproportionately high and adverse on minority or low-income populations. Moreover, subsequent to construction, the affected community would benefit from the potential reduced congestion associated with redistribution of traffic from arterials within the community to the new bridge.

Air Quality:

- The unavoidable adverse air quality effects associated with exceedances of SCAQMD daily construction and operational thresholds, in addition to being a temporary condition, would occur at a regional scale; therefore, they are not associated with the presence of sensitive receptors or uses. The effects of the exceedances are regional in nature and all residents of the South Coast Air Basin (SCAB) would experience similar effects; therefore, the exceedances would not be considered a disproportionately high and adverse effect on low-income or minority populations within the affected community.
- Temporary adverse ambient offsite exceedances could occur up to 1,640 ft (500 m) from the project site during the most intense construction activities; however, these exceedances would be intermittent. Project-related NO<sub>x</sub> concentrations resulting from construction would be similar to those expected with any similar large-scale construction project in the SCAB. In addition, minority and non-minority and low-income and non-low-income residents living adjacent would be equally affected. A full range of mitigation measures is being implemented to reduce the emissions as much as practicable, consistent with SCAQMD

requirements; therefore, the offsite NO<sub>x</sub> exceedances would not be considered to constitute a disproportionately high and adverse effect on minority and low-income populations.

Consistent with the intent of EO 12898 to maximize opportunity for meaningful participation by the affected community during the environmental process, public outreach, public notice, project information, and meetings would be conducted and accommodations made to involve low-income and minority populations, including language translation to persons for which English may be a second language.

Based on the above discussion and analysis, the proposed project alternatives would not cause disproportionately high and adverse effects on minority or low-income populations within the meaning and intent of EO 12898.

**Community Outreach and Public Involvement**

To date, community outreach and public involvement has included scoping meetings with public agencies and the general public, distribution of notices, presentations, public hearings, and public review and comment on the 2004 Draft EIR/EA described in Chapter 4 (Comments and Coordination). Project coordination to date has also resulted in an extensive distribution list of interested parties, contained in Chapter 6, who will receive copies of the hearing notices and a copy of this revised Draft EIR/EA.

Efforts to provide meaningful opportunities for public participation in the project planning and development process will be ongoing until either the project is approved and constructed or abandoned. Two public hearings are anticipated to occur during the public comment period for this revised Draft EIR/EA. Additional efforts may also include, but are not limited to, community meetings, informational mailings, project Web site information, and news releases to the local media. The overall goal of all project-related community outreach and public involvement activities is to maximize opportunities for meaningful participation by all interested persons within and outside of the affected community by minimizing/eliminating barriers to participation due to economic status, cultural affiliation, or language.

**2.1.3.3.4 Avoidance, Minimization and/or Mitigation Measures**

All measures summarized above and as discussed in Sections 2.1.5 (Traffic and Circulation) and Section 2.2.5 (Air Quality) would be implemented.

## **2.1.4 Utilities and Service Systems**

This section addresses the potential impacts to public utilities and service systems within the project area as a result of project implementation. Public utilities include electricity, natural gas, water and sewer facilities, storm drains, telephone, oil pipelines and wells, and solid waste disposal. For each of the utilities and service systems discussed, existing infrastructure, levels of service, and capacity are described.

### **2.1.4.1 Affected Environment**

#### **Electricity**

SCE currently supplies electricity to the Gerald Desmond Bridge. The need for electrical power is solely associated with lighting on the bridge. In addition to supplying electricity to the bridge, SCE owns several overhead transmission and distribution lines in the project area, including the lines that cross the Cerritos Channel from the LBGS (220-kV, 66-kV, and 12.5-kV). NRG Energy, Inc., owns the LBGS.

#### **Natural Gas**

Long Beach Gas and Oil, a division of the City of Long Beach, supplies natural gas in the project area. Several gas distribution pipelines are within the project limits ranging from 3 to 20 in. (76 to 508 millimeters [mm]) in diameter.

#### **Water**

The City of Long Beach provides the water supply in the project area. Several water lines run under the bridge and through the project area that measure from 4 to 35.5 in. (101 to 901 mm) in diameter.

#### **Sewer**

The City of Long Beach provides sewers and sewer services for the project area. Several existing sewer pipes run under the bridge and within the project limits. These sewer pipes range in diameter from 8 to 24 in. (203 to 609 mm).

#### **Stormwater**

Drainage of stormwater is currently accommodated through eight drainage networks that pass through the project area and discharge into various channels.

#### **Telephone**

Verizon owns and operates the telephone facilities located within the project area. These facilities run both above and below the ground.

## **Oil Lines and Wells**

Terminal Island has been used as an oil field since the 1930s. Due to its history, numerous active and abandoned oil lines and wells are within the project area. Approximately 125 large and small oil pipelines traverse the project site. Owners and/or operators of these lines include Tidelands, Pacific Energy Resources, British Petroleum (BP) Pipelines North America (formerly Arco), AERA Energy, LLC, THUMS, Chemoil, Oil Operators, Cardinal/Equilon, and Conoco Philips.

## **Solid Waste**

Regional planning for solid waste facilities in the project area is under the jurisdiction of Los Angeles County, which is the local enforcement agency under integrated waste management laws. The County and cities are encouraging source reduction and recycling objectives that meet or exceed the requirements of State Assembly Bill (AB) 939. AB 939 mandates a 50 percent reduction in waste volumes from 1990 levels by the year 2010. In addition, hazardous waste can be land filled or recycled at several facilities throughout the state. Any hazardous waste generated within the study area is managed in accordance with federal and state requirements. The closest municipal solid waste landfill to the project is Chandler's Landfill, located at 26311 Palos Verdes Drive East, Rolling Hills Estates, California.

### **2.1.4.2 Environmental Consequences**

#### **Evaluation Criteria**

The utility issues of concern in this evaluation are disruption of utility supply during construction, increased demand for utility capacity, and comparable increases in capacity from implementing the proposed project. In analyzing the project impacts, the proposed project may result in substantial impacts if it would:

- Require or result in construction of new storm drainage facilities or expansion of existing facilities, the construction of which could cause substantial environmental effects
- Be served by a landfill with insufficient permitted capacity to accommodate the solid waste disposal needs of the project (primarily for demolition of the existing bridge)
- Fail to comply with federal, state, and local statutes and regulations related to solid waste
- Result in determination by the energy providers, which serve or may serve the



project, that there is inadequate capacity to serve the projected demand of the project in addition to the existing commitments of the provider

### **No Action Alternative**

Under the No Action Alternative, there would be no impacts to the existing utilities and service systems because of the existing bridge operation.

### **Construction Impacts**

#### North-side Alignment Alternative

Impacts associated with construction activities are temporary, lasting only as long as the construction phase. Project construction would include two major activities, including construction of the new bridge and demolition of the existing bridge once the new bridge is completed and placed in service. Possible impacts to the existing utilities systems would result from required utilities system relocation, increase in utility demand, and increase in solid waste volume. Each of these impacts is discussed below:

#### *Utilities Relocation*

**Electricity.** The Gerald Desmond Bridge Replacement project would replace the existing bridge with a 200-ft (61-m) vertical clearance (above MHWL) bridge. This requires the need to address the existing transmission lines that currently cross the Cerritos Channel, located approximately 300-ft (91.4-m) north of the bridge, with an approximate vertical clearance of 153-ft (46.6-m) above the MHWL. The transmission lines would be the only vertical navigation constraint if the new, higher bridge is constructed. For this reason, the proposed project also includes relocating the SCE high-voltage transmission towers and the lines that cross the Cerritos Channel between Piers S and A (see Section 1.6.1.4 [Proposed Demolition and Phasing]).

NRG Energy, Inc., submitted their application for a Harbor Development Permit in November 2006 for the refurbishment of four of the seven gas turbine generators at the existing LBGS. LBGS was taken out of service in January 2005 for lack of a power sales contract. It was later determined that there was a need for a peaking plant to support the extra energy needed during the summer months. In compliance with California Public Utilities Commission (CPUC) General Order 131-D, an analysis was undertaken to explore the different relocation options for the SCE transmission lines that cross the Cerritos Channel between Piers A and S. Option 3 from the Draft Transmission Towers and Lines Relocation Options at the Port

of Long Beach (see Appendix I), as discussed below, is the recommended relocation option and will be developed for additional study and coordination with SCE.

Option 3 would construct new towers adjacent to the existing towers on Piers S and A to accommodate a 200-ft (61-m) clearance over the Back Channel. Subsequent to construction of the new towers, all SCE lines (12.5-, 66-, and 220-kV lines) would be relocated to the new towers. The existing towers would be left in place (see Exhibit 2.1.4-1).

Relocating the lines to the new towers at a higher elevation would enable taller ships to traverse the Cerritos Channel. Reducing navigational hazards along the Cerritos Channel would prevent service interruption to ships utilizing the Back Channel. Building the new towers adjacent to the existing towers would not require additional coordination with the SHPO. The SHPO has concurred that by leaving the existing towers in place, the project would not have an adverse effect on the eligible National Register of Historic Places (NRHP) resource (the former Edison Power Plant No. 3 and transmission towers were determined eligible for the NRHP, see Section 2.1.8 [Cultural Resources] for more information); therefore, it would not affect the project schedule.

Construction of the new towers on Piers A and S would require coordination with the tenants at these respective piers. Depending if there are parallel construction activities by these tenants, this may affect the schedule for construction of the new towers.

#### *CPUC General Order 131-D*

Since the project potentially involves relocating high voltage transmission lines that are greater than 50-kV, it would be subject to CPUC General Order No. 131-D. This Rule and subsequent sections (Section X [EMF] and XI [Notice]) are applied to the planning and construction of electric generation, transmission/power/distribution line facilities, and substations located in California.

Final determination of the design scenario for relocation of the power lines will require further coordination with SCE and Port tenants of Piers A and S regarding timing for the new tower construction. Through the respective coordination, the relocation of power lines would not result in an adverse effect on the Port Area, its tenants, or the community of Long Beach.

**Effects on Port Facilities:** NRG Energy, Inc., would be impacted by the bridge construction at

the southeast corner of their facility. The crane tower used for construction of the bridge column would require the removal or relocation of NRG utilities at the southeast corner of the NRG facility. Relocation of the affected utilities is not expected to have a substantial effect on the operation of the NRG facility.

**Effects on Natural Gas.** Several gas lines would be impacted by the footings of the proposed structures. The largest impact would be to a 16-in. (41-cm) high-pressure gas main. Impacted gas lines and mains would need to be relocated.

**Effects on Water and Sewer.** Several water and sewer pipelines would be affected by the proposed new bridge construction and would need to be relocated before commencement of construction and demolition activities.

**Effects on Storm Drain.** Several footings of the proposed structures would impact sections of the 42-in (106-cm) supply pipe and 42-in (106-cm) pressure discharge pipe of the Ocean Boulevard Pump Station. In addition, many smaller collection pipes and catch basins would also be impacted. All impacted structures would need to be replaced or modified to accommodate the proposed project. No additional facilities would need to be constructed.

**Effects on Telephone.** Telephone facilities would be affected by the proposed project and would require relocation.

**Effects on Oil Lines and Wells.** Active and abandoned oil lines within the construction footprint would be affected by the proposed project. Active lines would be avoided where possible. Abandoned lines would be removed as required. However, during the final design phase of the project, the owners of the pipelines would perform detailed studies and recommend provisions for the relocation or protection of these facilities from construction; studies and relocation/protection would be compensated by the Port.

Short-term service interruptions could occur during the relocation activities. The impact would be temporary, and with close coordination with the utilities service providers, interruption duration and severity would be minimized.

Active and abandoned oil wells within the construction footprint would also be affected by the proposed project (see Exhibits 2.1.4-2 and 2.1.4-3). There are approximately 147 abandoned wells located within the construction footprint that may be affected. The abandoned wells affected

by the project would be tested and, as required, they would be re-abandoned to meet California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) requirements and performance standards as specified in *California Laws for Conservation of Petroleum and Gas*, January 2001. Prior to construction, an oil well abandonment plan, as applicable, would be coordinated with the DOGGR Construction Review Engineer.

Approximately 23 active or idle wells within the construction footprint may be affected by the proposed project. These wells could be abandoned and redrilled (replaced) in a new location, undergo a buy-out and be taken out of service, or temporarily shut down during construction and placed back in service following completion of construction within the well area. (personal communication, Sean Gamette, 2002); however, the City of Long Beach Department of Gas and Oil would make the final decision as to which oil wells are redrilled or bought out.

#### Utilities Demand

Construction activities would utilize machinery and tools that require the consumption of more electrical power than is currently used for the bridge. This increase in electrical usage would be temporary, and the contractor would be able to tap into the existing power grid of the Port. In addition, a recently installed 12,000-volt substation on the north side of the bridge would accommodate the temporary increase in electricity demand during construction activities (personal communication, Jim Matthei, 2002).

There are 245 operational power plants located in the counties of Los Angeles, Orange, Riverside, and San Bernardino that produce at least 100 kilowatt (kW) (0.1-megawatt [MW]) of electricity each (CEC, 1999b). These facilities have a total online generating capacity of 16,922 MW. Electric energy in the region is provided primarily through SCE and the Los Angeles Department of Water and Power (LADWP) distribution networks, along with three municipalities having their own power plants located in the region (Glendale, Burbank, and Pasadena), and with the Imperial Irrigation District and San Diego Gas & Electric providing service to the extreme southern areas of Riverside and Orange counties, respectively. Because of the restructuring of the electric energy industry throughout California, many of the facilities owned by investor-owned utilities have been divested.

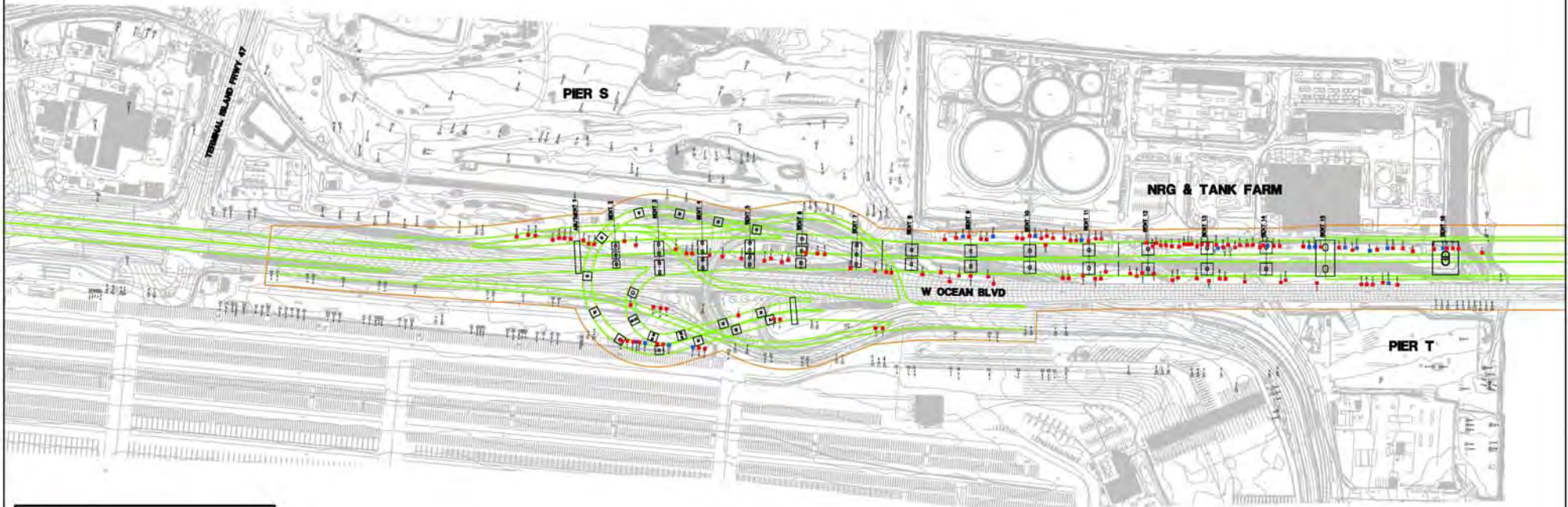


Option 3

Exhibit 2.1.4-1  
New Towers

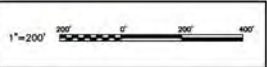
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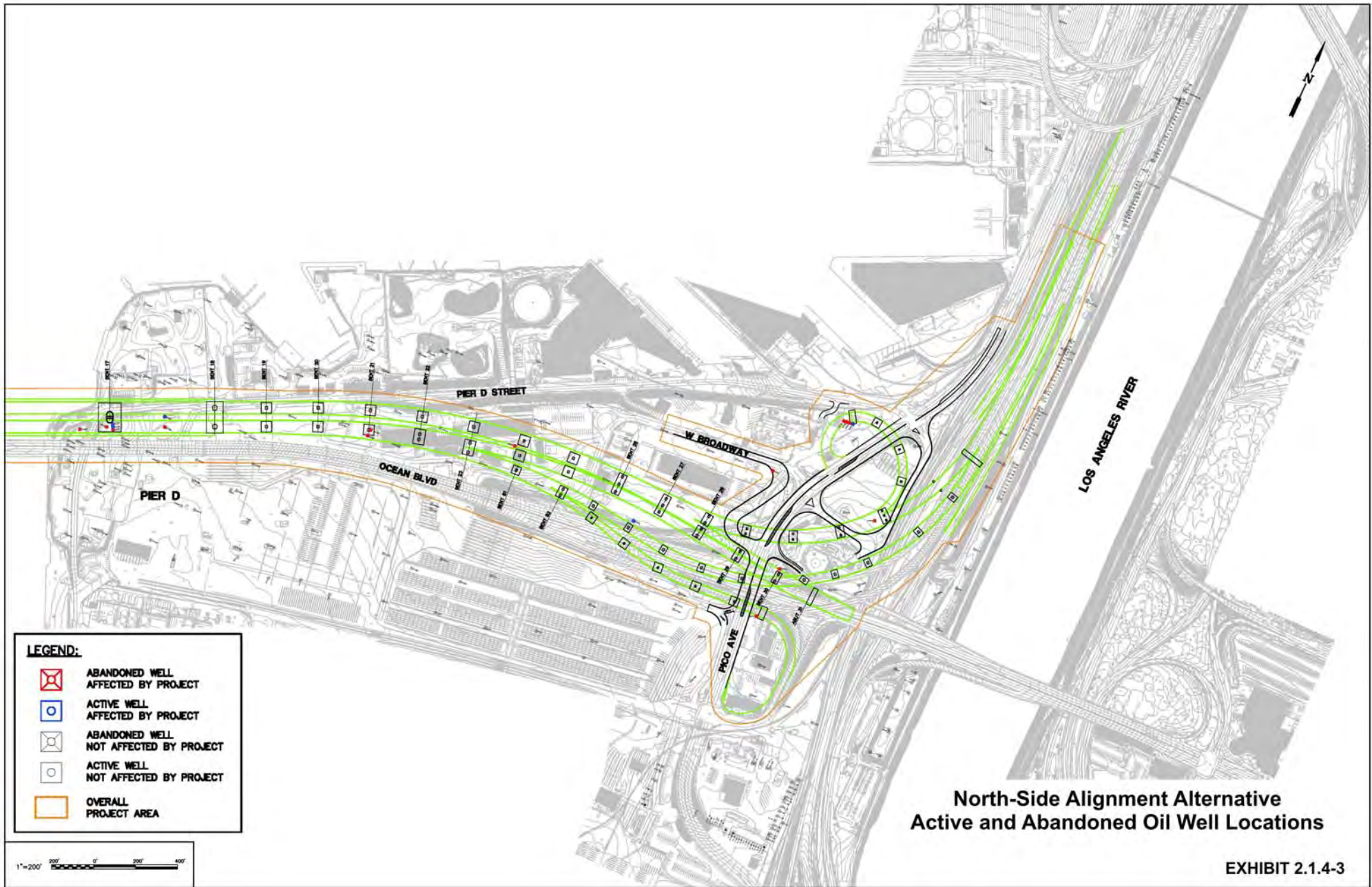
-  ABANDONED WELL AFFECTED BY PROJECT
-  ACTIVE WELL AFFECTED BY PROJECT
-  ABANDONED WELL NOT AFFECTED BY PROJECT
-  ACTIVE WELL NOT AFFECTED BY PROJECT
-  OVERALL PROJECT AREA



**North-Side Alignment Alternative  
Active and Abandoned Oil Well Locations**

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Most of the electric energy used in southern California is imported to the region from coal-fired and hydroelectric generating facilities located elsewhere in California and out of state. Utilities in southern California participate in power-sharing arrangements with many other entities throughout the western United States.

Construction of the proposed project would not cause a substantial increase in the demand on existing electrical sources or require the development of new sources; therefore, the project would not result in a change to local or regional energy supplies, or change the efficiency of energy use.

#### Solid Waste Generation

Construction and demolition activities associated with the proposed project would generate a large amount of solid waste. Most of this waste would be a product of demolition. Construction and demolition materials would be recycled to the extent feasible in accordance with the City of Long Beach Construction and Demolition Program. Recycling programs would be used to reduce the amount of waste to be disposed of in the local landfill. The quantity of waste is unknown at this early stage of engineering, but it is not assumed to be substantial. Various recycling stations are located throughout Los Angeles County, and any waste produced by construction activities could be disposed of or recycled at these facilities or others throughout the state. Solid waste that remains after recycling would be disposed of at an appropriate municipal landfill within the region.

#### **South-side Alignment Alternative**

Impacts associated with construction activities for the South-side Alignment Alternative would be temporary, lasting only as long as the construction phase. Project construction would include two major activities, including construction of the new bridge and demolition of the existing bridge once the new bridge is completed and placed in service. Possible impacts to the existing utilities systems would result from utility relocations, increase in utility demand, and increase in solid waste volume. Each of these impacts is discussed below:

##### *Utilities Relocation*

**Electricity.** Impacts to the existing transmission lines that currently cross the Cerritos Channel, approximately 300-ft (91.4-m) north of the bridge, with an approximate vertical clearance of 153-ft (46.6-m) above the MHWL, are the same as the North-side Alignment Alternative. The scenarios

and conclusions/recommendations are also the same for the South-side Alignment Alternative.

Several SCE overhead and underground lines within Pier T and Pier D would need to be relocated. Tidelands electrical infrastructure for existing facilities would also be affected by the proposed bridge within the South-side Alignment Alternative.

**Effects on Natural Gas.** Several gas lines would be impacted by the footings of proposed structures. The largest impact would be to a 16-in. (41-cm) high-pressure gas main located in Piers T and D. Several gas mains in Piers T and D with various pipe sizes would be impacted and would need to be relocated.

**Effects on Water and Sewer.** Several water and sewer pipelines would be affected by the proposed new bridge construction and would need to be relocated before commencement of construction and demolition activities. The largest impact would be to 24-in. (61-cm) and 20-in. (51-cm) water mains located in Piers T and D.

**Effects on Storm Drain.** Several footings of the proposed structures would impact the existing storm drain system. There is an existing 48-in. (122-cm) storm drain in Pier D that drains to a pump station that would need to be relocated. In addition, many smaller collection pipes and catch basins would also be impacted. All impacted structures would need to be replaced or modified to accommodate the proposed project. No additional facilities would need to be constructed.

**Effects on Telephone.** Aboveground and belowground telephone facilities would be affected by the proposed project and would require relocation.

**Effects on Oil Lines and Wells.** Active and abandoned oil lines within the construction footprint would be affected by the proposed project. Active lines would be avoided where possible. Abandoned lines would be removed as required. However, during the final design phase of the project, the owners of the pipelines would perform detailed studies and recommend provisions for relocation or protection of these facilities from construction; studies and relocation/protection would be compensated by the Port.

Short-term service interruptions could occur during the relocation activities. The impact would be temporary, and with close coordination with the utilities service providers, interruption duration and severity would be minimized.

Active and abandoned oil wells within the construction footprint would also be affected by the proposed project (see Exhibits 2.1.4-4 and 2.1.4-5). Approximately 138 abandoned wells located within the construction footprint may be affected. The abandoned wells affected by the project would be tested and, as required, they would be re-abandoned to meet DOGGR requirements and performance standards as specified in *California Laws for Conservation of Petroleum and Gas*, January 2001. Prior to construction, an oil well abandonment plan, as applicable, would be coordinated with the DOGGR Construction Review Engineer.

Approximately 30 active or idle wells within the construction footprint may be affected by the proposed project. These wells could be abandoned and redrilled (replaced) in a new location, undergo a buy-out and be taken out of service, or temporarily shut down during construction and placed back in service following completion of construction within the well area. (personal communication, Sean Gamette, 2002); however, the City of Long Beach Department of Gas and Oil would make the final decision as to which oil wells are redrilled or bought out.

#### *Utilities Demand*

The demand for electrical power for this alternative would be similar to the North-side Alignment Alternative.

#### *Solid Waste Generation*

Solid waste disposal and recycling for this alternative would be similar to the North-side Alignment Alternative.

#### Rehabilitation Alternative

Impacts associated with construction activities for the Rehabilitation Alternative would be temporary, lasting only as long as the construction phase. Project construction would include rehabilitation of the existing bridge deck, existing columns, and existing bridge footings. Possible impacts to the existing utilities systems would result from utility relocations in the surrounding area of the existing footings, increase in utility demand, and increase in solid waste volume. Each of these impacts is discussed below:

#### *Utilities Relocation*

**Electricity.** There would be no impacts to the existing SCE transmission lines that cross the Cerritos Channel. The vertical clearance of the existing bridge would remain the same.

Several overhead light poles on the bridge would need to be relocated for this alternative. Other impacts include SCE overhead electrical lines in Piers T and D and underground electrical lines in Pier D.

**Effects on Natural Gas.** The gas lines in the immediate vicinity of the existing bridge footings would be affected by this alternative.

**Effects on Water and Sewer.** Water pipelines in the immediate vicinity of the existing bridge footings would be affected by the proposed rehabilitation of the bridge footings and would need to be relocated before commencement of construction and demolition activities. This includes a 20-in. (51-cm) pipeline in Pier D and abandoned 24-in. (61-cm) and 10-in. (25-cm) waterlines in Pier D. There are no sewer line impacts with this alternative.

**Effects on Storm Drain.** An existing storm drain that crosses underneath the bridge adjacent to the footings would require relocation. The storm drain would be relocated to an adjacent area, away from the footing location.

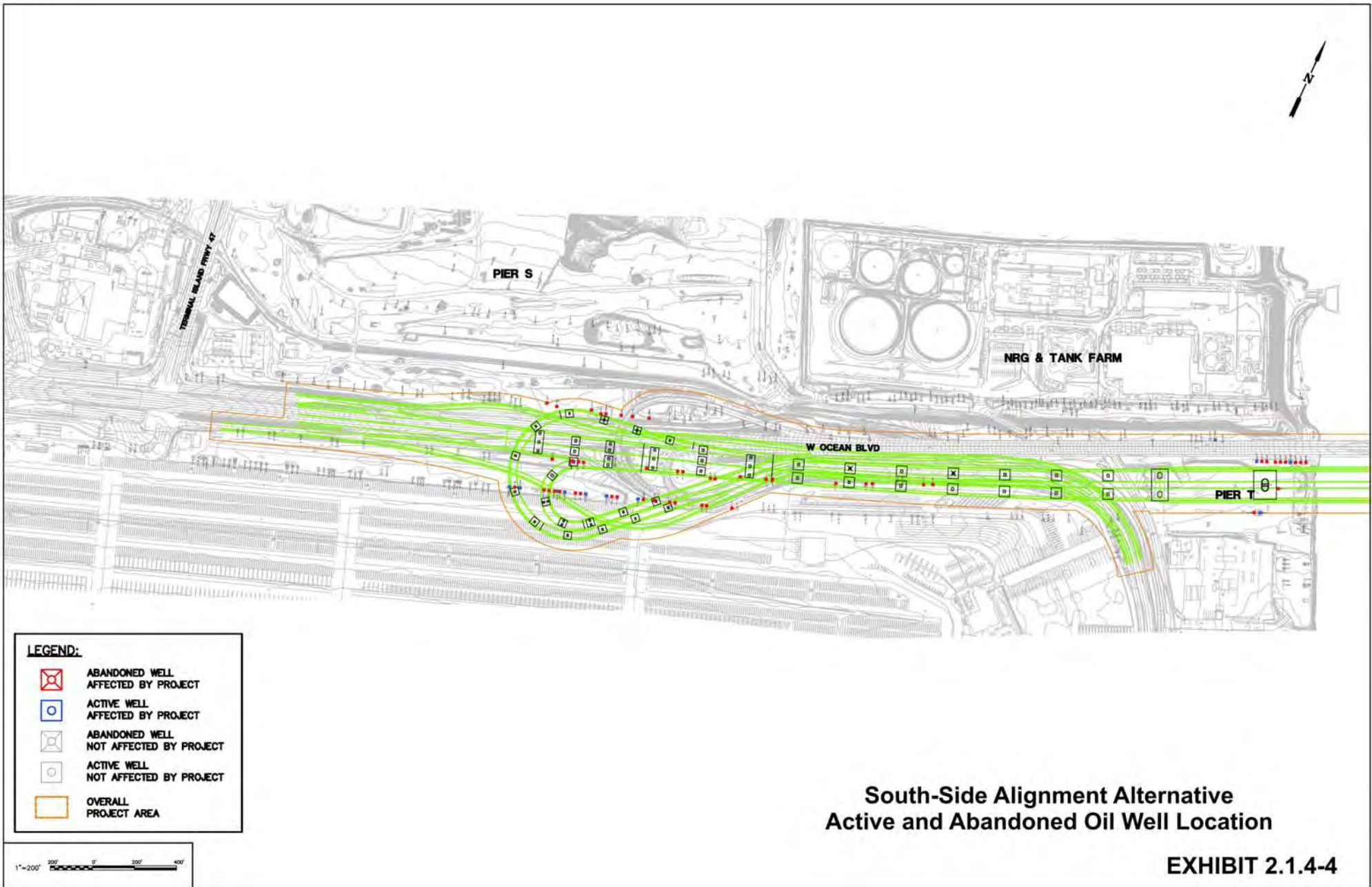
**Effects on Telephone.** The existing underground telecommunication lines near the existing footings at Piers T and D would require relocation. The lines would be relocated to an adjacent area, away from the footing locations.

**Effects on Oil Lines and Wells.** Active and abandoned oil lines within the construction footprint would be affected by the proposed project. Active lines would be avoided where possible. Abandoned lines would be removed as required. However, during the final design phase of the project, the owners of the pipelines would perform detailed studies and recommend provisions for the relocation or protection of these facilities from construction; studies and relocation/protection would be compensated by the Port.

Short-term service interruptions could occur during the relocation activities. The impact would be temporary, and with close coordination with the utilities service providers, interruption duration and severity would be minimized.

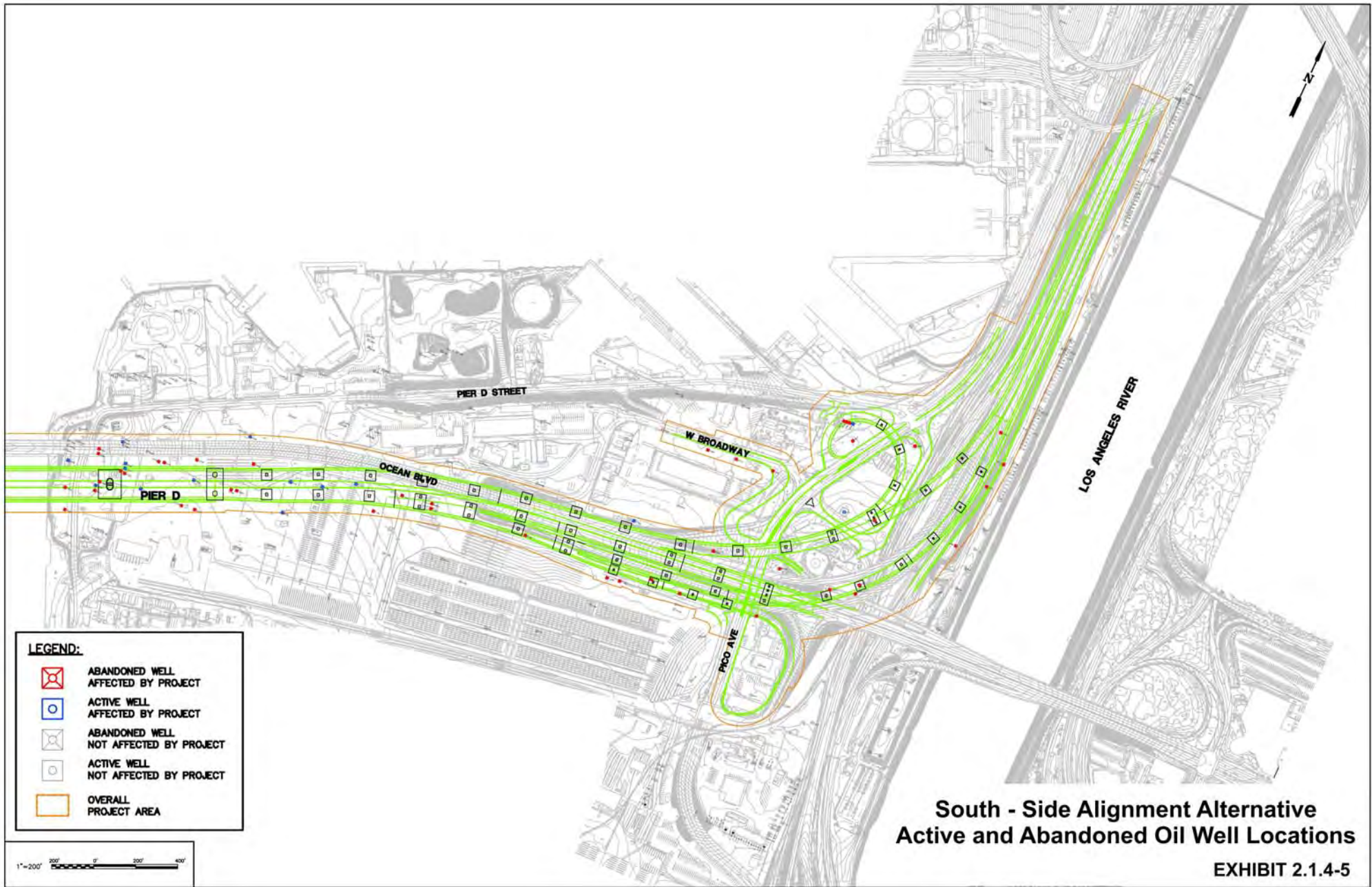
Active and abandoned oil wells within the construction footprint would also be affected by the proposed project. Approximately 52 abandoned wells located within the construction footprint may be affected. The abandoned wells affected by the project would be tested and, as required, they would be re-abandoned to meet DOGGR requirements and performance





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standards as specified in *California Laws for Conservation of Petroleum and Gas*, January 2001. Prior to construction, an oil well abandonment plan, as applicable, would be coordinated with the DOGGR Construction Review Engineer.

Approximately six active or idle wells may be affected by the proposed project. These wells could be abandoned and redrilled (replaced) in a new location, undergo a buy-out and be taken out of service, or temporarily shut down during construction and placed back in service following completion of construction within the well area. (personal communication, Sean Gamette, 2002); however, the City of Long Beach Department of Gas and Oil would make the final decision as to which oil wells are redrilled or bought out.

#### *Utilities Demand*

The demand for electrical power for constructing this alternative would be less than the North-side and South-side Alignment Alternatives.

#### *Solid Waste Generation*

Construction and demolition activities associated with the Rehabilitation Alternative would generate solid waste from the removal of the existing bridge deck. Recycling programs would be used to reduce the amount of waste to be disposed of in the local landfill. The quantity of waste is unknown at this early stage of engineering, but it is not assumed to be substantial. Solid waste that remains after recycling would be disposed of at an appropriate municipal landfill within the region.

### **Operational Impacts**

#### North-side Alignment Alternative

Electrical usage during operation of the proposed project would be limited to the lighting of the roadway and aesthetic lighting of the bridge. Additional lighting would be required to illuminate

the proposed six lanes with standard shoulders versus the existing five lanes and no shoulders; however, the additional electricity required to illuminate one additional lane and safety shoulders would not represent a substantial demand on local supplies when compared to the regional capacity provided by SCE (personal communication, Jim Matthei, 2002). The aesthetic lighting would not require a substantial amount of energy. The existing power grid has sufficient capacity to relieve any increase in electrical demand; therefore, the proposed project would not result in a change to local or regional energy supplies, and it would not change the efficiency of energy use.

The new bridge would include an additional through-lane on the EB and WB sides of the bridge. The increased surface area of the bridge would result in an increase in stormwater runoff being directed from the bridge to the existing storm drains. This increase may require construction of new storm drainage facilities or the expansion of existing facilities at the Port; however, since the project area generally consists of paved impervious surfaces, the net effect of the bridge project would not substantially change the volume of storm drain runoff in the vicinity.

#### South-Side Alignment Alternative

Operational impacts for the South-side Alignment Alternative would be similar to the North-side Alignment Alternative.

#### Rehabilitation Alternative

Operational impacts for the Rehabilitation Alternative would be less than the North-side and South-side Alignment Alternatives.

### **2.1.4.3 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

### 2.1.5 Traffic and Circulation

This section addresses the potential impacts to traffic and circulation associated with construction and long-term operation of the proposed project. The traffic and circulation impact analysis is based on the results of a traffic study conducted for the project (Iteris, 2009). The study identified existing (year 2005) and future projected (years 2015 and 2030) traffic volumes and lane configurations to determine the traffic LOS for roadway elements within the study area. For this analysis, the “existing” traffic conditions are defined as the conditions that existed in year 2005 at the time that the CEQA NOP for this project was issued.

#### 2.1.5.1 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 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.

#### 2.1.5.2 Affected Environment

The existing lane configurations, traffic volumes, and LOS within the study area are presented in this subsection.

LOS denotes the possible range of traffic operating conditions that may occur on a roadway or at an intersection when it is subjected to various traffic volumes. LOS analysis is based on hourly traffic and typically examines the peak travel hours of the day. It is a measure of the “quality of flow” defined in six levels, A through F, by the *Highway Capacity Manual – 2000 Edition* (HCM) published by the Transportation Research Board (TRB). The six levels, A to F, relate to traffic congestion from best to worst, respectively. In general, LOS A represents free-flow conditions with no congestion. Conversely, LOS F represents severe congestion with stop-and-go conditions.

Levels E and F typically are considered unsatisfactory operating conditions. For a multi-lane highway such as Ocean Boulevard in the vicinity of the Gerald Desmond Bridge, LOS is determined by the density of vehicles on the roadway. A very low density allows free-flow conditions, and a very high density provides stop-and-go conditions. Table 2.1.5-1 presents LOS information for multi-lane highways.

LOS	Maximum Density*	Description of Conditions
A	11	“Free-flow” conditions
B	18	Slight congestion
C	26	Moderate congestion
D	35	Significant congestion
E	43**	Extreme congestion
F	>43**	Gridlock/stop-and-go condition

\* Density is measured in passenger cars per lane per mile.

\*\* Assuming a free-flow speed of 50 miles per hour.

Source TRB, 2000.

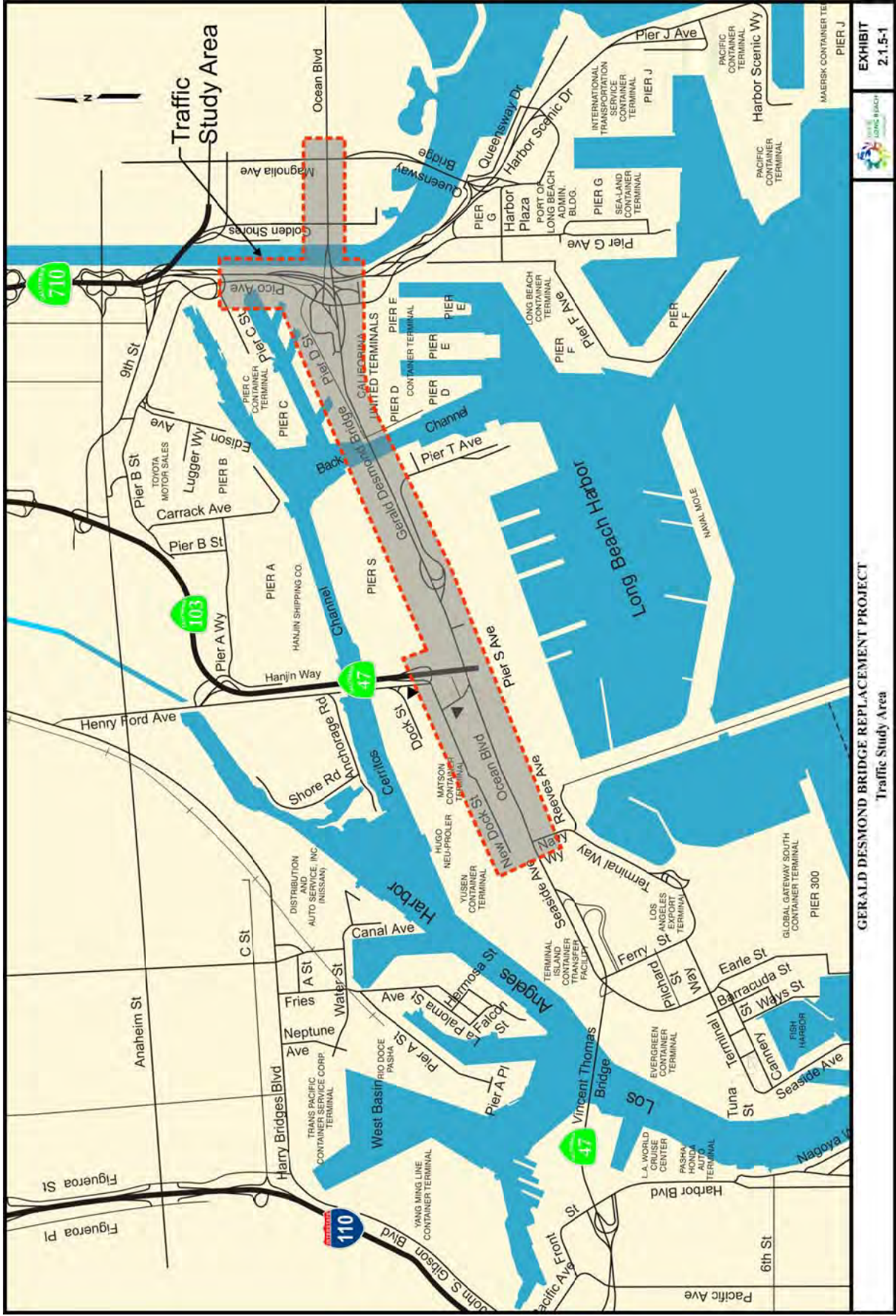
The intersection capacity utilization (ICU) analysis methodology compares the level of traffic volume during the peak hours at an intersection to the amount of traffic that intersection is able to carry (capacity). Table 2.1.5-2 describes the LOS concept and the operating conditions expected with each LOS for signalized intersections.

Analysis of unsignalized intersections is conducted differently than signalized intersections due to different operating characteristics. For unsignalized intersections, LOS is based on average delay in seconds per vehicle. Table 2.1.5-3 describes the LOS concept for unsignalized intersections. Stop-controlled intersections were analyzed using the delay-based HCM method of determining LOS.

#### Traffic Study Area

The traffic study area is shown in Exhibit 2.1.5-1. The overall study area extends along Ocean Boulevard from Navy Way on the west to downtown Long Beach on the east. It includes the access between Ocean Boulevard, SR 710, and Pico Avenue. It extends north along Pico Avenue and SR 710 to 9th Street, and it includes the Terminal Island Freeway (SR 47) interchange with Ocean Boulevard, as well as the Terminal Island Freeway interchange with New Dock Street. The





GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
Traffic Study Area

EXHIBIT  
2.1.5-1

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<b>LOS*</b>	<b>V/C Ratio</b>	<b>Description of Conditions</b>
A	0 to 0.60	Little or no delay/congestion
B	>0.60 to 0.70	Slight congestion/delay
C	>0.70 to 0.80	Moderate delay/congestion
D	>0.80 to 0.90	Significant delay/congestion
E	>0.90 to 1.00	Extreme congestion/delay
F	1.00 +	Intersection failure/gridlock

LOS – Level of Service

\* The intersection LOS calculations were based on a maximum lane volume of 1,600 vehicles per lane for through lanes and single turn lanes and 2,880 vehicles per hour for multiple left-turn lanes as used by the POLB. For intersections within the City of Los Angeles, the maximum lane volume was based on 1,425 vehicles per hour per the capacities in the Circular 212 Critical Movement Analysis (CMA) methodology used by the City. Intersections with vehicular volumes that are at or near capacity ( $V/C \cong 1.0$ ) experience greater congestion and longer vehicle delays.

Source: TRB, 1985; and NCHRP, 1982.

<b>LOS</b>	<b>Average Delay (seconds/vehicle)</b>	<b>Description of Conditions</b>
A	$\leq 10$	Little or no delay
B	$> 10$ and $\leq 15$	Slight delay
C	$> 15$ and $\leq 25$	Moderate delay
D	$> 25$ and $\leq 35$	Significant delay
E	$> 35$ and $\leq 50$	Extreme congestion
F	$> 50$	Intersection gridlock

LOS – Level of Service

Source: TRB, 2000.

study area extends west along New Dock Street from its interchange with the Terminal Island Freeway to Pier S Avenue.

The traffic study area was defined to include the project site and other roadways estimated to carry sufficient additional traffic as a result of the construction and long-term operation of the Bridge Replacement Alternatives to potentially result in adverse traffic effects. Roadways receiving sufficient additional traffic to be included in the traffic study area were determined based on the criterion of including any intersection increasing in volume by 50 or more trips in any one peak hour. The number of additional trips was determined from a comparison of the future traffic volumes

with and without the Bridge Replacement Alternatives, as presented in the section Traffic Forecasting Model below. The proposed build alternatives of the project, which entail rehabilitation or replacement of the existing roadway and bridge facilities, would not directly generate any additional new trips; however, the bridge replacement alternatives are expected to result in some local redistribution of traffic as motorists modify their travel paths to take advantage of the congestion-relief benefits of the Bridge Replacement Alternatives.

The study area includes roadway facilities where traffic changes are expected to be of sufficient magnitude to warrant study. The elimination from further consideration of the Toll-Operation Alternative substantially reduced the study area. (Section 1.7.1 presents the reasons that the Toll-Operation Alternative was eliminated from further consideration.) A toll facility would potentially impact traffic on I-110, SR 91, and I-405, as noted in Section 1.2. The proposed Bridge Replacement Alternatives would have more localized potential traffic effects. The northern limit of the study area on SR 710 is at 9<sup>th</sup> Street. Because there was no adverse effect of the proposed project on the portion of SR 710 south of 9<sup>th</sup> Street, which has fewer lanes than portions to the north, it was concluded that there would be no adverse effects to SR 710 or I-710 farther north where the highway has more lanes.

Within the traffic study area, eight roadway segments with potential traffic impacts associated with the project have been investigated. These are shown on Exhibit 2.1.5-2 and include:

1. Ocean Boulevard from Navy Way to Pier S Avenue;
2. Ocean Boulevard from Pier S Avenue to the Terminal Island Freeway;
3. Ocean Boulevard from the Terminal Island Freeway to the Horseshoe Ramps;
4. EB bridge upgrade (direction of travel is uphill) to the crest of the bridge;
5. WB bridge upgrade to the crest of the bridge;
6. Connectors between SR 710 and Ocean Boulevard;
7. SR 710 north of the Ocean Boulevard connectors; and
8. Ocean Boulevard from SR 710 Connectors to downtown Long Beach.

Within the traffic study area, 13 intersections with potential traffic impacts associated with the project have been investigated. The intersections are shown on Exhibit 2.1.5-3 and include:

1. Terminal Island Freeway and Ocean Boulevard (signalized);
2. Pier S Avenue and Ocean Boulevard (signalized);
3. Pier S Avenue and New Dock Street (signalized);
4. Navy Way and Seaside Avenue (signalized);

5. Pico Avenue/Pier B Street and 9th Street (signalized);
6. Pico Avenue and Pier C Street (signalized);
7. Terminal Island Freeway SB Off-Ramp and New Dock Street (stop sign controlled);
8. Terminal Island Freeway Northbound (NB) On-Ramp and New Dock Street (stop sign controlled);
9. Pico Avenue and Pier D Street (stop sign controlled);
10. Pico Avenue and Broadway (stop sign controlled);
11. Pico Avenue and Pier E Street (stop sign controlled);
12. Ocean Boulevard and Golden Shore (signalized); and
13. Ocean Boulevard and Magnolia Avenue (signalized).

The intersection of Navy Way and Seaside Avenue (Intersection 4) is located in Los Angeles, while the other intersections are located in Long Beach. Intersections 1 through 6, 12, and 13 are signalized in the existing year 2005 condition. Intersections 7 through 11 are currently controlled with stop signs. Traffic signals are proposed at intersections 9 and 11 as part of the construction traffic detour plans for the North-side and South-side Alignment Alternatives (bridge replacement alternatives), and these signals would remain after implementation of the proposed project; therefore, these signals are considered implemented in the analysis of future year 2015 and 2030 conditions with the proposed Bridge Replacement Alternatives of the project.

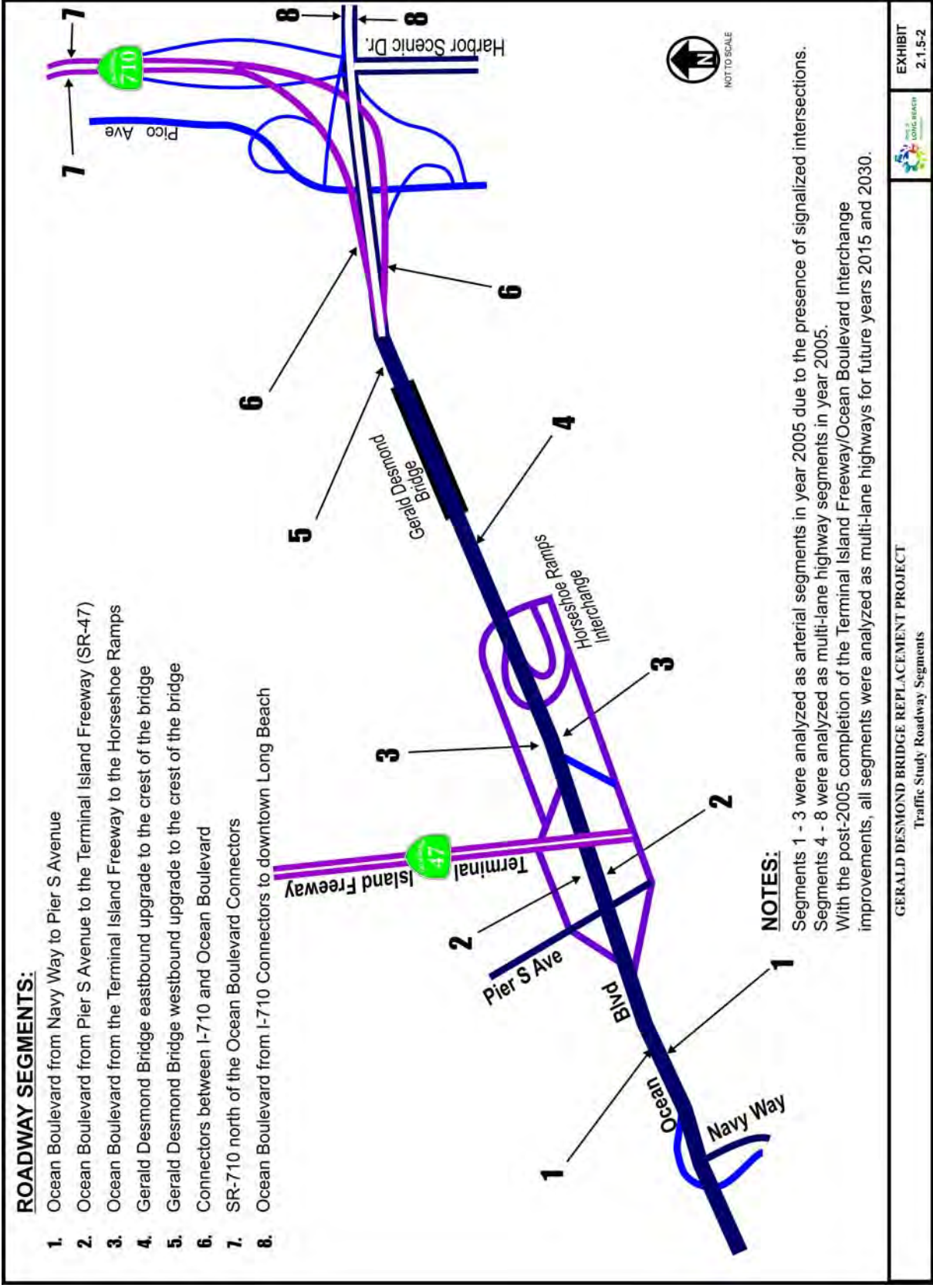
The analysis of future year 2015 and 2030 conditions with the No Action/Rehabilitation Alternatives assumes that signals would not be in place at intersections 9 and 11, because no construction traffic detour plans would be necessary if the existing bridge is rehabilitated or if no action is taken.

### **Existing Lane Configuration**

Exhibits 2.1.5-4a and 2.1.5-4b show the existing lane configuration of the Gerald Desmond Bridge and roadways within the immediate project area.

#### Gerald Desmond Bridge

The Gerald Desmond Bridge is a five-lane thoroughfare with two traffic lanes in each direction and one truck lane in each direction on the uphill side of the bridge. The truck lanes end at the roadway crest on the bridge.



**ROADWAY SEGMENTS:**

1. Ocean Boulevard from Navy Way to Pier S Avenue
2. Ocean Boulevard from Pier S Avenue to the Terminal Island Freeway (SR-47)
3. Ocean Boulevard from the Terminal Island Freeway to the Horseshoe Ramps
4. Gerald Desmond Bridge eastbound upgrade to the crest of the bridge
5. Gerald Desmond Bridge westbound upgrade to the crest of the bridge
6. Connectors between I-710 and Ocean Boulevard
7. SR-710 north of the Ocean Boulevard Connectors
8. Ocean Boulevard from I-710 Connectors to downtown Long Beach

**NOTES:**

Segments 1 - 3 were analyzed as arterial segments in year 2005 due to the presence of signalized intersections. Segments 4 - 8 were analyzed as multi-lane highway segments in year 2005. With the post-2005 completion of the Terminal Island Freeway/Ocean Boulevard Interchange improvements, all segments were analyzed as multi-lane highways for future years 2015 and 2030.

GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
Traffic Study Roadway Segments

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- 1** Terminal Island Freeway and Ocean Boulevard
- 2** Pier S Avenue and Ocean Boulevard
- 3** Pier S Avenue and New Dock Street
- 4** Navy Way and Seaside Avenue
- 5** Pico Avenue/Pier B Street and 9th Street
- 6** Pico Avenue and Pier C Street
- 7** Terminal Island Freeway Southbound Off-Ramp and New Dock Street
- 8** Terminal Island Freeway Northbound On-Ramp and New Dock Street
- 9** Pico Avenue and Pier D Street
- 10** Pico Avenue and Broadway
- 11** Pico Avenue and Pier E Street
- 12** Ocean Boulevard and Golden Shore Street
- 13** Ocean Boulevard and Magnolia Avenue

**Key**

- 13** Study Intersection
- Traffic Study Area
- Signalized Intersection
- Stop Sign Controlled

**Note:**  
Intersections #5, #6, and #9-11 are currently controlled with stop signs. Traffic signals are proposed at intersections #9 and #11 as part of the construction traffic detour plans for the North-side and South-side Alignment Alternatives (Bridge Replacement Alternatives) and these signals would remain after implementation of the proposed project. Therefore, these signals are considered implemented in the analysis of future year 2015 and 2030 conditions under the proposed Bridge Replacement Alternatives of the project. The analysis of future year 2015 and 2030 conditions under the No Action/Rehabilitation Alternatives assumes that signals would not be in place at intersections #9 and #11, since no construction traffic detour plans would be necessary if the existing bridge is rehabilitated or if no action is taken.

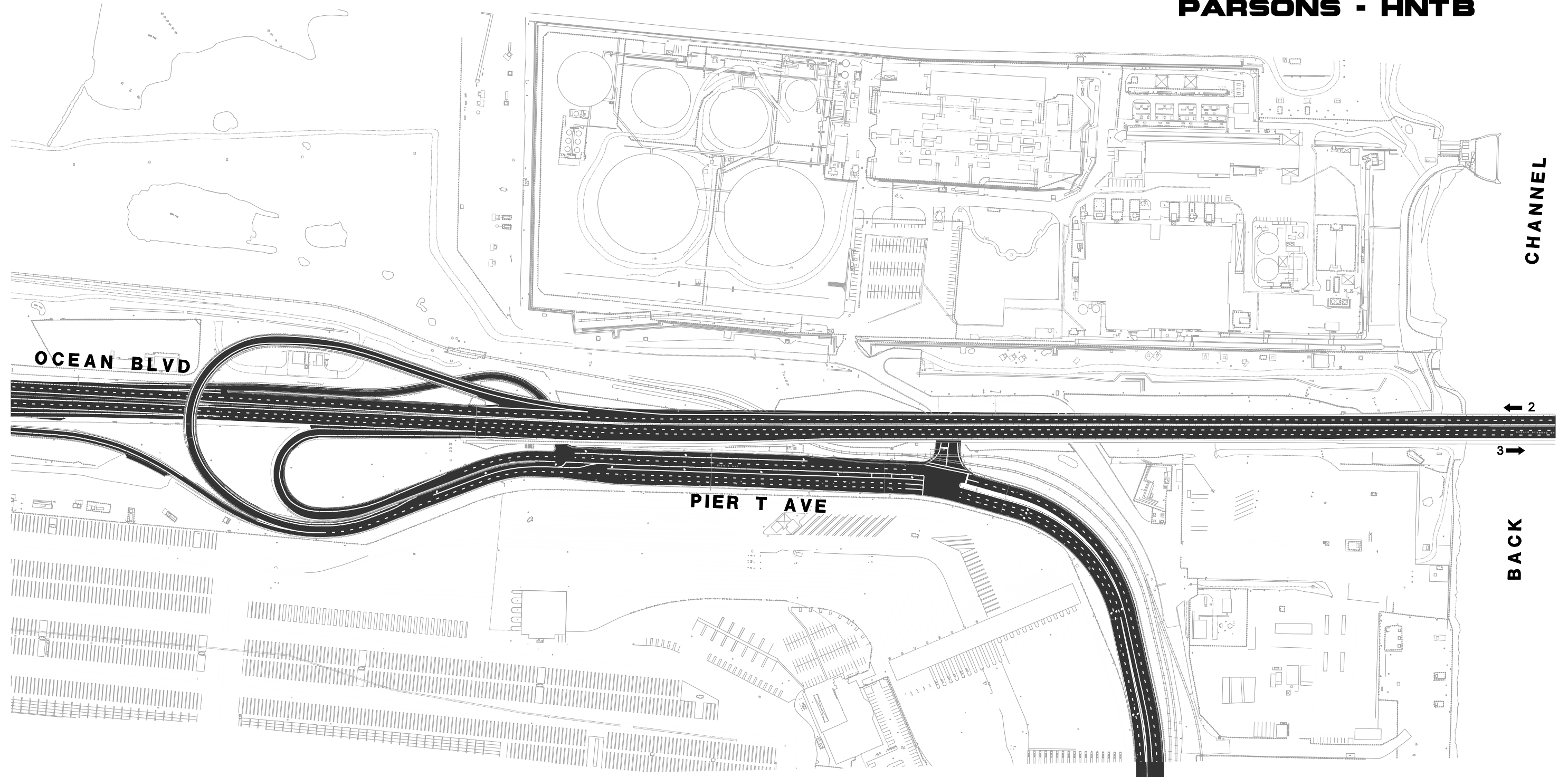
**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
Traffic Study Intersections



**EXHIBIT**  
2.1.5-3



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EXHIBIT 2.1.5-4a

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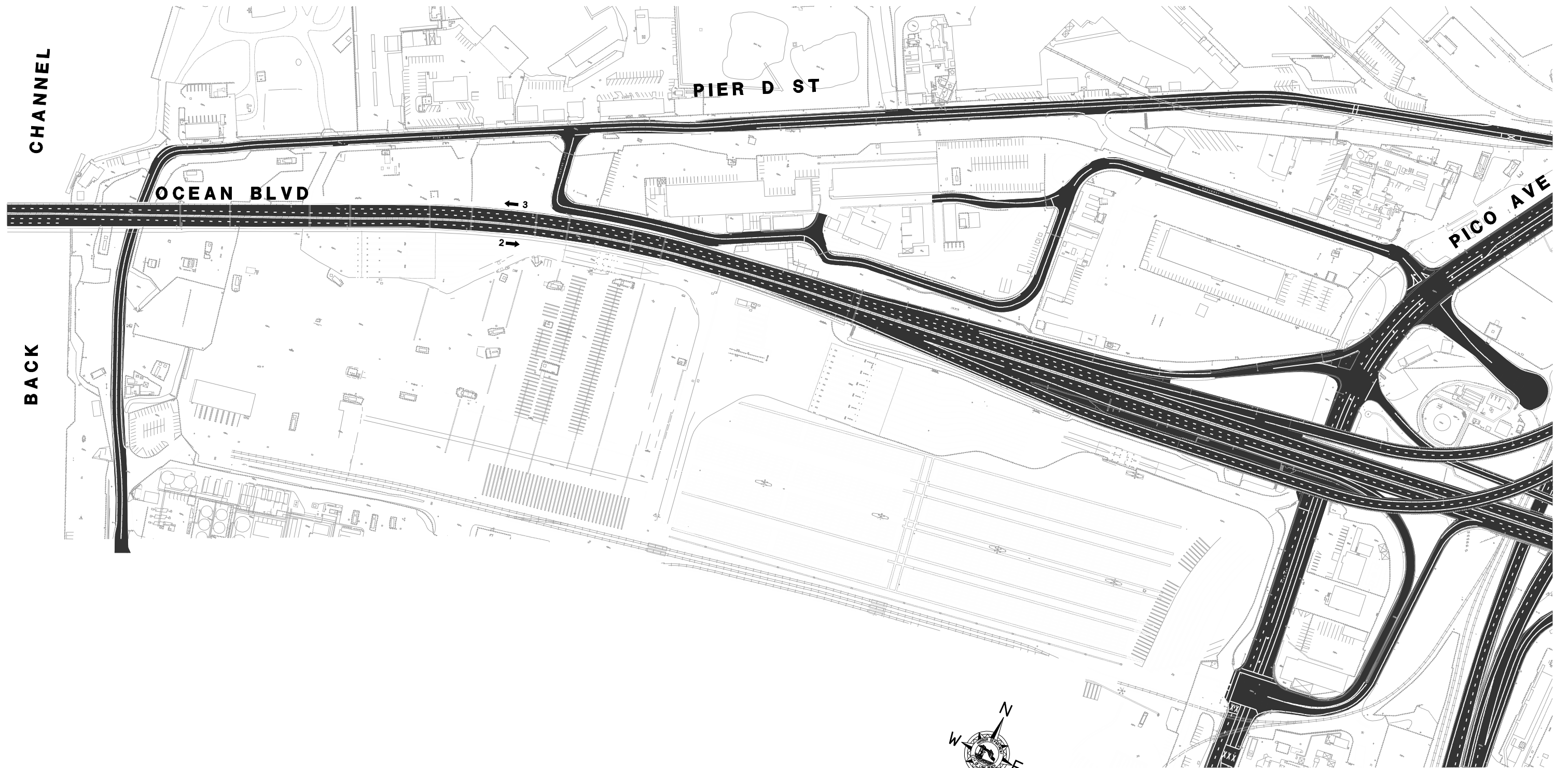
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DESIGNED _____ P.E. NO. _____	CHIEF HARBOR ENGINEER P.E. NO. <b>C-43069</b> DATE .....
PROJ. MGR. _____ P.E. NO. _____	
SECT. HEAD _____ P.E. NO. _____	



**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
 Existing Roadway Segment Lane Configuration

SCALE _____	SHEET _____ OF _____
SPECIFICATION NUMBER _____	
DRAWING NUMBER _____	

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**EXHIBIT 2.1.5-4b**

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DRAWN	<b>DWP</b>	DATE	<b>03/28/08</b>
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PROJ. MGR.		P.E. NO.	
SECT. HEAD		P.E. NO.	

ASS'T CHIEF HARBOR ENGR.	P.E. NO.	<b>C-25677</b>	DATE	
CHIEF HARBOR ENGINEER	P.E. NO.	<b>C-43069</b>	DATE	



**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
**Existing Roadway Segment Lane Configuration**

SCALE		SHEET		OF	
SPECIFICATION NUMBER		DRAWING NUMBER			

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### Ocean Boulevard

The section of Ocean Boulevard connecting to the Gerald Desmond Bridge also has two or three lanes in each direction, depending upon the exact location and direction. The roadway has three lanes in each direction east of the Pico Avenue interchange and west of the Ocean Boulevard/Terminal Island Freeway interchange.

### Interchanges and Ramps

Major interchanges along Ocean Boulevard within the project area include Terminal Island East, SR 710, and Pico Avenue, as shown in Exhibit 2.1.5-2.

The Terminal Island East interchange, which is identified by its “horseshoe ramps,” is located at the west end of the Gerald Desmond Bridge. (Note: the Terminal Island East interchange is referred to in this subsection as the Horseshoe Ramps to avoid confusion with the Terminal Island Freeway interchange.) The Horseshoe Ramps provide access to the Pier T area and include ramps to and from Ocean Boulevard in both directions. The SR 710 freeway and Pico Avenue interchanges lie immediately east of the Gerald Desmond Bridge. The SB SR 710 connector ramp to WB Ocean Boulevard consists of two lanes that merge into one lane prior to merging with Ocean Boulevard. The connector ramp for the opposite move (EB Ocean Boulevard to NB SR 710) consists of two lanes.

### **Existing (Year 2005) Traffic Conditions**

The existing (year 2005) average daily traffic (ADT) on the Gerald Desmond Bridge is approximately 59,700 vpd, which includes approximately 25 percent trucks. This truck percentage is higher than on typical urban roadways and is principally attributable to the large truck volumes generated by the ports.

### Study Methodology

Based on traffic counts taken for the existing year (2005), the morning (AM), midday (MD), and evening (PM) peak traffic hours were determined to be 8:00 a.m. to 9:00 a.m., 2:00 p.m. to 3:00 p.m., and 4:00 p.m. to 5:00 p.m., respectively. The AM and PM peak hours represent traffic peaks typical of commuter traffic. In addition to commuter traffic, the traffic activity at the Ports consists of a component associated with cargo movement. The cargo movement traffic peaks during the typical workday in the early afternoon and creates a third peak hour (MD). Because of this distinctive tri-modal peaking of traffic, all three peak-hour time periods were used for analysis of the existing and future traffic conditions.

Subsequent to 2005, the segment of Ocean Boulevard between Pier S Avenue and the Terminal Island Freeway was improved with a grade-separated overpass for through traffic on Ocean Boulevard. Because these improvements were implemented subsequent to the 2005 issuance of the NOP, they are not included in the analysis of existing year (2005) traffic conditions; the improvements are included in all analysis of future year traffic conditions. The grade separation improvements elevate the mainline of Ocean Boulevard over the Terminal Island Freeway and Pier S Street, so that through traffic on Ocean Boulevard avoids intersections at both the Terminal Island Freeway and Pier S Street. At-grade segments of Ocean Boulevard parallel to the elevated segment serve Ocean Boulevard traffic going to and from the Terminal Island Freeway and Pier S Street. Thus, intersections of Ocean Boulevard with the Terminal Island Freeway and Pier S Street remain but are avoided by Ocean Boulevard motorists continuing past both the Terminal Island Freeway and Pier S Street. The intersections of Ocean Boulevard with the Terminal Island Freeway and Pier S Street are signalized.

Because Ocean Boulevard was a restricted-access facility east of its intersection with the Terminal Island Freeway in the year 2005 condition, it was analyzed using the HCM multi-lane highway method. The segments of Ocean Boulevard west of the Terminal Island Freeway with at-grade intersections were analyzed as arterial streets using the HCM method. Exhibit 2.1.5-2 indicates which segments were analyzed as multi-lane highway segments and which were analyzed as arterial segments.

The LOS analysis of multi-lane highway segments was performed using the Traffic Software Integrated System Corridor Simulation (CORSIM) micro-simulation program developed by FHWA. CORSIM uses microscopic traffic following logic to simulate corridor segment operations on freeways and arterial streets. Results are reported in terms of vehicle density (vehicles per mile per lane) during peak hours on analysis segments, along with travel speeds, to determine the segment LOS, consistent with the HCM methods. CORSIM was used because it incorporates the effects of upstream and downstream operations into each study segment, and it can explicitly model the merge condition at the crest of the Gerald Desmond Bridge where the truck climbing lanes end under the existing and no action/rehabilitation alternatives conditions.

LOS analysis was conducted for the unsignalized study intersections in the City of Long Beach using the HCM unsignalized intersection method.

The signalized intersections in the City of Long Beach were analyzed using the ICU method, consistent with City of Long Beach requirements. The one signalized intersection in the City of Los Angeles was analyzed using the Critical Movement Analysis (CMA) method, consistent with City of Los Angeles requirements. Traffic software was used to perform the HCM, ICU, and CMA intersection analyses.

The merge and diverge areas (ramp junctions) where ramps enter and leave a roadway represent locations of potential congestion and delay. The HCM ramp junction method was used for these analyses. Because of the more complex traffic maneuvers occurring at ramp merges and diverges than on a multi-lane highway segment, similar vehicle densities result in slightly lower LOS at ramp junctions than on a mainline segment. Merge/diverge analysis was performed for the ramp junction areas where the ramp from SR 710 SB merges with Ocean Boulevard WB and the ramp to SR 710 NB diverges from Ocean Boulevard EB. On-ramp locations that join the mainline by adding a mainline lane and off-ramps that diverge by dropping a mainline lane were not analyzed because they are not true ramp junctions and do not constitute true merge/diverge sections.

#### Results of Analysis

Exhibit 2.1.5-5 shows the existing peak-hour traffic volumes on roadway segments in the traffic study area for the AM, MD, and PM peak periods.

The LOS analysis results of the study segments with existing year 2005 conditions are shown in Table 2.1.5-4. Generally, the segments operate at acceptable LOS A to C in the peak hours; however, on Ocean Boulevard between Pier S Avenue and the Terminal Island Freeway (Segment 2), failing LOS F conditions occur in both directions during the peak hours, except for the EB direction during the midday peak hour when there are LOS E conditions. Additionally, WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway (Segment 3) has LOS E conditions during all three peak periods.

The results of the ramp junction LOS analyses for existing year 2005 conditions are shown in Table 2.1.5-5. All of the ramp junction areas analyzed operate at acceptable LOS B during the peak hours.

The results of the study intersections LOS analyses under existing year 2005 conditions are shown in Table 2.1.5-6. All of the study intersections operate at acceptable LOS D or better during peak hours under the existing year 2005 conditions, except the intersection of the Terminal Island Freeway and

Ocean Boulevard, which operates at LOS E conditions in the PM peak hour.

#### **2.1.5.3 Environmental Consequences Evaluation Criteria**

Criteria for the determination of an adverse effect to traffic were identified by the Port and are consistent with criteria used in other recent projects within the Port. The criteria are those required by the jurisdiction in which the study roadway or intersection is situated, unless that jurisdiction has no appropriate criteria, in which case criteria identified by the Port were used.

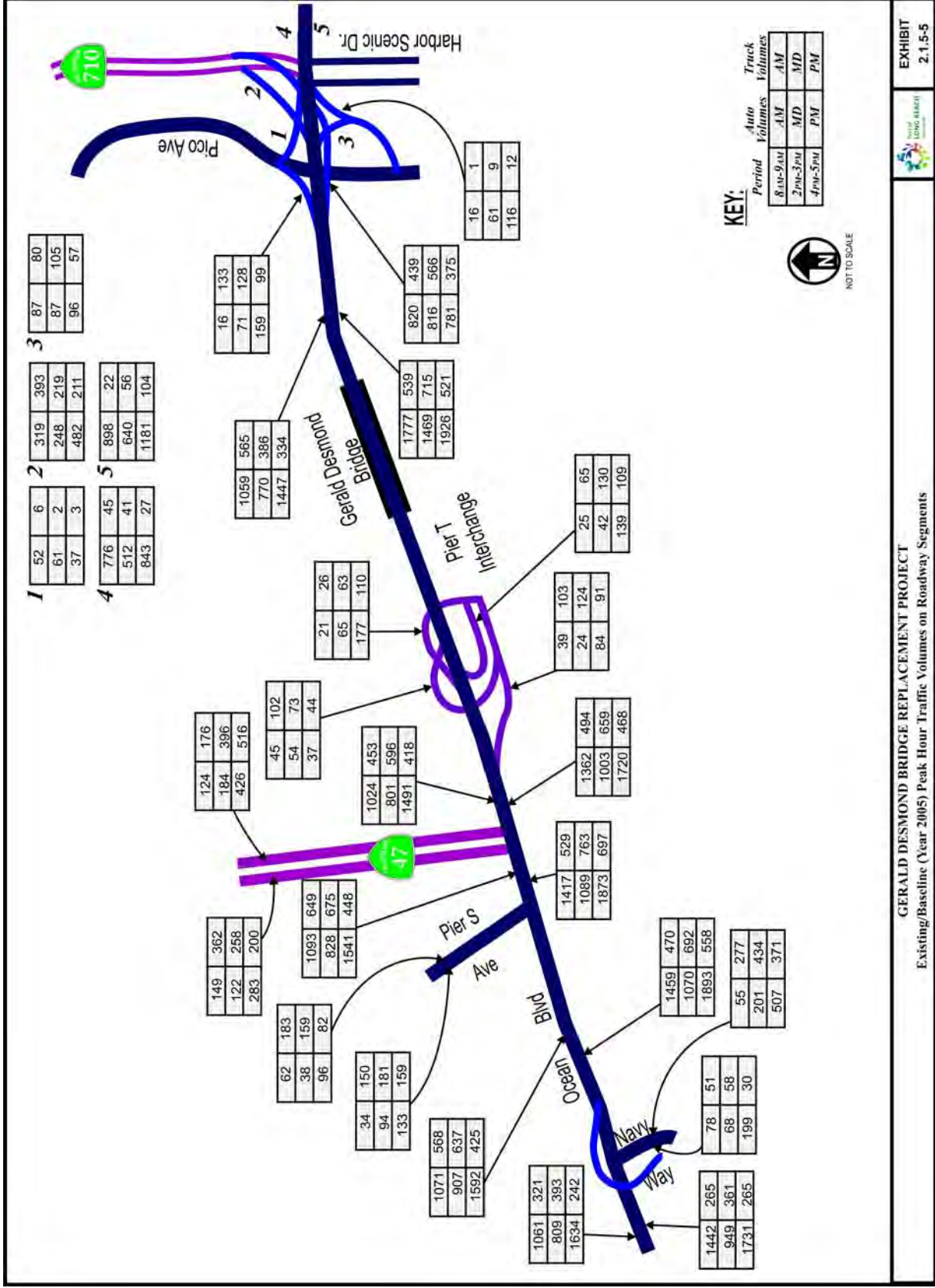
For signalized intersections, the proposed project would result in an adverse effect if the following thresholds established by the cities of Long Beach and Los Angeles are exceeded:

- City of Long Beach: Build condition LOS is E or F and the intersection volume-to-capacity ratio (V/C) increases by more than 0.020 from the no build to the build condition;
- City of Los Angeles:
  - Build condition LOS is C (defined as V/C greater than 0.700 to 0.800) and the V/C increases by more than 0.040;
  - Build condition LOS is D (defined as V/C greater than 0.800 to 0.900) and the V/C increases by more than 0.020; or
  - Build condition LOS is E or F (defined as V/C greater than 0.900) and the V/C increases by more than 0.010.

All of the unsignalized study area intersections are located in Long Beach. The City of Long Beach has no established criteria for determination of adverse effects at unsignalized intersections. The criteria used in this analysis are:

If the Build condition has an LOS E or F at an unsignalized intersection, then the intersection is to be reanalyzed using the signalized intersection method and criteria to identify any adverse effects.

Similarly, the City of Long Beach has no criteria for the determination of adverse effects for intersections at which signal installation is part of the proposed project. For comparisons of intersections that are unsignalized with the no action/rehabilitation alternatives and signalized with the Bridge Replacement Alternatives, this analysis assumes that there would be an adverse effect if the Bridge Replacement Alternatives would result in LOS E or F at the future signalized intersection.



GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
Existing/Baseline (Year 2005) Peak Hour Traffic Volumes on Roadway Segments

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**Table 2.1.5-4  
Existing (Year 2005) Peak-Hour LOS  
for Arterial and Highway Segments**

Segment	From	To	Speed* or Vehicle Density	LOS	
<b>AM Peak Hour</b>					
1	EB Ocean Boulevard	Navy Way	Pier S Avenue	38.0*	A
	WB Ocean Boulevard	Pier S Avenue	Navy Way	30.4*	B
2	EB Ocean Boulevard	Pier S Avenue	Terminal Island Freeway	10.6*	F
	WB Ocean Boulevard	Terminal Island Freeway	Pier S Avenue	9.4*	F
3	EB Ocean Boulevard	Terminal Island Freeway	Horseshoe Ramps	29.6*	B
	WB Ocean Boulevard	Horseshoe Ramps	Terminal Island Freeway	14.4*	E
4	EB Gerald Desmond Bridge	Upgrade	Crest	17.0	B
	EB Gerald Desmond Bridge	Crest	Downgrade	21.8	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	20.2	C
	WB Gerald Desmond Bridge	Crest	Downgrade	20.1	C
6	NB Connector	EB Ocean Boulevard	NB SR 710	13.8	B
	SB Connector	SB SR 710	WB Ocean Boulevard	17.4	B
7	SR 710 NB	NB Connector	NB SR 710 Mainline	14.2	B
	SR 710 SB	SB SR 710 Mainline	SB Connector	9.2	A
8	EB Ocean Boulevard	NB Connector	Downtown	4.6	A
	WB Ocean Boulevard	Downtown	SB Connector	6.6	A
<b>MD Peak Hour</b>					
1	EB Ocean Boulevard	Navy Way	Pier S Avenue	37.6*	A
	WB Ocean Boulevard	Pier S Avenue	Navy Way	31.8*	B
2	EB Ocean Boulevard	Pier S Avenue	Terminal Island Freeway	14.0*	E
	WB Ocean Boulevard	Terminal Island Freeway	Pier S Avenue	9.2*	F
3	EB Ocean Boulevard	Terminal Island Freeway	Horseshoe Ramps	29.5*	B
	WB Ocean Boulevard	Horseshoe Ramps	Terminal Island Freeway	13.7*	E
4	EB Gerald Desmond Bridge	Upgrade	Crest	18.8	C
	EB Gerald Desmond Bridge	Crest	Downgrade	23.1	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	19.4	C
	WB Gerald Desmond Bridge	Crest	Downgrade	19.0	C
6	NB Connector	EB Ocean Boulevard	NB SR 710	16.0	B
	SB Connector	SB SR 710	WB Ocean Boulevard	10.7	A
7	SR 710 NB	NB Connector	NB SR 710 Mainline	17.4	B
	SR 710 SB	SB SR 710 Mainline	SB Connector	6.5	A
8	EB Ocean Boulevard	NB Connector	Downtown	1.8	A
	WB Ocean Boulevard	Downtown	SB Connector	6.6	A



<b>Table 2.1.5-4 Existing (Year 2005) Peak-Hour LOS for Arterial and Highway Segments</b>					
<b>Segment</b>		<b>From</b>	<b>To</b>	<b>Speed* or Vehicle Density</b>	<b>LOS</b>
<b>PM Peak Hour</b>					
1	EB Ocean Boulevard	Navy Way	Pier S Avenue	36.1*	A
	WB Ocean Boulevard	Pier S Avenue	Navy Way	33.8*	B
2	EB Ocean Boulevard	Pier S Avenue	Terminal Island Freeway	9.7*	F
	WB Ocean Boulevard	Terminal Island Freeway	Pier S Avenue	9.3*	F
3	EB Ocean Boulevard	Terminal Island Freeway	Horseshoe Ramps	29.7*	B
	WB Ocean Boulevard	Horseshoe Ramps	Terminal Island Freeway	12.7*	E
4	EB Gerald Desmond Bridge	Upgrade	Crest	20.2	C
	EB Gerald Desmond Bridge	Crest	Downgrade	25.7	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	18.9	C
	WB Gerald Desmond Bridge	Crest	Downgrade	19.5	C
6	NB Connector	EB Ocean Boulevard	NB SR 710	13.2	B
	SB Connector	SB SR 710	WB Ocean Boulevard	14.4	B
7	SR 710 NB	NB Connector	NB SR 710 Mainline	13.8	B
	SR 710 SB	SB SR 710 Mainline	SB Connector	8.3	A
8	EB Ocean Boulevard	NB Connector	Downtown	8.5	A
	WB Ocean Boulevard	Downtown	SB Connector	6.9	A

LOS – Level of Service; EB – eastbound; WB – westbound; NB – northbound; SB – southbound

\* In the existing year 2005 condition, Segments 1 through 3 are analyzed as arterial segments because of the presence of traffic signals on Ocean Boulevard at the Terminal Island Freeway, Pier S Avenue, and Navy Way. The LOS for arterials is determined by speed (in miles per hour). For Urban Street Class II arterials, the speed range for each LOS is LOS A >35 mph; LOS B >28-35 mph; LOS C >22-28 mph; LOS D >17-22 mph; LOS E >13-17 mph; and LOS F ≤ 13 mph. All other segments are analyzed as multi-lane highways where LOS is determined by vehicle density (vehicles per lane per mile).

Source: Iteris, 2009.

<b>Table 2.1.5-5 Existing (Year 2005) Peak-Hour LOS for Ramp Junctions</b>						
<b>Ramp Location</b>	<b>AM Peak Hour</b>		<b>MD Peak Hour</b>		<b>PM Peak Hour</b>	
	<b>Density (pc/mi/ln)</b>	<b>LOS*</b>	<b>Density (pc/mi/ln)</b>	<b>LOS*</b>	<b>Density (pc/mi/ln)</b>	<b>LOS*</b>
EB Ocean Boulevard to SR 710/ Downtown Diverge	11.1	B	10.9	B	15.5	B
SB SR 710 Connector Ramp and WB Ocean Boulevard	16.7	B	15.2	B	16.2	B

LOS – Level of Service; NB – northbound; pc/mi/ln – passenger cars equivalents per mile per lane; SB – southbound

\* LOS criteria for ramp junction areas are in density (pc/mi/ln). Density ranges for different LOS types:

LOS A: 0 - 10; LOS B: 10.1 - 20; LOS C: 20.1 - 28; LOS D: 28.1 - 35; LOS E: 35.1 - 43; LOS F: >43.

Source: Iteris, 2009.

**Table 2.1.5-6  
Existing (Year 2005) Peak-Hour LOS for Intersections**

Intersection		LOS	V/C or Delay*
<b>AM Peak Hour</b>			
1	Terminal Island Freeway / Ocean Boulevard	C	0.792
2	Pier S Avenue / Ocean Boulevard	C	0.709
3	Pier S Avenue / New Dock Street	A	0.327
4	Navy Way / Seaside Avenue	A	0.474
5	Pico Avenue / Pier B Street and 9th Street	A	0.428
6	Pico Avenue / Pier C Street	A	0.309
7	Terminal Island Freeway SB Off-Ramp / New Dock	B	<i>10.8</i>
8	Terminal Island Freeway NB On-Ramp / New Dock	A	<i>7.4</i>
9	Pico Avenue / Pier D Street	B	<i>10.1</i>
10	Pico Avenue / Broadway	B	<i>10.6</i>
11	Pico Avenue / Pier E Street	A	<i>9.9</i>
12	Ocean Boulevard / Golden Shore Street	A	0.570
13	Ocean Boulevard / Magnolia Avenue	B	0.693
<b>MD Peak Hour</b>			
1	Terminal Island Freeway / Ocean Boulevard	D	0.833
2	Pier S Avenue / Ocean Boulevard	C	0.700
3	Pier S Avenue / New Dock Street	A	0.350
4	Navy Way / Seaside Avenue	A	0.414
5	Pico Avenue / Pier B Street and 9th Street	A	0.455
6	Pico Avenue / Pier C Street	A	0.340
7	Terminal Island Freeway SB Off-Ramp / New Dock	A	<i>9.1</i>
8	Terminal Island Freeway NB On-Ramp / New Dock	A	<i>7.6</i>
9	Pico Avenue / Pier D Street	B	<i>11.3</i>
10	Pico Avenue / Broadway	B	<i>11.2</i>
11	Pico Avenue / Pier E Street	B	<i>11.8</i>
12	Ocean Boulevard / Golden Shore Street	A	0.569
13	Ocean Boulevard / Magnolia Avenue	A	0.575
<b>PM Peak Hour</b>			
1	Terminal Island Freeway / Ocean Boulevard	E	0.912
2	Pier S Avenue / Ocean Boulevard	D	0.824
3	Pier S Avenue / New Dock Street	A	0.356
4	Navy Way / Seaside Avenue	A	0.581
5	Pico Avenue / Pier B Street and 9th Street	A	0.494
6	Pico Avenue / Pier C Street	A	0.343
7	Terminal Island Freeway SB Off-Ramp / New Dock	A	<i>9.3</i>
8	Terminal Island Freeway NB On-Ramp / New Dock	A	<i>7.9</i>
9	Pico Avenue / Pier D Street	B	<i>10.7</i>
10	Pico Avenue / Broadway	B	<i>10.5</i>
11	Pico Avenue / Pier E Street	B	<i>11.3</i>
12	Ocean Boulevard / Golden Shore Street	A	0.593
13	Ocean Boulevard / Magnolia Avenue	B	0.601

LOS – Level of Service; NB – northbound; SB – southbound

\* V/C (volume-to-capacity ratio) is reported for signalized intersections, and average stopped delay in seconds is reported for unsignalized intersections in italics.

Source: Iteris, 2009.

The determination of potential adverse effects on roadway study segments is based on whether a segment is forecast to operate at LOS F with the bridge replacement alternatives, and if LOS F were forecast, whether the vehicle density (vehicles per mile per lane) during the peak hours with the Bridge Replacement Alternatives would be worse (higher) than with the No Action/ Rehabilitation Alternatives. A higher density is an indicator of a worse LOS F condition.

## **Construction Impacts**

### Rehabilitation Alternative

The work associated with the Rehabilitation Alternative would be limited to nighttime closures of one lane at a time on the Gerald Desmond Bridge and its approaches. The existing concrete median barrier would be removed for the construction period, and four lanes (two in each direction) would be maintained during the nighttime construction period. During the daytime, the existing lane configuration would be maintained. Rehabilitation of single-lane ramps may require some ramp closures during the nighttime hours. A TMP would be prepared for the Rehabilitation Alternative to address signing for the temporary lane closures, hours of closure, placement of traffic cones and other temporary channelizing devices, and other elements of traffic management during the construction period. The construction activity associated with the Rehabilitation Alternative is not expected to have adverse traffic effects, and construction detour routes would not be required under this alternative. Traffic volumes at night are light and not sufficient to warrant detours.

### Bridge Replacement Alternatives

This section summarizes the plan for staged construction of the proposed Bridge Replacement Alternatives, including an identification of the detours necessary during their construction. The construction stages of the two Bridge Replacement Alternatives (the North-side Alignment and the South-side Alignment) would be the same in terms of their potential impacts on traffic. A traffic analysis is presented of the detour routes included in the stages of construction of the Bridge Replacement Alternatives. The discussion includes an identification of the construction-related traffic effects that are anticipated under the proposed Bridge Replacement Alternatives.

Each construction stage is anticipated to last approximately 1-year; however, it is expected that the latter part of each stage would overlap the beginning of the next stage. Demolition of the

existing bridge would take place in the fifth stage of the project following the four construction stages. As part of the required TMP for the Bridge Replacement Alternatives, coordination with the construction activities associated with the Schuyler Heim Bridge replacement project and proposed SR 47 improvements would occur, as necessary, to minimize traffic effects during the potentially overlapping construction phases of the projects.

**First Stage.** The first stage would include construction of temporary pavement widening along Pico Avenue and widening of ramps and intersections as required.

**Second Stage.** During the second stage, the SB-to-WB SR 710 connector would be closed. SB traffic would be directed to Pico Avenue from SB SR 710 at the existing Pico Avenue off-ramp. Vehicles would then travel south on Pico Avenue to the existing WB Ocean Boulevard on-ramp. Widening is proposed at both ramps to accommodate the detoured traffic. During this stage of construction, Pico Avenue would be modified to provide three SB lanes and two NB lanes. Other changes along the corridor are also proposed, as will be discussed later.

During both the second and third stages of construction, traffic entering Pier T from WB Ocean Boulevard would have to use the Terminal Island Freeway interchange to make a U-turn and access the EB Pier T off-ramp because the WB Pier T off-ramp ramp would be removed from service during those stages of construction.

**Third and Fourth Stages.** During the third and fourth stages, the new WB portion of the bridge and connector roadways would be open, and traffic would be directed to the new facility. EB traffic crossing the bridge to travel north on SR 710 would be directed to the Pico Avenue off-ramp to travel NB on Pico Avenue. Vehicles would access SR 710 using the existing Pico Avenue on-ramp located north of C Street. During these final stages, Pico Avenue would be restriped to provide three NB lanes and two SB lanes.

### Traffic Analysis of Detours

An analysis was conducted for the entire project area, especially the Terminal Island Freeway interchange and Pico Avenue, to determine if the proposed construction phasing plan would be feasible and to identify what modifications would be required to accommodate projected traffic volumes on detour routes. The analysis was conducted for only the AM and PM peak hours because they represent the higher and more critical peaks. Stage

1 requires no analysis because the existing travel lane configuration would be maintained.

Table 2.1.5-7 shows that the additional traffic diverted to the detour routes in construction Stage 2 is expected to result in poor LOS (E or F) during either the AM or PM peak hour at four intersections along the detour routes:

- Ocean Boulevard and SR 47 (North Intersection);
- Ocean Boulevard and SR 47 (South Intersection);
- Pico Avenue and Pier B Street/9th Street; and
- Pico Avenue and Pier D Street.

Table 2.1.5-8 shows that the additional traffic diverted to the detour routes in construction Stages 3 and 4 is expected to result in poor LOS (E or F) during either the AM or PM peak hour at five intersections along the detour routes:

- Ocean Boulevard and SR 47 (North Intersection);
- Ocean Boulevard and SR 47 (South Intersection);
- Pico Avenue and Pier B Street/9th Street;
- Pico Avenue and Pier D Street; and
- Pico Avenue and Pier E Street.

Adverse Traffic Effects during Construction of the Bridge Replacement Alternatives

LOS E or F at an intersection on a detour route is considered an adverse traffic effect of construction. This is a more stringent criterion than stated above, but it provides a conservative estimate of potential adverse effects of construction on detour routes. Five intersections on detour routes would have adverse traffic effects during construction. The affected intersections are discussed below.

Intersection	Without Mitigation			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
1a. Ocean Boulevard and SR -47 (North Intersection)	D	50.2	E	64.6
1b. Ocean Boulevard and SR -47 (South Intersection)	D	38.6	F	131.3
2a. Ocean Boulevard and Pier S Avenue (North Intersection)	C	27.9	C	26.3
2b. Ocean Boulevard and Pier S Avenue (South Intersection)	C	26.8	C	23.8
5. Pico Avenue and Pier B Street / 9th Street	F	206.0	E	59.2
6. Pico Avenue and Pier C Street	A	7.7	A	6.4
9. Pico Avenue and Pier D Street <sup>2</sup>	F	428.9	F	227.8
11. Pico Avenue and Pier E Street <sup>2</sup>	B	11.9	C	18.2

<sup>1</sup> Delay is in seconds per vehicle.

<sup>2</sup> Existing 4-way stop intersection.

Source: Iteris, 2009.

Intersection	Without Mitigation			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
1a. Ocean Boulevard and SR 47 (North Intersection)	D	50.2	E	64.6
1b. Ocean Boulevard and SR 47 (South Intersection)	D	38.6	F	131.3
2a. Ocean Boulevard and Pier S Avenue (North Intersection)	C	27.9	C	26.3
2b. Ocean Boulevard and Pier S Avenue (South Intersection)	C	26.8	C	23.8
5. Pico Avenue and Pier B Street/9th Street	F	389.9	F	383.5
6. Pico Avenue and Pier C Street	A	3.2	A	3.8
9. Pico Avenue and Pier D Street <sup>2</sup>	F	450.9	F	418.3
11. Pico Avenue and Pier E Street <sup>2</sup>	F	OVRFL <sup>3</sup>	F	OVRFL <sup>3</sup>

<sup>1</sup> Delay is in seconds per vehicle.

<sup>2</sup> Existing 4-way stop intersection.

<sup>3</sup> V/C ratio too high to calculate delay. Delay would be excessive.

Source: Iteris, 2009.

- Ocean Boulevard and SR 47 North Intersection would operate at LOS E during the PM peak hour during construction Stages 2, 3, and 4.

The LOS E during the PM peak hour at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Additional lanes at the intersection were investigated as mitigation. Due to ROW constraints and lack of available land for additional lanes, it was determined that there is no feasible mitigation to address this temporary adverse effect of the Bridge Replacement Alternatives upon the operating condition at the Terminal Island Freeway interchange. The effect attributed to the Bridge Replacement Alternatives is considered a temporary, adverse, and unavoidable effect. This temporary condition would occur during a portion of the construction period, amounting to approximately 18 months of the planned 4-year construction period.

- Ocean Boulevard and SR 47 South Intersection would operate at LOS F during the PM peak hour during construction Stages 2, 3, and 4.

The LOS F during the PM peak hour at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Additional lanes at the intersection were investigated as mitigation. Due to ROW constraints and lack of available land for additional lanes, it was determined that there is no feasible mitigation to address this temporary adverse effect of the Bridge Replacement Alternatives upon the operating condition at the Terminal Island Freeway interchange. The effect attributed to the Bridge Replacement Alternatives is considered a temporary, adverse, and unavoidable effect. This temporary condition would occur during a portion of the construction period, amounting to approximately 18 months of the planned 4-year construction period.

- Pico Avenue and Pier B Street/9th Street intersection would operate at LOS E or F during both the AM and PM peak hours during construction Stages 2, 3, and 4.

The LOS E and F during the AM and PM peak hours at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Two sets of mitigations are proposed at this intersection for the different construction stages of a Bridge Replacement Alternative. One set would be implemented during construction

Stage 2 and another set during construction Stages 3 and 4. The mitigations proposed for Stage 2 and for Stages 3 and 4 of a Bridge Replacement Alternative are shown in Tables 2.1.5-9 and 2.1.5-10, respectively.

The proposed mitigation measures listed in Tables 2.1.5-9 and 2.1.5-10 would be implemented as part of the TMP required for the project. Prior to construction, the TMP will be submitted to the Port and Caltrans for approval. The TMP, at a minimum, will include detour routes, flagmen, traffic controls, signing, and traffic lane closure scheduling to minimize impacts. The TMP will be implemented after approval.

The mitigations proposed for Stage 2 would mitigate the temporary adverse effect and provide an acceptable LOS B during peak hours.

During Stages 3 and 4, the diverted traffic on NB Pico Avenue must turn left onto the ramp to access NB SR 710. To improve the projected operating conditions at this intersection, the conflicting traffic movements (SB through volumes from Pier B Street and WB-to-SB left turns from 9th Street) must be rerouted to eliminate the conflict with the NB left-turning traffic from Pico Avenue accessing the ramp. All feasible mitigation measures have been proposed for Stages 3 and 4. The mitigation measures would reduce delay, but LOS F and E would remain during the AM and PM peak hours, respectively. This is considered a temporary and unavoidable adverse effect during Stages 3 and 4 of a Bridge Replacement Alternative. This temporary condition would occur during a portion of the construction period, amounting to approximately 22 months of the planned 4-year construction period.

- Pico Avenue and Pier D Street intersection would operate at LOS F during both the AM and PM peak hours during construction Stages 2, 3, and 4.

The LOS F during the AM and PM peak hours at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Two sets of mitigations are proposed at the intersection of Pico Avenue and Pier D Street for the different construction stages of a Bridge Replacement Alternative. One set would be implemented during construction Stage 2 and another set during construction Stages 3 and 4. The mitigations proposed for Stage 2 and for Stages 3 and 4 of a Bridge Replacement Alternative are shown in Tables 2.1.5-9 and 2.1.5-10, respectively.



<b>Table 2.1.5-9 Bridge Replacement Alternatives: Detour Route Level of Service with Mitigation – Construction Stage 2</b>					
Intersection	With Mitigation				Mitigation Notes
	AM Peak Hour		PM Peak Hour		
	LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>	
5. Pico Avenue and Pier B Street/9th Street	B	19.4	B	11.4	<b>TC-1</b> - Add dual NB right-turn lanes - Restripe EBTR to EBR. Provide one (1) EBT - Continue two (2) SR 710 SB off-ramp lanes to Pico Avenue
9. Pico Avenue/Pier D Street <sup>2</sup>	D	47.7	C	26.2	<b>TC-3</b> - Signalize

LOS – level of service; NB – northbound; SB – southbound; EBT – eastbound through; EBTR – eastbound through/right; EBR – eastbound right

<sup>1</sup> Delay is in seconds per vehicle.

<sup>2</sup> Existing 4-way stop intersection.

Source: Iteris, 2009.

<b>Table 2.1.5-10 Bridge Replacement Alternatives: Detour Route Level of Service with Mitigation – Construction Stages 3 and 4</b>					
Intersection	With Mitigation				Mitigation Notes
	AM Peak Hour		PM Peak Hour		
	LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>	
5. Pico Avenue and Pier B Street/9th Street	F	91.9	E	78.7	<b>TC-2</b> - Remove NB-SB split signal phasing - Restripe NBTL to NBL - Widen SB approach Provide two (2) LT lanes and one (1) TR lane - Continue two (2) on-ramp lanes to NB SR 710
9. Pico Avenue/Pier D Street <sup>2</sup>	E	58.6	D	41.7	<b>TC-3</b> -Signalize
11. Pico Avenue/Pier E Street <sup>2</sup>	B	16.5	B	14.7	<b>TC-4</b> - Signalize - Restripe NBTR to NBR to provide one (1) NBT - Add dual free-flow WB right-turn lanes - Continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue

LOS – level of service; EB – eastbound;; NB – northbound; SB – southbound; WB – westbound; NBTL – northbound through/left; NBL – northbound left; LT – left through; TR – through right; NBTR – northbound through/right; NBR – northbound right; NBT – northbound through

<sup>1</sup> Delay is in seconds per vehicle.

<sup>2</sup> Existing 4-way stop intersection.

Source: Iteris, 2009.

The proposed mitigation measures listed in Tables 2.1.5-9 and 2.1.5-10 would be implemented as part of the TMP referenced above.

The mitigations proposed for Stage 2 would mitigate the adverse effect and provide acceptable LOS C or D during peak hours.

The Pier D Street intersection with Pico Avenue provides egress for all trucks from Piers D and E. The exiting volumes, combined with the large through volumes on NB Pico Avenue, result in the poor operating conditions at this intersection. All feasible mitigation measures have been proposed for Stages 3 and 4. The mitigation measures would reduce delay, but LOS E would remain

during the AM peak hour. This is considered a temporary and unavoidable adverse effect during Stages 3 and 4 of a Bridge Replacement Alternative. This temporary condition would occur during a portion of the construction period, amounting to approximately 22 months of the planned 4-year construction period.

- Pico Avenue and Pier E Street would operate at LOS F during both the AM and PM peak hours during construction Stages 3 and 4.

The LOS F during the AM and PM peak hours at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. A set of mitigations is proposed at this intersection to be implemented under the Bridge Replacement Alternatives. The proposed mitigations are shown in Table 2.1.5-10. The proposed mitigations would mitigate the adverse effect under the Bridge Replacement Alternative condition and provide an acceptable LOS B during peak hours.

The proposed mitigation measures listed in Table 2.1.5-10 would be implemented as part of the TMP referenced above.

### **Operational Impacts**

For this analysis, the future traffic conditions are assumed the same for both the No Action Alternative and the Rehabilitation Alternative. This is because the Rehabilitation Alternative would have the same number of traffic lanes on the bridge and ramps/connectors as the No Action Alternative, and the design of roadways and intersections in the project area would be the same as with the No Action Alternative.

It is assumed in this analysis that for the Bridge Replacement Alternatives future traffic conditions would be the same for both the North-side Alignment Alternative and the South-side Alignment Alternative. This is because both the North-side and South-side Alignment Alternatives would have the same number of traffic lanes on the bridge and ramps/connectors. Because these two new bridge alignment options are spaced so close to each other, it is anticipated that the design and traffic operations on roadways and intersections in the project area would be the same with both alignment alternatives.

Year 2015 is the year in which the proposed project is scheduled to be open to traffic if one of the build options is implemented. Year 2030 is the design horizon year for the proposed project build alternatives; therefore, traffic analyses were conducted for the following four future conditions:

- Year 2015 without the proposed new bridge or with rehabilitation of the existing bridge, referred to as the “Year 2015 No Action/Rehabilitation Alternatives;”
- Year 2015 with the proposed new bridge alternatives, referred to as the “Year 2015 Bridge Replacement Alternatives” (which includes both the North-side and South-side Alignment Alternatives);
- Year 2030 without the proposed new bridge or with rehabilitation of the existing bridge, referred to as the “Year 2030 No Action/Rehabilitation Alternatives;” and
- Year 2030 with the proposed new bridge alternatives, referred to as the “Year 2030 Bridge Replacement Alternatives” (which includes both the North-side and South-side Alignment Alternatives).

All roadway study segments in the future conditions were analyzed as multi-lane highway segments because signals were removed from Ocean Boulevard (at Pier S Avenue and the Terminal Island Freeway) with the recent construction of the Terminal Island Freeway interchange.

### **Traffic Forecasting Model**

In addition to the existing (year 2005) traffic conditions, the traffic LOS analysis was conducted for the years 2015 and 2030 for the Bridge Replacement Alternatives (which includes both the North-side Alignment and South-side Alignment Alternatives for the proposed new bridge) and the No Action/Rehabilitation Alternatives (which represents the traffic conditions that would occur with the existing bridge configuration if no action is taken or if the existing bridge is rehabilitated and not replaced with a new bridge). A traffic forecasting model was used as part of the study to forecast future traffic volumes with and without the proposed new bridge in the years 2015 and 2030. The project is expected to be opened to traffic in year 2015, and year 2030 is the project horizon (design) year.

Appendix G provides details about the traffic model development methodology and model validation.

### **Year 2015 and 2030 Traffic Volume Forecasts**

#### Year 2015 No Action/Rehabilitation Alternatives – Traffic Volumes

The ADT volumes forecast for the Gerald Desmond Bridge in year 2015 with the No Action/Rehabilitation Alternatives is 77,000 vpd, which includes approximately 30 percent trucks. The increase in truck percentage over the existing

condition of 25 percent is principally attributable to growth in TEU throughput at the Ports. Exhibit 2.1.5-6 shows the forecast 2015 peak-hour traffic volumes on study roadway segments in the traffic study area with the No Action/Rehabilitation Alternatives.

Year 2015 Bridge Replacement Alternatives –  
Traffic Volumes

The ADT volumes forecast for the bridge in year 2015 with the Bridge Replacement Alternatives is 87,000 vpd, which includes approximately 30 percent trucks. Exhibit 2.1.5-7 shows the forecast 2015 peak-hour traffic volumes on study roadway segments in the traffic study area with the Bridge Replacement Alternatives.

Year 2030 No Action/Rehabilitation Alternatives –  
Traffic Volumes

The ADT volumes forecast for the Gerald Desmond Bridge in year 2030 with the No Action/Rehabilitation Alternatives is 125,000 vpd, which includes approximately 44 percent trucks. Exhibit 2.1.5-8 shows the forecast 2030 peak-hour traffic volumes on study roadway segments in the traffic study area with the No Action/Rehabilitation Alternatives.

Year 2030 Bridge Replacement Alternatives –  
Traffic Volumes

The ADT volumes forecast for the bridge in year 2030 with the Bridge Replacement Alternatives is 136,000 vpd, which includes approximately 44 percent trucks. Exhibit 2.1.5-9 shows the forecast 2030 peak-hour traffic volumes on study roadway segments in the traffic study area with the Bridge Replacement Alternatives.

**Future Traffic Operations**

The proposed Bridge Replacement Alternatives provide a new bridge with grades of approximately 5 percent (compared to existing grades of 5.5 to 6.0 percent) carrying three lanes in each direction across the bridge and on the roadways approaching and leaving the bridge in both directions. The Bridge Replacement Alternatives also include reconstruction of direct connectors between Ocean Boulevard and SR 710 in both directions and other improvements more fully shown in Exhibit 1-6 (North-side Alignment) and Exhibit 1-7 (South-side Alignment). The Bridge Replacement Alternatives would construct the new bridge either just north or just south of the existing bridge and require some modifications to nearby circulation and access. The proposed new bridge would include left and right shoulders in both directions.

Nearby Circulation

As a result of implementation of the Bridge Replacement Alternatives, some modifications to the area's circulation system and access would also be implemented. The Bridge Replacement Alternatives would not change traffic circulation patterns in the vicinity of the Horseshoe Ramps interchange because this interchange would provide the same connections to Pier T Avenue as the existing interchange. The following circulation system modifications would be similar for both the North-side Alignment and the South-side Alignment options with the Bridge Replacement Alternatives:

- Access to the LBGS would require modification of the existing access road from Pier T Avenue to allow bridge construction, but the general location and length of the route would not change.
- Construction of approach roadways to the proposed new bridge with the Bridge Replacement Alternatives would require a realignment of a section of West Broadway west of the Tidelands Warehouse. This realigned section of West Broadway, which is not a public through route, would link with Pico Avenue approximately 300 ft (91 m) south of its existing location.
- Circulation would be modified at the WB Ocean Boulevard ramps from Pico Avenue. The location of the WB off-ramp to Pico Avenue would remain unchanged; however, the WB Ocean Boulevard on-ramp from Pico Avenue would be reconfigured by locating the ramp intersection with Pico Avenue approximately 460 ft (140 m) north of its existing location. The reconfigured on-ramp would loop to the north and east over Pico Avenue and continue looping to the south and west to join the ramp from SB SR 710 before entering WB Ocean Boulevard. The effect of this ramp redesign would be to slightly increase the distance for trips using the ramps compared to the existing "diamond" configuration of the WB ramps.

Daily Traffic Comparisons

Total ADT is useful in determining overall vehicle movement on the area roadway network and in assessing the redistribution of traffic among various origins and destinations; however, peak-hour traffic is used to analyze operations and determine the expected performance of project improvements and their potential effects. Operational analysis is presented below.

Table 2.1.5-11 shows the existing and forecast ADT volumes on the segments of Ocean Boulevard between the Horseshoe Ramps and SR 710. The following observations are based on averaging the volumes for all of the study conditions in years 2005, 2015, and 2030.

Total daily traffic is expected to grow by approximately 29 percent from 59,700 vpd to 77,070 vpd between years 2005 and 2015 with the No Action/Rehabilitation Alternatives.

The improvements provided by the Bridge Replacement Alternatives would potentially draw an estimated 13 percent more vehicles (86,730 vpd) to the new bridge in year 2015 than the vehicle volume projected under the No Action/Rehabilitation Alternatives (77,070 vpd). Because this project does not add any vehicle trips, the additional traffic on the new bridge, approximately 9,660 vpd, would be redistributed to the new bridge from other roadways and would not constitute an increase in the number of trips within the region.

Total daily traffic is expected to increase by approximately 62 percent, from 77,070 vpd to 124,670 vpd, between years 2015 and 2030 with the No Action/Rehabilitation Alternatives.

The improvements provided by the proposed Bridge Replacement Alternatives would potentially draw an estimated nine percent more vehicles (135,930 vpd) to the new bridge in year 2030 than the vehicle volume projected under the No Action/Rehabilitation Alternatives (124,670 vpd). Because this project does not add any vehicle trips, the additional traffic on the new bridge, approximately 11,260 vpd, would be redistributed to the new

bridge from other roadways and would not constitute an increase in trips within the region.

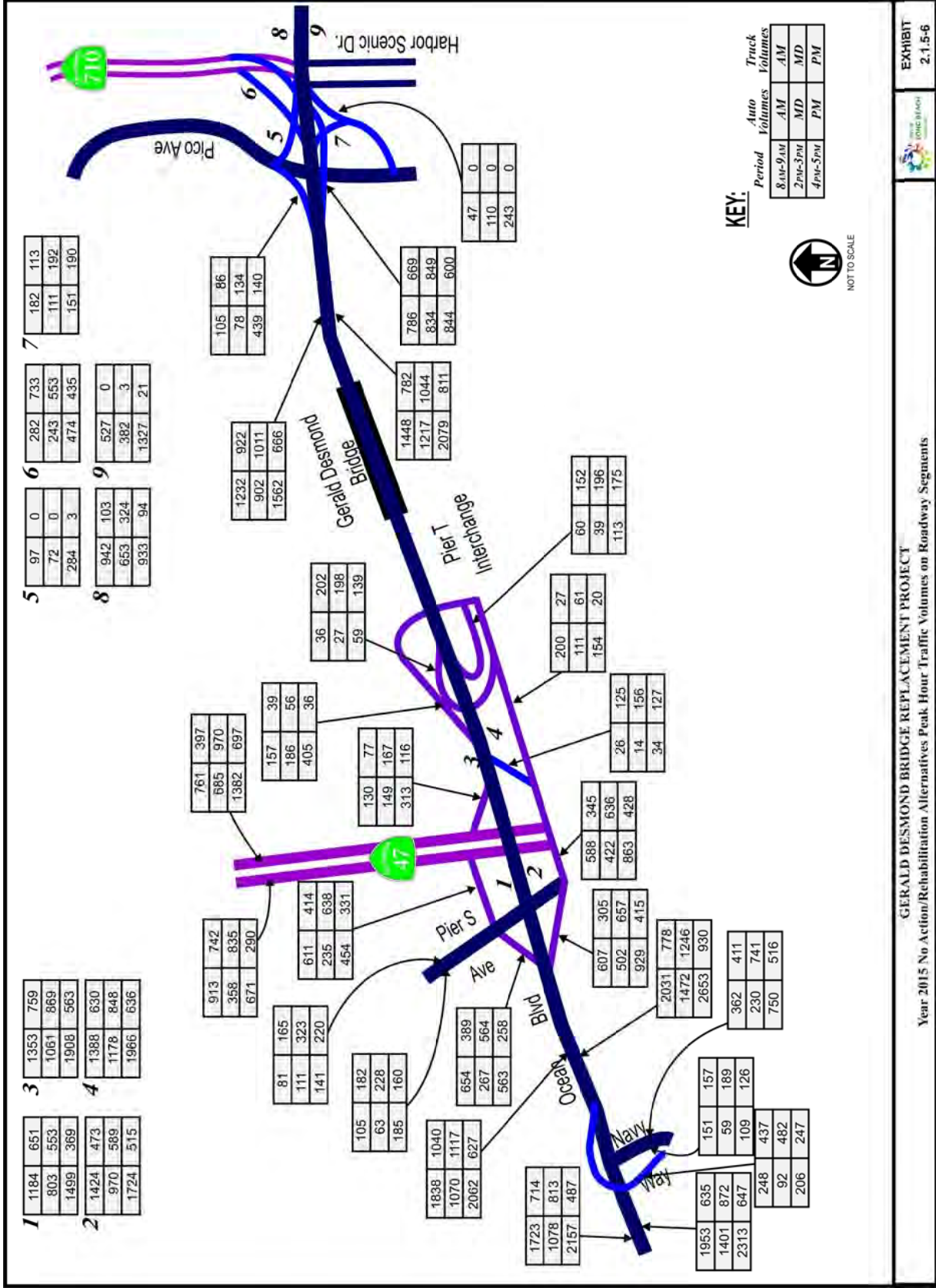
Analysis of Future Traffic Operations

Future traffic operations for the four conditions identified above were analyzed. Table 2.1.5-12 presents the results of the years 2015 and 2030 peak-hour LOS analysis of the eight roadway study segments, along with the existing (year 2005) LOS for comparison purposes. Table 2.1.5-13 presents the results of the years 2015 and 2030 peak-hour LOS analysis at the ramp junctions. Table 2.1.5-14 presents the results of the years 2015 and 2030 peak-hour LOS analysis at the study intersections, along with the existing (year 2005) LOS for comparison purposes.

*Year 2015 No Action/Rehabilitation Alternatives – Traffic Operations.* With the No Action/Rehabilitation Alternatives, the existing Gerald Desmond Bridge structure and interchanges within the project limits would remain in place; however, the future traffic conditions with the No Action/Rehabilitation Alternatives would be affected by other planned improvements in the traffic study area, which would affect traffic patterns at the project site. One recently completed transportation network improvement is the replacement of the existing at-grade intersections along Ocean Boulevard at SR 47 and Pier S Avenue. This project implemented grade-separated split-diamond interchanges and resulted in Ocean Boulevard becoming a restricted-access facility east of Navy Way. Other planned improvements, including transportation and land development projects that would affect traffic patterns in the traffic study area, are included among the cumulative projects identified in Section 2.4

<b>Table 2.1.5-11 Daily Traffic Volumes on Ocean Boulevard between Terminal Island Interchange and SR 710</b>					
<b>Segment of Ocean Boulevard</b>	<b>Existing</b>	<b>2015 No Action/ Rehabilitation Alternatives</b>	<b>2015 Bridge Replacement Alternatives</b>	<b>2030 No Action/ Rehabilitation Alternatives</b>	<b>2030 Bridge Replacement Alternatives</b>
EB from Horseshoe Ramps to SR 710	34,100	40,870	46,070	62,170	68,850
WB from SR 710 to Horseshoe Ramps	25,600	36,200	40,660	62,500	67,080
<b>TOTAL – SR 710 to Horseshoe Ramps – Bridge</b>	<b>59,700</b>	<b>77,070</b>	<b>86,730</b>	<b>124,670</b>	<b>135,930</b>

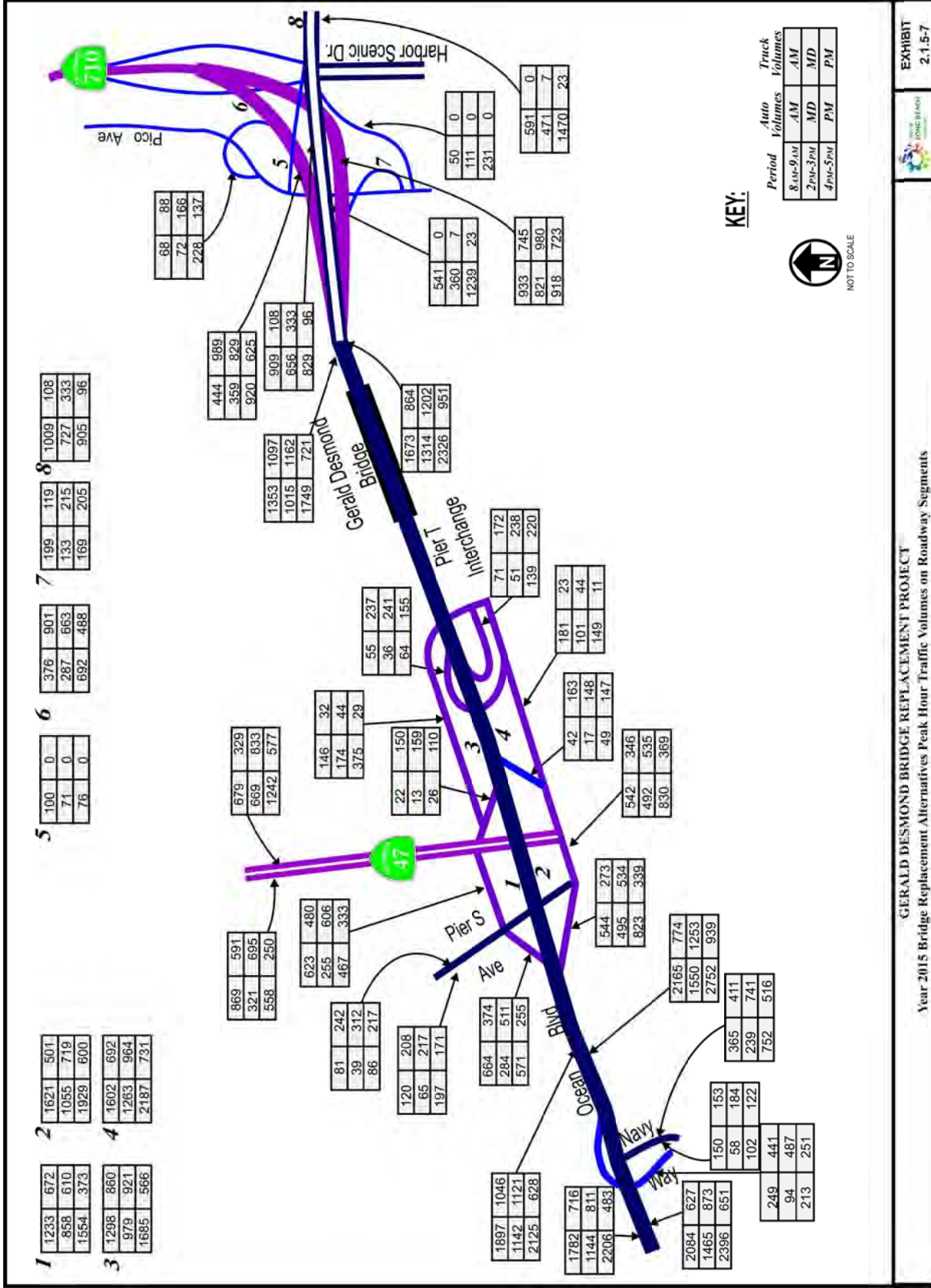
EB – eastbound; WB – westbound  
Source: Iteris, 2009.



GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
Year 2015 No Action/Rehabilitation Alternatives Peak Hour Traffic Volumes on Roadway Segments

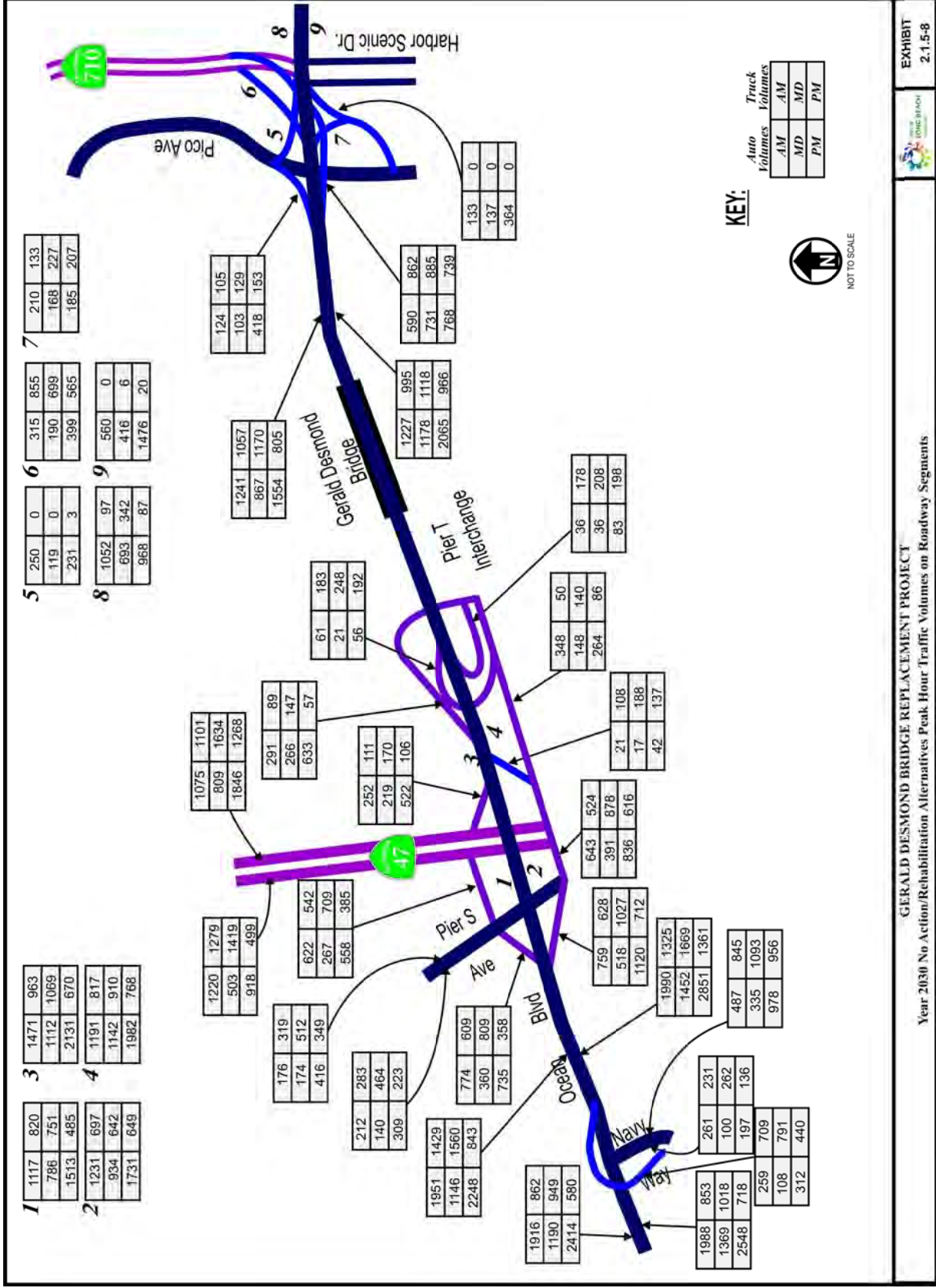
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GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
Year 2015 Bridge Replacement Alternatives Peak Hour Traffic Volumes on Roadway Segments

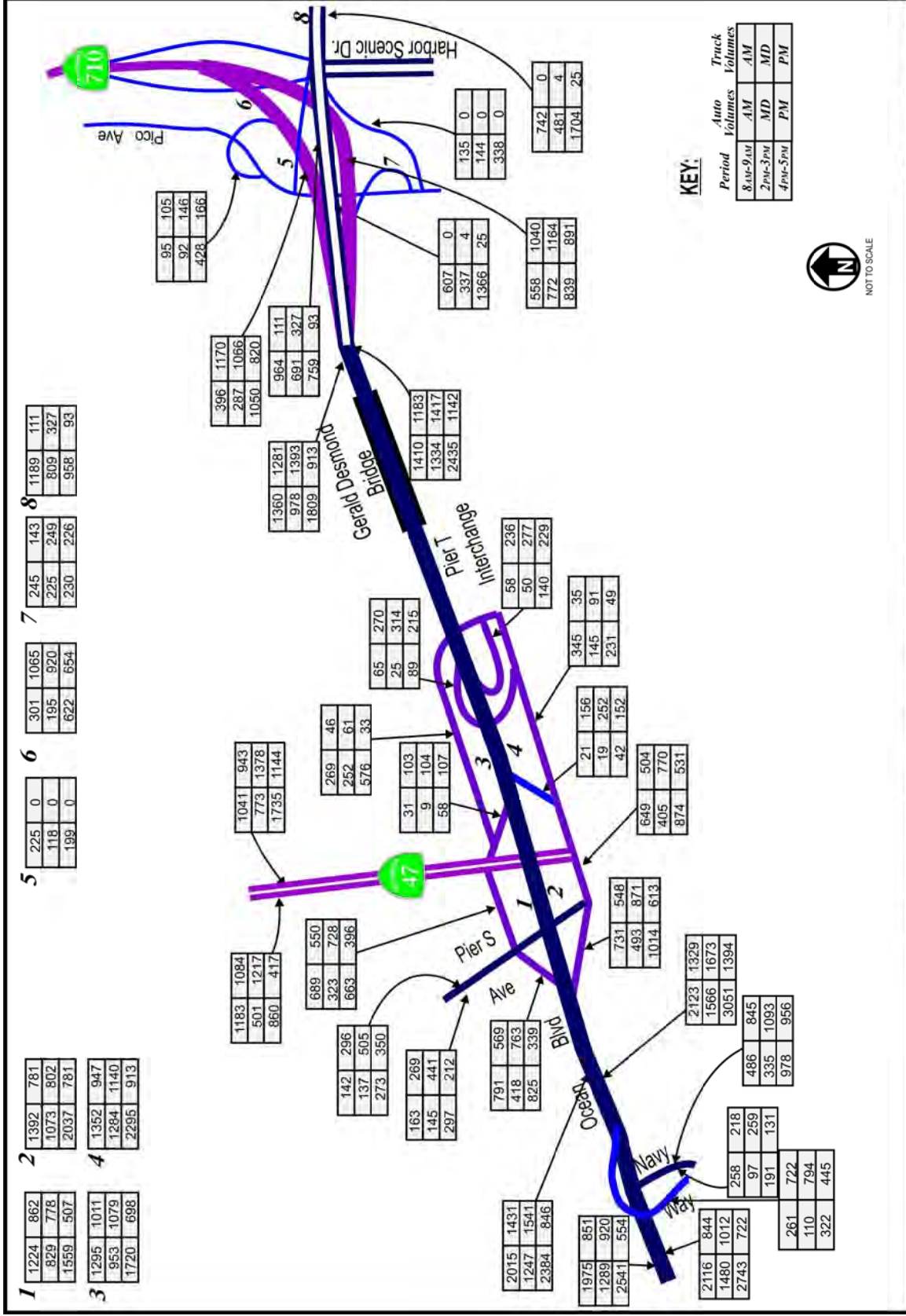
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GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
Year 2030 No Action/Rehabilitation Alternatives Peak Hour Traffic Volumes on Roadway Segments

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Table 2.1.5-12  
Years 2015 and 2030 Forecast Peak-Hour LOS on Roadway Segments

Segment	From	To	Year 2005			Year 2015			Year 2030				
			Existing		Speed* or Vehicle Density	No Action/ Rehabilitation Alternatives		Bridge Replacement Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replacement Alternatives	
			Density	LOS		Density	LOS	Density	LOS	Density	LOS	Density	LOS
<b>AM Peak Hour</b>													
1	EB Ocean Blvd	Navy Way	Pier S Avenue	A	38*	19.3	C	20.2	C	115.1	F	25.6	C
	WB Ocean Blvd	Pier S Avenue	Navy Way	B	30.4*	19.8	C	23.7	C	24.6	C	25.4	C
2	EB Ocean Blvd	Pier S Avenue	Terminal Island Freeway	F	10.6*	17.4	B	20.8	C	22.7	C	23.0	C
	WB Ocean Blvd	Terminal Island Freeway	Pier S Avenue	F	9.4*	16.6	B	19.8	C	19.0	C	20.8	C
3	EB Ocean Blvd	Terminal Island Freeway	Horseshoe Ramps	B	29.6*	17.8	B	21.4	C	18.1	C	23.7	C
	WB Ocean Blvd	Horseshoe Ramps	Terminal Island Freeway	E	14.4*	12.7	B	41.3	E	15.8	B	34.0	D
4	EB Gerald Desmond Bridge	Upgrade	Crest	B	17.0	23.3	C	24.8	C	23.2	C	29.5	D
	EB Gerald Desmond Bridge	Crest	Downgrade	C	21.8	28.6	D	21.3	C	27.7	D	24.3	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	C	20.2	60.9	F	22.3	C	79.2	F	25.4	C
	WB Gerald Desmond Bridge	Crest	Downgrade	C	20.1	27.0	D	19.9	C	30.5	D	22.2	C
6	NB Connector	EB Ocean Blvd	NB SR 710	B	13.8	16.2	B	10.1	A	11.9	B	9.3	A
	SB Connector	SB SR 710	WB Ocean Blvd	B	17.4	25.7	C	17.8	B	30.6	D	19.6	C
7	SR 710 NB	NB Connector	NB SR 710 Mainline	B	14.2	15.9	B	10.1	A	11.1	B	9.1	A
	SR 710 SB	SB SR 710 Mainline	SB Connector	A	9.2	13.8	B	17.4	B	16.3	B	19.1	C
8	EB Ocean Blvd	NB Connector	Downtown	A	4.6	5.3	A	13.4	B	7.8	A	15.0	B
	WB Ocean Blvd	Downtown	SB Connector	A	6.6	7.3	A	16.0	B	5.8	A	17.0	B

**Table 2.1.5-12  
Years 2015 and 2030 Forecast Peak-Hour LOS on Roadway Segments**

Segment	From	To	Year 2005		Year 2015				Year 2030				
			Existing		No Action/ Rehabilitation Alternatives		Bridge Replacement Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replacement Alternatives		
			Speed* or Vehicle Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density
<b>MD Peak Hour</b>													
1	EB Ocean Blvd	Navy Way	Pier S Avenue	37.6*	A	22.0	C	23.0	C	175.3	F	165.8	F
	WB Ocean Blvd	Pier S Avenue	Navy Way	31.8*	B	18.4	C	22.0	C	19.3	C	22.8	C
2	EB Ocean Blvd	Pier S Avenue	Terminal Island Freeway	14*	E	16.5	B	21.0	C	17.3	B	19.2	C
	WB Ocean Blvd	Terminal Island Freeway	Pier S Avenue	9.2*	F	14.6	B	18.0	B	17.7	B	19.7	C
3	EB Ocean Blvd	Terminal Island Freeway	Horseshoe Ramps	29.5*	B	16.7	B	21.0	C	12.7	B	15.2	B
	WB Ocean Blvd	Horseshoe Ramps	Terminal Island Freeway	13.7*	E	12.8	B	47.0	F	127.7	F	47.6	F
4	EB Gerald Desmond Bridge	Upgrade	Crest	18.8	C	28.2	D	28.0	D	19.3	C	21.9	C
	EB Gerald Desmond Bridge	Crest	Downgrade	23.1	C	30.1	D	22.0	C	22.2	C	17.2	B
5	WB Gerald Desmond Bridge	Upgrade	Crest	19.4	C	52.0	F	21.0	C	70.8	F	24.5	C
	WB Gerald Desmond Bridge	Crest	Downgrade	19.0	C	25.4	C	19.0	C	29.6	D	21.4	C
6	NB Connector	EB Ocean Blvd	NB SR 710	16.0	B	18.0	B	13.0	B	11.8	B	8.8	A
	SB Connector	SB SR 710	WB Ocean Blvd	10.7	A	26.2	D	17.0	B	31.1	D	20.0	C
7	SR 710 NB	NB Connector	NB SR 710 Mainline	17.4	B	18.1	C	13.0	B	11.3	B	9.0	A
	SR 710 SB	SB SR 710 Mainline	SB Connector	6.5	A	14.7	B	16.0	B	16.9	B	20.0	C
8	EB Ocean Blvd	NB Connector	Downtown	1.8	A	3.3	A	9.0	A	4.3	A	7.3	A
	WB Ocean Blvd	Downtown	SB Connector	6.6	A	5.0	A	12.0	B	4.4	A	12.2	B

**Table 2.1.5-12  
Years 2015 and 2030 Forecast Peak-Hour LOS on Roadway Segments**

Segment	From	To	Year 2005			Year 2015			Year 2030				
			Existing		Speed* or Vehicle Density	No Action/ Rehabilitation Alternatives		Bridge Replacement Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replacement Alternatives	
			Density	LOS		Density	LOS	Density	LOS	Density	LOS	Density	LOS
<b>PM Peak Hour</b>													
1	EB Ocean Blvd	Navy Way	Pier S Avenue	A	36.1*	24.4	C	24.8	C	178.0	F	156.0	F
	WB Ocean Blvd	Pier S Avenue	Navy Way	B	33.8*	20.3	C	24.0	C	26.0	D	29.0	D
2	EB Ocean Blvd	Pier S Avenue	Terminal Island Freeway	F	9.7*	20.0	C	24.3	C	21.3	C	29.4	D
	WB Ocean Blvd	Terminal Island Freeway	Pier S Avenue	F	9.3*	22.9	C	24.8	C	23.4	C	28.2	D
3	EB Ocean Blvd	Terminal Island Freeway	Horseshoe Ramps	B	29.7*	20.4	C	24.6	C	16.4	B	25.2	D
	WB Ocean Blvd	Horseshoe Ramps	Terminal Island Freeway	E	12.7*	18.6	C	17.9	B	20.9	C	20.4	C
4	EB Gerald Desmond Bridge	Upgrade	Crest	C	20.2	26.7	D	29.2	D	20.7	C	28.8	D
	EB Gerald Desmond Bridge	Crest	Downgrade	C	25.7	32.9	D	24.7	C	26.1	C	24.3	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	C	18.9	56.3	F	22.0	C	109.1	F	25.5	C
	WB Gerald Desmond Bridge	Crest	Downgrade	C	19.5	28.9	D	20.2	C	32.6	D	23.2	C
6	NB Connector	EB Ocean Blvd	NB SR 710	B	13.2	16.7	B	14.1	B	10.2	A	9.5	A
	SB Connector	SB SR 710	WB Ocean Blvd	B	14.4	20.4	C	14.3	B	23.4	C	16.0	B
7	SR 710 NB	NB Connector	NB SR 710 Mainline	B	13.8	16.2	B	13.7	B	9.5	A	9.1	A
	SR 710 SB	SB SR 710 Mainline	SB Connector	A	8.3	10.6	A	13.7	B	11.8	B	15.6	B
8	EB Ocean Blvd	NB Connector	Downtown	A	8.5	7.3	A	13.6	B	8.8	A	16.0	B
	WB Ocean Blvd	Downtown	SB Connector	A	6.9	8.6	A	20.8	C	7.9	A	19.4	C

LOS - Level of Service ; NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound

\* In the existing year 2005 condition, Segments 1-3 are analyzed as arterial segments because of the presence of traffic signals on Ocean Boulevard at the Terminal Island Freeway, Pier S Avenue, and Navy Way. The LOS for arterials is determined by speed (in mph). All other segments are analyzed as multi-lane highways whose LOS is determined by vehicle density (vehicles per lane per mile).

Source: Iteris, 2009.

**Table 2.1.5-13  
Years 2015 and 2030 Forecast Peak-Hour LOS at Ramp Junctions**

Ramp Location	AM Peak		MD Peak		PM Peak	
	Density (pc/mi/ln)	LOS <sup>1</sup>	Density (pc/mi/ln)	LOS <sup>1</sup>	Density (pc/mi/ln)	LOS <sup>1</sup>
<b>Year 2015 No Action/Rehabilitation Alternatives</b>						
<b>WB Ocean Boulevard</b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	16.8	B	16.0	B	17.7	B
Horseshoe Off-Ramp to Pier T Avenue	24.9	C	23.3	C	24.5	C
<b>EB Ocean Boulevard</b>						
Horseshoe On-Ramp from Pier T Avenue	16.9	B	17.8	B	20.2	C
Ocean Boulevard to SR 710/Downtown Diverge	14.2	B	15.6	B	20.0	B
Ocean Boulevard to Pico Avenue Off-Ramp	6.9	A	5.6	A	13.7	B
<b>Year 2015 Bridge Replacement Alternatives</b>						
<b>WB Ocean Boulevard</b>						
Pico Avenue On-Ramp to Ocean Boulevard	17.0	B	14.4	B	16.4	B
Off-Ramp to Pier T Avenue	21.5	C	20.3	C	20.4	C
<b>EB Ocean Boulevard</b>						
On-Ramp from Pier T Avenue	18.9	B	19.8	B	22.9	C
Ocean Boulevard / SR 710 Diverge	22.5	C	24.6	C	25.8	C
Ocean Boulevard to Pico Avenue	17.6	B	20.3	C	18.0	B
<b>Year 2030 No Action/Rehabilitation Alternatives</b>						
<b>WB Ocean Boulevard</b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	17.9	B	17.0	B	18.6	B
Horseshoe Off-Ramp to Pier T Avenue	26.8	C	25.0	C	26.2	C
<b>EB Ocean Boulevard</b>						
Horseshoe On-Ramp from Pier T Avenue	17.4	B	18.2	B	21.3	C
Ocean Boulevard to SR 710/Downtown Diverge	15.0	B	16.2	B	21.9	C
Ocean Boulevard to Pico Avenue Off-Ramp	6.9	A	6.6	A	13.8	B
<b>Year 2030 Bridge Replacement Alternatives</b>						
<b>WB Ocean Boulevard</b>						
Pico Avenue On-Ramp to Ocean Boulevard	18.8	B	16.7	B	19.6	B
Off-Ramp to Pier T Avenue	23.1	C	22.0	C	22.5	C
<b>EB Ocean Boulevard</b>						
On-Ramp from Pier T Avenue	20.1	C	21.5	C	24.7	C
Ocean Boulevard / SR 710 Diverge	24.0	C	27.6	C	28.6	D
Ocean Boulevard to Pico Avenue	18.9	B	23.5	C	20.3	C

EB – eastbound; LOS – level of service; pc/mi/ln – passenger cars per mile per lane; WB – westbound

<sup>1</sup> LOS criteria for freeway weaving areas are in density (pc/mi/ln). Density ranges for different LOS types: LOS A, 0 – 10; LOS B, 10.1 – 20; LOS C, 20.1 – 28; LOS D, 28.1 – 35; LOS E, 35.1 – 43; LOS F, > 43.

Source: Iteis, 2009.

**Table 2.1.5-14  
Years 2015 and 2030 Forecast Peak-Hour LOS at Intersections**

Intersection	Year 2005			Year 2015			Year 2030									
	Existing			No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			
	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	
<b>AM Peak Hour</b>																
1	Terminal Island Freeway/ Ocean Blvd	C		0.792	B		0.661	B		0.648	F		1.255	F		1.130
2	Pier S Ave/Ocean Blvd	C		0.709	B		0.681	B		0.679	F		1.110	F		1.008
3	Pier S Ave/New Dock St	A		0.327	A		0.328	A		0.352	B		0.678	A		0.591
4	Navy Way/Seaside Ave	A		0.474	C		0.735	C		0.776	E		0.904	E		0.931
5	Pico Avenue/ Pier B Street & 9th Street	A		0.428	B		0.606	A		0.594	C		0.766	C		0.708
6	Pico Avenue/Pier C Street	A		0.309	A		0.376	A		0.378	A		0.442	A		0.446
7	Terminal Island Freeway SB Off-Ramp/New Dock St	B	10.8		B	12.2		B	10.8		F	95.1		E	48.2	
	Analyzed as signalized	A		0.217	A		0.441	A		0.339	E		0.913	C		0.793
8	Terminal Island Freeway NB On-Ramp/New Dock St	A	7.4		A	9.1		A	8.9		C	15.9		B	13.9	
	Pico Avenue/Pier D Street <sup>a</sup>	B	10.1		C	23.3		A		0.492	F	55.1		B		0.630
10	Pico Avenue/Broadway	B	10.6		B	10.6		B	10.3		B	11.9		B	11.9	
11	Pico Avenue/Pier E Street <sup>a</sup>	A	9.9		B	12.4		A		0.331	C	18.7		A		0.465
12	Ocean Blvd/Golden Shore Street	A		0.570	B		0.628	B		0.637	B		0.658	B		0.670
13	Ocean Blvd/Magnolia Ave	B		0.693	E		0.907	E		0.929	E		0.982	F		1.099

**Table 2.1.5-14  
Years 2015 and 2030 Forecast Peak-Hour LOS at Intersections**

Intersection	Year 2005			Year 2015			Year 2030								
	Existing			No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives		
	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*
<b>MD Peak Hour</b>															
1	D		0.833	E		0.966	D		0.899	F		1.471	F		1.304
2	C		0.700	C		0.761	B		0.656	F		1.274	F		1.202
3	A		0.350	A		0.420	A		0.432	D		0.843	C		0.739
4	A		0.414	C		0.753	C		0.768	D		0.854	D		0.875
5	A		0.455	A		0.594	B		0.613	D		0.897	B		0.640
6	A		0.340	A		0.309	A		0.306	A		0.385	A		0.381
7	A	9.1		B	13.3		B	12.1		E	47.3		D	29.6	
	A		0.215	A		0.448	A		0.396	D		0.895	C		0.794
8	A	7.6		B	11.9		B	11.1		D	30.6		C	22.5	
	B	11.3		C	19.2		A		0.432	E	42.0		A		0.529
10	B	11.2		A	9.8		A	9.9		B	10.7		B	11.3	
11	B	11.8		B	14.0		A		0.410	C	23.9		A		0.559
12	A		0.569	B		0.691	C		0.708	C		0.733	C		0.735
13	A		0.575	C		0.741	C		0.785	D		0.869	E		0.912



**Table 2.1.5-14  
Years 2015 and 2030 Forecast Peak-Hour LOS at Intersections**

Intersection	Year 2005			Year 2015			Year 2030									
	Existing			No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			
	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	LOS	Del/ Veh*	V/C Ratio*	
<b>PM Peak Hour</b>																
1	Terminal Island Freeway/ Ocean Blvd	E		0.912	D		0.865	D		0.813	F		1.181	F		1.170
2	Pier S Ave/Ocean Blvd	D		0.824	B		0.650	A		0.597	F		1.114	F		1.011
3	Pier S Ave/New Dock St	A		0.356	A		0.337	A		0.337	B		0.684	A		0.588
4	Navy Way/Seaside Ave	A		0.581	E		0.914	E		0.935	F		1.091	F		1.125
5	Pico Avenue/ Pier B Street & 9th Street	A		0.494	A		0.575	A		0.588	B		0.688	B		0.625
6	Pico Avenue/Pier C Street	A		0.343	A		0.306	A		0.308	A		0.402	A		0.402
7	Terminal Island Freeway SB Off-Ramp/New Dock St	A	9.3		B	10.5		B	10.3		C	15.4		C	15.3	
	Analyzed as signalized	A		0.253	A		0.385	A		0.356	B		0.626	A		0.554
8	Terminal Island Freeway NB On-Ramp/New Dock St	A	7.9		B	10.8		B	10.1		D	32.7		C	21.7	
	Pico Avenue/Pier D Street <sup>a</sup>	B	10.7		C	15.5		C	15.5		E	36.8		A		0.543
10	Pico Avenue/Broadway	B	10.5		A	9.3		A	10.0		B	10.3		B	11.4	
11	Pico Avenue/Pier E Street <sup>a</sup>	B	11.3		C	18.9		C	18.9		E	47.6		C		0.782
12	Ocean Blvd/Golden Shore Street	A		0.593	B		0.693	C		0.719	C		0.739	D		0.801
13	Ocean Blvd/Magnolia Ave	B		0.601	C		0.771	C		0.765	D		0.865	E		0.930

Notes:

LOS - Level of Service ; NB - Northbound; SB - Southbound; N/A - Not Applicable

\* Volume-to-capacity (V/C) ratio is reported for signalized intersections and average stopped delay per vehicle (Del/Veh) in seconds is reported for unsignalized intersections *in italics*.

<sup>a</sup> This intersection is currently stop-sign controlled, and a traffic signal would be added at this intersection to accommodate construction detour routing required under the Bridge Replacement Alternatives (signal would be in place by year 2015); therefore, this intersection has been analyzed as a signalized intersection in the 2015 and 2030 future years under the Bridge Rehabilitation Alternatives. There would be no signal installed at this intersection under the No Action/Rehabilitation Alternatives, so this intersection has been analyzed as an unsignalized (stop-sign controlled) intersection in the 2015 and 2030 future years under the No Action/Rehabilitation Alternatives.

Source: Iteris, 2009.

(Cumulative Impacts) of this document. The additional vehicular trips generated by planned transportation and land development projects are included in the traffic forecasting model used for this study (refer to Appendix G for details on the development of the traffic forecasting model).

Two potential transportation improvement projects are not included among the improvements included in the traffic forecasting model. These projects were not defined at the time that the traffic forecasting model was specified. These projects are truck lanes on SR 710 and I-710 and the SR 47 Expressway improvements, including the direct “flyover” connector ramp serving traffic from EB Ocean Boulevard to NB SR 47. These projects are included in a sensitivity traffic analysis presented in Section 2.4.4.3, which explicitly addresses the traffic effects of these two projects, as well as the effects of all other cumulative projects.

In general, in year 2015 with the No Action/Rehabilitation Alternatives, peak-hour operating conditions are forecast to be acceptable LOS D or better in the traffic study area except that:

- LOS F would occur during all peak hours on the WB upgrade of the Gerald Desmond Bridge (Segment 5) where three lanes transition to two at the crest of the bridge;
- LOS E conditions would occur at the Terminal Island Freeway signalized intersection with the Ocean Boulevard ramps (Intersection 1) during the MD peak hour;
- LOS E is forecast for the PM peak hour at the intersection of Navy Way and Seaside Avenue (Intersection 4); and
- LOS E would occur during the AM peak hour at the signalized intersection of Ocean Boulevard and Magnolia Avenue (Intersection 13).

*Year 2015 Bridge Replacement Alternatives – Traffic Operations.* Both the North-side and South-side Alignment Alternatives would provide a new bridge with grades of approximately 5 percent carrying three lanes in each direction across the bridge and on the roadways approaching and leaving the bridge in both directions. Outside the limits of the proposed project site, the roadway network with the Year 2015 Bridge Replacement Alternatives would be the same as described under the Year 2015 No Action/Rehabilitation Alternatives.

In general, in year 2015 with the Bridge Replacement Alternatives, peak-hour operating conditions are forecast to be acceptable LOS A to D in the traffic study area, except that:

- WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway (Segment 3) during the AM and MD peak hours is forecast to operate at LOS E and F, respectively;
- LOS E is forecast for the PM peak hour at the intersection of Navy Way and Seaside Avenue (Intersection 4); and
- LOS E would occur during the AM peak hour at the signalized intersection of Ocean Boulevard and Magnolia Avenue (Intersection 13).

*Year 2030 No Action/Rehabilitation Alternatives – Traffic Operations.* The Year 2030 No Action/Rehabilitation Alternatives roadway network would be the same as described under the Year 2015 No Action/Rehabilitation Alternatives. In general, in year 2030 with the No Action/Rehabilitation Alternatives, peak-hour operating conditions are forecast to be acceptable LOS D or better in the traffic study area, except that:

- LOS F would occur on EB Ocean Boulevard between Navy Way and Pier S Avenue (Segment 1) during all peak hours;
- LOS F would occur on WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway (Segment 3) during the MD peak hour;
- LOS F would occur during all peak hours on the WB upgrade of the Gerald Desmond Bridge (Segment 5) where three lanes transition to two at the crest of the bridge; and
- Intersection LOS is forecast to be LOS E or LOS F during one or more of the three peak hours analyzed at the following locations:
  - Terminal Island Freeway and Ocean Boulevard (Intersection 1);
  - Pier S Avenue and Ocean Boulevard (Intersection 2);
  - Navy Way and Seaside Avenue (Intersection 4);
  - Terminal Island Freeway SB Off-Ramp and New Dock (Intersection 7);
  - Pico Avenue and Pier D Street (Intersection 9);
  - Pico Avenue and Pier E Street (Intersection 11); and
  - Ocean Boulevard and Magnolia Avenue (Intersection 13).

*Year 2030 Bridge Replacement Alternatives – Traffic Operations.* The roadway network with the Bridge Replacement Alternatives would be the same in year 2030 as in year 2015. In general, in year 2030 with the Bridge Replacement Alternatives, peak-hour operating conditions are forecast to be acceptable LOS A to D, except that:

- EB Ocean Boulevard from Navy Way to Pier S Avenue (Segment 1) is forecast to operate at LOS F in the MD and PM peak hours;
- WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway (Segment 3) is forecast to operate at LOS F during the MD peak hour;
- Intersection LOS is forecast to be LOS E or LOS F during one or more of the three peak hours analyzed at the following locations:
  - Terminal Island Freeway and Ocean Boulevard (Intersection 1);
  - Pier S Avenue and Ocean Boulevard (Intersection 2);
  - Navy Way and Seaside Avenue (Intersection 4);
  - Terminal Island Freeway SB Off-Ramp and New Dock (Intersection 7); and
  - Ocean Boulevard and Magnolia Avenue (Intersection 13).
- The unsignalized intersection of the Terminal Island Freeway SB Off-Ramp with New Dock Street (Intersection 7) is forecast to operate at LOS E in the AM peak hour. Because of the forecast LOS E condition, this intersection was reanalyzed for the AM peak hour as a signalized intersection as stated in the Evaluation Criteria section above. With a future signal in place, this intersection would operate at an acceptable LOS C during the AM peak hour.

### **Adverse Effects to Traffic during Operation of the Bridge Replacement Alternatives**

The process used to determine potential direct adverse traffic effects of the Bridge Replacement Alternatives involves comparisons of the future No Action/Rehabilitation Alternatives in years 2015 and 2030 to the future Bridge Replacement Alternatives in years 2015 and 2030. The traffic volumes and traffic operations analysis presented for the future No Action/Rehabilitation Alternatives and the future Bridge Replacement Alternatives include cumulative projects (i.e., those projects presented in Table 2.4-1 and other transportation and land development projects used in the travel demand

forecasting model to emulate year 2015 and 2030 land use forecasts for the southern California region). (See Appendix G for more information on the travel demand forecasting model.)

The direct project effects were determined by comparing the future No Action/Rehabilitation Alternatives with the future Bridge Replacement Alternatives. The comparison quantifies the difference in traffic operations at study intersections and on study roadway segments between the future without the project (No Action/Rehabilitation Alternatives) and the future with the project (Bridge Replacement Alternatives). If the amount of change expected in traffic operations exceeds the criteria identified in Section 2.1.5.3 above, then mitigation for the direct project effect was proposed. The comparison was made independently for the two future years (2015 and 2030), and direct project effects were identified separately for each year. (See Section 2.4.4.3 regarding cumulative effects on traffic.)

There are no criteria for determining adverse effects in ramp junction (i.e., merge and diverge) areas. A review of LOS conditions for ramp merge and diverge locations indicates that in years 2015 and 2030 these locations would operate at acceptable LOS A to D with both the No Action/Rehabilitation Alternatives and Bridge Replacement Alternatives (refer to Table 2.1.5-13); therefore, no direct adverse effects of the proposed Bridge Replacement Alternatives to traffic are anticipated in the ramp junction areas.

#### **Intersection Analysis:**

As shown in Table 2.1.5-15, the comparison of the No Action/Rehabilitation Alternatives to the Bridge Replacement Alternatives for the 13 study intersections shows adverse effects attributed to operation of the Bridge Replacement Alternatives in 2015 and 2030 at Navy Way/Seaside Avenue (Intersection 4) and Ocean Boulevard/Magnolia Avenue (Intersection 13).

**Navy Way/Seaside Avenue.** The intersection of Navy Way and Seaside Avenue exceeds the City of Los Angeles criteria for adverse effects at an intersection in years 2015 and 2030. LOS C is expected at this intersection during the **AM peak hour in year 2015** under the Bridge Replacement Alternative conditions. The V/C ratio is 0.041 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.040 in the V/C ratio for a build condition LOS C. LOS E is expected at this intersection during the **PM peak hour in year 2015** under the Bridge

Replacement Alternative conditions. The V/C ratio is 0.021 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS E or F.

During the **AM peak hour in year 2030**, LOS E is expected under the Bridge Replacement Alternative conditions at the intersection of Navy Way and Seaside Avenue. The V/C ratio is 0.027 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS E. During the **MD peak hour in year 2030**, LOS D is expected under the Bridge Replacement Alternative conditions. The V/C ratio is 0.021 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.020 in the V/C ratio for a build condition LOS D. During the **PM peak hour in year 2030**, LOS F is expected under the Bridge Replacement Alternative conditions. The V/C ratio is 0.034 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS F.

An additional left-turn lane from NB Navy Way to WB Seaside Avenue is proposed to mitigate the adverse effect at this intersection. Table 2.1.5-16 shows that the proposed mitigation would result in V/C ratios under the Bridge Replacement Alternative that are less than the V/C ratios under the No Action/Rehabilitation Alternatives; therefore, the proposed mitigation removes the adverse effect under the Bridge Replacement Alternatives.

**Ocean Boulevard/Magnolia Avenue.** The intersection of Ocean Boulevard and Magnolia Avenue in downtown Long Beach exceeds the City of Long Beach criteria for adverse effects at an intersection in years 2015 and 2030. LOS E is expected at this intersection during the **AM peak hour in year 2015** under the Bridge Replacement Alternative conditions. The V/C ratio is 0.022 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.020 in the V/C ratio for a build condition LOS E. During **all three peak hours in year 2030**, LOS E or F is expected at this intersection under the Bridge Replacement Alternative conditions. The V/C ratio is higher under the Bridge Replacement Alternative

conditions than under the No Action/Rehabilitation Alternatives by 0.117, 0.043, and 0.065 during the AM, MD, and PM peak hours, respectively. All of these increases in the V/C ratio exceed the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS E or F.

The expected intersection LOS and changes in V/C ratio are presented in Table 2.1.5-13. One cause of the increase in the V/C ratio is the increased volume traveling through the intersection because the congestion-relief benefits of the Bridge Replacement Alternatives are expected to redistribute traffic to the bridge and approach roadways to avoid other more-congested roadways.

Conversion of the #2 SB through lane on the Magnolia Avenue approach to Ocean Boulevard to a shared through/right-turn lane, along with associated signalization improvements, has been identified as one potential way to mitigate the adverse effect at this intersection. Table 2.1.5-17 shows that the identified restriping and signalization improvements would result in V/C ratios under the Bridge Replacement Alternative condition that are lower than under the No Action/Rehabilitation Alternatives; therefore, restriping and signalization improvements remove the adverse effect under the Bridge Replacement Alternatives. The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection.

#### **Roadway Segment Analysis:**

As shown in Table 2.1.5-18, the comparison of the study roadway segments in 2015 and 2030 for the Bridge Replacement Alternatives to the No Action/Rehabilitation Alternatives shows an adverse effect at WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange (Segment 3) during the MD peak hour in 2015 and no adverse effect on any roadway segment in 2030.

**WB Segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway Interchange.** This segment of Ocean Boulevard is forecast to operate at LOS F during the **MD peak hour in year 2015** under the Bridge Replacement Alternative condition with a density of 47.0 vehicles per lane per mile, as shown in Table 2.1.5-18. In year 2015 under the No Action/Rehabilitation Alternatives, this segment is forecast to operate at LOS B, with a density of 12.8; therefore, an adverse effect is found under the Bridge Replacement Alternative condition in year

Table 2.1.5-15 Project Effects at Study Intersections

Intersection	Year 2015								Year 2030								
	No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			No Action/Rehab Alts. vs. 2015 Bridge Replace Alts.		No Action/ Rehabilitation Alternatives			Bridge Replacement Alternatives			No Action/Rehab Alts. vs. 2030 Bridge Replace Alts.		
	LOS	Del/Veh*	V/C Ratio*	LOS	Del/Veh*	V/C Ratio*	Difference	Adverse Effect <sup>b</sup>	LOS	Del/Veh*	V/C Ratio*	LOS	Del/Veh*	V/C Ratio*	Difference	Adverse Effect <sup>b</sup>	
<b>AM Peak Hour</b>																	
1	Terminal Island Freeway/Ocean Boulevard	B		0.661	B		0.648	-0.013	No	F		1.255	F		1.130	-0.125	No
2	Pier S Avenue/Ocean Boulevard	B		0.681	B		0.679	-0.002	No	F		1.110	F		1.008	-0.102	No
3	Pier S Avenue/New Dock Street	A		0.328	A		0.352	0.024	No	B		0.678	A		0.591	-0.087	No
4	Navy Way/Seaside Avenue	C		0.735	C		0.776	0.041	Yes	E		0.904	E		0.931	0.027	Yes
5	Pico Avenue/Pier B Street & 9th Street	B		0.606	A		0.594	-0.012	No	C		0.766	C		0.708	-0.058	No
6	Pico Avenue/Pier C Street	A		0.376	A		0.378	0.002	No	A		0.442	A		0.446	0.004	No
7	Terminal Island Freeway SB Off-Ramp/New Dock St	B	12.2		B	10.8				F	95.1		E	48.2			
	analyzed as a signal (see Note B, City of Long Beach)	A		0.441	A		0.339	-0.102	No	E		0.913	C		0.793	-0.120	No
8	Terminal Island Freeway NB On-Ramp/New Dock St	A	9.1		A	8.9		-0.2	No	C	15.9		B	13.9		-2.0	No
9	Pico Avenue/Pier D Street <sup>a</sup>	C	23.3		A		0.492	N/A	No	F	55.1		B		0.630	N/A	No
10	Pico Avenue/Broadway	B	10.6		B	10.3		-0.3	No	B	11.9		B	11.9		0.0	No
11	Pico Avenue/Pier E Street <sup>a</sup>	B	12.4		A		0.331	N/A	No	C	18.7		A		0.465	N/A	No
12	Ocean Boulevard/Golden Shore Street	B		0.628	B		0.637	0.009	No	B		0.658	B		0.670	0.012	No
13	Ocean Boulevard/Magnolia Avenue	E		0.907	E		0.929	0.022	Yes	E		0.982	F		1.099	0.117	Yes
<b>MD Peak Hour</b>																	
1	Terminal Island Freeway/Ocean Boulevard	E		0.966	D		0.899	-0.067	No	F		1.471	F		1.304	-0.167	No
2	Pier S Avenue/Ocean Boulevard	C		0.761	B		0.656	-0.105	No	F		1.274	F		1.202	-0.072	No
3	Pier S Avenue/New Dock Street	A		0.420	A		0.432	0.012	No	D		0.843	C		0.739	-0.104	No
4	Navy Way/Seaside Avenue	C		0.753	C		0.768	0.015	No	D		0.854	D		0.875	0.021	Yes
5	Pico Avenue/Pier B Street & 9th Street	A		0.594	B		0.613	0.019	No	D		0.897	B		0.640	-0.257	No
6	Pico Avenue/Pier C Street	A		0.309	A		0.306	-0.003	No	A		0.385	A		0.381	-0.004	No
7	Terminal Island Freeway SB Off-Ramp/New Dock St	B	13.3		B	12.1		-1.2	No	E	47.3		D	29.6		-17.7	No
	analyzed as a signal (see Note B, City of Long Beach)	A		0.448	A		0.396	-0.052	No	D		0.895	C		0.794	-0.101	No
8	Terminal Island Freeway NB On-Ramp/New Dock St	B	11.9		B	11.1		-0.8	No	D	30.6		C	22.5		-8.1	No
9	Pico Avenue/Pier D Street <sup>a</sup>	C	19.2		A		0.432	N/A	No	E	42.0		A		0.529	N/A	No
10	Pico Avenue/Broadway	A	9.8		A	9.9		0.1	No	B	10.7		B	11.3		0.6	No
11	Pico Avenue/Pier E Street <sup>a</sup>	B	14.0		A		0.410	N/A	No	C	23.9		A		0.559	N/A	No
12	Ocean Boulevard/Golden Shore Street	B		0.691	C		0.708	0.017	No	C		0.733	C		0.735	0.002	No
13	Ocean Boulevard/Magnolia Avenue	C		0.741	C		0.785	0.044	No	D		0.869	E		0.912	0.043	Yes
<b>PM Peak Hour</b>																	
1	Terminal Island Freeway/Ocean Boulevard	D		0.865	D		0.813	-0.052	No	F		1.181	F		1.170	-0.011	No
2	Pier S Avenue/Ocean Boulevard	B		0.650	A		0.597	-0.053	No	F		1.114	F		1.011	-0.103	No
3	Pier S Avenue/New Dock Street	A		0.337	A		0.337	0.000	No	B		0.684	A		0.588	-0.096	No
4	Navy Way/Seaside Avenue	E		0.914	E		0.935	0.021	Yes	F		1.091	F		1.125	0.034	Yes
5	Pico Avenue/Pier B Street & 9th Street	A		0.575	A		0.588	0.013	No	B		0.688	B		0.625	-0.063	No
6	Pico Avenue/Pier C Street	A		0.306	A		0.308	0.002	No	A		0.402	A		0.402	0.000	No
7	Terminal Island Freeway SB Off-Ramp/New Dock St	B	10.5		B	10.3		-0.2	No	C	15.4		C	15.3		-0.1	No
	analyzed as a signal (see Note B, City of Long Beach)	A		0.385	A		0.356	-0.029	No	B		0.626	A		0.554	-0.072	No
8	Terminal Island Freeway NB On-Ramp/New Dock St	B	10.8		B	10.1		-0.7	No	D	32.7		C	21.7		-11.0	No
9	Pico Avenue/Pier D Street <sup>a</sup>	C	15.5		A		0.399	N/A	No	E	36.8		A		0.543	N/A	No
10	Pico Avenue/Broadway	A	9.3		A	10.0		0.7	No	B	10.3		B	11.4		1.1	No
11	Pico Avenue/Pier E Street <sup>a</sup>	C	18.9		A		0.582	N/A	No	E	47.6		C		0.782	N/A	No
12	Ocean Boulevard/Golden Shore Street	B		0.693	C		0.719	0.026	No	C		0.739	D		0.801	0.062	No
13	Ocean Boulevard/Magnolia Avenue	C		0.771	C		0.765	-0.006	No	D		0.865	E		0.930	0.065	Yes

Notes: LOS - Level of Service ; NB - Northbound; SB - Southbound; N/A - Not Applicable

\* Volume-to-capacity (V/C) ratio is reported for signalized intersections and average stopped delay per vehicle (Del/Veh) in seconds is reported for unsignalized intersections in italics. "Difference" is the change in the applicable V/C ratio or Del/Veh.

a This intersection is currently stop-sign controlled and a traffic signal would be added at this intersection to accommodate construction detour routing required under the Bridge Replacement Alternatives (signal would be in place by year 2015). Therefore, this intersection has been analyzed as a signalized intersection in the 2015 and 2030 future years under the Bridge Rehabilitation Alternatives. There would be no signal installed at this intersection under the No Action/Rehabilitation Alternatives, so this intersection has been analyzed as an unsignalized (stop sign controlled) intersection in the 2015 and 2030 future years under the No Action/Rehabilitation Alternatives.

b **Criteria and Thresholds Used to Determine Adverse Effect:**

- City of Long Beach, signalized intersections (applies to intersections #1-3, #5-6, and #12-13): Adverse effect would occur where the Build condition (Bridge Replacement Alternatives) would result in LOS E or F and the intersection V/C ratio increases by more than 0.020 over the No Build (No Action/Rehabilitation Alternatives) condition or the existing condition.

- City of Long Beach, unsignalized intersections (applies to intersections #7-11): The City has no established criteria for determination of adverse effects at unsignalized intersections. If the Build condition has an LOS E or F at an unsignalized intersection, then the intersection must be reanalyzed using the signalized intersection method and criteria to identify any adverse effects.

This analysis assumes that there would be an adverse effect under the No Action/Rehabilitation Alternatives if LOS E or F is forecast for an unsignalized intersection in year 2015 or 2030. For comparisons of intersections which are unsignalized under the No Action/Rehabilitation Alternatives and signalized under the Bridge Replacement Alternatives, this analysis assumes that there would be an adverse effect if the Bridge Replacement Alternatives would result in LOS E or F at the future signalized intersection.

- City of Los Angeles (applies to signalized intersection #4): Adverse effect would occur where the final (future) LOS is E or F and an increase in V/C of 0.01 or greater would occur as a result of the project; for LOS D, an increase of 0.02 or greater; or for LOS C, an increase of 0.04 or greater.

**Yes** Highlight indicates locations with adverse effect where threshold criteria for an adverse effect have been exceeded and the effect is directly attributable to the proposed Bridge Replacement Alternatives.

Source: Iteris, 2009.

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<b>Table 2.1.5-16 Intersection Effects With and Without Mitigation at Navy Way/Seaside Avenue</b>											
<b>Peak Hour</b>		<b>Year 2005</b>		<b>Year 2015</b>				<b>Year 2030</b>			
		<b>Existing</b>		<b>No Action/ Rehabilitation Alternatives</b>		<b>Bridge Replacement Alternatives</b>		<b>No Action/ Rehabilitation Alternatives</b>		<b>Bridge Replacement Alternatives</b>	
		<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>
AM	Navy Way/ Seaside Avenue	A	0.474	C	0.735	C	0.776	E	0.904	E	0.931
	with Additional NB Left-Turn Lane					C	0.734			D	0.863
MD	Navy Way/ Seaside Avenue	A	0.414	C	0.753	C	0.768	D	0.854	D	0.875
	with Additional NB Left-Turn Lane					C	0.716			D	0.807
PM	Navy Way/ Seaside Avenue	A	0.581	E	0.914	E	0.935	F	1.091	F	1.125
	with Additional NB Left-Turn Lane					D	0.874			F	1.029

LOS – level of service; NB – northbound; V/C – volume-to-capacity ratio

Source: Iteris, 2009.

<b>Table 2.1.5-17 Intersection Effects With and Without Mitigation at Ocean Boulevard/Magnolia Avenue</b>											
<b>Peak Hour</b>		<b>Year 2005</b>		<b>Year 2015</b>				<b>Year 2030</b>			
		<b>Existing</b>		<b>No Action/ Rehabilitation Alternatives</b>		<b>Bridge Replacement Alternatives</b>		<b>No Action/ Rehabilitation Alternatives</b>		<b>Bridge Replacement Alternatives</b>	
		<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>	<b>LOS</b>	<b>V/C</b>
AM	Ocean Blvd/ Magnolia Avenue	B	0.693	E	0.907	E	0.929	E	0.982	F	1.099
	with proposed restriping and signalization					C	0.769			E	0.931
MD	Ocean Blvd/ Magnolia Avenue	A	0.575	C	0.741	C	0.785	D	0.869	E	0.912
	with proposed restriping and signalization					B	0.657			D	0.812
PM	Ocean Blvd/ Magnolia Avenue	B	0.601	C	0.771	C	0.765	D	0.865	E	0.930
	with proposed restriping and signalization					B	0.649			C	0.791

LOS – level of service; V/C – volume-to-capacity ratio

Source: Iteris, 2009.

2015 due to the forecast LOS F and increased vehicle density that would occur along this WB segment of Ocean Boulevard.

The better LOS and lower density predicted along this WB segment of Ocean Boulevard under the No Action/Rehabilitation Alternatives than under the Bridge Replacement Alternatives is a result of the existing lane configuration that is reduced from three lanes to two at the crest of the Gerald Desmond Bridge. The existing lane configuration causes an increase in traffic congestion on WB Ocean Boulevard, which limits the volume of vehicles that can flow into the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange, thereby providing a relatively low density and better LOS than would be experienced under the Bridge Replacement Alternative condition. The proposed Bridge Replacement Alternatives include three through lanes in each direction on the bridge, thus eliminating the existing transition from three to two lanes at the crest of the bridge, and thereby allowing a higher volume and density of traffic to flow into the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange. It is predicted that this increase in traffic flow under the Bridge Replacement Alternative condition would strain the Terminal Island Freeway interchange, resulting in an increased traffic queue (traffic backup). The queue would cause traffic on WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange to operate poorly at LOS F.

During the **MD peak hour in year 2030**, the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange is forecast to operate at LOS F under both the No Action/Rehabilitation Alternatives and the Bridge Replacement Alternative conditions, with vehicle densities of 127.0 and 47.6, respectively. Because the density is lower under the Bridge Replacement Alternative condition, traffic operations are forecast to be better under the Bridge Replacement Alternative condition; therefore, no adverse effect under the Bridge Replacement Alternative condition would occur in year 2030. The finding of an adverse effect in year 2015 and no adverse effect in year 2030 under the Bridge Replacement Alternative condition results from a deterioration of operating conditions under the No Action/ Rehabilitation Alternatives attributable to local and regional traffic growth between years 2015 and 2030. Operating conditions under the No Action/ Rehabilitation Alternatives deteriorate on this segment because traffic from Pier T destined for Ocean Boulevard

west of the Terminal Island Freeway and for the Terminal Island Freeway itself uses this segment of the Ocean Boulevard mainline. Under the Bridge Replacement Alternatives, traffic operations do not deteriorate substantially because traffic from Pier T does not use the Ocean Boulevard mainline between the Horseshoe Ramps and the Terminal Island Freeway; traffic from Pier T uses the parallel Ocean Boulevard service road and enters the Ocean Boulevard mainline west of Pier S Street.

Because the adverse effect is expected in year 2015 but not in year 2030, the adverse effect is considered temporary. A grade-separated “flyover” ramp serving traffic from EB Ocean Boulevard to NB SR 47 is proposed as a component of the Schuyler Heim Bridge Replacement and SR 47 Expressway project. The proposed construction schedule shows completion of the flyover in 2015 (Caltrans, 2007a). Operation of the flyover in conjunction with either of the Bridge Replacement Alternatives would relieve the strain on the Terminal Island Freeway interchange and result in improved LOS on WB Ocean Boulevard, and there would be no adverse effect of the Bridge Replacement Alternatives on WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange. The effect of the proposed Bridge Replacement Alternatives in conjunction with the reasonable foreseeable construction of the SR 47 Flyover under Schuyler Heim Bridge Replacement and SR 47 Expressway project would be a cumulative benefit to traffic operations on the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange, as discussed in Section 2.4.4.3.

If the flyover is not implemented prior to opening one of the Bridge Replacement Alternatives, then there would be a temporary unavoidable adverse effect of the Bridge Replacement Alternatives on the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange that would exist until the flyover is constructed or until 2030, as discussed above.

### **Sensitivity Analysis for Year 2035 Traffic Forecasts**

This section summarizes the analysis and findings of year 2035 traffic conditions. The rate of growth in traffic along the Ocean Boulevard corridor within the study area would be 0.5 percent annually or a total of 2.5 percent for the 5 years from year 2030 to 2035. The growth rate was developed using traffic projections from the latest Port Area Model, which is based on the SCAG 2008 RTP model, with refinements made in the port area, and uses the forecasts recited in the comment.

Table 2.1.5-18 Project-Related Effects on Roadway Segments

Segment	From	To	Year 2015						Year 2030						
			No Action/ Rehab. Alts.		Bridge Replace Alternatives		No Action/Rehab. Alternatives vs. 2015 Bridge Replace Alts.		No Action/ Rehab. Alts.		Bridge Replace Alternatives		No Action/Rehab. Alternatives vs. 2030 Bridge Replace Alternatives		
			Density	LOS	Density	LOS	Density Difference	Adverse Effect <sup>a</sup>	Density	LOS	Density	LOS	Density Difference	Adverse Effect <sup>a</sup>	
<b>AM Peak Hour</b>															
1	EB Ocean Boulevard	Navy Way	Pier S Avenue	19.3	C	20.2	C	1.0	No	115.1	F	25.6	C	-89.5	No
	WB Ocean Boulevard	Pier S Avenue	Navy Way	19.8	C	23.7	C	3.9	No	24.6	C	25.4	C	0.8	No
2	EB Ocean Boulevard	Pier S Avenue	Terminal Island Freeway	17.4	B	20.8	C	3.3	No	22.7	C	23.0	C	0.3	No
	WB Ocean Boulevard	Terminal Island Freeway	Pier S Avenue	16.6	B	19.8	C	3.1	No	19.0	C	20.8	C	1.8	No
3	EB Ocean Boulevard	Terminal Island Freeway	Horseshoe Ramps	17.8	B	21.4	C	3.6	No	18.1	C	23.7	C	5.6	No
	WB Ocean Boulevard	Horseshoe Ramps	Terminal Island Freeway	12.7	B	41.3	E	28.6	No	15.8	B	34.0	D	18.2	No
4	EB Gerald Desmond Bridge	Upgrade	Crest	23.3	C	24.8	C	1.5	No	23.2	C	29.5	D	6.2	No
	EB Gerald Desmond Bridge	Crest	Downgrade	28.6	D	21.3	C	-7.3	No	27.7	D	24.3	C	-3.5	No
5	WB Gerald Desmond Bridge	Upgrade	Crest	60.9	F	22.3	C	-38.6	No	79.2	F	25.4	C	-53.8	No
	WB Gerald Desmond Bridge	Crest	Downgrade	27.0	D	19.9	C	-7.1	No	30.5	D	22.2	C	-8.3	No
6	NB Connector	EB Ocean Boulevard	NB I-710	16.2	B	10.1	A	-6.1	No	11.9	B	9.3	A	-2.6	No
	SB Connector	SB I-710	WB Ocean Boulevard	25.7	C	17.8	B	-7.9	No	30.6	D	19.6	C	-11.0	No
7	I-710 NB	NB Connector	NB I-710 Mainline	15.9	B	10.1	A	-5.8	No	11.1	B	9.1	A	-2.0	No
	I-710 SB	SB I-710 Mainline	SB Connector	13.8	B	17.4	B	3.6	No	16.3	B	19.1	C	2.8	No
8	EB Ocean Boulevard	NB Connector	Downtown	5.3	A	13.4	B	8.1	No	7.8	A	15.0	B	7.2	No
	WB Ocean Boulevard	Downtown	SB Connector	7.3	A	16.0	B	8.7	No	5.8	A	17.0	B	11.2	No
<b>MD Peak Hour</b>															
1	EB Ocean Boulevard	Navy Way	Pier S Avenue	22.0	C	23.0	C	1.0	No	175.3	F	165.8	F	-9.5	No
	WB Ocean Boulevard	Pier S Avenue	Navy Way	18.4	C	22.0	C	3.6	No	19.3	C	22.8	C	3.6	No
2	EB Ocean Boulevard	Pier S Avenue	Terminal Island Freeway	16.5	B	21.0	C	4.5	No	17.3	B	19.2	C	1.8	No
	WB Ocean Boulevard	Terminal Island Freeway	Pier S Avenue	14.6	B	18.0	B	3.4	No	17.7	B	19.7	C	2.0	No
3	EB Ocean Boulevard	Terminal Island Freeway	Horseshoe Ramps	16.7	B	21.0	C	4.3	No	12.7	B	15.2	B	2.5	No
	WB Ocean Boulevard	Horseshoe Ramps	Terminal Island Freeway	12.8	B	47.0	F	34.2	Yes	127.7	F	47.6	F	-80.1	No
4	EB Gerald Desmond Bridge	Upgrade	Crest	28.2	D	28.0	D	-0.2	No	19.3	C	21.9	C	2.6	No
	EB Gerald Desmond Bridge	Crest	Downgrade	30.1	D	22.0	C	-8.1	No	22.2	C	17.2	B	-5.0	No
5	WB Gerald Desmond Bridge	Upgrade	Crest	52.0	F	21.0	C	-31.0	No	70.8	F	24.5	C	-46.3	No
	WB Gerald Desmond Bridge	Crest	Downgrade	25.4	C	19.0	C	-6.4	No	29.6	D	21.4	C	-8.2	No
6	NB Connector	EB Ocean Boulevard	NB I-710	18.0	B	13.0	B	-5.0	No	11.8	B	8.8	A	-3.0	No
	SB Connector	SB I-710	WB Ocean Boulevard	26.2	D	17.0	B	-9.2	No	31.1	D	20.0	C	-11.1	No
7	I-710 NB	NB Connector	NB I-710 Mainline	18.1	C	13.0	B	-5.1	No	11.3	B	9.0	A	-2.3	No
	I-710 SB	SB I-710 Mainline	SB Connector	14.7	B	16.0	B	1.3	No	16.9	B	20.0	C	3.1	No
8	EB Ocean Boulevard	NB Connector	Downtown	3.3	A	9.0	A	5.7	No	4.3	A	7.3	A	3.0	No
	WB Ocean Boulevard	Downtown	SB Connector	5.0	A	12.0	B	7.0	No	4.4	A	12.2	B	7.8	No
<b>PM Peak Hour</b>															
1	EB Ocean Boulevard	Navy Way	Pier S Avenue	24.4	C	24.8	C	0.4	No	178.0	F	156.0	F	-21.9	No
	WB Ocean Boulevard	Pier S Avenue	Navy Way	20.3	C	24.0	C	3.8	No	26.0	D	29.0	D	3.0	No
2	EB Ocean Boulevard	Pier S Avenue	Terminal Island Freeway	20.0	C	24.3	C	4.3	No	21.3	C	29.4	D	8.1	No
	WB Ocean Boulevard	Terminal Island Freeway	Pier S Avenue	22.9	C	24.8	C	2.0	No	23.4	C	28.2	D	4.8	No
3	EB Ocean Boulevard	Terminal Island Freeway	Horseshoe Ramps	20.4	C	24.6	C	4.2	No	16.4	B	25.2	C	8.8	No
	WB Ocean Boulevard	Horseshoe Ramps	Terminal Island Freeway	18.6	C	17.9	B	-0.8	No	20.9	C	20.4	C	-0.5	No
4	EB Gerald Desmond Bridge	Upgrade	Crest	26.7	D	29.2	D	2.4	No	20.7	C	28.8	D	8.1	No
	EB Gerald Desmond Bridge	Crest	Downgrade	32.9	D	24.7	C	-8.2	No	26.1	D	24.3	C	-1.8	No
5	WB Gerald Desmond Bridge	Upgrade	Crest	56.3	F	22.0	C	-34.3	No	109.1	F	25.5	C	-83.6	No
	WB Gerald Desmond Bridge	Crest	Downgrade	28.9	D	20.2	C	-8.7	No	32.6	D	23.2	C	-9.5	No
6	NB Connector	EB Ocean Boulevard	NB I-710	16.7	B	14.1	B	-2.6	No	10.2	A	9.5	A	-0.7	No
	SB Connector	SB I-710	WB Ocean Boulevard	20.4	C	14.3	B	-6.1	No	23.4	C	16.0	B	-7.4	No
7	I-710 NB	NB Connector	NB I-710 Mainline	16.2	B	13.7	B	-2.5	No	9.5	A	9.1	A	-0.4	No
	I-710 SB	SB I-710 Mainline	SB Connector	10.6	A	13.7	B	3.2	No	11.8	B	15.6	B	3.8	No
8	EB Ocean Boulevard	NB Connector	Downtown	7.3	A	13.6	B	6.3	No	8.8	A	16.0	B	7.2	No
	WB Ocean Boulevard	Downtown	SB Connector	8.6	A	20.8	C	12.2	No	7.9	A	19.4	C	11.5	No

Notes: LOS - Level of Service ; NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound

\* In the existing year 2005 condition, segments 1-3 are analyzed as arterial segments because of presence of traffic signals on Ocean Boulevard at the TI Freeway, Pier S Avenue, & Navy Way. The LOS for arterials is determined by speed (in miles-per-hour). All other segments are analyzed as multi-lane highways whose LOS is determined by vehicle density (vehicles per lane per mile).

a Criteria and Thresholds Used to Determine Adverse Effect:

- Adverse effect would occur where the Build condition (Bridge Replacement Alternatives) would result in LOS F and the vehicle density is greater in the No Build (No Action/Rehabilitation Alternatives) condition or the existing condition.

Yes(1) - Density comparison not available, but increased density assumed based on deterioration of LOS.

Yes - Highlight indicates locations with adverse effect where threshold criteria for an adverse effect have been exceeded and the effect is directly attributable to the proposed Bridge Replacement Alternatives.

Source: Itecs, 2009.

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Using the 2.5 percent growth rate, the roadway segment densities for year 2030 were adjusted upward to reflect a 2.5 percent increase. Similarly, the densities developed for the ramp junction analyses were adjusted upward. The roadway segment densities for years 2005, 2015, 2030, and 2035 for both the No Action/Rehabilitation and Bridge Replacement Alternatives are presented in Table 2.1.5-19. The table also shows the roadway segment results with and without the EB-to-NB SR 47 flyover ramp analyzed in the traffic study.

The results show that the only reduction in LOS to a condition worse than LOS D would be on the EB uphill side of the Gerald Desmond Bridge for the PM peak hour in the Bridge Replacement Alternative with the SR 47 flyover ramp, which is projected to operate at LOS E, even though the density value increased by only 0.8 pc/mi/ln from 2030 to 2035.

The higher densities on this roadway segment are related to the convergence of EB through traffic, the on-ramp from the SR 47 interchange, and the on-ramp from Pier T all occurring on an uphill grade; however, the results indicate that the proposed design can adequately accommodate the projected year 2035 traffic.

For the ramp junction analysis, as shown in Table 2.1.5-20, none of the ramp junctions are projected to operate at a level worse than LOS C in year 2035.

In summary, none of the roadway segments or ramp junctions are expected to operate at a failing level of service (LOS F). With a Bridge Replacement Alternative and the SR 47 flyover ramp in place, only one roadway segment would operate at LOS E; therefore, the findings and conclusions reached for year 2030 still apply for year 2035. No additional impacts would be created using year 2035 forecast traffic volumes.

### **Nonrecurring Congestion**

The Bridge Replacement Alternatives of the proposed project would have the benefit of reducing nonrecurring congestion in the project area caused by automobile crashes, disabled vehicles, work zones, adverse weather events, and planned special events. The addition of standard-width left- and right-side shoulders on the bridge and its approaches would provide adequate room for emergency response vehicles, roadway maintenance vehicles, and disabled automobiles without causing major congestion or requiring roadway closures.

To better understand the potential effects caused by a nonrecurring incident, a computer simulation of a nonrecurring incident on the existing Gerald Desmond Bridge was conducted for the Bridge

Replacement Alternatives and the No Action/Rehabilitation Alternatives conditions in year 2030. The CORSIM program was used to conduct the simulation. The analysis compares the duration of restricted traffic operations resulting from an accident or other nonrecurring incident.

One difference between the Bridge Replacement Alternatives and the No Action/Rehabilitation Alternatives conditions is the inclusion of a third lane on the downhill side of the bridge with the Bridge Replacement Alternatives. For this reason, the simulation included an incident on that portion of the bridge to comparatively estimate the amount of time that would elapse before traffic operations would return to pre-incident levels. The incident was assumed to block the EB right lane on the downhill side of the bridge. The incident itself was assumed to last 1-hour during the PM peak travel period. With the No Action/Rehabilitation Alternatives condition, the incident was assumed to block the right lane for the full hour and then be cleared from the area. With the Bridge Replacement Alternatives condition, the incident was assumed to block the right lane for 10 minutes and then moved to the shoulder for the next 50 minutes, at which time it would be cleared from the area.

Exhibit 2.1.5-10 shows summary graphs of travel speed in each lane approaching the incident for 1-hour before the incident occurred, 1-hour during the incident, and 1-hour after the incident was cleared from the bridge for the No Action/Rehabilitation Alternatives and the Bridge Replacement Alternatives conditions. Each graph shows the plotted mean speed for each 5-minute increment during the 3-hour period and a smoothed speed curve. A nearly horizontal line links pre- and post-incident speed and illustrates likely speeds with no incident.

The No Action/Rehabilitation Alternatives condition results show that the average vehicle travel speed would decrease from approximately 45 to 50 miles per hour (mph) before the incident in both lanes to 20 to 25 mph after the incident occurs. Speeds would remain slow for the whole hour of the incident plus an additional 25 to 30 minutes after the incident is cleared from the area, or a total duration of 85 to 90 minutes after the incident occurred. The Bridge Replacement Alternatives condition results show that the average vehicle travel speed would return to pre-incident levels approximately 20 minutes after the incident is moved to the shoulder, or a total duration of 30 minutes after the incident occurred; therefore, over 1-hour of incident-related delay could be saved as a result of implementing the Bridge Replacement Alternatives.

Effects to Nonrecurring Congestion from the  
Long-Term Operation of the Bridge Replacement  
Alternatives

Nonrecurring congestion due to incidents such as crashes and disabled vehicles would not be worse under the Bridge Replacement Alternatives than under the No Action/Rehabilitation Alternatives. Rather, such nonrecurring congestion is likely to be reduced by the presence of shoulders on the new bridge that would be implemented under the Bridge Replacement Alternatives; therefore, it is concluded that the proposed Bridge Replacement Alternatives would have a beneficial effect upon nonrecurring congestion.

**Bridge Bicycle and Pedestrian Access**

The Bridge Replacement alternatives of the proposed project would transform Ocean Boulevard, which is currently a city street, into a state highway that would be a limited-access extension of the SR 710 freeway as far west as the Terminal Island Freeway. Bicycle access to/from downtown Long Beach across the new bridge via Ocean Boulevard would be permitted only at on- and off-ramps (see Exhibit 2.1.5-13).

Terminal Island is an industrial area within the Harbor District where there is currently no residential, retail, or public recreational facilities. Since the closing of the Naval Shipyard and the opening of the Pier T container terminal, there has been low demand from nonmotorized traffic (e.g., pedestrians or bicycles) on Ocean Boulevard over the Gerald Desmond Bridge, despite a patchwork of sidewalks that exist along the roadway. In addition, Terminal Island does not include any designated bicycle route.

The finished roadway improvements of the Bridge Replacement Alternatives would include standard, full-width paved inside and outside shoulders for emergency vehicle breakdown and motorist safety. No designated bike routes or pedestrian sidewalks are included in the project plans. Both pedestrians and cyclists can utilize the regularly scheduled bus service equipped with bicycle racks provided by the Los Angeles Department of Transportation to travel between downtown Long Beach, Terminal Island, and San Pedro. A designated bike route exists to the north of the Port on Anaheim Street at the northern edge of the Harbor District.

Of the other two bridges that provide access to Terminal Island, neither the Schuyler Heim Bridge nor the Vincent Thomas Bridge provides shoulders or walkways for nonmotorized traffic. The current bicycle master plans for the cities of Long Beach

and Los Angeles do not include any designated bike routes in the Harbor Districts, including Terminal Island (refer to Exhibits 2.1.5-11 and 2.1.5-12 for the maps of the bicycle master plans for the cities of Long Beach and Los Angeles). In June 2006, the Los Angeles County Metropolitan Transportation Authority (MTA) adopted two bicycle planning documents: *Metro Bicycle Transportation Strategic Plan* (Strategic Plan) and *Bicycle Transportation Account Compliance* (BTA) document. These two plans replace the Countywide Bicycle Policy Document and six area bicycle plans. The Strategic Plan and BTA document are consistent with Metro's Long Range Transportation Plan. The BTA document fulfills a Caltrans requirement by consolidating information into one countywide document that each City and the County can adopt as their local bicycle plan. The Strategic Plan was designed for use by local agencies to plan bicycle facilities around transit and set priorities to improve regional mobility. One aspect of the Strategic Plan is to identify gaps in the inter-jurisdictional bike network. The Strategic Plan identifies an Ocean Boulevard Corridor connecting the Harbor bike lanes in San Pedro to the LA River Bike Trail terminus in the City of Long Beach, as recommended by "LA City/Stakeholders." As previously discussed, the proposed project is within the Cities of Long Beach and Los Angeles, and there are no proposed or designated bike routes in City plans within the Port of Long Beach.

Federal regulation requires the inclusion of nonmotorized routes in roadway improvement projects only if the facility already includes an existing major nonmotorized route. The existing Gerald Desmond Bridge has a pedestrian walkway, but it is not considered a "major nonmotorized route." The Port addressed this issue in January 2004 in consideration of federal statute Title 23, section 217, as amended by the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) and SAFETEA-LU, which states, "The Secretary shall not approve any project or take any regulatory action that will sever an existing major nonmotorized route or adversely affect the safety of nonmotorized traffic and light motorcycles, unless a reasonable alternate route exists or is established. [1202(c)]."

Based on a memorandum dated January 6, 2004, which discusses coordination with the MTA Bikeway Modal Lead and Gateway Cities Team Planner, the MTA staff determined that a bikeway or a pedestrian walkway is not required for this project. Additional considerations regarding bikeway and pedestrian access are presented below.



**Table 2.1.5-19**  
**CORSIM Highway Link Analysis Comparison Summary**  
**Years 2015, 2030, and 2035**

AM Peak Hour		Without Eastbound Ocean Boulevard to Northbound SR 47 Flyover Ramp														With Eastbound Ocean Boulevard to Northbound SR 47 Flyover Ramp													
Segment	From	To	Existing 2005		Year 2015				Year 2030				Year 2035				Year 2015		Year 2030				Year 2035						
			Density	LOS	No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		Density	LOS	No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives				
					Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS			Density	LOS	Density	LOS	Density	LOS	Density	LOS			
1	EB Ocean Blvd.	Navy Way	Pier S Avenue	*	*	19.3	C	20.2	C	115.1	F	25.6	C	118.0	F	26.3	D	13.6	B	15.4	B	16.4	B	17.8	B	16.8	B	18.3	C
	WB Ocean Blvd.	Pier S Avenue	Navy Way	*	*	19.8	C	23.7	C	24.6	C	25.4	C	25.3	C	26.1	D	18.9	C	21.4	C	24.1	C	25.4	C	24.7	C	26.1	D
2	EB Ocean Blvd.	Pier S Avenue	Terminal Island Freeway	*	*	17.4	B	20.8	C	22.7	C	23.0	C	23.3	C	23.6	C	17.9	B	20.5	C	19.2	C	21.8	C	19.6	C	22.4	C
	WB Ocean Blvd.	Terminal Island Freeway	Pier S Avenue	*	*	16.6	B	19.8	C	19.0	C	20.8	C	19.5	C	21.4	C	16.9	B	17.9	B	18.8	C	20.3	C	19.2	C	20.8	C
3	EB Ocean Blvd.	Terminal Island Freeway	Horseshoe Ramps	*	*	17.8	B	21.4	C	18.1	C	23.7	C	18.5	C	24.3	C	18.3	C	21.0	C	18.7	C	22.3	C	19.2	C	22.9	C
	WB Ocean Blvd.	Horseshoe Ramps	Terminal Island Freeway	*	*	12.7	B	41.3	E	15.8	B	34.0	D	16.2	B	34.9	D	13.1	B	14.1	B	15.9	B	15.5	B	16.3	B	15.9	B
4	EB Gerald Desmond Bridge	Upgrade	Crest	17.0	B	23.3	C	24.8	C	23.2	C	29.5	D	23.8	C	30.2	D	24.7	C	23.9	C	28.6	D	28.9	D	29.3	D	29.6	D
	EB Gerald Desmond Bridge	Crest	Downgrade	21.8	C	28.6	D	21.3	C	27.7	D	24.3	C	28.4	D	24.9	C	28.9	D	20.5	C	31.1	D	23.4	C	31.9	D	24.0	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	20.2	C	60.9	F	22.3	C	79.2	F	25.4	C	81.2	F	26.0	D	59.6	F	21.9	C	91.1	F	25.6	C	93.4	F	26.2	D
	WB Gerald Desmond Bridge	Crest	Downgrade	20.1	C	27.0	D	19.9	C	30.5	D	22.2	C	31.2	D	22.7	C	27.2	D	19.9	C	31.0	D	22.3	C	31.8	D	22.9	C
6	NB Connector	EB Ocean Blvd.	NB I-710	13.8	B	16.2	B	10.1	A	11.9	B	9.3	A	12.2	B	9.5	A	16.3	B	9.9	A	14.2	B	11.3	B	14.5	B	11.6	B
	SB Connector	SB I-710	WB Ocean Blvd.	17.4	B	25.7	C	17.8	B	30.6	D	19.6	C	31.4	D	20.1	C	26.0	D	17.9	B	30.4	D	19.8	C	31.2	D	20.3	C
7	I-710 NB	NB Connector	NB I-710 Mainline	14.2	B	15.9	B	10.1	A	11.1	B	9.1	A	11.3	B	9.3	A	15.9	B	9.9	A	13.3	B	11.0	B	13.6	B	11.3	B
	I-710 SB	SB I-710 Mainline	SB Connector	9.2	A	13.8	B	17.4	B	16.3	B	19.1	C	16.7	B	19.5	C	13.8	B	17.4	B	16.3	B	19.2	C	16.7	B	19.7	C
8	EB Ocean Blvd.	NB Connector	Downtown	4.6	A	5.3	A	13.4	B	7.8	A	15.0	B	8.0	A	15.4	B	4.8	A	12.9	B	7.2	A	12.8	B	7.4	A	13.1	B
	WB Ocean Blvd.	Downtown	SB Connector	6.6	A	7.3	A	16.0	B	5.8	A	17.0	B	5.9	A	17.4	B	7.3	A	16.0	B	5.8	A	17.1	B	5.9	A	17.5	B

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**Table 2.1.5-19  
CORSIM Highway Link Analysis Comparison Summary  
Years 2015, 2030, and 2035**

MD Peak Hour		Without Eastbound Ocean Boulevard to Northbound SR 47 Flyover Ramp														With Eastbound Ocean Boulevard to Northbound SR 47 Flyover Ramp													
Segment	From	To	Existing 2005		Year 2015				Year 2030				Year 2035				Year 2015				Year 2030				Year 2035				
			Density	LOS	No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		
					Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density
1	EB Ocean Blvd.	Navy Way	Pier S Avenue	*	*	22.0	C	23.0	C	175.3	F	165.8	F	179.6	F	169.9	F	13.8	B	15.9	B	54.4	F	15.2	B	55.8	F	15.5	B
	WB Ocean Blvd.	Pier S Avenue	Navy Way	*	*	18.4	C	22.0	C	19.3	C	22.8	C	19.7	C	23.4	C	17.8	B	21.2	C	17.6	B	24.5	C	18.0	B	25.1	C
2	EB Ocean Blvd.	Pier S Avenue	Terminal Island Freeway	*	*	16.5	B	21.0	C	17.3	B	19.2	C	17.8	B	19.7	C	16.5	B	20.6	C	22.3	C	22.6	C	22.8	C	23.1	C
	WB Ocean Blvd.	Terminal Island Freeway	Pier S Avenue	*	*	14.6	B	18.0	B	17.7	B	19.7	C	18.2	C	20.2	C	13.8	B	16.3	B	20.9	C	18.2	C	21.4	C	18.6	C
3	EB Ocean Blvd.	Terminal Island Freeway	Horseshoe Ramps	*	*	16.7	B	21.0	C	12.7	B	15.2	B	13.0	B	15.6	B	16.7	B	20.0	C	17.2	B	19.0	C	17.6	B	19.5	C
	WB Ocean Blvd.	Horseshoe Ramps	Terminal Island Freeway	*	*	12.8	B	47.0	F	127.7	F	47.6	F	130.9	F	48.8	F	12.3	B	13.0	B	151.3	F	14.3	B	155.1	F	14.6	B
4	EB Gerald Desmond Bridge	Upgrade	Crest	18.8	C	28.2	D	28.0	D	19.3	C	21.9	C	19.7	C	22.4	C	26.5	D	26.3	D	27.8	D	27.5	D	28.5	D	28.2	D
	EB Gerald Desmond Bridge	Crest	Downgrade	23.1	C	30.1	D	22.0	C	22.2	C	17.2	B	22.8	C	17.6	B	28.8	D	20.7	C	27.8	D	20.7	C	28.5	D	21.2	C
5	WB Gerald Desmond Bridge	Upgrade	Crest	19.4	C	52.0	F	21.0	C	70.8	F	24.5	C	72.6	F	25.1	C	58.3	F	20.9	C	88.0	F	24.9	C	90.2	F	25.6	C
	WB Gerald Desmond Bridge	Crest	Downgrade	19.0	C	25.4	C	19.0	C	29.6	D	21.4	C	30.4	D	21.9	C	25.4	C	18.5	C	89.5	F	21.3	C	91.8	F	21.8	C
6	NB Connector	EB Ocean Blvd.	NB I-710	16.0	B	18.0	B	13.0	B	11.8	B	8.8	A	12.0	B	9.0	A	18.0	B	13.0	B	14.8	B	11.8	B	15.2	B	12.1	B
	SB Connector	SB I-710	WB Ocean Blvd.	10.7	A	26.2	D	17.0	B	31.1	D	20.0	C	31.9	D	20.5	C	25.7	C	16.8	B	46.5	F	20.0	C	47.6	F	20.5	C
7	I-710 NB	NB Connector	NB I-710 Mainline	17.4	B	18.1	C	13.0	B	11.3	B	9.0	A	11.6	B	9.2	A	18.3	C	13.8	B	14.3	B	12.0	B	14.6	B	12.3	B
	I-710 SB	SB I-710 Mainline	SB Connector	6.5	A	14.7	B	16.0	B	16.9	B	20.0	C	17.3	B	20.5	C	14.5	B	16.7	B	23.3	C	20.0	C	23.9	C	20.5	C
8	EB Ocean Blvd.	NB Connector	Downtown	1.8	A	3.3	A	9.0	A	4.3	A	7.3	A	4.4	A	7.5	A	3.1	A	8.7	A	4.7	A	8.1	A	4.8	A	8.3	A
	WB Ocean Blvd.	Downtown	SB Connector	6.6	A	5.0	A	12.0	B	4.4	A	12.2	B	4.5	A	12.5	B	5.0	A	11.6	B	4.4	A	12.1	B	4.5	A	12.4	B

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**Table 2.1.5-19**  
**CORSIM Highway Link Analysis Comparison Summary**  
**Years 2015, 2030, and 2035**

PM Peak Hour		Without Eastbound Ocean Boulevard to Northbound SR 47 Flyover Ramp														With Eastbound Ocean Boulevard to Northbound SR 47 Flyover Ramp													
Segment	From	To	Existing 2005		Year 2015				Year 2030				Year 2035				Year 2015		Year 2030				Year 2035						
			Density	LOS	No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		Density	LOS	No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives		No Action/ Rehabilitation Alternatives		Bridge Replace Alternatives				
					Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS			Density	LOS	Density	LOS	Density	LOS	Density	LOS			
1	EB Ocean Blvd.	Navy Way	Pier S Avenue	*	*	24.4	C	24.8	C	178.0	F	156.0	F	182.4	F	159.9	F	15.5	B	16.9	B	21.2	C	22.8	C	21.7	C	23.4	C
	WB Ocean Blvd.	Pier S Avenue	Navy Way	*	*	20.3	C	24.0	C	26.0	D	29.0	D	26.7	D	29.8	D	20.6	C	24.5	C	26.4	D	29.2	D	27.1	D	29.9	D
2	EB Ocean Blvd.	Pier S Avenue	Terminal Island Freeway	*	*	20.0	C	24.3	C	21.3	C	29.4	D	21.9	C	30.1	D	19.3	C	23.1	C	28.2	D	28.0	D	28.9	D	28.7	D
	WB Ocean Blvd.	Terminal Island Freeway	Pier S Avenue	*	*	22.9	C	24.8	C	23.4	C	28.2	D	24.0	C	28.9	D	23.1	C	24.7	C	23.8	C	28.2	D	24.4	C	28.9	D
3	EB Ocean Blvd.	Terminal Island Freeway	Horseshoe Ramps	*	*	20.4	C	24.6	C	16.4	B	25.2	C	16.8	B	25.9	C	19.8	C	23.3	C	24.8	C	29.5	D	25.5	C	30.2	D
	WB Ocean Blvd.	Horseshoe Ramps	Terminal Island Freeway	*	*	18.6	C	17.9	B	20.9	C	20.4	C	21.5	C	20.9	C	18.8	C	18.0	B	20.8	C	20.7	C	21.3	C	21.2	C
4	EB Gerald Desmond Bridge	Upgrade	Crest	20.2	C	26.7	D	29.2	D	20.7	C	28.8	D	21.2	C	29.5	D	24.1	C	28.2	D	35.2	E	35.0	D	36.1	E	35.8	E
	EB Gerald Desmond Bridge	Crest	Downgrade	25.7	C	32.9	D	24.7	C	26.1	D	24.3	C	26.8	D	24.9	C	30.4	D	23.2	C	39.4	E	28.1	D	40.4	E	28.8	D
5	WB Gerald Desmond Bridge	Upgrade	Crest	18.9	C	56.3	F	22.0	C	109.1	F	25.5	C	111.8	F	26.1	D	44.5	E	22.0	C	101.5	F	26.1	D	104.0	F	26.8	D
	WB Gerald Desmond Bridge	Crest	Downgrade	19.5	C	28.9	D	20.2	C	32.6	D	23.2	C	33.5	D	23.7	C	28.8	D	20.3	C	31.9	D	23.2	C	32.7	D	23.7	C
6	NB Connector	EB Ocean Blvd.	NB I-710	13.2	B	16.7	B	14.1	B	10.2	A	9.5	A	10.4	A	9.7	A	16.1	B	13.8	B	14.0	B	11.9	B	14.3	B	12.2	B
	SB Connector	SB I-710	WB Ocean Blvd.	14.4	B	20.4	C	14.3	B	23.4	C	16.0	B	24.0	C	16.3	B	20.4	C	14.3	B	23.4	C	16.1	B	24.0	C	16.5	B
7	I-710 NB	NB Connector	NB I-710 Mainline	13.8	B	16.2	B	13.7	B	9.5	A	9.1	A	9.7	A	9.3	A	15.8	B	13.4	B	12.9	B	11.6	B	13.2	B	11.9	B
	I-710 SB	SB I-710 Mainline	SB Connector	8.3	A	10.6	A	13.7	B	11.8	B	15.6	B	12.1	B	16.0	B	10.6	A	13.7	B	11.8	B	15.7	B	12.1	B	16.1	B
8	EB Ocean Blvd.	NB Connector	Downtown	8.5	A	7.3	A	13.6	B	8.8	A	16.0	B	9.0	A	16.4	B	6.6	A	12.4	B	11.6	B	17.7	B	11.9	B	18.1	C
	WB Ocean Blvd.	Downtown	SB Connector	6.9	A	8.6	A	20.8	C	7.9	A	19.4	C	8.1	A	19.9	C	8.6	A	20.8	C	7.9	A	19.3	C	8.1	A	19.8	C

Notes:

Analysis is for multi-lane highway sections that were not grade-separated highway sections in 2005 are not presented in this analysis comparison.

\* Level Of Service (LOS) criteria for traffic operations on multi-lane highways are based on density (pc/mi/ln) and free-flow speed. For a free-flow speed of 45 mph, the density ranges for different LOS types: LOS A, 0 – 11; LOS B, >11 – 18; LOS C, >18 – 26; LOS D, >26 – 35; LOS E, >35 – 45; LOS F, >45.

Source: Itegis, Inc.; 2009.

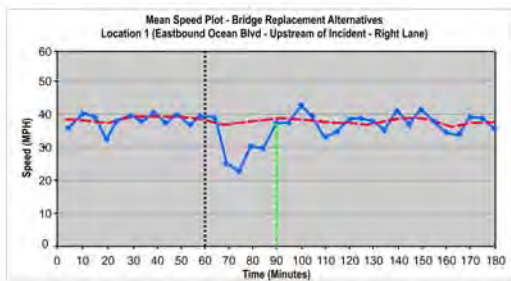
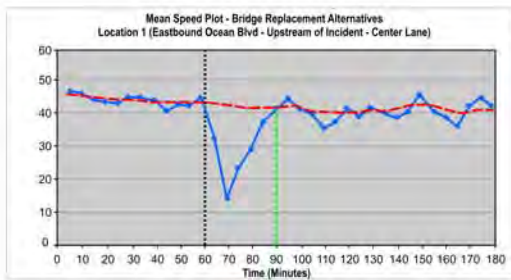
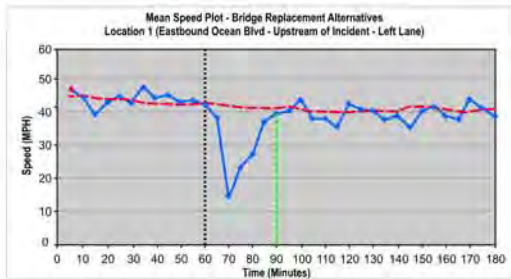
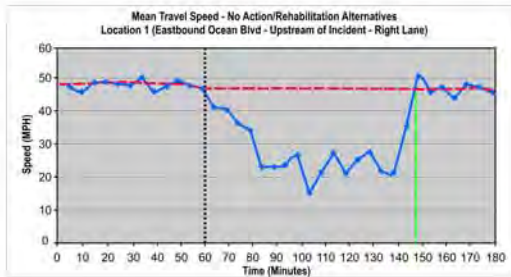
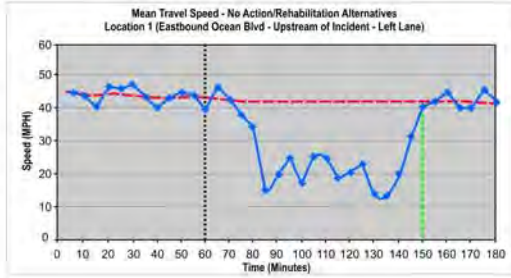
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<b>Table 2.1.5-20 Year 2015, 2030, and 2035 Forecast Peak-Hour LOS at Ramp Junctions</b>						
<b>Ramp Location</b>	<b>AM Peak</b>		<b>MD Peak</b>		<b>PM Peak</b>	
	<b>Density (pc/mi/ln)</b>	<b>LOS<sup>1</sup></b>	<b>Density (pc/mi/ln)</b>	<b>LOS<sup>1</sup></b>	<b>Density (pc/mi/ln)</b>	<b>LOS<sup>1</sup></b>
<b>Year 2015 No Action/Rehabilitation Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	16.8	B	16.0	B	17.7	B
Horseshoe Off-Ramp to Pier T Avenue	24.9	C	23.3	C	24.5	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	16.9	B	17.8	B	20.2	C
Ocean Boulevard to SR 710/Downtown Diverge	14.2	B	15.6	B	20.0	B
Ocean Boulevard to Pico Avenue Off-Ramp	6.9	A	5.6	A	13.7	B
<b>Year 2015 Bridge Replacement Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	17.0	B	14.4	B	16.4	B
Horseshoe Off-Ramp to Pier T Avenue	21.5	C	20.3	C	20.4	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	18.9	B	19.8	B	22.9	C
Ocean Boulevard to SR 710/Downtown Diverge	22.5	C	24.6	C	25.8	C
Ocean Boulevard to Pico Avenue Off-Ramp	17.6	B	20.3	C	18.0	B
<b>Year 2030 No Action/Rehabilitation Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	17.9	B	17.0	B	18.6	B
Horseshoe Off-Ramp to Pier T Avenue	26.8	C	25.0	C	26.2	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	17.4	B	18.2	B	21.3	C
Ocean Boulevard to SR 710/Downtown Diverge	15.0	B	16.2	B	21.9	C
Ocean Boulevard to Pico Avenue Off-Ramp	6.9	A	6.6	A	13.8	B
<b>Year 2030 Bridge Replacement Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	18.8	B	16.7	B	19.6	B
Horseshoe Off-Ramp to Pier T Avenue	23.1	C	22.0	C	22.5	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	20.1	C	21.5	C	24.7	C
Ocean Boulevard to SR 710/Downtown Diverge	24.0	C	27.6	C	28.6	D
Ocean Boulevard to Pico Avenue Off-Ramp	18.9	B	23.5	C	20.3	C
<b>Year 2035 No Action/Rehabilitation Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	18.3	B	17.4	B	19.1	B
Horseshoe Off-Ramp to Pier T Avenue	27.5	C	25.6	C	26.9	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	17.8	B	18.7	B	21.8	C
Ocean Boulevard to SR 710/Downtown Diverge	15.4	B	16.6	B	22.4	C
Ocean Boulevard to Pico Avenue Off-Ramp	7.1	A	6.8	A	14.1	B
<b>Year 2035 Bridge Replacement Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	19.3	B	17.1	B	20.1	C
Horseshoe Off-Ramp to Pier T Avenue	23.7	C	22.6	C	23.1	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	20.6	C	22.0	C	25.3	C
Ocean Boulevard to SR 710/Downtown Diverge	24.6	C	28.3	D	29.3	D
Ocean Boulevard to Pico Avenue Off-Ramp	19.4	B	24.1	C	20.8	C

EB – eastbound; LOS – level of service; pc/mi/ln – passenger cars per mile per lane; WB – westbound  
<sup>1</sup> LOS criteria for ramp junction areas are in density (pc/mi/ln). Density ranges for different LOS types: LOS A, 0 – 10; LOS B, 10.1 – 20; LOS C, 20.1 – 28; LOS D, 28.1 – 35; LOS E, 35.1 – 43; LOS F, > 43.

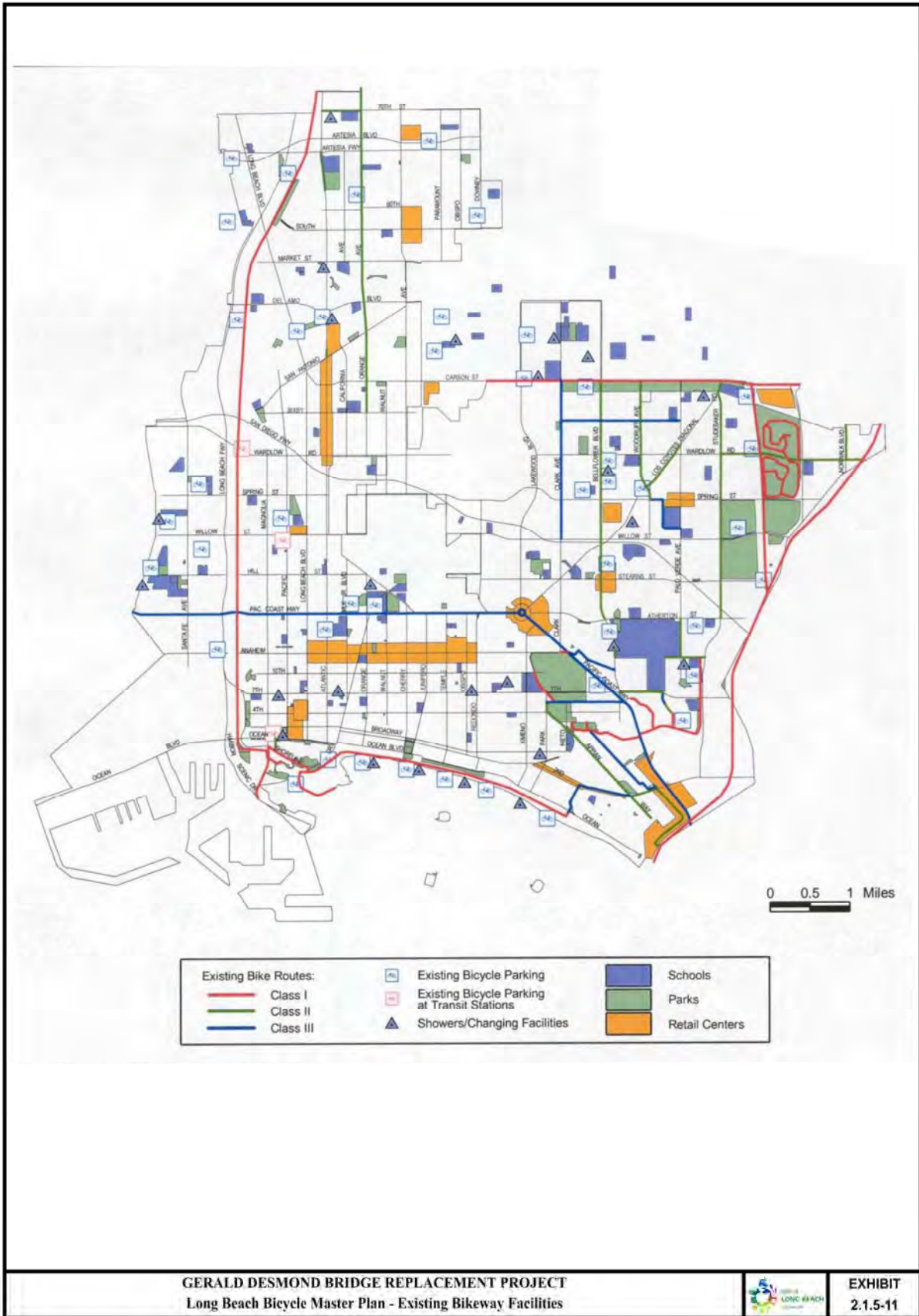
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**LEGEND**

- ..... Beginning of Incident in Right Lane
- Resume Pre-Incident Mean Speed (Approx.)
- Mean Lane Speed (miles per hour) without Incident
- Mean Lane Speed (miles per hour) with Incident

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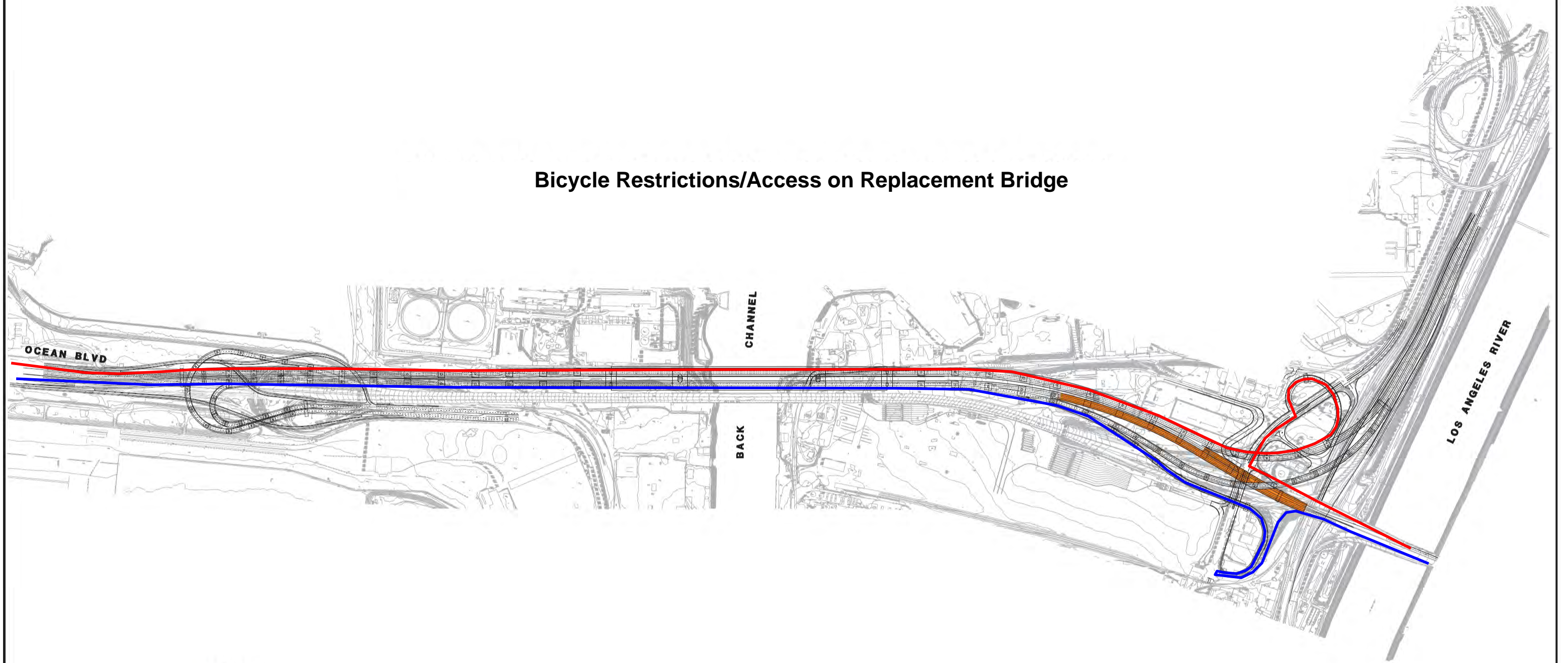
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## Bicycle Restrictions/Access on Replacement Bridge



**Legend**

- Bicycles Prohibited
- East Bound Access
- West Bound Access



1:4000

**EXHIBIT 2.1.5-13**

DRAWN	DWP	DATE	03/28/08	ASS'T CHIEF HARBOR ENGR. P.E. NO. C-25600	DATE
DESIGNED		P.E. NO.			
PROJ. MGR.		P.E. NO.			
SECT. HEAD		P.E. NO.	C	CHIEF HARBOR ENGINEER	P.E. NO. C-43060
DATE				DATE	



**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
 North-Side Bridge Replacement Alternative Alignment

SCALE	SHEET	OF
SPECIFICATION NUMBER		
DRAWING NUMBER		

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### Designated Bicycle Routes

Though there is no designated bike route planned for the proposed new bridge, the California Vehicle Code (CVC) stipulates that nonmotorized vehicles (i.e., bicycles) be allowed to travel along roadways unless specifically prohibited by Caltrans or local authorities. Bicyclists would be prohibited from using the two ramps connecting Ocean Boulevard to downtown Long Beach for safety reasons, because they would be required to traverse the high-speed mainline SR 710 through lanes connected to the proposed bridge. Locations where bicyclists would be prohibited with the North-side Alignment Alternative are shown in Exhibit 2.1.5-13. Bicycle access would also be prohibited at the same ramp locations under the South-side Alignment Alternative. Under the Bridge Replacement Alternatives, bicyclists could use the Pico Avenue on- and off-ramps to Ocean Boulevard to travel to and from downtown Long Beach across the new bridge (see Exhibit 2.1.5-13).

The agency bicycle master plans previously discussed provide bicycle facilities on other roadways that avoid the heavy industrial traffic area of the Ports.

There are no existing or planned bike routes on Ocean Boulevard between downtown Long Beach and San Pedro.

### Pedestrian Walkways

Additional considerations relative to pedestrian issues are as follows:

- The proposed new bridge with the Bridge Replacement Alternatives would become an extension of the SR 710 freeway, and pedestrian movements are typically not accommodated on freeway facilities. CVC 21960 allows Caltrans the discretion to prohibit or restrict the use of freeways to pedestrians, bicycles, and/or other nonmotorized traffic<sup>5</sup>.

<sup>5</sup> CVC 21960(a): Caltrans and local authorities, by order, ordinance, or resolution, with respect to freeways, expressways, or designated portions thereof under their respective jurisdictions, to which vehicle access is completely or partially controlled, may prohibit or restrict the use of the freeways, expressways, or any portion thereof by pedestrians, bicycles, or other nonmotorized traffic or by any person operating a motor-driven cycle, motorized bicycle, or motorized scooter. A prohibition or restriction pertaining to bicycles, motor-driven cycles, or motorized scooters shall be deemed to include motorized bicycles; and no person may operate a motorized bicycle wherever that prohibition or restriction is in force. (Amended Sec. 6, Ch. 722, Stats. 1999. Effective January 1, 2000).

- Terminal Island is an industrial area and not a major pedestrian destination.
- There are no pedestrian facilities along Ocean Boulevard/Seaside Avenue on Terminal Island west of the Gerald Desmond Bridge. Pedestrian facilities have not been provided in recently completed projects along Ocean Boulevard between the Vincent Thomas Bridge and the Gerald Desmond Bridge.

### Effects to Bicycle and Pedestrian Access from the Long-Term Operation of the Bridge Replacement Alternatives

With the Bridge Replacement Alternatives, there would be no adverse effects associated with the removal of pedestrian sidewalks or the change in bicycle access across the new bridge. Effects on pedestrians would be minimal because Terminal Island is an industrial area with no public recreational facilities and is not a pedestrian destination. Effects on cyclists would also be minimal because access is only modified, not eliminated, and a designated bike route is located on Anaheim Street parallel to Ocean Boulevard north of the Ports. In addition, Terminal Island is an industrial area with no other supporting bicycle infrastructure west of the bridge, and there are no planned or designated bike routes along Ocean Boulevard between downtown Long Beach and San Pedro. Future nonmotorized demand is anticipated to be low.

### **2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures**

#### **Temporary Measures**

##### North- and Southside Alignment Alternatives

All of the temporary mitigation measures to be implemented during construction of either of the Bridge Replacement Alternatives will be implemented in conjunction with a TMP to minimize traffic impacts during construction. The TMP will be submitted to and approved by the Port and Caltrans. The TMP, at a minimum, should include detour routes, flagmen, traffic controls, signing, traffic lane closure scheduling to minimize impacts, public notification, and coordination with emergency service providers. The TMP shall be implemented after approval.

- TC-1** Prior to the start of construction Stage 2, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stage 2:

- Add dual NB right-turn lanes;
- Restripe EB through/right lane to a right-turn lane;
- Provide one (1) EB through lane; and
- Continue two (2) SR 710 SB off-ramp lanes to Pico Avenue.
- Continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue.

**TC-2** Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4:

- Remove NB-SB split-signal phasing;
- Restripe NB through lane to a NB left-turn lane;
- Widen SB approach and provide two (2) left-turn lanes and one (1) through lane; and
- Continue two (2) on-ramp lanes to NB SR 710.

**TC-3** Prior to the start of construction Stage 2, a traffic signal will be installed at the intersection of Pico Avenue and Pier D Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative.

**TC-4** Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue and Pier E Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4:

- Permanently signalize the intersection (the signal will not be removed after completion of construction of a Bridge Replacement Alternative);
- Restripe NB through lane to a NB right-turn lane, providing a single NB through lane;
- Add dual free-flow WB right-turn lanes; and

The *Middle Harbor Redevelopment Project Draft Environmental Impact Statement (DEIS)/Draft Environmental Impact Report (DEIR) and Application Summary Report (ASR)* prepared for the Port and USACE includes signalization of the Pico Avenue/Pier D Street and Pico Avenue/Pier E Street intersections. If these signals are implemented as part of that project prior to the start of construction Stage 2 for the Pico Avenue/Pier D Street intersection and construction Stage 3 for the Pico Avenue/Pier E Street intersection, then that would remove the need for the signalization component of the proposed mitigations under TC-3 and TC-4, respectively.

### **Permanent Measures**

#### North- and Southside Alignment Alternatives

**TC-5** During the design phase of a Bridge Replacement Alternative, the Port shall add a third NB left-turn lane to mitigate the project effect at the Navy Way/Seaside Avenue intersection.

POLA is currently considering two potential projects at the Navy Way/Seaside Avenue intersection. One project would provide grade separation of left turns and the other would implement a centerline barrier on Seaside Avenue that would eliminate left turns. Either project would remove the signal at the intersection, thereby eliminating the adverse effect of the proposed Bridge Replacement Alternatives at the intersection. If either of these projects or any other comparable project is implemented prior to construction of the Bridge Replacement Alternatives, then the adverse effect of the Bridge Replacement Alternatives at the intersection would be removed and the proposed mitigation measure would not be required.

**TC-6** The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection.

Restriping and signalization improvements have been identified as one way to mitigate the adverse effect at this intersection. The Port will coordinate with the City of Long Beach on implementation of improvements at this intersection.



## **2.1.6 Maritime Navigation**

### **2.1.6.1 Regulatory Setting**

CEQA Guidelines, Appendix G, Item XV, Transportation/Circulation requires the Port to consider the potential of a project to substantially increase hazards due to a design feature or incompatible use. For certain Port projects, the environmental evaluation should consider the potential for design, construction, and/or operational features to introduce or substantially increase hazards to navigation. The vessel transportation section of the EIR (or joint CEQA/NEPA document) identifies routes and rules pertaining to navigation, estimates existing vessel transportation volumes, presents vessel accident data for a period of at least 5 years, and evaluates the project impact in light of this information and the evaluation criteria provided in Section 2.1.6.3 (Environmental Consequences, Evaluation Criteria).

### **2.1.6.2 Affected Environment**

Several types of commercial vessels call at the POLB. The vessels follow vessel traffic lanes established by the United States Coast Guard (USCG). The Marine Exchange of Southern California and USCG are responsible for vessel traffic safety in the approach areas to the Port. Vessels enter the Long Beach Harbor through Queens Gate. In 2005, 829 berth calls were made at the POLB through the Cerritos Channel. Of these calls, 529 (63 percent) were container ships (POLB, 2008a). Once inside the harbor, some vessels use anchorages for a short time. The Port has six anchorage areas where vessels can bunker (refuel), wait for a dock, or wait for orders or minor repairs (USACE/LAHD, 1992). Container vessels will usually bunker at dockside while their cargo is being loaded or unloaded, rather than at anchorages, to minimize time in the Port.

Water depths throughout the Port range from 76 ft (23 m) in the Main Channel to 52 ft (15.8 m) in the Inner Harbor and 55 ft (17 m) in parts of the Middle Harbor. The 700-ft-wide (213-m-wide) Main Channel has a depth of 76 ft (23 m). Anchorage areas in the Outer Harbor on both sides of the Main Channel have depths of 36 ft (11 m) to 70 ft (21 m) (POLB, 2001). The navigable Back Channel is 300 ft (91 m) wide and approximately 60 ft (18 m) in depth from the MLLW. The depth of the Back Channel poses navigational obstacles for the new models of container ships passing under the bridge due to their larger dimensions. These areas of the Port are primarily used or are being developed for containerized cargo.

Existing and future operations within the Back Channel and Inner Harbor areas of the Port are most

affected by the existing vertical vessel clearance of the Gerald Desmond Bridge. The span's maximum height above water, vertical vessel clearance, or air draft, is 156 ft (47.5 m) at mean high water (MHW). The Port's pilots can navigate under the bridge with a minimum 3-ft (1-m) overhead clearance for their vessels. Accordingly, this limits ships to an air draft of approximately 153 ft (46.6 m) (POLB, 2005a).

In addition to the constraints of the bridge and channel, SCE's high-voltage transmission lines that cross the Cerritos Channel from the LBGS currently limit the air draft of vessels transiting to Piers A and S (under development). The vertical clearance afforded by the transmission lines is currently 3 ft (1-m) less than the existing Gerald Desmond Bridge clearance of 156 ft (47.5 m). The North- and South-side Alignment Alternatives would provide a 200-ft (61-m) air draft to safely accommodate the larger container vessels currently in service and planned for the future; however, because the SCE transmission lines would still restrict maritime access to the Inner Harbor, coordination with SCE to relocate the lines as part of the navigational improvements is necessary. The Port is committed to working with SCE to provide the needed additional vertical clearance consistent with the planned bridge replacement. An analysis was undertaken to determine the most feasible solutions for addressing the transmission lines and towers. Different transmission line options were analyzed for their relocation (see Section 2.1.4 [Utilities and Service Systems] for a summary of the analysis).

The Port's Back Channel currently accommodates container ships transporting up to 8,000 TEUs. The *MSC Texas* was the first ship of that size to call on the Back Channel in September 2004. Calls on the Back Channel by 8,000-TEU ships increased from 11 in 2005 to 59 in 2008 (POLB, 2005b and 2009). It is assumed that an average of one 8,000-TEU ship per week calls on the Back Channel. These container vessels have air drafts ranging from 130 ft to 165 ft (40 m to 50 m) depending on their design and configuration.

Looking to the future, the next generation of vessels is called Ultra Large Container Vessels (ULCS). The air draft for this generation is not likely to increase substantially due to limitations in stacks of containers (i.e., 10 containers maximum at present) and major bridge clearances around the world; however, a potential 12,500-TEU ULCS of the future (based on current proposals) could have an air draft of approximately 180 ft (55 m). Industry experts believe that the first order for a 12,500-TEU ULCS will occur within the next 10 years, assuming that world trade continues to expand. Larger vessels of 18,000-TEU ULCS are being discussed, but these involve

substantial technical and operational problems, so the timeframe for that potential generation of vessels cannot be predicted (FORCE Technology-DMI, 2002).

### **2.1.6.3 Environmental Consequences**

#### **Evaluation Criteria**

An adverse effect on marine vessel transportation would occur if a change in vessel traffic related to construction and/or operations results in congestion within the harbor and/or the capacity for maritime commerce to operate efficiently and safely is exceeded.

#### **No Action Alternative**

The No Action Alternative would not replace the existing Gerald Desmond Bridge. A review of the specifications for some of the larger container vessels currently in the world fleet reveals that ships in the 8,000 to 9,999 TEU range are approaching the limits of what constitutes safe passage under the Gerald Desmond Bridge. Based on published specifications, most of these vessels can physically pass under the bridge if fully loaded, but they are within the 3-ft (1-m) clearance area. Unloaded or partially loaded vessels (in the 8,000 to 9,999 TEU range) are able to pass by taking on more ballast water to lower the ship. It can be concluded that some vessels in this size range can access Pier A and future Pier S; however it is assumed that vessels greater than 10,000 TEUs cannot serve these terminals (POLB, 2007).

#### **North-side Alignment Alternative**

This alternative would replace the existing vertically restricted (156-ft [47.5-m] air draft) Gerald Desmond Bridge with a 200-ft (61-m) air draft bridge. Not taking into consideration channel depth, the additional air draft provided by the new bridge would provide safer passage for the largest container vessels calling on the Port, which are currently the new "seventh generation" (8,800 to 9,200 TEUs), and the future "eighth generation" vessels that are expected to have a capacity of approximately 10,000 to 12,000 TEUs. One "seventh generation" ship currently calls at Pier A, notwithstanding a calculated air draft of 154.2 ft (47 m). As a result, it is assumed that some vessels in this size range can access Piers A and S (when developed), and that vessels greater 10,000 TEUs cannot serve these terminals. While the increase in air draft provided by the new bridge would make it safer for larger ships to pass, ships accommodating larger container capacity are still constrained by the depth of the channel (POLB, 2007).

Construction of the North-side Alignment Alternative could temporarily affect operations at adjacent facilities. The North-side Alignment would require ROW and

relocation of the main office building at Connolly Pacific, demolition of the Port Maintenance Yard facilities to accommodate construction access and the new bridge footings, easements during demolition of the existing bridge from the California United Terminals and Weyerhaeuser Company, and temporary relocation of Fire Boat Station #20 during construction (see Sections 2.1.1 [Land Use, Recreation, and Coastal Zone] and 2.1.3.2 [Relocations] for further detail regarding affected land use and facilities). Landside effects on these facilities would have no effect on ship access to Port facilities or piers.

Construction of the North-side Alignment Alternative would not affect the Port's capacity for maritime commerce; rather, it would allow the Inner Harbor terminals to operate safer and more efficiently. Construction of this alternative would be planned to avoid closure of the channel during construction.

#### **South-side Alignment Alternative**

The South-side Alignment Alternative would result in the same benefits to maritime safety described under the North-side Alignment Alternative. In addition, the South-side Alignment Alternative would also temporarily affect operations at Piers T, D, and E during construction. The South-side Alignment Alternative would require ROW from Pier T and would also require reconfiguration of terminal land-based operations on these piers (see Sections 2.1.1 [Land Use, Recreation, and Coastal Zone] and 2.1.3.2 [Relocations] for further detail regarding affected land use and facilities). Landside effects on these facilities would have no effect on ship access to Port facilities or piers. Construction of the South-side Alignment Alternative would not affect the Port's capacity for maritime commerce; rather, it would allow the Inner Harbor terminals to operate safer and more efficiently. Construction of this alternative would be planned to avoid closure of the channel during construction.

#### **Rehabilitation Alternative**

Construction required under the Rehabilitation Alternative would take place within the footprint of the existing bridge and the paved approach roadways. Construction of this alternative would be planned to avoid closure of the channel during construction. Once construction is completed, effects of the Rehabilitation Alternative on maritime safety and commerce would be the same as the No Action Alternative.

### **2.1.6.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

## 2.1.7 Visual and Aesthetics

This section summarizes the results of the Visual Impact Assessment completed in February 2006 and revised in September 2008 to incorporate the Rehabilitation Alternative. The Visual and Aesthetics Analysis evaluated the potential effects to visual resources resulting from the construction and operation of the proposed project.

### 2.1.7.1 Regulatory Setting

**NEPA:** NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. To further emphasize this point, FHWA in its implementation of NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental effects, including among others, the destruction or disruption of aesthetic values.

**CEQA:** 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 PRC Section 21001(b)].

**California Coastal Act of 1976:** Consistent with the California Coastal Act of 1976, the Port has a CCC-certified PMP that addresses environmental, recreational, and other concerns of the Port and surrounding regions (PMP discussion below).

**State of California Scenic Highways Program:** California's Scenic Highways Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways (Streets and Highways Code, Section 260 *et seq.*). A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

A scenic corridor is the land generally adjacent to and visible from the roadway. A scenic corridor is identified using a motorist's cone of vision. A reasonable boundary is selected when the view extends to the distant horizon.

The nearest official state-designated scenic highway is located approximately 31 mi (49 km) northeast of the Port, at SR 91 east of SR 55 in

Anaheim. SR 1, also known as PCH, is classified as "eligible" for state scenic designation and is approximately 5.4 mi (8.7 km) east of the Port. Because it is not officially designated, it does not warrant any special attention.

**City of Long Beach:** The City of Long Beach Municipal Code (21.42.032) specifies that "the landscape requirements for Industrial Zoned (IP) properties shall be those established in the Master Landscape Plan for the Port. The Port Planning Bureau shall review and approve all landscape plans for projects located in the IP zone." All property in the study area is zoned IP.

**General Plan:** The project study area land uses are designated by the City of Long Beach General Plan (LBGP). The Long Beach Harbor area falls within Land Use District Number 12. This District includes existing freeways, the Port, and the Long Beach Airport. The LBGP indicates that the water and land use designations within the harbor area are separately formulated and adopted in the PMP, as amended. The LBGP indicates that the responsibilities for planning within legal boundaries of the harbor lie with the Board of Harbor Commissioners.

**PMP:** The PMP Public Access, Visual Quality, and Recreational/Tourist Element "concentrates on Queensway Bay," which is a buffer between the highly industrialized inner port complex and the waterfront recreation activities of the Port and City of Long Beach. The visual resources goals noted in this element include:

- Provide landscaping between recreational facilities and port industries
- Minimize disruptive views
- Improve appearance of Harbor lands at and along major vehicular approaches

According to the PMP, the most sensitive views within the PMP planning area include:

- Predominant structures visible to the east from downtown Long Beach and along ocean bluffs;
- Ground-level views along the boundary of Queensway Bay; and
- Ground-level views along Harbor Scenic Drive from the SB lanes south of Anaheim Street.

The Board of Harbor Commissioners pays particular attention to color, form, texture, and scale during the review of proposed projects.

### **2.1.7.2 Affected Environment – Project Study Area**

#### **Local Project Visual Setting**

The Gerald Desmond Bridge was constructed in 1966 and was seismically upgraded in 1995. The existing bridge consists of a tied-arch truss structure with a 409.5-ft (124.8-m) suspended span (Parsons-HNTB, 2002b). The trusses form vertical sides to the bridge, connected to one another by transverse beams, and by stringers and other members that support the deck. The main span is a through truss design, where there are struts and top lateral bracing above the sides of the two trusses. One drives “through” the trusses; hence, it is called a through truss bridge type (Caltrans, 1990). The existing vertical clearance of the main span is 156 ft (47.5 m) above MHWL (i.e., 4.6 ft [1.4 m]).

The proposed project site consists mostly of port and industrial development and is located in a predominantly flat area at the Port. The eastern portion of the Gerald Desmond Bridge crosses Pier D, the main span of the bridge crosses the Back Channel, and the western portion of the bridge bisects Piers S and T. Various Port operations (e.g., container terminal operations, lumber and oil storage, metal recycling) on Piers D, E, and T are located south of the existing bridge. The port and industrial property is developed with light blue metal shed buildings, gray cranes and oil storage tanks, and burgundy cargo containers that tend to dominate the skylines. Other less-predominant features include landscaping and trees that are sparsely planted throughout the Port. The Gerald Desmond Bridge approach structure and the main-span metal truss are painted a dull, light blue color.

The cranes, shipping containers, and large metal storage sheds tend to dominate the Port’s skyline, and they are generally between 50 ft and 100 ft (15 m and 30 m) high. They tend to tower above their surrounding environment and overshadow open space and other smaller features (e.g., port vehicles and smaller building structures). Immediately north of the Gerald Desmond Bridge on the WB approach are the LBGS (NRG Energy, Inc.), the SCE high-voltage transmission lines that cross the Cerritos Channel, and the Pacific Pipeline System, LLC, tank farm.

The LBGS site consists of a rectangular-shaped building with four large circular smoke stacks above the building that stand approximately 150 ft (45 m) high and transmission towers that cross the Cerritos Channel. This power plant, along with

the transmission towers, was formerly operated by SCE, and they were determined to be eligible for listing in the NRHP (see Section 2.1.8 [Cultural Resources]). The transmission towers emanating from the old power plant are approximately 200 ft (61 m) high, and the vertical clearance afforded by the transmission lines is currently 153 ft (46.6 m) above the channel, which is 3 ft (1-m) less than the existing Gerald Desmond Bridge clearance of 156 ft (47.5 m). The Pacific Pipeline System, LLC, property is located to the west of the LBGS, and it has two large oil storage tanks adjacent to the Gerald Desmond Bridge that are approximately 40 ft (12 m) high. There are four smaller oil storage tanks that are behind these large ones; however, they are not visible from the bridge because the two large oil storage tanks tower over the smaller ones.

In summary, the large-scale industrial development that surrounds the proposed project is typical of development within the Port. The project site is mostly paved and barren, as there is no vegetation located on or around the bridge approach structure and main-span areas.

#### **Regional Project Visual Setting**

The proposed project is located in a heavily urbanized portion of southern California. The immediate vicinity of the project is characterized by Port-related industrial uses. The topography of the study area is flat and has been extensively modified through port and roadway development over the last 80 years. Nearly all of the vegetation are exotic species that have been purposely introduced (i.e., landscaping) or inadvertently introduced (i.e., weedy species).

The Ocean Boulevard roadway corridor, which would contain the proposed replacement bridge, interchange, and roadway improvements, consists of open space and urban landscape units. The Gerald Desmond Bridge spans the Back Channel connecting the Port’s Inner Harbor and Middle Harbor. At the east end of the roadway corridor, Ocean Boulevard crosses the Los Angeles River into downtown Long Beach and connects to SR 710 to the north. The west end of the corridor connects to the Terminal Island Freeway (SR 47 and SR 103) to the north. The corridor continues west as SR 47 through the POLA and crosses the Vincent Thomas Bridge to connect to the Harbor Freeway (I-110) in San Pedro. The Outer Harbor and the Pacific Ocean are located to the south.

The port and industrial development that makes up most of the study area is characterized by the large open areas of the port container handling

and bulk handling infrastructure. Larger structures near the corridor are the Tidelands Oil Production Company warehouse (1370 W. Broadway) and the LBGS power plant building north of Ocean Boulevard along the west approach to the Gerald Desmond Bridge. A large area at the western end of the corridor is vacant or partially vacant, and undergoing redevelopment as the Pier S container terminal.

Distant views are provided from the existing Gerald Desmond Bridge and approach roadways. In the WB direction, the Palos Verdes Hills provide a backdrop to POLA, San Pedro, and the Vincent Thomas suspension bridge. The dominant visual elements in the EB direction are the buildings of downtown Long Beach and a backdrop of nearer hills, such as the Puente Hills.

### **Viewershed and Viewer Sensitivity**

The study area for the proposed project visual impact analysis is called the viewershed. The viewershed is all of the areas where physical changes associated with the proposed alternatives can be seen, and it is influenced by the existing topography, vegetation, and structures. Several viewershed areas have been evaluated for the quality of view and number of affected viewers.

The sensitivity of different types of viewers varies depending upon their activity, their awareness of the surrounding environment, and their familiarity with the environment. From most to least sensitive, viewer types are residents, passive recreation, business owners, active recreation, workers, shoppers/business, regular motorists, and occasional motorists. The following describes the comparative sensitivity of the various types of viewers in decreasing order of sensitivity.

#### Residents

The nearest notable residential area with a view towards the project is north of PCH (SR 1) and west of Santa Fe Avenue. It is 2 or more miles (3 or more kilometers) away from the Gerald Desmond Bridge. Due to the flat topography and the north-south and east-west street grid, other Long Beach residential areas do not have views of the project area. Residential areas on east-facing hillsides of San Pedro and the communities of Palos Verdes Hills have distant (i.e., 4 mi [6.4 km] and more) views towards the Gerald Desmond Bridge.

#### Passive Recreation

The lower Los Angeles River has park and trail areas in the project vicinity. Transportation

corridors and port/industrial facilities block views from the west side of the river toward the project. The Gerald Desmond Bridge, approach roads, and roadway structures at the SR 710/Ocean Boulevard interchange are visible from recreational trails on the east side of the river.

#### Business Owners

Office towers in downtown Long Beach have views of the Gerald Desmond Bridge, approximately 1.5 mi (2.4 km) to the west. Within the Port, the bridge is generally visible where the views are not blocked by other structures. The bridge dominates the views along Pier D Street near the Back Channel.

#### Active Recreation

Active recreational opportunities in the project vicinity include public fishing areas along Harbor Scenic Drive and adjacent to Pier J; however, this area faces away from the bridge towards the east and southeast directions. Other active recreational opportunities include fishing piers and pedestrian/skating paths along the east side of the Los Angeles River; the boat launch at the South Shore Launch Ramp; the Long Beach Downtown Marina, also on the east side of the river; and recreational sailboats in the harbor area located southeast of the bridge. Views toward the bridge from the recreation areas east of the river are limited by the visual barriers of elevated roadways and port structures, and stacked cargo containers. There are clear views toward the bridge and connecting roadways from the active recreation areas along the east side of the river.

#### Workers

Most work places in the study area that are appropriately oriented have views of the project. This includes wharf workers located within any of the piers at the Port with a view of the bridge. Downtown Long Beach office towers with west-facing windows also have project views.

#### Shoppers and Businesses

People in the port area on business activity will have views of the Gerald Desmond Bridge. The bridge is also visible from the industrial/manufacturing area north of the port waterways and south of SR 1.

#### Regular Motorists

Ocean Boulevard carries approximately 55,000 vpd over the Gerald Desmond Bridge. SR 710, approaching Ocean Boulevard, carries approximately 70,000 vpd, and SR 47 brings approximately 50,000 vpd to and from the west and up to 20,000 vpd to and from the north via the Terminal Island

Freeway. The west and north approaches via SR 47 provide the clearest views of the Gerald Desmond Bridge. The bridge is also clearly visible from the SR 103 section of the Terminal Island Freeway, which is approximately 1-mi (1.6 km) north of the bridge.

#### Occasional Motorists

Occasional motorists are typically nonresident tourists. The major tourist attraction in the bridge vicinity is the Queen Mary, which is approximately 2 mi (3.2 km) southeast of the Gerald Desmond Bridge. The shops and restaurants on the southwest portion of downtown Long Beach near Ocean Boulevard and Shoreline Drive are also tourist attractions. Most tourists are assumed to approach from the north via SR 710 or from the northeast via the Queensway Bridge from downtown Long Beach. They would have views of the bridge to the west and northwest.

#### **Methodology for Evaluating Visual Quality at Key Viewpoints**

This visual impact assessment was prepared consistent with the methodologies set forth in the Port's Methodology for Visual Impact Assessment (POLB, 2005c) and FHWA's Visual Impact Assessment for Highway Projects (FHWA, 1988). The following discussion summarizes the requirements of these methodologies.

#### Port Methodology

*Describe the proposed project site:*

- Is the site predominantly flat, sloped in a particular direction, or undulating?
- What is the site elevation range of the project site (above mean sea level)?
- What are the vertical elements already on the project site (cranes, construction equipment, etc.)?
- Describe the way the project site fits into the overall Port environment.

*Identify sensitive viewers and the views they experience:*

- From which nearby locations can the project site be seen?
  - Create a viewshed map indicating likely locations from which the project site could be visible. Identify the different uses and features (elevated roadways and bridges, parks and open space areas, commercial areas, recreational boating facilities, etc.).

- On a clear day, take photos toward the project site. On the photos, use arrows to identify the project site location (even if it is obscured by intermediate features), as well as one or two landmarks (bridges, other Port facilities, local features, etc.). On the viewshed map, record the direction that the photo was taken.
- Record the distance between the viewer and the project site, and the direction of the view.
  - Measure the distance in miles or feet as appropriate, and record the direction from the view to the project site (north, south-east, etc.).
- What viewer types can see the project site from each location?
  - Commuters, residents, recreational users, business owners, etc.
- What is the perceived and designated importance of the view and the location from which the view was taken?
  - Viewer expectation is what the viewer anticipates should be in the location, based on the setting. For most Port projects within the confines of the existing developed Port areas, the viewer would anticipate an industrialized setting.
  - Determine whether a feature is designated as important. Analyze whether the proposed project would be visible from that location and, if so, identify the view as a preliminary key view to carry forward for analysis.
- What are the dominant elements of each view?
  - Describe each location and the existing view from that location in terms of the features in the foreground (within 0.5-mi [0.8-km]), middle ground (0.5- to 1-mi [0.8- to 1.6 km]) and background (more than 1-mi [1.6 km]).
  - Describe each existing view in terms of the following, as applicable:
    - **Line** – the dominant lines in terms of vertical, horizontal, diagonal, etc., and the sharpness or softness of corners.
    - **Color** – the value (lightness or darkness), degree of reflectivity (shiny or dull) and hue (red, green, yellow, etc.) of the color.



- **Form** – the visual mass or bulk (square, cylindrical). Describe the dominant shape of features viewed from the key view.
- **Texture** – describe the surface coarseness or smoothness.
- Describe the relationship between the elements within each existing view.
  - **Dominance:** Which element do you notice first?
  - **Scale:** Which elements are larger or smaller?
  - **Diversity:** Are the elements in the view similar to each other or different?
  - **Continuity:** Do the dominant elements continue throughout the scene, or are they scattered or irregularly placed?
- For how long would each existing view be experienced?
  - For passing motorists, if the view is oblique and would require the motorist to turn their head more than 45 degrees in either direction, the view would be fleeting or not readily apparent. By comparison, a residential view would be a more constant and enduring image.
- What would be visible at night?
  - Nighttime site visits to a selection of the key observation points may assist in determining the features that can be seen from a given area.

#### FHWA Methodology

The viewshed is divided into landscape units, which are areas of distinct, but not necessarily homogenous, visual character. The primary landscape units are the Urban Landscape Unit and the Open Landscape Unit. These are described in further detail below under Viewshed and Key Viewpoints. Typical views, called key viewpoints, are selected from each type of these landscape units to represent different types of views or landscape units (see Exhibit 2.1.7-1). The motorists' view is represented by an additional viewpoint called the "View from the Freeway."

The existing visual quality of the viewpoints was judged by three criteria: vividness, intactness, and unity:

**Vividness** is the visual power or memorability of landscape components as they combine in striking and distinctive patterns.

**Intactness** is the visual integrity of the visual environment and its freedom from encroaching elements.

**Unity** is the visual coherence and compositional harmony of the landscape when considered as a whole.

#### *Urban Landscape Unit*

This landscape unit is characterized by buildings of generally two types: multi-story office or apartment buildings; and very large, one- to two-story buildings such as offices, warehouses, or factories. Large areas of open space, consisting of landscaping, undeveloped land, or more commonly, parking lots, often separate the buildings. Despite the landscaping, these areas are dominated by hard surfaces, including the buildings themselves and the surrounding paved areas. Views within the Urban Landscape Unit are often extensive, especially from the upper floors of tall buildings.

An assessment was made to determine if the Gerald Desmond Bridge is visible from the San Pedro area. Various potential viewpoints along Harbor Boulevard (i.e., Harbor Boulevard to the Vincent Thomas Bridge on-ramp) and Beacon Street (i.e., Beacon Street to Palos Verdes) were surveyed to determine if the Gerald Desmond Bridge was visible from these viewpoints. Harbor Boulevard was chosen due to its close proximity to the Los Angeles Harbor, and Beacon Street was chosen due to its higher elevation and better vantage point of the Los Angeles Harbor. In addition, a survey was conducted on the 10<sup>th</sup> floor of the Sheraton Los Angeles Harbor Hotel located between 6<sup>th</sup> Street and Palos Verdes to determine if the Gerald Desmond Bridge is visible from this viewpoint. The surveys concluded that the Gerald Desmond Bridge was not visible anywhere within these locations. The gantry cranes, cargo ships, and oil storage tanks located within the POLA and the Vincent Thomas Bridge in the foreground obstructed any potential views of the Gerald Desmond Bridge.

The only bridge structure that was visible from this area, other than the Vincent Thomas Bridge, was the vertical abutments of the Schuyler Heim Bridge, which is located northeast of the Vincent Thomas Bridge.

**Urban Landscape Unit – Viewpoint 1:** Viewpoint 1 (Exhibit 2.1.7-2) is the Urban Landscape Unit

viewpoint from the Port Administration Building (925 Harbor Plaza), which is located approximately 1-mi (1.6 km) southeast of the Gerald Desmond Bridge. Office buildings on the western edge of downtown Long Beach are visible from this viewpoint. The foreground of this view is dominated by paved-access roadways, containers, trailer storage and staging areas, and administrative buildings. The middle ground is dominated by the California United Terminals at Pier E and gray tanks. The Gerald Desmond Bridge is in the background of this view, where other large port/industrial structures – in particular, the cargo container gantry cranes – compete for the viewer's attention. Development is located adjacent to the piers and roads. The buildings and cargo containers are mostly rectangular shaped and appear to be continuous in the foreground and background, which adds to the horizontal line of the view. Located in the background are tall cranes, transmission towers, refineries, and the existing Gerald Desmond Bridge, which are all of various shapes and heights.

The dominant features in the background present a sense of continuity with their vertical height. Prevalent colors, such as the light blue metal shed building (Coke Shed) to the left (northwest), the gray paved-access roads and cranes in the background view, and the burgundy cargo containers, tend to dominate the skylines from this viewpoint. Because the photo was taken at a higher elevation from the Port's Administration Building, the features tend to appear relatively smooth in texture, particularly the light blue roof of the metal shed building west of the Port's Administration Building. Generally, the viewpoint does not change from this perspective because the viewers are looking at the bridge from a stationary location. The vividness is rated as moderate, as the gantry cranes and cargo containers from this viewpoint are common features. Its intactness and unity are rated as low, with the presence of scattered Port-related uses, including roadways, large oil storage tanks, and cargo containers.

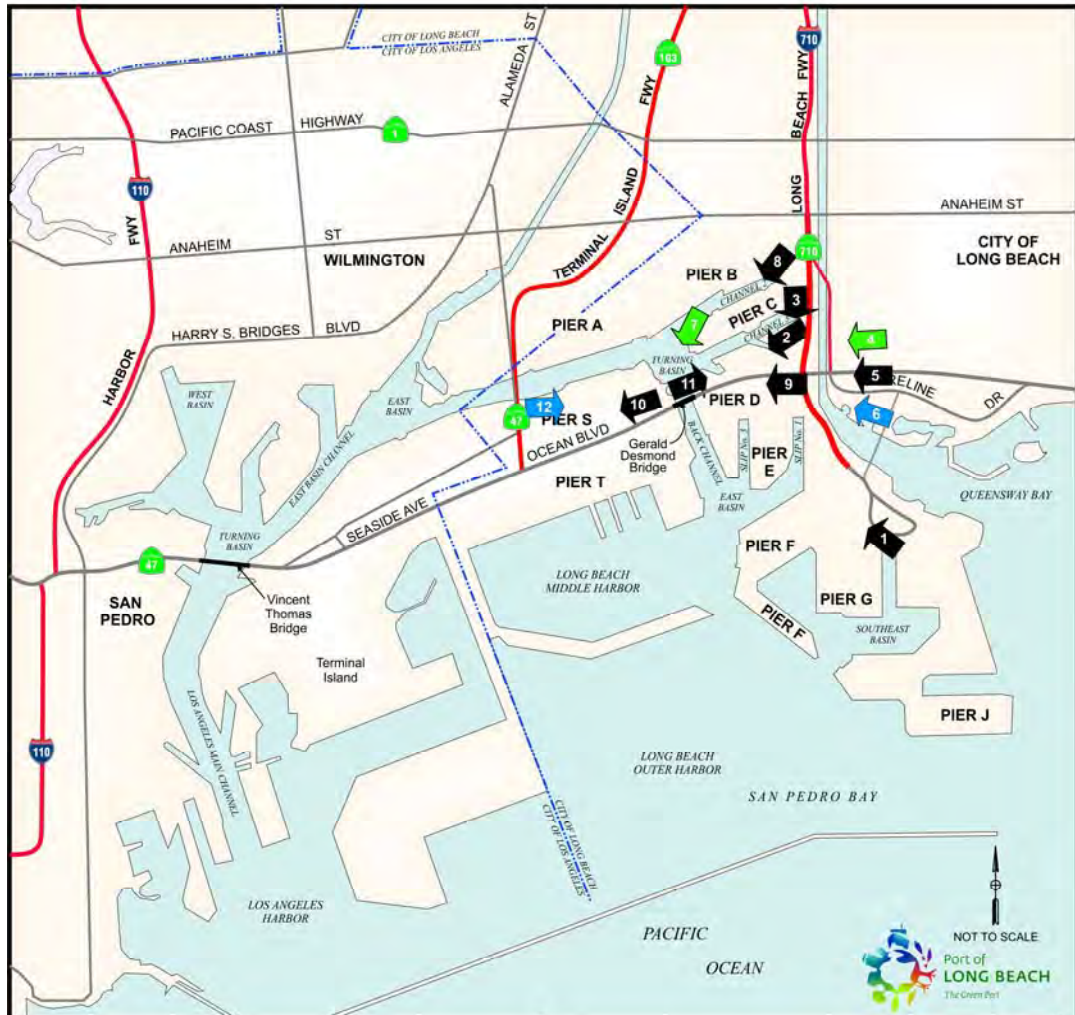
**Urban Landscape Unit – Viewpoint 2:** Viewpoint 2 (Exhibit 2.1.7-3) is the view looking west along Pier D Street from in front of the G-P Gypsum Corporation offices. The bridge approach roadway is approximately 650 ft (198 m) southwest of this viewpoint. The viewers from this location tend to be office workers, motorists, and the Port's maintenance workers.

The foreground view is dominated by G-P Gypsum Corporation buildings that are

representative of the scale of one- and two-story buildings that are interspersed along this street, which is one of the older areas of the Port. The Gerald Desmond Bridge main span is in the middle ground view. The main span is approximately 0.5-mi (0.8-km) away from the G-P Gypsum Corporation offices. The background view consists of power poles adjacent to the Gerald Desmond Bridge and its north bridge span approach. The dominant sight lines from this viewpoint tend to be vertical power line poles along Pier D Street. The semi-glossy yellow G-P Gypsum Corporation office buildings, which are located northeast of the bridge, appear brighter than the other elements. Other than the landscaping consisting of trees and groundcover that are adjacent to Pier D Street on the fill slope to the left of the picture (i.e., southwest), the predominant shape of the features from this view are vertical transmission lines. The office buildings, parking lot, and road in the foreground appear to have a smooth texture. Viewers looking at the elements from a moving vehicle on Pier D Street would experience a difference in the dominance and scale of the features, as they are either moving towards or away from the Gerald Desmond Bridge, whereas the office and Port's maintenance workers would not experience a change in the perspective because they are looking at the bridge from a stationary location. The vividness is rated as moderate due to the presence of the vertical electrical lines and the elevated landscape fill slope from this viewpoint; however, the landscaping of the fill slope along the south edge of the street adds a degree of unity. Its intactness and unity are rated as low, with the Pier D Street roadway separating the features from this view, which consists of the bridge to the south and additional electrical lines adjacent to the roadway to the north.

**Urban Landscape Unit – Viewpoint 3:** Viewpoint 3 (Exhibit 2.1.7-4) is a view looking south on Pico Avenue north of the Pier D Street intersection. The viewer types from this location are generally truckers, motorists, and workers of the businesses in this area with a south-facing view.

The foreground view consists of the SR 710 SB to Ocean Boulevard ramp, Port Petroleum Company, AERA Energy Tank, and trees adjacent to the east side of Pico Avenue, which are visible on the left side (i.e., southeast) of the picture. The SR 710 ramp has an approximate vertical height of 18 ft (5.4 m) above Pico Avenue, making it the dominant element in the foreground. The ramp crosses Pico Avenue approximately 900 ft (274 m)



<p><b>1 View 1 (2.1.7-2):</b> View Northwest from Port Administration Building</p> <p><b>2 View 2 (2.1.7-3):</b> View to the West on Pier D Street</p> <p><b>3 View 3 (2.1.7-4):</b> View to the South on Pico Avenue North of Pier D Street</p> <p><b>View 4 (2.1.7-5):</b> View to the West downtown at the Long Beach Hilton</p> <p><b>View 4a (2.1.7-18):</b> Day Simulation of Proposed Project <b>View 4b (2.1.7-19):</b> Night Time Simulation of Proposed Project</p> <p><b>5 View 5 (2.1.7-6):</b> View to the Northwest from Golden Shore Marine Reserve</p> <p><b>View 6 (2.1.7-7):</b> <b>View 6a (2.1.7-2):</b> Day Simulation of Proposed Project</p>	<p><b>View 7 (2.1.7-8):</b> Existing View to the South from Pier C <b>View 7a (2.1.7-16):</b> Day Simulation of Proposed Project <b>View 7b (2.1.7-17):</b> Night Time Simulation of Proposed Project</p> <p><b>8 View 8 (2.1.7-9):</b> View to the Southwest from Route 710 at Pier C Street</p> <p><b>9 View 9 (2.1.7-10):</b> View to the West on Pico Avenue On-Ramp to Ocean Boulevard</p> <p><b>10 View 10 (2.1.7-11):</b> View to the West from Existing Gerald Desmond Bridge</p> <p><b>11 View 11 (2.1.7-12):</b> View to the East from Existing Gerald Desmond Bridge</p> <p><b>View 12 (2.1.7-13):</b> <b>View 12a (2.1.7-15):</b> Day Simulation of Proposed Project</p>
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**LEGEND**

	Existing View
	Existing View and Daytime Simulation
	Existing View, Day Simulation and Night Simulation

**EXHIBIT 2.1.7-1**  
Key Viewpoint Locations in the Vicinity of the  
Gerald Desmond Bridge Replacement Project

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**Exhibit 2.1.7-2  
Viewpoint 1 – View to the Northwest from the Port Administration Building**



**Exhibit 2.1.7-3  
Viewpoint 2 – View to the West on Pier D Street**

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**Exhibit 2.1.7-4**  
**Viewpoint 3 – View to the South on Pico Avenue North of Pier D Street**

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beyond the intersection. The middle ground view consists of the Gerald Desmond Bridge, which is visible on the far right (i.e., southwest). Other than the gantry cranes, the background views are not generally visible because the surrounding foreground features, such as the SR 710 ramp, Port Petroleum Company building, trees, and truck scale, dominate the view from this location. The dominant sight lines from this viewpoint tend to be horizontal along the SR 710 ramp and the Pico Avenue roadway. The transmission lines form a vertical mass on the east and west sides of this view. This viewpoint appears to be mostly light brown and gray, as the unpaved dirt parcels adjacent to the road and at the truck scale are the dominating features in the foreground. Because the paved road (i.e., Pico Avenue) and adjacent dirt parcels are in the foreground, the texture appears to be relatively smooth. The passing motorists or truckers driving toward or away from Pier D Street on Pico Avenue would experience a change in the dominance, scale, and diversity of the view because they are in a moving vehicle and would likely have to turn their head more than 45 degrees in either direction, which would cause the view to be oblique. With the exception of the moving vehicles on Pico Avenue and the SR 710 ramp, viewers in this area with a south-facing view would not experience a change in the features. This viewpoint is rated low for vividness, intactness, and unity, as the Pico Avenue and Pier D Street roadways and the large vacant shoulder area located to the northwest corner of Pico Avenue and Pier D Street tend to be the dominating horizontal features of this view.

**Urban Landscape Unit – Viewpoint 4:** Viewpoint 4 (Exhibit 2.1.7-5) is a view looking to the west from downtown at the Long Beach Hilton, approximately 1-mi (1.6 km) east of the Gerald Desmond Bridge. The Long Beach Hilton is located at the northeast quadrant of Ocean Boulevard and Shoreline Drive. This area of downtown Long Beach generally has high-rise office towers. The viewers from this area consist of office workers, hotel guests, and tourists with a west-facing view.

The foreground view consists of the Ocean Boulevard and Shoreline Drive intersection, which is visible in the center of the picture. The Ocean Boulevard on-ramp to SR 710, via the Gerald Desmond Bridge, is visible to the center, approximately 0.25-mi (0.4-km) from this foreground view. Also prevalent in the foreground are mature trees that provide canopy to the sides of the adjacent office buildings and the vertical street

light poles on Ocean Boulevard and Shoreline Drive. These trees shield a full view of the bridge. The middle ground and background features from this viewpoint consist of the Ocean Boulevard WB ramp to the Gerald Desmond Bridge and the main-span approach of the bridge; however, viewers generally see the more-dominating gray paved roads, the green canopy trees, and patches of grass adjacent to the roads that are in the foreground. The paved roads and massive buildings give them a relatively smooth texture, while the canopy of the mature trees adds a slightly more coarse texture. The passing motorists driving towards or away from Ocean Boulevard would experience a change in the dominance, scale, and diversity of the view because they are in a moving vehicle and would likely have to turn their head more than 45 degrees in either direction, which would cause the view to be oblique; however, hotel guests, tourists, and office workers with a west-facing view would have a more constant and enduring image of the bridge and the surrounding elements. This viewpoint is rated low for vividness, intactness, and unity, as the Ocean Boulevard and Shoreline Drive roadways and the trees in the foreground tend to be the dominating features of this view. These dominating features are scattered throughout this view; however, the National Bank office building located southwest of this view adds a degree of unity.

#### Open Landscape Unit

The Open Landscape Unit includes the Los Angeles River, the Back Channel, and the public open space along the Los Angeles River on the east side of the project study area. The Gerald Desmond Bridge crosses over the Back Channel area, which also includes Pier C northeast of the project site. The open space area includes City of Long Beach public parks, aquarium, and marina. It is characterized by large areas with limited amounts of hardscape or buildings. Viewpoints 5 and 6 represent the key viewpoint for the Open Landscape Unit that is along the Los Angeles River at the Golden Shore Marine Reserve (Exhibits 2.1.7-6 and 2.1.7-7). This viewpoint is typical of the view from open space areas along the east side of the river that are accessible to the public, located approximately 1-mi (1.6 km) away from the Gerald Desmond Bridge.

**Open Landscape Units – Viewpoints 5 and 6:** Viewpoints 5 and 6 (Exhibits 2.1.7-6 and 2.1.7-7) are views to the northwest and north from Golden Shore Marine Reserve, respectively. This area is approximately 1-mi (1.6 km) from the Gerald

Desmond Bridge. The viewers from this location are generally visitors at the Golden Shore Marine Reserve, residents at the Golden Shore RV Resort, and office workers at the California State University and College Headquarters.

The gantry cranes, transmission towers, and other industrial features in the background of the photo are common elements from this viewpoint. With the exception of the arch truss on the main span of the Gerald Desmond Bridge, the other elements from this viewpoint are vertical elements that protrude into the skyline. The immediate vicinity of this area generally has more landscaping than the Port. The dominant elements from these viewpoints are the transmission towers and cranes located towards the north side of Viewpoints 5 and 6 (Exhibits 2.1.7-6 and 2.1.7-7).

The foreground view along the Los Angeles River at the Golden Shore Marine Reserve consists of the river, Harbor Scenic Way Drive, and the California United Terminals at Pier E. The middle ground view consists of the Gerald Desmond Bridge and transmission towers. These viewpoints have more vivid colors compared to the other viewpoints throughout the Port. There are patches of landscaping to the north side of Viewpoint 6 (Exhibit 2.1.7-7) towards the RV Resort and within the Golden Shore Marine Reserve. The berms in the foreground appear as a brown coarse texture and are composed of large boulders. Also prevalent in the foreground are the white RVs parked at the RV Resort to the right of the photo (i.e., northwest). Visitors at the Golden Shore Marine Reserve, residents at the Golden Shore RV Resort, and office workers at the California State University and College Headquarters would have a constant and enduring view of the Gerald Desmond Bridge. These viewpoints rate high for vividness. Its intactness is moderate due to encroachment of the visual elements of the Golden Shore RV Resort (101 Golden Shore Avenue). South of this viewpoint, intactness of views toward the river is high. The unity of these viewpoints is high, with the water shoreline and shoreline trail providing a unifying element. The overall visual quality at the Open Landscape Viewpoint is rated as high.

Water approach views from the south may also be considered as within the Open Landscape Unit. Public roadway access south of the bridge ends in the central portion of Pier J, southwest of the bridge. Views of the bridge from the public roadway are obscured by Port facilities and stacked cargo containers. There are unobscured

views of the Gerald Desmond Bridge from the south in the Outer and Inner Harbors.

**Open Landscape Unit – Viewpoint 7:** Viewpoint 7 (Exhibit 2.1.7-8) is a view looking to the south from Pier C, located northeast of the Gerald Desmond Bridge. This key viewpoint represents the Open Landscape Unit that is on the southeast portion of the Back Channel along Pier C. This viewpoint is typical of the view from the open space areas at Pier C, which are accessible to Port workers. Port workers facing south at Pier C would have a view of the Gerald Desmond Bridge in the foreground.

The foreground view from this location consists of container ships near the Back Channel, the Connolly Pacific Company facilities and cranes at Pier D, the Gerald Desmond Bridge, and the LBGS. The Gerald Desmond Bridge is a dominating feature from this viewpoint, located at approximately 0.25-mi (0.4-km) from the wharf of Pier C to the WB approach of the bridge. The arch truss design of the main span tends to be a dominating feature of the bridge, as most elements in this view are either horizontal or vertical masses. The LBGS, located adjacent to the bridge at the WB direction, is the next most visible element on the right side (northwest) of the picture. The rectangular building, along with the circular smoke stacks, competes for the viewer's attention because they are the most massive objects located in the northwest limits of the Gerald Desmond Bridge from this viewpoint. The middle ground view consists of the transmission towers located to the far right (i.e., northwest of the bridge). These transmission towers appear closer than their actual distance of approximately 1-mi (1.6 km) because they are approximately 200 ft (61 m) high. The transmission towers are the tallest elements from this viewpoint. The background view consists of cranes and containers at Pier T. The elements from this viewpoint tend to blend in with the blue sky and water. The light brown color of the LBGS is the main color that stands out from the physical features of this view. The Port workers looking south from the Pier C wharf would have a constant and enduring image of the new bridge and the surrounding elements. This viewpoint is rated moderate for vividness, intactness, and unity. The close proximity of the Gerald Desmond Bridge structure and the LBGS tends to create added unity and intactness, and these features also create striking and distinctive horizontal and vertical patterns.



**Exhibit 2.1.7-5  
Viewpoint 4 – Existing View to the West from Downtown  
at the Long Beach Hilton Hotel Pool Area**

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**Exhibit 2.1.7-6  
Viewpoint 5 – View to the Northwest from Golden Shore Marine Reserve**



**Exhibit 2.1.7-7  
Viewpoint 6 – Existing View to the Northwest and North  
from Golden Shore Marine Reserve**

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**Exhibit 2.1.7-8  
Viewpoint 7 – Existing View to the South from the Pier C Wharf**

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Views from Area Freeways and Ocean Boulevard

The greatest number of viewers in the viewshed is the passing motorists and truckers on the freeway system. These viewers generally have a moderate to low sensitivity to the visual environment due to their concentration on driving and their focus on their destinations.

**SR 710 from the North and Ocean Boulevard from the East – Viewpoints 8 and 9:** Viewpoints 8 and 9 (Exhibits 2.1.7-9 and 2.1.7-10) have no or limited views of the Gerald Desmond Bridge from SB SR 710 south of I-405 due to the screening along the west side of the freeway by vegetation, soundwalls, and industrial development. Views southwest to the bridge begin to open up as the Port is entered south of Anaheim Street. In this area, the bridge is well to the west of the SB freeway. Viewpoint 8 (Exhibit 2.1.7-9), a photograph taken on SB SR 710 at Pier C Street 0.75-mi (1.2 km) from the bridge, is representative of views toward the bridge from the southernmost section of SR 710. As the driver approaches the Ocean Boulevard interchange, roadway structures obstruct bridge views.

The viewer types from this viewpoint are passing motorists and truckers on SR 710. The foreground view consists of Long Beach Sportfishing at Queen's Wharf and the Back Channel. The middle ground view is the Gerald Desmond Bridge. The background view is generally not visible from this vantage point, as it is obstructed by the bridge approaches and the buildings in the foreground. The power lines and the white roof of the large building (Long Beach Sportfishing at Queen's Wharf) in the foreground tend to be dominating elements. The square masses of the industrial and commercial buildings in the foreground tend to be repetitive in this view. The passing motorists and truckers from this viewpoint would have a view that is fleeting and oblique, as they are driving either away from or towards the Gerald Desmond Bridge. Vividness is low. Numerous large roadway structures are coming in and out of the driver's and passenger's fields of view. Intactness and unity are low. There are numerous driving decision points and no dominant unifying features until vehicles enter the immediate vicinity of the Gerald Desmond Bridge approach west of Pico Avenue.

Viewpoint 9 (Exhibit 2.1.7-10) is the view from the Pico Avenue on-ramp to WB Ocean Boulevard. The viewer type is passing motorists and truckers. The viewers' expectation from this viewpoint is

that of a road that is ascending towards the main span of the bridge.

The foreground view of the bridge and approaches is unobstructed and directly ahead. The bridge and approaches obstruct the middle ground and background views from this ascending Pico Avenue on-ramp viewpoint. The color from this viewpoint tends to be monochromatic, as the road, bridge approach, main span, surrounding buildings, and the light and transmission poles are different shades of gray. Because this area is approximately 0.5-mi (0.8-km) from the main span truss and at an ascending approach, the main span of the bridge appears to be the most dominating element. The other dominant elements in this view are the road, the vertical light poles and transmission lines, and the other vehicles that are in the line of sight. Other than the arch truss of the main span of the bridge, the visual mass tends to be square as the motorists and truckers approach the buildings and other vehicles to the right. The passing motorists and truckers from this viewpoint would have a view that is fleeting and oblique, as they are driving either away from or towards the Gerald Desmond Bridge. Vividness increases to moderate as the Gerald Desmond Bridge is approached. Intactness also increases to moderate, as there are fewer encroaching visual elements west of Pico Avenue. Unity is low to moderate. Outside of the roadway envelope, there is low cohesion of visual elements.

**Gerald Desmond Bridge WB – Viewpoint 10:** Viewpoint 10 (Exhibit 2.1.7-11) is representative of the view from the WB lanes of the bridge on the downgrade. Passing motorists and truckers are the viewer types. The massive cranes, oil storage tanks, transmission towers, and the SERRF, which is a rectangular building with a smoke stack to the north and northwest, are dominating elements.

The brown oil storage tanks and unpaved brown dirt parcels are the prevailing color from this viewpoint. From the foreground viewpoint of passenger vehicle occupants, the railing on the outside barrier obscures the view perpendicular to the roadway. The oil storage tanks next to the LBGs property are visible adjacent to the railings on the north side of the bridge. Behind the oil storage tanks are two massive SCE transmission towers that cross the Cerritos Channel. Looking in the direction of travel, the hills of the Palos Verdes Peninsula are visible in the background view, while port and industrial facilities occupy the foreground. A portion of the Vincent Thomas Bridge is visible to the far northwest in the

background of the picture. The open area in the middle ground is the former Pier S oil production site, which the Port has proposed converting into a marine cargo terminal. Also visible in the middle ground is the vertical mass support towers for the Schuyler Heim Bridge. The passing motorists and truckers from this viewpoint would have a view that is fleeting and oblique, as they are driving either away from or towards the Gerald Desmond Bridge and other objects that are within the line of sight. This viewpoint is rated low-moderate for vividness and low for intactness and unity. There are no shoulders on either side of the bridge that would allow motorists to stop and view the surrounding environment, and the viewing angle of the elements described above require the motorist to turn their head; therefore, the ability of the viewer to perceive the striking and distinctive patterns of the features in this viewpoint becomes more difficult. The intactness and unity are low, as the large areas of vacant land and the scattered vertical masses dominate this view.

**Gerald Desmond Bridge EB – Viewpoint 11:** Viewpoint 11 (Exhibit 2.1.7-12) is a view from the EB Gerald Desmond Bridge approaching the SR 710/Pico Avenue interchange. Passing motorists and truckers are the viewer type. The rectangular taller buildings of downtown Long Beach are in the background south of the roadway alignment. At the time that this photograph was taken, temporary construction barriers and visual screening of the work area obscured the view alongside the roadway.

The permanent traffic barrier and bridge railing also obscure the view to the side, but to a lesser degree. For the driver, the need to keep attention on traffic conditions, particularly through the interchange, limits the opportunity to observe the view from this location. Further east on the roadway, the interchange ramps to and from SR 710 are the dominant visual elements. The passing motorists and truckers from this viewpoint would have a view that is fleeting and oblique, as they are driving either away from or towards the Gerald Desmond Bridge and other features, such as the office buildings that are within the line of sight. Vividness is low to moderate. Numerous large roadway structures are coming in and out of the motorist's field of view. Although the downtown Long Beach high-rise buildings add unity, the permanent traffic barrier and the fencing to the south of the roadway block the viewer's ability to see the elements. The downtown Long Beach high-rise buildings, which increase in intactness and unity as one drives towards them, generally

provide low visual integrity (i.e., intactness) and coherence (i.e., unity) due to the distance from the Gerald Desmond Bridge.

**Terminal Island Freeway (SR 47) SB – Viewpoint 12:** Viewpoint 12 (Exhibit 2.1.7-13) shows the view to the southwest near the Terminal Island Freeway intersection with Ocean Boulevard. Passing motorists and truckers are the viewers from this viewpoint. The existing Gerald Desmond Bridge and its west approach are visible beyond the Pier S redevelopment area.

The middle ground view consists of the unpaved lot that is the property of the Long Beach Harbor Department and the LBGS in the background. The other distinct elements in this view are the light brown LBGS exhaust stacks to the north of the bridge, SCE transmission lines crossing the Cerritos Channel to the north, power line poles scattered throughout the view, and the large fuel storage tanks north of the power plant. The passing motorists and truckers on SR 47 have a fleeting and oblique view, as they are driving either away from or towards the Gerald Desmond Bridge and other objects that are within the line of sight. This viewpoint is rated low for vividness, intactness, and unity. One would have to turn at an approximate 90-degree angle towards the Gerald Desmond Bridge and other features adjacent to it while driving on SR 47 to see this view, which makes the visual quality of this viewpoint less distinctive and memorable. It is important to note that there are no shoulders or areas where one would be able to stop and have a stationary view of the bridge from this viewpoint.

### **2.1.7.3 Environmental Consequences**

#### **Evaluation Criteria**

The proposed project would have a significant impact if it were to result in any of the following:

- Result in a high degree of contrast to sensitive viewers compared to the existing condition of surrounding areas;
- Have a substantial adverse effect on a scenic vista;
- Substantially degrade the existing character or quality of the site and its surroundings;
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area;
- Obstruct or impair important views from a public roadway or scenic vista;





**Exhibit 2.1.7-9  
Viewpoint 8 – View to the Southwest from SR 710 at Pier C Street**



**Exhibit 2.1.7-10  
Viewpoint 9 – View to the West on Pico Avenue On-Ramp to Ocean Boulevard**

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**Exhibit 2.1.7-11**  
**Viewpoint 10 – View to the West from the Gerald Desmond Bridge**



**Exhibit 2.1.7-12**  
**Viewpoint 11 – View to the East from the Gerald Desmond Bridge**

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**Exhibit 2.1.7-13**  
**Viewpoint 12 – Existing View to the East from SR 47 North of Ocean Boulevard**

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- Result in substantial modification to natural topography through grading or retaining walls, or;
- Result in substantial removal of natural vegetation.

The Port's Methodology for Visual Impact Assessment (POLB, 2005c) and FHWA's Visual Impact Assessment for highway projects (FHWA, 1988) provide guidance to help gauge the potential effects of the project from different viewpoints. For instance, this analysis characterizes the importance of each viewpoint, determining whether it is of frequent use and describing who the users are from each viewpoint, and characterizing whether the existing and the new bridge would be consistent with the surrounding environment.

#### No Action Alternative

There would be no effects on visual resources under the No Action Alternative.

### **Construction and Demolition Impacts**

#### North-side Alignment Alternative

During construction and demolition, heavy construction equipment and machinery would be present in the project area. Cranes would be the only equipment that may be visible from the viewpoints previously discussed. All equipment used in construction and demolition of the project would have a minor, temporary effect on views and would be removed upon completion of the project.

#### South-side Alignment Alternative

Effects during construction and demolition under the South-side Alignment Alternative would be the same as those described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

During construction, heavy construction equipment and machinery would be present in the project area. Cranes would be the only equipment that may be visible from the viewpoints previously discussed. All equipment used in construction and demolition of the project would have a minor, temporary effect on views and would be removed upon completion of the project.

### **Operational Impacts**

#### North-side Alignment Alternative

**Analysis of Viewshed Effects:** A Viewshed Effects Analysis was completed to determine if either the Gerald Desmond Bridge or the replacement bridge would be visible from the San Pedro area. It was concluded that the existing bridge is not visible from any of the viewpoints

surveyed. It was also concluded that the replacement bridge would not be visible from the San Pedro Area, because large structures, such as transmission towers, container cranes, and cargo ships, in the foreground of the POLA are above the height of elements that would otherwise be visible in the middle ground and background. Although the two mast towers of the new bridge are higher than the current bridge main span, foreground elements of the POLA would remain at higher elevations.

The North-side Alignment Alternative would alter the existing view of the project area from the City of Long Beach recreation areas along the east bank of the Los Angeles River. This area is located approximately 1-mi (1.6 km) east of the Gerald Desmond Bridge. The higher and longer new bridge structure would be more visible than the existing structure and approach roadways. The new bridge would be viewed against a backdrop of large structures, such as power transmission towers and container cranes. The contemporary design of the bridge, which incorporates the support cables, would be compatible with the existing industrial development.

**Viewpoint 6a** (Exhibit 2.1.7-14) is a daytime computer simulation of the North-side Alignment Alternative from Viewpoint 6 (Exhibit 2.1.7-7) near the east bank of the Los Angeles River and from the public trail along the river. Viewers from this location are generally visitors at the Golden Shore Marine Reserve, residents at the Golden Shore RV Resort, and office workers at the California State University and College Headquarters.

The new bridge towers would appear similar in height and size to the closer downtown Long Beach buildings near the river. The new bridge would be viewed against the foreground of the river and landscape of the western shore. Compared to the existing view, the replacement bridge would be a stronger visual element against the gantry cranes and power transmission and lighting towers in the port. The bridge towers in the background would increase the vividness of this view. The diversity and continuity of this view would appear similar to the existing bridge, as the two mast towers and the support cables of the new bridge main span would be designed in a manner that forms two contemporary triangular-shaped elements that would be above the height of the horizon. These features would be compatible with the built environment because existing cranes and transmission lines are at similar heights. The proposed bridge would be of a modern architectural design that utilizes colors,

materials, and forms that are compatible with the existing industrial development. Visitors at the Golden Shore Marine Reserve, residents at the Golden Shore RV Resort, and office workers at the California State University and College Headquarters would have a constant and enduring view of the new bridge. There would be a positive effect in this scenic vista. The proposed bridge replacement would not block public views. In fact, the vertical masses of the new bridge would be compatible with the existing vertical cranes in the skyline, thereby enhancing the view. This viewpoint is rated high for vividness. Its intactness is moderate due to encroachment of the visual elements of the Golden Shore RV Resort. South of this viewpoint, intactness of views toward the river is high. The unity of these viewpoints is high, with the shoreline and trail providing a unifying element.

The North-side Alignment Alternative would not damage scenic resources. Vegetation removal would be restricted to landscaping plantings in the Ocean Boulevard/SR 710/Pico Avenue interchange areas. The North-side Alignment Alternative would not substantially degrade the existing visual character or quality of the site and its surroundings from SR 47 north of Ocean Boulevard.

**Viewpoint 12a** (Exhibit 2.1.7-15) is a daytime computer simulation of the new bridge, west approach, and reconstructed Terminal Island interchange from the Terminal Island Freeway north of its intersection with Ocean Boulevard. Passing motorists and truckers are the viewers from this viewpoint. The existing condition from this viewpoint is shown in Viewpoint 12 (Exhibit 2.1.7-13) and is approximately 1-mi (1.6 km) from the Gerald Desmond Bridge.

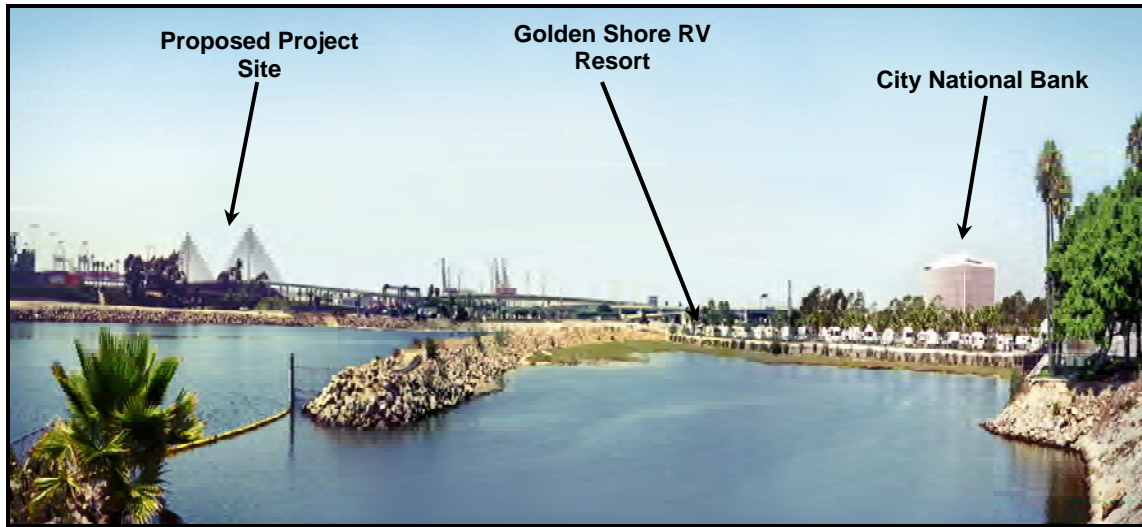
From this viewpoint, the new bridge, with higher roadways than the existing bridge, and the two towers, along with the support cable, would be more visually prominent than the existing structure. The Terminal Island interchange would be closer to the Terminal Island Freeway and also more prominent from this viewpoint than the existing structure. Compared to the existing view, the new bridge would be a stronger visual element against the smoke stacks of the LBGS, the transmission towers, and the gantry cranes. The two mast towers and the support cables on the new bridge main span would be designed in a manner that forms two contemporary triangular-shaped elements that are architecturally compatible with the vertical smoke stacks of the LBGS, the vertical transmission towers, and the gantry cranes. The towers and diagonal support

cables would provide a sense of diversity to the environment, along with the oil storage tanks. The passing motorists and truckers on SR 47 would have a fleeting and oblique view, as they are driving either away from or towards the new bridge and other features that are within the line of sight; however, the viewer would have a longer view of the more massive triangular-shaped towers of the bridge as they are driving either towards or away from the new bridge. The vividness and intactness of this view would increase, and the contemporary design of the new bridge would be aesthetically compatible with the elements in the surrounding environment. The new bridge would not block any public views.

The North-side Alignment Alternative would alter the existing view of the project area from the Pier C area north of the Gerald Desmond Bridge, which is located approximately 0.5-mi (0.8-km) away. This viewpoint is typical of the view from the open space areas at Pier C, which are accessible to south-facing Port workers. Currently, the existing Gerald Desmond Bridge is a dominating feature when facing south at the Pier C wharf. The current bridge span and main span are visible in the foreground during the day. The existing bridge is viewed against a backdrop of large structures, such as the LBGS, transmission towers, cargo ships, and container cranes. The new bridge would be a more-dominating feature from this viewpoint during the daytime because the new bridge would be higher than the old bridge (approximately 50 ft [15 m] higher), and the two mast triangular-shaped towers, along with the support cabling, would be the main features of the bridge.

**Viewpoint 7a** (Exhibit 2.1.7-16) is a daytime computer simulation of the North-side Alignment Alternative from Viewpoint 7 (Exhibit 2.1.7-8) at the Pier C wharf north of the Gerald Desmond Bridge. The new bridge towers and support cabling would appear larger in height and size than the old Gerald Desmond Bridge.

The bridge would be viewed against the background of the Port's cranes and cargo containers on Pier T to the southwest. The new bridge would also be viewed against a backdrop of large structures, such as the LBGS, transmission towers, cargo ships, and container cranes. Compared to the existing daytime view, the new bridge would be a stronger visual element against the cargo ships, gantry cranes, and transmission towers in the POLA. Although the new bridge appears more massive from this viewpoint, the Port workers looking south from the



**Exhibit 2.1.7-14**  
**Viewpoint 6A – Daytime Simulation of the Proposed Project**  
**(View to Northwest and North from Golden Shore Marine Reserve)**



**Exhibit 2.1.7-15**  
**Viewpoint 12A– Daytime Simulation of the Proposed Project**  
**(View to the East from SR 47 North of Ocean Boulevard)**

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**Exhibit 2.1.7-16**  
**Viewpoint 7A – Daytime Simulation of the Proposed Project**  
**(View to the South from the Pier C Wharf)**

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Pier C wharf would only experience a slight change when comparing the existing bridge with the new bridge during the day, in terms of the dominance, scale, diversity, and continuity of the view. The vertical towers of the new bridge would appear to be more consistent than the existing arch truss bridge against the vertical smoke stacks and transmission towers in its surroundings. The vertical mast towers of the new bridge are consistent with the surrounding transmission towers and smoke stacks of the LBGS. The bridge towers and supporting cables in the foreground would increase the vividness of this view. There would be a positive effect in this scenic vista. The North-side Alignment Alternative would not damage scenic resources or block views.

**Viewpoint 7b** (Exhibit 2.1.7-17) is a nighttime computer simulation of the North-side Alignment Alternative from Viewpoint 7 (Exhibit 2.1.7-8) at the Pier C wharf north of the Gerald Desmond Bridge. The new bridge towers and support cabling would appear larger in height and size than the old Gerald Desmond Bridge. This simulation can also be compared to Viewpoint 7a (Exhibit 2.1.7-16), which is a daytime simulation of the same view.

The bridge is viewed against the background of the lighting in Pier T to the southwest. The new bridge would also be viewed against a backdrop of large structures, such as the LBGS, transmission towers, cargo ships, and container cranes. These features would be visible from this viewpoint at night; however, because they do not have their own source of lighting, their visibility tends to fade as one moves further away from the area. Compared to the existing nighttime view, the new bridge would be a stronger visual element against the cargo ships, gantry cranes, and power transmission and lighting sources in the POLA. Although the new bridge appears more massive from this viewpoint, the Port workers looking south from the Pier C wharf would experience a positive change when comparing the existing bridge with the new bridge during the night in terms of the dominance, scale, or diversity of the view. The new bridge would be an aesthetically pleasing architectural structure that would attract the attention of the viewers. The bridge towers in the foreground would increase the vividness of this view. There would be a positive effect in this scenic vista. The North-side Alignment Alternative would not damage scenic resources or block views.

The North-side Alignment Alternative would alter the existing view of the project area from the downtown Long Beach area along Ocean Boulevard east of the Los Angeles River. This

area is located approximately 0.5-mi (0.8-km) away from the Gerald Desmond Bridge.

**Viewpoint 4a** (Exhibit 2.1.7-18) is a daytime computer simulation of the North-side Alignment Alternative from Viewpoint 4 (Exhibit 2.1.7-15) from the Long Beach Hilton, east of the Los Angeles River. The new bridge towers would appear slightly larger in height and size than the existing bridge.

The bridge would be viewed against the foreground of the vertical light poles and tall trees that provide canopies to the adjacent buildings. These trees are the more-dominating features because they are in the foreground. The new bridge would be viewed against a backdrop of the San Pedro hills. The vertical mast towers and support cables of the bridge would increase the vividness of this view. There would be a positive effect in this scenic vista. Compared with the existing view, the new bridge would be a stronger visual element against the elements in the foreground. The two vertical masts of the new Gerald Desmond Bridge towers, along with the support cables, would create continuity with the existing light poles that are in the foreground. The new bridge would be an aesthetically pleasing architectural structure that would attract the attention of the viewers. The passing motorists driving towards or away from Ocean Boulevard would experience a change in the dominance and scale of the view because they would be moving and would likely have to turn their head more than 45 degrees in either direction, which would cause the view to be oblique. In contrast, hotel guests with a west-facing view would have a constant and enduring image of the bridge and the surrounding elements. This daytime viewpoint is rated moderate for vividness, intactness, and unity. The new bridge would not block any public views.

**Viewpoint 4b** (Exhibit 2.1.7-19) is a nighttime computer simulation of the North-side Alignment Alternative from Viewpoint 4 (Exhibit 2.1.7-15) from the Long Beach Hilton, east of the Los Angeles River. This view can also be compared to Viewpoint 4a (Exhibit 2.1.7-18), which is the daytime version of the same view and simulation. The new bridge towers would appear larger in height and size than the existing bridge.

The bridge is viewed against the foreground of the light poles and tall trees that provide canopies to the adjacent buildings. These trees would obscure a full view of the new bridge. The new bridge would be viewed against a backdrop of scattered lights radiating from the western portion of the

bridge. The bridge's mast towers would increase the vividness of this view. There would be a positive effect in this scenic vista. Compared with the existing view, the new bridge would be a slightly stronger visual element against the elements in the foreground; however, the two vertical masts of the new towers, along with the support cables, would blend in with the existing light poles that are in the foreground. The passing motorists driving towards or away from Ocean Boulevard would experience a change in the dominance and scale of the view because they would be moving and would likely have to turn their head more than 45 degrees in either direction, which would cause the view to be oblique; however, hotel guests with a west-facing view would have a more constant and enduring image of the bridge and the surrounding elements. This viewpoint is rated low for vividness, intactness, and unity. The new bridge would not block any public views.

**Analysis of Light and Glare Effects:** Potential light and glare effects resulting from the proposed project are important visual effects that need to be considered. Light effects are those associated with artificial light sources, either from the elimination of existing sources or the creation of new sources. Light effects can include localized effects from single light sources, such as street lamps. Regional light effects occur from changes in the darkness of areas. Poor lighting, or a lack thereof, can also be a factor that affects motorists' safety when traveling on a roadway. Poor lighting can hamper a motorist's sight distance. Glare effects can result from direct glare from motor vehicle headlights shining into the opposite direction lanes or bridge light poles that shine into light-sensitive areas.

The North-side Alignment Alternative would realign freeway and interchange roadways and roadway lighting. The realigned roadways would not contribute to additional sources of light and glare that are in close proximity to light-sensitive properties. Light-sensitive receptors are residents and tourists who would have a direct view of the bridge. Adjacent properties are transportation ROWs and port and industrial facilities that have their own lighting sources. The North-side Alignment Alternative would not create a new source of light or glare that would adversely affect day or nighttime views in the area.

The proposed project would incorporate a context-sensitive design approach in developing the aesthetic lighting plan for the new bridge. The new bridge would be designed in a manner that uses lighting that focuses inward on the bridge to highlight its modern architectural design. The

lighting would focus on the support cables of the mast towers and the mast towers, as well as the approach structure. One goal of these design measures would be to minimize potential light and glare effects to the sensitive receptors located east of the project. As discussed earlier, the Gerald Desmond Bridge is located in an area that is primarily made up of port and industrial uses. Most of the viewers in the immediate vicinity (less than 1-mi [1.6 km]) of the bridge during nightfall consist of Port workers, who are not considered sensitive viewers.

In July 2005, the Ports adopted an OffPeak program managed by PierPASS, Inc. This program shifts truck traffic to the Ports during off-peak hours at night and Saturday to relieve congestion in and around the Ports. With implementation of the OffPeak program, more workers are at the Port during night hours, leading to more lighting in and around the Ports; therefore, it is anticipated that there would be more lighting in and around the Ports during nighttime with implementation of the OffPeak program.

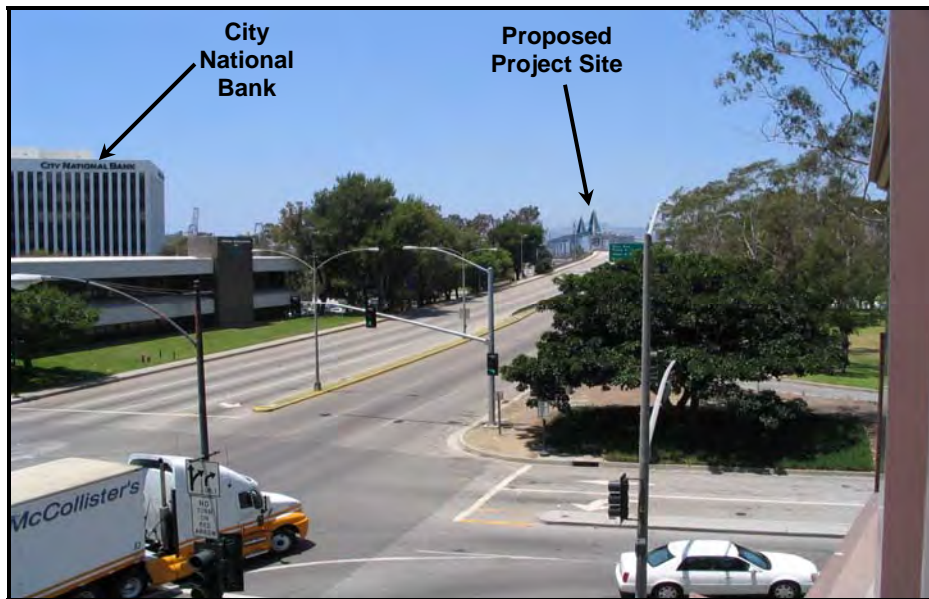
Potential sensitive viewers are located at the western portions of downtown Long Beach near Shoreline Drive and Ocean Boulevard, which consist of tourists and visitors to the nearby shops and restaurants. The view of the new bridge in this area would not be anticipated to change drastically from today's view. The new bridge would be obscured by more immediate features, such as high-rise buildings, light poles, and mature trees in the foreground of the downtown Long Beach area. In addition, there would be analysis to determine if the lighting design would have any potential spillover effects on the surrounding communities.

The process of selecting the type of lights to be incorporated into the design would also strive to enhance the nighttime view of the bridge and minimize glare to light-sensitive communities in the vicinity of the bridge. It can be concluded that the proposed landmark bridge design would provide a new source of visual interest and enhance the overall landscape in comparison to the existing, less prominent and deteriorated structure. There are no adverse effects on visual resources resulting from the proposed project. The proposed project would have a beneficial effect, as the new bridge would be considered a gateway into the Port.

Table 2.1.7-1 is a summary of the effects that the proposed project would have on visual resources in the project area.



**Exhibit 2.1.7-17  
Viewpoint 7B – Nighttime Simulation of the Proposed Project  
(View to the South from the Pier C Wharf)**



**Exhibit 2.1.7-18  
Viewpoint 4A – Daytime Simulation of the Proposed Project  
(View to the West from Downtown at the Long Beach Hilton)**

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**Exhibit 2.1.7-19  
Viewpoint 4B – Nighttime Simulation of the Proposed Project  
(View to the West from Downtown at the Long Beach Hilton)**

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<b>Table 2.1.7-1 Summary of Effects upon Visual Resources – North- and South-side Alignment Alternatives</b>	
<b>Viewer types affected</b>	Passing motorists, truckers, office workers, Port workers, workers at local businesses with views of the project site, hotel guests, and tourists.
<b>Degree of visual contrast compared to the existing condition</b>	The new bridge would not provide a drastic contrast compared to the existing condition. The new bridge would be: <ul style="list-style-type: none"> <li>• a higher and longer structure</li> <li>• more visible than the existing structure and approach roadways</li> <li>• similar in height and size to the closer downtown Long Beach buildings near the river</li> <li>• a stronger visual element against the gantry cranes, and power transmission and lighting towers in the Port</li> <li>• of a modern architectural design that utilizes colors, materials, and forms that are compatible with the existing industrial development</li> </ul>
<b>Perceived and designated importance of the view to and from the new bridge</b>	The proposed project would have a beneficial effect; the new bridge would be considered the gateway into the Port.
<b>Effects on important views and scenic vistas</b>	The new bridge would alter the existing view of the project area from the City of Long Beach recreation areas along the east bank of the Los Angeles River. This alteration in view would have a positive effect in this scenic vista. The bridge towers and cables in the background would increase the vividness of this view.
<b>Effects to visual character or quality of site and surroundings</b>	The proposed project is located in a heavily urbanized portion of southern California. The immediate vicinity of the project is characterized by Port-related industrial uses.
<b>Consistency of new bridge with surrounding environment</b>	The new bridge would be similar in height and size to the closer downtown Long Beach buildings near the river. The vertical mass of the new bridge would be compatible with the existing vertical cranes in the skyline, thereby enhancing the view. The two mast towers of the new bridge are higher than the current bridge main span, but they are similar in height and size to the closer downtown Long Beach buildings near the river.
<b>New source of substantial light or glare affecting day or nighttime views?</b>	The realigned roadways would not contribute to additional sources of light and glare that are in close proximity to light-sensitive properties.
<b>Substantial modifications to natural topography?</b>	No.
<b>Substantial removal of natural vegetation?</b>	No.
<b>Effects upon views of predominant structures visible to the east from downtown Long Beach and along ocean bluffs</b>	From this angle, the new bridge would provide a positive effect in this scenic vista. The new bridge would appear slightly larger in height and size than the existing bridge; the two vertical masts of the new bridge towers, along with the support cables, would create continuity with the existing light poles that are in the foreground. The new bridge would be an aesthetically pleasing architectural structure that would attract the attention of the viewers.
<b>Effects upon ground-level views along the boundary of Queensway Bay</b>	The new bridge towers would appear similar in height and size to the closer downtown Long Beach buildings near the river.
<b>Effects upon ground-level views along Harbor Scenic Drive from SB lanes south of Anaheim Street</b>	The new bridge would appear slightly larger in size from this viewpoint.
<b>Consistency with Coastal Zone Requirements of the CCC</b>	Consistent. The PMP, which includes replacement of the Gerald Desmond Bridge, has been approved and certified by the CCC to be consistent with Coastal Zone regulations.

### South-side Alignment Alternative

From the viewpoints analyzed, the South-side Alignment Alternative would not appear substantially different from the North-side Alignment Alternative. Several visual simulations were prepared for the North-side Alignment Alternative (as discussed above); the South-side Alignment Alternative would render very similar views.

**Viewpoint 6** (Exhibit 2.1.7-7) shows the view from the Golden Shore Marine Reserve, in which the South-side Alignment Alternative appears almost identical to the simulated North-side Alignment Alternative (Viewpoint 6a [Exhibit 2.1.7-14]). When compared with the North-side Alignment, the South-side Alignment Alternative would move the new bridge slightly closer to the viewer. This shift would be almost unnoticeable at this viewing distance.

**Viewpoint 12** (Exhibit 2.1.7-13) shows the west approach and reconstructed Terminal Island interchange from the Terminal Island Freeway north of its intersection with Ocean Boulevard. The simulation of the North-side Alignment Alternative (Viewpoint 12a [Exhibit 2.1.7-15]) is very similar to what the South-side Alignment Alternative would look like to viewers from this same viewpoint. The South-side Alignment Alternative would shift the new bridge slightly to the right (south) of where the simulation in Exhibit 2.1.7.15 appears. This shift would place the new bridge further away from the LBGS, but it would not block any new structures.

**Viewpoint 7** (Exhibit 2.1.7-8) shows a viewpoint at the Pier C wharf north of the Gerald Desmond Bridge. The North-side Alignment Alternative simulation from this angle (Viewpoint 7a [Exhibit 2.1.7-16]) shows that the new bridge towers and support cabling would appear larger in height and size than the old Gerald Desmond Bridge. The South-side Alignment Alternative would appear the same from this viewpoint. Because this view is of the north side of the bridge, the South-side Alternative would shift the new bridge south, making the new bridge appear slightly shorter than the simulation of the North-side Alignment Alternative from this view. This perceived change in height would probably not be noticeable to viewers from this viewpoint.

**Viewpoint 4** (Exhibit 2.1.7-5) is a view from the Long Beach Hilton, east of the Los Angeles River. Viewpoint 4a (Exhibit 2.1.7-18) shows a simulation of the North-side Alignment Alternative. Under this alternative, the new bridge towers would appear slightly larger in height and size than the existing bridge. The South-side Alignment Alternative would have a very similar effect on views from this angle. The towers would appear the same height as they do in Exhibit 2.1.7-18 (simulation of the North-side Alignment Alternative), but the South-side Alignment would shift the bridge slightly left (south) of the simulated bridge pictured in the exhibit. This would be a minor visual difference at this viewing distance, and would most likely not be visible to viewers and not interfere with any public views.

Like the North-side Alignment Alternative, the South-side Alignment Alternative would not damage scenic resources or substantially degrade the existing visual character or quality of the site and its surroundings, and the vividness and intactness of affected views would increase. Similar to the North-side Alignment Alternative, the South-side Alignment Alternative would not create a new source of light or glare that would adversely affect day or nighttime views in the area, and it would enhance the overall visual landscape in comparison to the existing bridge.

### Rehabilitation Alternative

The bridge would appear identical to the existing Gerald Desmond Bridge under the Rehabilitation Alternative. The Rehabilitation Alternative would seismically upgrade the existing bridge so that it would meet current safety and seismic standards, but it would not visibly change the bridge structure; therefore, it would have no effect on current views.

### No Action Alternative

The No Action Alternative would not affect scenic vistas or damage scenic resources. It would not substantially degrade the existing visual character or quality of the site and its surroundings. Nor would it create a new source of light or glare that would adversely affect day or nighttime views in the area.

### **2.1.7.4 Avoidance, Minimization and/or Mitigation Measures**

No measures required.

## **2.1.8 Cultural Resources**

This section evaluates the potential for historical and archaeological resources within the proposed project area and the effects of the bridge replacement project on such resources. The information presented in this section is based upon the Historic Properties Survey Report (HPSR) prepared for the project (Parsons, 2003d).

### **2.1.8.1 Regulatory Setting**

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include the following:

**The National Historic Preservation Act of 1966, as amended (NHPA):** The 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 (NRHP). Section 106 of the 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 (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 CFR 800).

On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the ACHP, FHWA, SHPO, and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

**The Archaeological Resources Protection Act (ARPA):** The ARPA applies when a project may involve archaeological resources located on federal or tribal land. ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

**Section 4(f) of the U.S. Department of Transportation Act:** Historic properties are also protected under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties by transportation facilities.

**NRHP:** Established in 1966, the NRHP is the nation’s official list of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. The NRHP recognizes “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 location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made 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 (36 CFR Part 60.4).”

To be considered for NRHP eligibility, properties must generally be at least 50 years old prior to the evaluation. Properties that do not meet that age criteria must possess exceptional significance to be considered for listing.

**CEQA:** Historical resources are considered under CEQA, as well as California PRC Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet NRHP listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its ROWs. PRC 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 NRHP or are registered or eligible for registration as California Historical Landmarks. To be eligible for nomination, a historical resource must be significant at the local, state, or national level under one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. It is associated with the lives of persons important to local, California, or National History;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local areas, California, or the nation.

### **2.1.8.2 Affected Environment**

The Area of Potential Effects (APE) for the proposed project was approved by Caltrans and FHWA on October 8, 2002, and October 1, 2002, respectively. The APE for the proposed project is located in the Port at the southern end of SR 710 in Los Angeles County. The project is specifically centered along Ocean Boulevard from the intersection of the Terminal Island Freeway at the western end to the easterly end of the bridge over the Los Angeles River.

The entire project area is located within the boundaries of Terminal Island and the Port. Terminal Island and the surrounding Port have undergone extensive alterations and construction since the original Port was planned and founded. The current landscape is an artificial structure consisting of ballast and introduced materials to form a base, then filled with soils transported from the mainland.

The following cultural resource studies (Parsons, 2003d) were completed for this project:

- HPSR, April 2003
- Historic Resources Evaluation Report (HRER), April 2003
- Archaeological Survey Report, October 2002

Methods used to support the studies performed for this project are described below.

- A records search to identify known or potential locations that may contain archaeological resources was conducted at the South Central Coastal Information Center, California State University, Fullerton in September 2002.
- Field surveys of the APE were conducted in August 2002.
- The NRHP (<http://www.nr.nps.gov/>), accessed on September 10, 2002, lists no properties located on Terminal Island.

- The Historic Properties Data File for Los Angeles County, August 13, 2002, lists no properties within the project area.
- The California Points of Historical Interest, 1992, of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 0.5-mi (0.8-km) radius.
- The California Historical Landmarks, 2000, of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties located on Terminal Island.

### **Native American Consultation**

Letters were mailed to the Native American Heritage Commission (NAHC) on September 24, 2002. The NAHC supplied a list of Native American individuals, groups, tribes, and entities with a potential interest in the proposed project. Letters were sent to the individuals identified by the NAHC on September 30, 2002. To date, no contact has been received from any of the potentially interested Native American parties (see Appendix B-1 of the HPSR for more information regarding coordination).

### **Archaeological Resources**

No known archaeological resources were identified within the APE. The present formation of Terminal Island and the surrounding areas does not support the location of any archaeological deposits.

No further archaeological work should be necessary, unless the project plans are modified to include areas outside of the APE. If cultural materials are discovered during construction, then all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

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 must be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact POLB 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.

### **Historic Architectural Resources**

A field survey was conducted on August 23, 2002, to identify historic architectural resources within

the APE. The APE includes a minimum of one parcel adjacent to the existing and potential public ROW that would be required for construction of the project alternatives. An HPSR was completed for the APE and examined 13 properties for historical significance. Only the LBGS (former Edison Power Plant No. 3 and transmission towers) appeared to meet significance criteria for inclusion in the NRHP (Criteria A and D), as well as the CRHR (Criteria 1 and 4). All other properties, including the Gerald Desmond Bridge, were determined ineligible for listing on the NRHP. The SHPO concurred with the HPSR findings on July 21, 2003 (see Appendix C).

Former Edison Power Plant No. 3 (Exhibit 2.1.8-1) and the transmission towers (Exhibit 2.1.8-2) are potentially eligible for the NRHP under Criteria A and D, owing to their importance in the industrial development of the Long Beach Harbor and the Los Angeles area, and for the plant's remaining steam-electric generating technology from the early 1900s; however, two of the three original plant buildings (Plants No. 1 and No. 2) were demolished prior to this evaluation, compromising the integrity of the resource's original setting. Furthermore, the remaining plant has been completely resurfaced, compromising any architectural significance that the facility may have had.

Further discussion and analysis regarding the LBGS can be found under separate cover in the HPSR.

### **2.1.8.3 Environmental Consequences**

#### **Evaluation Criteria**

Title 36 CFR Part 800 defines adverse effects on historic properties as follows:

Section 800.5(1), Criteria of Adverse Effect – An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Adverse effects on historic properties include, but are not limited to:

1. Physical destruction of or damage to all or part of the property;
2. Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the NRHP;

3. Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
4. Neglect of a property resulting in its deterioration or destruction; and
5. Transfer, lease, or sale of the property (36 CFR Part 800.9 [b]).

Under 36 CFR Part 800.9 (c), there are "effects of an undertaking that would otherwise be found to be adverse [but] may be considered... not adverse for the purpose of these regulations."

1. When the historic property is of value only for its potential contribution to archaeological, historical, or architectural research, and when such value can be substantially preserved through the conduct of appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines;
2. When the undertaking is limited to the rehabilitation of buildings and structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with the Secretary's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings;" or
3. When the undertaking is limited to the transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

#### **No Action Alternative**

The No Action Alternative would not result in impacts to cultural resources and would have no adverse effect on historic properties.

#### **North-side Alignment Alternative**

This alternative would locate the new bridge closer than the existing bridge to the NRHP-eligible former SCE Power Plant No. 3, and it would require a sliver of the property near the channel (0.58-acre [0.23-ha] for footing and aerial easements). Although the North-side Alignment Alternative would require a sliver ROW acquisition, it would not physically affect the building. Additionally, new transmission towers would be constructed on both sides of the Cerritos Channel, adjacent to the existing towers, which are part of the historic resource. The existing towers would remain intact, and the transmission lines would be relocated to the new towers (see Section 2.1.4 [Utilities] for more information).

As described above, Power Plant No. 3, which was built in 1927 (Exhibit 2.1.8-1), and the steel lattice, high-tension transmission towers, which were built in 1912 and 1924 (Exhibit 2.1.8-2) on either side of the Cerritos Channel, were determined eligible for listing in the NRHP. That finding was made by consensus through the Section 106 process. The eligibility of the resources is under Criteria A and D; therefore, they are listed in the CRHR under Criteria 1 and 4. The significance of these resources is for their important role in industrial development of the Long Beach Harbor and Los Angeles area, and for the plant's remaining steam-electric generating technology from the early 1900s. The SHPO concurrence letter officially agreed with the FHWA determination that building the new bridge and "construction of...new high-voltage transmission towers adjacent to the existing towers, which will be left standing..." would have no adverse effect on historic resources (see Appendix C).

**Section 4(f):** NRHP-eligible resources are also eligible for consideration under Section 4(f). These resources consist of the electrical steam-electric generating equipment and technology within the Power Plant No. 3 building and the high-voltage transmission towers. As previously discussed, the SHPO concurred with FHWA that construction of the North- or South-side Alignment Alternatives would not have an adverse effect on historic properties, per Section 106 of the NHPA; therefore, construction of the North- or South-side Alignment Alternatives would not result in a use under Section 4(f).

#### **South-side Alignment Alternative**

This alternative would be located south of the existing bridge, further away from the historic

power plant; however, as with the North-side Alignment Alternative, it would require construction of new high-voltage transmission towers and lines adjacent to the historic towers to provide additional vertical clearance for ships.

The SHPO concurrence letter officially agreed with the FHWA determination that building the new bridge and "construction of...new high-voltage transmission towers adjacent to the existing towers, which will be left standing..." would have no adverse effect on historic resources (see Appendix C).

#### **Rehabilitation Alternative**

The Rehabilitation Alternative would include improvements to the existing bridge only. The Gerald Desmond Bridge was determined ineligible for inclusion on the NRHP during the Section 106 Process (see Appendix C). Additionally, the Rehabilitation Alternative would not physically alter or damage the historic Edison Power Plant or require relocation of the associated transmission lines that cross the Cerritos Channel. This alternative would not change the character of the property's use or setting or introduce visual, atmospheric, or audible elements that would diminish the historic features. The Rehabilitation Alternative would have no adverse effect on historic resources.

#### **2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures**

No measures required.





**Exhibit 2.1.8-1  
Photograph of Edison Power Plant No. 3**



**Exhibit 2.1.8-2  
Photograph of Transmission Towers**

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*Section 2.2*  
*Physical Environment*



## **2.2 PHYSICAL ENVIRONMENT**

### **2.2.1 Water Resources and Hydrology**

This section analyzes potential impacts to groundwater, surface water, flooding, designated beneficial uses, and water quality associated with the proposed Gerald Desmond Bridge Replacement Project. Analysis is based on the *Water Resources and Hydrology Technical Study* completed in February 2006 and updated in July 2008.

#### **2.2.1.1 Regulatory Setting**

##### **Federal Regulations**

###### Clean Water Act

The primary federal law governing water quality is the Clean Water Act (CWA) of 1972. This Act provides for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. The CWA emphasizes technology-based (end-of-pipe) control strategies and requires discharge permits to use public resources for waste discharge. The Act also limits the amount of pollutants that may be discharged and requires wastewater to be treated with the best treatment technology economically achievable regardless of receiving water conditions.

The 1987 amendments to the CWA included Section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges. The amendment also provides a framework for regulating storm water runoff from construction sites. On November 16, 1990, EPA published final regulations that established requirements for storm water permits.

In 1998, Section 303(d) was amended to the CWA, requiring the state to identify and maintain a list of water bodies that do not meet water quality standards and also to implement a Total Maximum Daily Load (TMDL) program for impaired water bodies. The list of water bodies that do not meet water quality standards is referred to as the CWA Section 303(d) List of Water Quality Limited Segments.

###### Executive Order 11988: Floodplain Management

EO 11988 (Floodplain Management) of 1977, directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains that may cause short- or long-term adverse impacts, unless it is the only practicable alternative. FHWA requirements for compliance

are outlined in 23 CFR 650 Subpart A. 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

##### **State Regulations**

###### Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) is the basic water quality control law for California. The Act authorizes the state to implement the provisions of the CWA. The Porter-Cologne Act establishes a regulatory program to protect the water quality of the state and the beneficial uses of state waters. Under this act, the State Water Resources Control Board (SWRCB) provides policy guidance and review for the Regional Water Quality Control Board (RWQCB), and the RWQCB implements and enforces the provisions of the Act.

Establishment of the National Pollutant Discharge Elimination System (NPDES) regulations in 1987, under Section 402(p) of the CWA, required that EPA delegate the responsibility of the NPDES program to the State. The SWRCB was given the responsibility to enforce the regulations of the NPDES program and did so in the form of the *NPDES Permit for General Construction Activities* (Order No. 99-08-DWQ), which was adopted in 1992 and amended in August of 1999 and 2001. On December 2, 2002, SWRCB approved the "*Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) NPDES General Permit for Construction Activity (One to Five Acres)*." The Permit requires that all owners of land within the State with construction activities resulting in one or more acres of soil disturbance (e.g., clearing, grubbing, grading, trenching, stockpile, utility relocation, temporary haul roads), apply for the General Permit. The purpose of the Permit is to ensure that the landowners:

1. Eliminate or reduce non-storm water discharges to storm drains and receiving waters of the U.S.;

2. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP);
3. Inspect the Water Pollution Controls (WPCs) specified in the SWPPP; and
4. Monitor storm water runoff from construction sites to ensure that the BMPs specified in the SWPPP are effective.

#### California Coastal Act

Section 307 of the CZMA requires that all federal agencies or licensees with activities directly affecting the coastal zone, or with development projects within that zone, comply with state coastal acts to ensure that those activities or projects are consistent with the CZMA to the maximum extent practicable, with the enforceable policies of approved State management programs. The term "coastal zone" means the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder) strongly influenced by each other and in proximity to the shorelines of the several coastal states, and it includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches. In this case, the state coastal act is the California Coastal Act of 1976, which is the primary law that governs the decisions of the CCC. The Act outlines, among other things, standards for development within the Coastal Zone. The Coastal Act is umbrella legislation designed to encourage local governments to create Local Coastal Plans (LCPs) to govern decisions that determine the short- and long-term conservation and use of coastal resources. These LCPs can be thought of as the equivalent of General Plans for areas within the coastal zone. LCPs must be consistent with the policies of the Coastal Act, and they protect public access and coastal resources. Until the CCC certifies an LCP, the CCC makes the final decisions on all development within a jurisdiction (city or county) within the Coastal Zone. Once an LCP is certified for a jurisdiction, decisions are handled locally, but they can be appealed to the CCC.

#### 1994 Water Quality Control Plan for the Los Angeles Basin (4)

The proposed project is located within the jurisdiction of the Los Angeles RWQCB (Region 4). All projects within the Los Angeles Region are subject to the requirements of the Los Angeles RWQCB. The Los Angeles RWQCB has prepared the *1994 Water Quality Control Plan for the Los Angeles Basin (4)* to help preserve and enhance water quality and to protect the beneficial uses of

state waters. The Plan designates beneficial uses for surface and groundwaters, and it sets qualitative and quantitative objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy. The Plan also describes implementation programs to protect the beneficial uses of all waters in the Region and surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan (RWQCB, 1994).

#### Caltrans Statewide Storm Water Management Plan (SWMP) (June 2007)

The Caltrans SWMP addresses discharges of storm water and authorized non-storm water to waters of the United States, as defined by EPA, and waters of the state of California, as defined by the Porter-Cologne Act. The SWMP describes the Caltrans program and addresses storm water pollution control related to Caltrans activities, including planning, design, construction, maintenance, and operation of roadways and facilities. The SWMP provisions control pollutants to the Maximum Extent Practicable (MEP) as required by the federal CWA. The SWMP is intended to address anticipated requirements for the Caltrans Statewide Permit and the State Construction General Permit Order No. 99-08-DWQ (Construction General Permit). Additionally, the SWMP includes additional program activities requested by SWRCB to track program activities and measure compliance.

#### **Local Regulations**

##### Port of Long Beach Port Master Plan

The Port developed the PMP to ensure that short-term and long-range preferred-use plans are consistent with local, state, and federal laws and regulations. The first PMP for the Port was finalized in June 1978. The purpose of the PMP is to provide a planning tool to guide future port development and to ensure that projects and developments in the Harbor District are consistent with requirements of the California Coastal Act. The PMP is designed to better promote and safely accommodate foreign and domestic waterborne commerce, navigation, and fisheries in the national, state, and local public interest. The PMP also provides additional public recreation facilities within the Port consistent with sound and compatible port planning.

Currently, the Port has a Master Storm Water Program that requires all projects within the Port to implement structural and operational BMPs; however, any proposed construction and operational activities with the potential to affect



storm water runoff would require Caltrans approval. All proposed activities would adhere to Caltrans NPDES policies and procedures.

### **Permit Requirements**

Caltrans Statewide NPDES Storm Water Permit, Order No. 99-06 DWQ, NPDES No. CAS000003 and NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Order No. 99-08-DWQ, NPDES No. CAS000002

Caltrans has a statewide NPDES permit that covers all Caltrans work and projects within the state. All projects within Caltrans jurisdiction must conform to the requirements of the Caltrans Statewide NPDES Storm Water Permit, Order No. 99-06-DWQ, NPDES No. CAS000003, adopted by SWRCB on July 15, 1999. This permit allows Caltrans to operate, maintain, and construct on state ROW without applying for individual General Permits for each construction project. The permit requires Caltrans to adhere to the provisions of the Statewide General NPDES Permit for Construction Activities, Order No. 99-08-DWQ, NPDES No. CAS000002. The permit also requires Caltrans to have a site-specific SWPPP prepared for all projects with one or more acres of soil disturbance, and a Notice of Construction (NOC) to be filed with RWQCB at least 30 days prior to any soil-disturbing activities. For any local agency project with construction activity within Caltrans ROW and a total disturbed soil area of one or more acres, the local agency must submit a Notice of Intent (NOI) to SWRCB. In addition, all projects are subject to the BMPs specified in the Caltrans SWMP. The provisions and requirements of the permit are enforced by RWQCBs. Because the proposed project would disturb more than 1-acre (0.4-ha) of soil, the project would gain coverage under the General NPDES Permit for storm water discharges associated with construction activities; therefore, an SWPPP would be required and an NOI must be filed with SWRCB for this project.

The objectives of the General Permit are: (1) to identify pollutant sources that may affect the quality of discharges of storm water associated with construction activity from the project site; and (2) to identify, construct, and implement storm water pollution preventive measures and BMPs to reduce pollutants in storm water discharges from the construction site during construction and after construction is completed. Appropriate BMPs will be obtained from the Caltrans *Project Planning and Design Guide* (2007b), and the Caltrans *Construction Site Best Management Practices (BMPs) Manual*

(2003). The Port is required to ensure that a SWPPP and Sampling and Analysis Plan (SAP) are prepared prior to construction activities. The SWPPP shall include the following: erosion and sediment control; non-storm water management; post-construction storm water management; waste management and disposal; maintenance, inspection, and repair of BMPs; employee training to perform inspections of the BMPs at the construction site; and an SAP for contaminated storm water runoff. The SWPPP must describe structural and non-structural BMPs to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind.

#### Dewatering Permit

All projects requiring discharges of groundwater from construction and project dewatering to surface waters in coastal watersheds of Los Angeles and Ventura Counties must comply with Order No. R4-2003-0111 (NPDES No. CAG994004). If this project requires dewatering, and it is allowed by RWQCB, then compliance with this Order is necessary.

### **2.2.1.2 Affected Environment**

The Long Beach Harbor consists of the Outer Harbor (south of the Pier T Mole), the Middle Harbor (between the Pier T Mole and Terminal Island), the Inner Harbor (including the Back Channel between Terminal Island and the Mainland to the east), and Cerritos Channel (between Terminal Island and the Mainland to the north). The Gerald Desmond Bridge Replacement Project is located over the Back Channel and connects the city of Long Beach to the east with Terminal Island (See Exhibit 1-1). A summary of the water quality parameters of the Back Channel and Cerritos Channel areas is presented in this section.

#### **Groundwater**

The project crosses seawater, and shallow groundwater in the project area is hydraulically separated from inland aquifers by seawater in the Inner Harbor and Cerritos Channel. The groundwater in the area is compromised by seawater intrusion; as a result, the Los Angeles RWQCB (Region 4) has not designated beneficial uses for the groundwater in the harbor area. Shallow groundwater in this area is below sea level due to dewatering operations from the LBGS north of the project area.

The proposed project site is located within the southern portion of the West Coast Groundwater Basin, which extends from the Ballona Escarpment and Baldwin Hills in the northwest, to the San

Gabriel River in the southeast. The shallowest water-bearing zone beneath Terminal Island is in the surficial deposits, comprising the man-made fills and near surface native soils (upper Recent deposits). Regional groundwater is generally encountered in these sediments at depths between ground level and 25 feet bgs. Beneath the surficial deposits, four major aquifers have been reported in the southern portion of the West Coast Basin in the vicinity of the proposed project site. They are, with increasing depth: the Gaspur Aquifer, the Gage Aquifer, the Lynwood Aquifer, and the Silverado Aquifer (CA DWR, 1961).

Shallow groundwater in the western end of the project site beneath the Terminal Island East interchange has been determined to contain volatile organic compounds (VOCs), primarily benzene, from the former Long Beach Naval Shipyard (LBNSY) south of the project area (Bechtel, 1997). Benzene contamination was detected in the uppermost groundwater (to a depth of 37 ft (11 m) bgs) at a maximum concentration of 840 micrograms per liter ( $\mu\text{g/L}$ ) and within the deepest groundwater (69 ft to 109 ft [21 m to 32 m] bgs) at a concentration of 450  $\mu\text{g/L}$ . One groundwater sampling point was drilled to monitor three groundwater zones in an area located within the Seaside Boulevard ramp loop, approximately 190 ft (60 m) north of the former LBNSY boundary. Benzene contamination was not detected within the upper coarse-grained water-bearing interval (37 ft to 50 ft [11 m to 15 m] bgs), but it was detected at concentrations of 190  $\mu\text{g/L}$  and 1,400  $\mu\text{g/L}$  within the fine-grain water-bearing interval (50 ft to 69 ft [15 m to 21 m] bgs) and the deepest groundwater, respectively. Exhibit 2.2.1-1 shows the approximate limits of groundwater contamination from the former LBNSY.

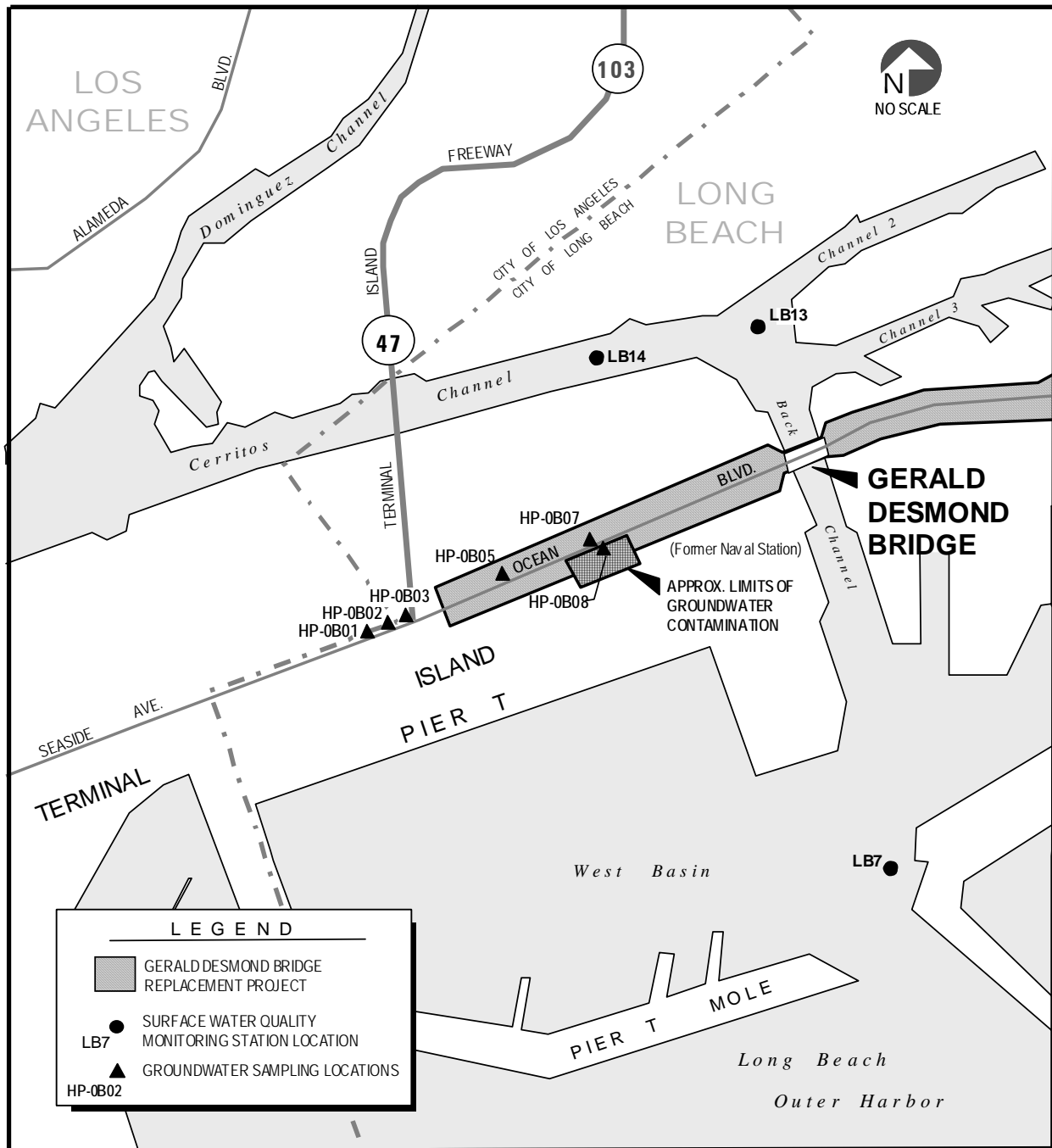
A groundwater investigation was conducted in the proposed project area in 1997 for the Ocean Boulevard Storm Drain and Pump Station projects (Woodward-Clyde, 1997). Eleven shallow Hydropunch® borings (approximately 7 ft [2 m] bgs) were installed within the western portion of the proposed project area along the north side of Ocean Boulevard between Henry Ford Avenue and the Back Channel (Exhibit 2.2.1-1). Six groundwater samples collected from six borings were selected for laboratory analytical testing. Three of these sample locations (HP-OB01, HP-OB02, and HP-OB03) are located in the area of Henry Ford Avenue and the Terminal Island Freeway (just west of the project area) (Exhibit 2.2.1-1). Sample locations HP-OB07 and HP-OB08 are located near the Terminal Island

East gate, and sample location HP-OB05 is located midway between HP-OB03 and HP-OB07 (Exhibit 2.2.1-1). These samples were tested for 19 constituents outlined by RWQCB in Order Number 97-045 for obtaining a General Construction Dewatering NPDES permit. Groundwater analytical results were reported below the NPDES effluent discharge limits for all constituents tested, with the exception of arsenic, chromium, surfactants, turbidity, settleable solids, and suspended solids. Results that exceeded NPDES discharge limits are shown in Table 2.2.1-1.

To further investigate the benzene plume known to exist beneath Terminal Island, an Expanded Groundwater Investigation and Risk Assessment of the Terminal Island Deep Benzene Plume (HLA, 2000) was prepared. This report helped to further delineate the lateral and vertical extent of the benzene plume in relationship to the POLB property. The 2000 investigation concluded that data from the Bechtel investigation (Bechtel, 1998), the Woodward-Clyde investigation (Woodward-Clyde, 1998), and the HLA investigation show that the Gaspur Aquifer flows in a northerly gradient. While the overall gradient is to the north, there appeared to be a cone of depression that has formed around Dry Dock No. 1. Active hydrostatic relief wells were installed at Dry Dock No. 1 between 1973 and 1975. The source of benzene contamination may have existed before Dry Dock No. 1 wells began pumping; therefore, any benzene plume that may have existed would have moved to the north. Once the wells were installed and activated, the plume of benzene may have been reversed or possibly split so that it was moving in two directions (HLA, 2000).

As discussed, extensive soil and groundwater investigations have been performed at the former LBNSY site, and after all of these investigations, the source of the benzene plume is still being disputed by the potential responsible parties.

*A Final Feasibility Study Report, Installation Restoration Program, Sites 9, 12, and 13, Former Long Beach Naval Ship Yard* (Bechtel, 2001) was prepared to identify and evaluate potential remedial action alternatives for VOC-contaminated groundwater and soil at various locations; however, no conclusions with regard to the Gerald Desmond Bridge and the benzene plume can be made from this document because the deep benzene study was separated from Site 9. Site 9 is located within the project limits, approximately 300 ft (91 m) south of West Seaside Boulevard and 600 ft (183 m) west of the intersection of Weaver Street and Corvette Street.



**Exhibit 2.2.1-1  
Groundwater and Surface Water Sampling Locations  
in the Vicinity of the Gerald Desmond Bridge Replacement Project**

**Table 2.2.1-1  
1997 Groundwater Constituents with Levels Exceeding NPDES Discharge Limit**

Sample Location	Arsenic (µg/L)	Chromium (µg/L)	Surfactants (mg/L)	Turbidity (NTU)	Settleable Solids (mg/L)	Total Suspended Solids (mg/L)
HP-OB01	ND	380	0.55	3,000	>40	7,000
HP-OB02	140	770	0.46	1,300	>40	4,300
HP-OB03	550	560	0.51	9,000	>40	180,000
HP-OB05	ND	150	0.68	1,800	5.5	2,300
HP-OB07	840	190	1.2	1,700	10	1,600
HP-OB08	ND	440	1.3	1,800	23	2,400
<b>NPDES Daily Maximum</b>	<b>50</b>	<b>50</b>	<b>0.5</b>	<b>150</b>	<b>0.3</b>	<b>150</b>

µg/L: micrograms per liter

mg/L: milligrams per liter

NTU: Nephelometric turbidity units

Source: Woodward Clyde, 1997.

### Surface Water

Surface water in the project area primarily consists of water from the Pacific Ocean, incoming freshwater from the Dominguez Channel, and surface runoff from Port lands during precipitation events. The Dominguez Channel drains into the Los Angeles Harbor and the Cerritos Channel west of the project area (see Exhibit 1-1). A portion of the eastern section of the project area drains to the Los Angeles River Estuary (Queensway Bay).

The project lies within the Dominguez Channel Watershed and the Los Angeles Harbor Watershed, and it abuts the Los Angeles River Watershed. The project is located in the Los Angeles-San Gabriel Hydrologic Unit Sub-Area 405.12. There is one TMDL in effect for the Dominguez Channel watershed, which is for trash. The Los Angeles Harbor has one TMDL in effect for bacteria. There are three TMDLs in effect for the Los Angeles River Watershed, which are trash, nitrogen compounds and related effects, and metals. More information regarding TMDLs is provided in Section 2.2.1.1.

The receiving water bodies of the project are Back Channel, Channel No. 3, and the Los Angeles River Estuary (Queensway Bay). The Los Angeles River Estuary (Queensway Bay) is the only receiving water body on the 303 (d) List of Water Quality Limited Segments, and it is listed for the following pollutants: Chlordane (sediment), dichloro-diphenyl-trichloroethane (DDT) (sediment), lead (Pb) (sediment), polychlorinated biphenyls

(PCBs) (sediment), sediment toxicity, trash, and zinc (sediment).

Additionally, there are several other water bodies in the project vicinity, including Cerritos Channel, East Basin, West Basin, and the Inner Harbor Turning Basin. Of these water bodies, West Basin and Cerritos Channel are the only two on the 303 (d) List of Water Quality Limited Segments.

Marine water quality within the Ports has been well studied. Recent studies indicate that the water quality within Long Beach Harbor is generally good, and the Port is currently meeting or exceeding the California Ocean Plan 2005 Water Quality Objectives. As results show, water quality in the inner and middle areas of the harbor is poorer than in the outer harbor.

Water quality parameters that are routinely sampled because they can affect biological communities are temperature, salinity, pH, dissolved oxygen, and water clarity. A water quality study was conducted for the Ports in 2002 entitled *The Ports of Long Beach and Los Angeles Year 2000 Biological Baseline Study of San Pedro Bay* (MEC, 2002). Water samples were collected quarterly during 2000 from 28 monitoring locations throughout both harbors with depths ranging from 13 ft to 77 ft (4 m to 23 m).

Three monitoring locations are in proximity to the Gerald Desmond Bridge. These are designated as LB7, LB13, and LB14, and they are shown on Exhibit 2.2.1-1. The depth of water at these locations is approximately 79 ft (24 m), 65 ft (20 m), and 59 ft (18 m), respectively. Water quality

samples were collected quarterly during 2000 at the surface, mid-depth, and bottom. Table 2.2.1-2 summarizes the water quality data for these monitoring locations.

The dissolved oxygen (DO) concentrations in surface, mid-depth, and bottom waters within the study area were consistent with typical values for estuarine and near-coastal waters (MEC, 2002). Annual mean DO concentrations for LB7, LB13, and LB14 ranged from 6.90 to 7.62 milligrams per liter (mg/L), 6.03 to 6.56 mg/L, and 5.89 to 6.40 mg/L for surface, mid-depth, and bottom depth waters, respectively (Table 2.2.1-2). The highest DO concentrations occurred at the surface and decreased with depth, with the lowest concentrations in near-bottom waters. The DO concentrations met the water quality objective of 5 mg/L set forth for harbor waters.

The pH conditions within the study area were within normal ranges for coastal waters (MEC, 2002). Annual pH values for surface, mid-depth, and bottom waters at LB7, LB13, and LB14 ranged from 7.93 to 8.04, 7.92 to 7.97, and 7.88 to 7.93, respectively (Table 2.2.1-2). Changes with depth in pH at these stations typically were minimal. This range was within the water quality objective of 6.5 to 8.5 set forth for harbor waters.

Salinity in the harbor is influenced by the influx of outer ocean waters, evaporation, precipitation, freshwater runoff, and wastewater discharges. Salinity conditions within the study area were within normal ranges for estuarine and near-coastal waters (MEC, 2002). Annual mean salinity values for surface, mid-depth, and bottom waters at LB7, LB13, and LB14 ranged from 33.09 to 33.36 parts per thousand (ppt), 33.35 to 33.46 ppt, and 33.33 to 33.51 ppt, respectively (Table 2.2.1-2). Salinity typically increased with water depth, although the range in salinities at each of these three stations was relatively small (less than 1-ppt).

Water temperatures measured within the study area were within the expected range for estuarine and near-coastal waters (MEC, 2002). Annual mean temperatures in surface, mid-depth, and bottom waters at LB7, LB13, and LB14 ranged from 17.30 to 17.60 degrees Celsius (°C), 15.31 to 16.52 °C, and 14.44 to 15.45 °C, respectively (Table 2.2.1-2). Water temperatures were highest in the surface waters and decreased with depth, with the lowest temperatures in near-bottom waters.

Transmissivity (i.e., water clarity) values measured during this study generally were within

ranges expected for coastal ports and harbors (MEC, 2002). Transmissivity can be affected by suspended materials from runoff, dredging activities, shipping operations, and biological factors such as plankton blooms. Annual mean values for light transmittance in surface, mid-depth, and bottom waters ranged from 63.37 percent to 66.66 percent, 55.17 percent to 60.69 percent, and 33.82 percent to 45.24 percent, respectively (Table 2.2.1-2). Water clarity in near-bottom waters was lower than that of surface and mid-depth waters.

In addition to the *Ports of Long Beach and Los Angeles Year 2000 Biological Baseline Study of San Pedro Bay* (MEC, 2002), a more recent water quality study was prepared by Weston Solutions, Inc., titled, *Characterization of Water Quality for Inner, Middle, and Outer Harbor Water Bodies in the Port of Long Beach* (Weston, 2006). This report summarized the results of 20 conductivity, temperature, and depth (CTD) casts (samples) that were conducted throughout the Inner, Middle, and Outer Harbor. Additionally, a midwater sample at each station was taken and analyzed for 160 different chemical constituents.

To summarize the results of the *Characterization of Water Quality for Inner, Middle, and Outer Harbor Water Bodies in the Port of Long Beach* (Weston, 2006), all observed samples revealed typical water conditions consistent with other water quality data taken within the Port. Two areas were seen to have altered the representative background marine conditions due to the proximity of the Los Angeles River; however, both of these scenarios are typical within the Port, and the recorded values observed at all stations fell within a range that has been seen in past surveys (Weston, 2006). The water quality sampling stations that are in closest proximity to the proposed project are the seven sites located in the Inner Harbor and one site located in the Los Angeles River. Table 2.2.1-3 summarizes the results from these samples.

#### Beneficial Uses

Beneficial uses for surface waters in the Long Beach Harbor are designated by RWQCB and are identified in the *Water Quality Control Plan for Los Angeles Region* (Basin Plan) (RWQCB, 1994)<sup>6</sup>. Existing designated beneficial uses for the Long Beach Harbor include Navigation; Water Contact

<sup>6</sup> A previous Bays and Estuaries Plan was adopted in 1991, but it was rescinded in 1994 after it was challenged in court. The Bays and Estuaries Policy adopted in 1974 is still in effect.

<b>Table 2.2.1-2 Mean Values of Surface Water Quality in the Long Beach Harbor in the Vicinity of the Proposed Gerald Desmond Bridge Replacement Project (January-November 2000)</b>			
<b>Parameter</b>	<b>LB7</b>	<b>LB13</b>	<b>LB14</b>
<b>Dissolved Oxygen (mg/L)</b>			
Surface	7.6	7.1	6.9
Mid-depth	6.6	6.3	6.0
Bottom	6.2	6.4	5.8
<b>pH (pH units)</b>			
Surface	8.04	7.93	7.93
Mid-depth	7.97	7.92	7.92
Bottom	7.93	7.92	7.88
<b>Salinity (ppt)</b>			
Surface	33.4	33.0	33.1
Mid-depth	33.5	33.4	33.4
Bottom	33.5	33.3	33.4
<b>Temperature (°C)</b>			
Surface	17.3	17.5	17.6
Mid-depth	15.3	16.2	16.5
Bottom	14.4	15.2	15.5
<b>Transmissivity (%)</b>			
Surface	63.37	64.90	66.66
Mid-depth	55.17	60.69	57.81
Bottom	33.82	43.48	45.24

mg/L – milligrams per liter; ppt – parts per thousand; °C – degrees Celsius; % – percent  
Source: MEC, 2002.

<b>Table 2.2.1-3 Mean Values of Surface Water Quality Parameters for the Inner Harbor of the Port of Long Beach (October 2006)</b>		
<b>Parameter</b>	<b>Average</b>	<b>Range</b>
<b>Dissolved Oxygen (mg/L)</b>		
Surface	6.7	5.6-7.5
Bottom	6.6	5.9-7.4
<b>pH (pH units)</b>		
Surface	8.0	7.6-8.4
Bottom	7.8	7.4-8.2
<b>Salinity (PSU)</b>		
Surface	32.6	28.1-33.3
Bottom	33.0	32.6-33.4
<b>Temperature (°C)</b>		
Surface	17.8	16.0-19.5
Bottom	16.2	14.7-17.2
<b>Transmissivity (%)</b>		
Surface	45%	N/A
Bottom	68%	N/A

mg/L – milligrams per liter; PSU – practical salinity units; °C – degrees Celsius; % – percent  
Source: Weston, 2006



Recreation; Non-contact Water Recreation; Commercial and Sport Fishing; Marine Habitat; and Rare, Threatened, and Endangered Species. A potential beneficial use for the Long Beach Harbor is shellfish harvesting.

To maintain these beneficial uses, RWQCB has set forth Water Quality Objectives, which are described in the Basin Plan (RWQCB, 1994). Water Quality Objectives are intended to: (1) protect the public health and welfare; and (2) maintain or enhance water quality in relation to the designated existing and potential beneficial uses of the water. At present, two numeric objectives are set for Long Beach Harbor: DO and pH. The mean annual DO concentrations shall be 5 mg/L or greater, with no single determination less than 5 mg/L. The pH in the Long Beach Harbor shall not be less than 6.5 or higher than 8.5 (RWQCB, 1994).

**Hydrology and Floodplain**

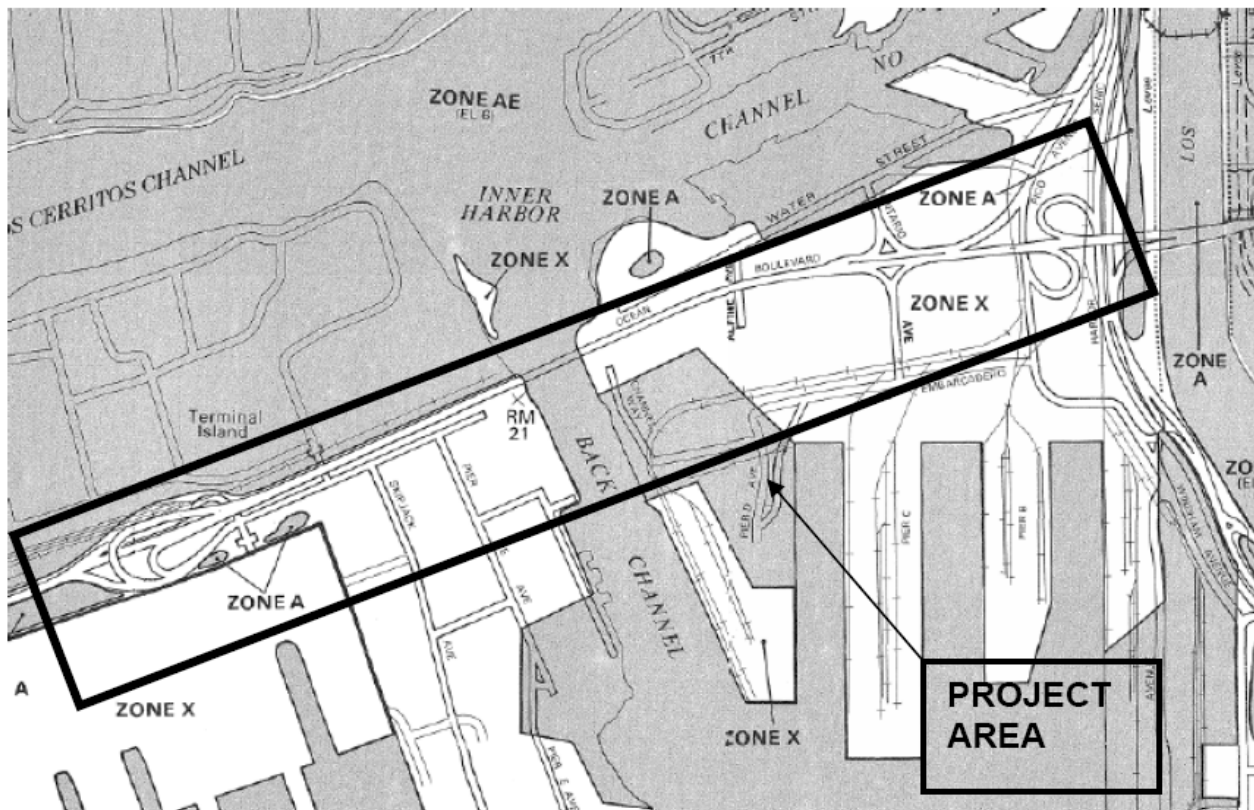
The Dominguez Channel is the major drainage that flows into the Los Angeles-Long Beach Harbor complex. Sediment and contaminants are

transported into the harbor with the flows from the Dominguez Channel.

The Dominguez Channel is an 8.5-mi-long (13.7-km) structure that drains an 80-square-mile (207-square-kilometer) area west of the Los Angeles River basin. The channel flows into the Consolidated Slip and subsequently into the East Basin of Los Angeles Harbor and Cerritos Channel. The Dominguez Channel historically transported untreated industrial wastes into Los Angeles Harbor, but such discharges have been significantly reduced through regulation by RWQCB.

Within the project area, the Federal Emergency Management Agency (FEMA) has identified three flood zones on the Flood Insurance Rate Map (FIRM) for this area, which are shown in Exhibit 2.2.1-2. The three flood zones are defined as:

Zone A – Flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by approximate methods of analysis.



**Exhibit 2.2.1-2  
FEMA FIRM Map Number 0601360020C**

Zone AE – Flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by detailed methods of analysis.

Zone X – Flood insurance rate zone that corresponds to areas outside the 1-percent annual chance floodplain, areas of 1-percent annual chance sheet flow flooding where average depths are less than 1 ft (0.3-m), areas of 1-percent annual chance stream flooding where the contributing drainage area is less than 1 square mi, (0.3 square km) or areas protected from the 1-percent annual chance flood by levees.

To summarize the information shown in Exhibit 2.2.1-2, the area north of Ocean Boulevard on Terminal Island is within the base floodplain, which in this case is a 100-year floodplain. The area south of Ocean Boulevard and the land to the east of the bridge is outside of the base floodplain. The base floodplain is defined as the area subject to flooding by the flood or tide having a 1-percent chance of being exceeded in any given year.

### **2.2.1.3 Environmental Consequences**

#### **Evaluation Criteria**

Construction and operational impacts to surface waters were assessed with regard to potential degradation of water quality and changes in surface water flow. Effects on future water quality, with and without implementation of the project alternatives, were estimated based on the potential for runoff to reach surface water resources and types of pollutants anticipated. Construction and operational impacts to groundwater resources were assessed with regard to potential degradation of groundwater quality and changes in groundwater supplies. Floodplain and hydrology impacts were assessed with regard to potential impacts to natural and beneficial floodplain values, whether flows would be impeded or redirected, or if the proposed alternative would result in a substantial risk of loss, injury, or death involving flooding.

#### No Action Alternative

**Surface Water Quality:** The No Action Alternative would have no effect on water quality or water resources associated with construction or demolition activities. Consequently, there would be no Disturbed Soil Areas (DSAs) associated with the No Action Alternative.

There would continue to be operational impacts to surface waters associated with the No Action

Alternative because storm water would continue to flow from the roadway, untreated, into surrounding Port waters. Currently, there are no existing treatment BMPs in the project vicinity, and under the No Action Alternative, this would continue to be the case. As identified in the North-side, South-side, and Rehabilitation Alternative sections, implementation of these alternatives would result in increased treatment of storm water runoff within the project limits, as opposed to the No Action Alternative.

**Groundwater Resources:** The No Action Alternative would have no effect on groundwater resources associated with construction, demolition, or operational activities.

**Floodplain and Hydrology:** The No Action Alternative would have no effects to the designated floodplain or area hydrology associated with construction, demolition, or operational activities.

### **Construction and Demolition Impacts**

#### North-side Alignment Alternative

**Surface Water Quality:** The North-side Alignment Alternative would result in an estimated total DSA of 38 acres (15 ha). No construction activities on the proposed or existing bridge would occur within the waters of the channel. All construction activities would be conducted above the channel. During construction, construction materials would be stored on the land adjacent to the east and west bridge accesses and on the bridge itself. Accidental spills or leaks of construction materials, fuels, solvents, paints, and concrete wash water over or near the channel could discharge into the channel, resulting in water quality impacts. Storm water runoff could also transport spilled or leaked materials into the channel. This could result in a temporary adverse effect on water quality in the Long Beach Harbor. Construction areas and staging areas would involve disturbed ground surfaces that would be susceptible to erosion by storm water runoff. Sediment-laden storm water runoff could increase turbidity and decrease DO concentrations in the Back Channel, resulting in a temporary adverse effect on water quality; however, temporary adverse effects to surface water are not anticipated, because a site-specific SWPPP would be implemented, and the selection of appropriate construction site BMPs would ensure no water quality standards or Waste Discharge Requirements (WDRs) would be violated. With implementation of these measures, the potential for adverse effects on surface water would be minimized.

As mentioned in the project description, the proposed project would replace the existing bridge with a 200-ft (61-m) vertical clearance (above MHWL) bridge. This would necessitate relocating the existing power and transmission lines that cross the Cerritos Channel, approximately 300 ft (91.4 m) north of the bridge, with an approximate vertical clearance of 153 ft (46.6 m) above the MHWL, because the higher bridge would result in the transmission lines being the only vertical navigation constraint. Under the recommended relocation scenario (see Exhibit 2.1.4-1), new towers would be installed adjacent to the existing towers on Piers A and S to accommodate a 200-ft (61-m) vertical clearance for all SCE lines. The SWPPP would include construction areas associated with relocation of the SCE transmission lines, and it would identify BMPs designed to prevent pollutants and sediment from entering receiving water bodies. Relocation of the SCE transmission lines would have no adverse effects on surface water quality.

Appropriate BMPs would be obtained from the *Caltrans Storm Water Quality Handbook, Construction Site Best Management Practices Manual* (Caltrans, 2003). The Port is required to ensure that an SWPPP and SAP are prepared and implemented prior to construction activities. The SWPPP would include the following: erosion and sediment control; non-storm water management; post-construction storm water management; waste management and disposal; maintenance, inspection and repair of BMPs; employee training to perform inspections of the BMPs at the construction site; and a SAP for contaminated storm water runoff. The SWPPP must describe structural and non-structural BMPs to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind. Implementation of an SWPPP during construction of the North-side Alignment Alternative would minimize the potential for adverse effects on surface water quality.

During demolition of the existing bridge, there is the potential for debris to fall from the bridge into the Back Channel. The existing bridge may have ACM in the form of expansion joint compound and LBP coatings that would be disturbed by demolition. Asbestos and lead-containing materials and other debris falling into the channel could result in a temporary adverse effect on water quality; however, construction special provisions for the North-side Alignment Alternative would require the use of debris netting to capture any

material or debris that could fall from the bridge during construction and demolition. Use of debris netting during construction and demolition would minimize the potential adverse effect from debris falling in surface water.

The following special BMPs, where applicable, would be implemented to prevent debris from falling and depositing into the Back Channel:

- Limit demolition and construction located over the channel during precipitation events.
- Employ nonshattering methods for demolition activities (e.g., wrecking balls would not be acceptable).
- Place platforms under/adjacent to the bridge structures to collect debris.
- Secure all materials on the bridge structures to prevent discharges into the channel via wind.
- Use attachments on equipment, such as backhoes, to catch debris from small demolition operations.
- Stockpile accumulated debris and waste generated from demolition away from the channel.
- Use drip pans during equipment operation, maintenance, cleaning, fueling, and storage for spill prevention. Place drip pans under all vehicles and equipment placed on the bridge structures when expected to be idle for more than 1 hour.
- Ensure that equipment used for this project is leak-free.
- Direct water from concrete curing and finishing operations away from inlets and watercourses to temporary collection facilities so that concrete wastes would be disposed of properly.

As stated above, with implementation of construction special provisions, an SWPPP, construction site BMPs, and adherence to NPDES permit requirements, no adverse impacts would occur to surface water quality during construction of the North-side Alignment Alternative or demolition of the existing bridge.

**Groundwater Resources:** Benzene-contaminated groundwater was detected south of the project area. It should be noted that the Remedial Investigation Report (Bechtel, 1997) was the most recent report that provided site-specific sampling data to help determine the approximate limits of groundwater contamination; however, the limited

sampling locations in the report prevent a conclusive determination from being made as to the extent to which the plume may have migrated. Additionally, because the Remedial Investigation Report (Bechtel, 1997) is more than 10 years old, the current location and condition of the plume is not known. Exhibit 2.2.1-1 shows the groundwater and surface water sampling locations in the vicinity of the Gerald Desmond Bridge Replacement Project.

During construction of the North-side Alignment Alternative, excavation activities are anticipated to encounter groundwater, and dewatering would be necessary. Dewatering groundwater in the project area is a concern because this can cause the contaminated groundwater plume to migrate to non-contaminated areas. All dewatering activities would be in compliance with Los Angeles RWQCB regulatory requirements, including an individual dewatering permit or waste discharge permit, if applicable. Information regarding potential regulatory permits is provided in Section 2.2.1.1. Prior to commencement of dewatering activities, RWQCB would be contacted immediately to provide a recommendation on how to handle the disposal of the dewatering flows. Any dewatering activities, including those that may contact contaminated groundwater, shall be treated to remove pollutants to meet Los Angeles RWQCB discharge requirements, or hauled offsite and properly disposed of.

Bridge pile installation would be conducted by driving piles in lieu of pre-drilling to avoid or minimize the need for additional dewatering. Additionally, the groundwater in this area is likely to be contaminated from seawater intrusion, and it is not an identified drinking water source. Because the groundwater would not be used for any purposes related to the proposed project, groundwater supplies would not be affected. Because proper procedures and regulations regarding dewatering activities would be followed, no temporary adverse impacts to the groundwater or the benzene plume resulting from construction of the North-side Alignment Alternative are anticipated.

**Floodplain and Hydrology:** Construction and demolition activities associated with the North-side Alignment Alternative would not impede or redirect flows; therefore, they would not result in any adverse effects to the area hydrology or floodplain.

#### South-side Alignment Alternative

**Surface Water Quality:** The potential for construction and demolition impacts to surface water quality for the South-side Alignment Alternative would be similar to the North-side Alignment Alternative. The South-side Alignment Alternative would also result in approximately 38 acres (15 ha) of DSA. No construction activities on the proposed or existing bridge would occur within waters of the Back Channel. All construction activities would be conducted above the channel. All construction BMPs and special BMPs identified for the North-side Alignment Alternative would be implemented for the South-side Alignment Alternative. With implementation of construction special provisions, an SWPPP, construction site BMPs, and adherence to NPDES permit requirements, no adverse impacts would occur to surface water quality during construction of the South-side Alignment Alternative.

**Groundwater Resources:** As described in Section 2.2.1.2, several studies have been conducted regarding the source and location of the benzene plume in the project area; however, the limited sampling locations prevent a conclusive determination from being made as to the extent to which the plume may have migrated. Therefore, there is no basis for determining whether the North-side Alignment Alternative or the South-side Alignment Alternative would have greater potential to impact groundwater resources. As with the North-side Alignment Alternative, excavation activities are anticipated to encounter groundwater, and dewatering would be necessary. As described for the North-side Alignment Alternative, all dewatering activities would be in compliance with Los Angeles RWQCB regulatory requirements. Any dewatering activities, including those that may contact contaminated groundwater, shall be treated to remove pollutants to meet Los Angeles RWQCB discharge requirements, or hauled offsite and properly disposed of.

Bridge pile installation would be conducted by driving piles in lieu of pre-drilling to avoid or minimize the need for additional dewatering. Additionally, the groundwater in this area is likely to be contaminated from seawater intrusion, and it is not an identified drinking water source. Because the groundwater would not be used for any purposes related to the proposed project, groundwater supplies would not be affected. Because proper procedures and regulations regarding dewatering activities would be followed, no temporary adverse impacts to the groundwater or the benzene plume resulting from construction

of the South-side Alignment Alternative are anticipated.

**Floodplain and Hydrology:** Construction and demolition activities associated with the South-side Alignment Alternative would not impede or redirect flows; therefore, they would not result in any adverse effects to the area hydrology or floodplain.

#### Rehabilitation Alternative

**Surface Water Quality:** The Rehabilitation Alternative would involve replacement of the bridge deck, replacement of all expansion joints, replacement of the sway bracings for the main span, painting of all steel members, and seismic retrofit of foundations, columns, bent caps, abutments, and superstructure. Retrofit of the foundations and construction of the necessary treatment BMPs are the only construction activities associated with the Rehabilitation Alternative that would result in soil disturbance. The amount of DSA necessary to retrofit the foundations would be less than 1-acre (0.4-ha). Although the Rehabilitation Alternative would require a DSA of less than 1-acre (0.4-ha), excluding construction of proposed treatment BMPs, it is likely that an SWPPP would have to be prepared because a portion of land within the project limits drains to a 303 (d) listed water body – the Los Angeles River; however, with a small DSA and implementation of an SWPPP, the Rehabilitation Alternative would not result in adverse effects to surface water quality associated with construction or demolition activities.

**Groundwater Resources:** The Rehabilitation Alternative would require retrofitting the foundations, which would entail soil excavation and pile driving the steel casings. Although excavation activities may encounter groundwater, installation of the steel casings would be conducted by pile driving in lieu of pre-drilling to avoid or minimize the need for additional dewatering. The potential for groundwater dewatering is a concern in this area, and it is discussed above, under construction and demolition impacts for the North-side and South-side Alignment Alternatives. All dewatering activities would be in compliance with Los Angeles RWQCB regulatory requirements. Any dewatering activities, including those that may contact contaminated groundwater, shall be treated to remove pollutants to meet Los Angeles RWQCB discharge requirements, or hauled offsite and properly disposed of. Groundwater would not be used for any purposes related to the

Rehabilitation Alternative; therefore, no temporary adverse impacts to groundwater resources would result from construction activities associated with the Rehabilitation Alternative.

**Floodplain and Hydrology:** With the Rehabilitation Alternative, there would be no construction or demolition impacts that would impede or redirect flows; therefore, this alternative would not result in any adverse effects to the area hydrology or floodplain.

#### **Operational Impacts**

##### North-side Alignment Alternative

**Surface Water Quality:** Once constructed, the North-side Alignment Alternative would increase the volume of surface runoff because of the addition of impervious surface area. Within the project limits, the amount of existing impervious surface is 36.09 acres (14.6 ha). The North-side Alignment Alternative would require conversion of 11.46 acres (4.63 ha) of unpaved area to impervious surfaces; therefore, the North-side Alignment Alternative would result in a net increase of 11.46 acres (4.63 ha) of impervious surface compared to the No Action Alternative. The new bridge would be designed so that storm water runoff would flow along gutters towards the ends of the bridge and discharge into proposed treatment BMPs, which at this stage are identified as biofiltration swales and media filters, prior to entering the storm drainage system. Existing drainage patterns would not be altered in the project area. As previously described, the increase in impervious surface area associated with the proposed project would increase the amount of runoff that would be discharged to the existing storm drain system; however, this increase is not substantial enough to require construction of new storm drainage facilities or expansion of existing facilities at the Port. With implementation of the proposed treatment BMPs, storage capacity for runoff would be provided, and the flow velocity in pre- and post-project conditions would be similar. Although the amount of runoff volume would increase, with implementation of the proposed treatment BMPs, the release time would be increased because runoff would be designed to reside in the proposed device for a particular length of time. Ultimately, this would result in a decreased flow rate; therefore, with operations of the North-side Alignment Alternative, there would be no exceedance of the capacity of the existing storm water drainage systems, and there would be no adverse effects on the storm water drainage system.

Based on preliminary design, there are eight potential locations for treatment BMPs for the North-side Alignment Alternative, which are shown on Exhibit 2.2.1-3. Out of these eight potential locations, six sites are proposed to be outfitted with media filters, and two sites are proposed to be outfitted with biofiltration swales. It should be noted that the applicability of each of the Caltrans-approved treatment BMPs was analyzed for this project, and media filters and biofiltration swales were identified as the most feasible treatment BMPs to implement, based on the removal of targeted design constituents (TDCs), site constraints, and design criteria. Examples of a typical biofiltration swale and a media filter are shown in Exhibits 2.2.1-4 and 2.2.1-5.

The six locations where media filters are proposed for the North-side Alignment Alternative are identified as Locations 1, 2, 5, 6, 7, and 8 on Exhibit 2.2.1-3. Location 1 is inside the loop of the proposed on-ramp from Pier T Avenue to the EB direction of the proposed North-side Alignment Alternative replacement bridge. Location 2 is located adjacent to the EB approach structures, southwest of the LBGS. Location 5 is adjacent to the south side of the EB bridge approach structure, immediately before the split between the Pico Boulevard off-ramp and the connector to NB SR 710. Location 6 is adjacent to the south side of the EB approach structure, after Ocean Boulevard. Location 7 is approximately 200 ft (61 m) northeast of Location 6. Location 8 is on the inside shoulder of the proposed on-ramp from SB Pico Boulevard to the WB approach structure.

There are two locations where biofiltration swales are proposed, which are identified as Locations 3 and 4 on Exhibit 2.2.1-3. Locations 3 and 4 abut the Back Channel, and they are proposed under the southern portion of the cable-stayed structures. Location 3 is on the west bank of the Back Channel, while Location 4 is on the east bank.

With implementation of these treatment BMPs, operation of the North-side Alignment Alternative would not have an adverse effect on water quality.

Operation of the new bridge would be covered under the Caltrans Statewide Storm Water Permit (NPDES No. CAS000003). This includes the maintenance of each of the Caltrans-approved treatment BMPs that would be implemented as part of this project. Bridge maintenance activities may include work such as repairing damage or deterioration in various bridge components; removing debris from piers, bearing seats, and

abutments; repairing expansion joints; cleaning and painting structural steel; and sealing concrete surfaces. All maintenance activities would employ BMPs specified in the Caltrans Statewide SWMP (2007c) to eliminate or minimize the potential for pollutants to be picked up by storm water runoff and transported offsite.

**Groundwater Resources:** Because the proposed treatment BMPs would not infiltrate any runoff into the ground, groundwater would not be affected or used for any purposes related to operation of the North-side Alignment Alternative; therefore, no adverse impacts to groundwater resources would result from operation of the North-side Alignment Alternative.

**Floodplain and Hydrology:** The North-side Alignment Alternative would require new bridge structures. These structures would be located outside of the channel but within the base floodplain. Placement of the structures within the base floodplain is considered an "encroachment" as defined by EO 11988: Floodplain Management; however, construction of the North-side Alignment Alternative would not result in a "significant encroachment" per 23 CFR 650 Subpart A. A project would be considered to result in a "significant encroachment" if it would result in one or more of the following:

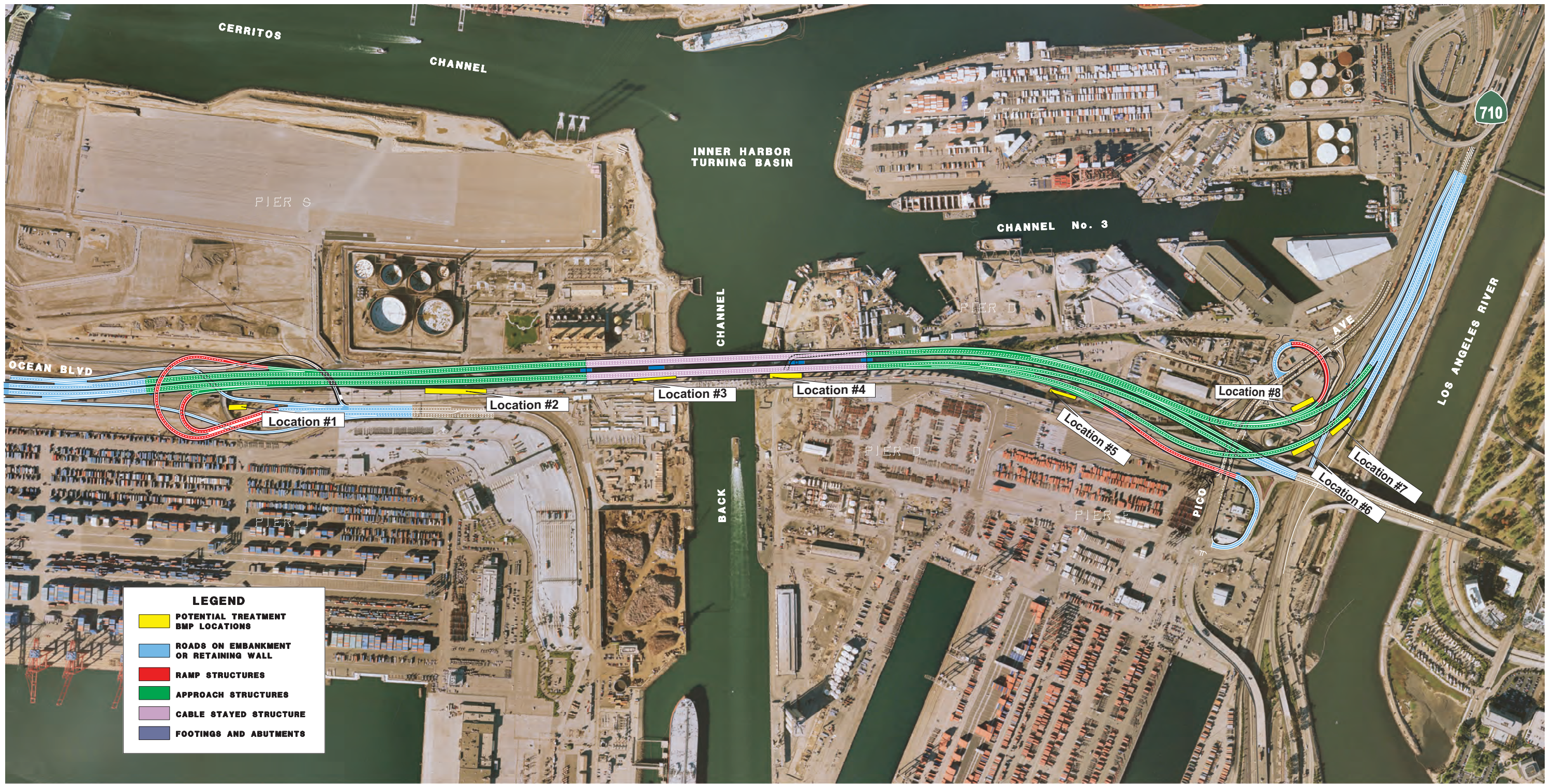
- A significant potential for interruption or termination of a transportation facility, which is needed for emergency vehicles or provides a community's only evacuation route.
- A significant risk (*to life or property*), or
- A significant adverse impact on natural and beneficial floodplain values.

The project would be designed to not impede or redirect flood flows. The bridge would be placed on piers. There are no levees or dams in the vicinity that would be subject to failure and expose people or structures associated with the proposed project to a significant risk of loss, injury, or death involving flooding. There would be no adverse effects to natural or beneficial floodplain values; therefore, the floodplain would not be adversely affected by operation of the North-side Alignment Alternative. Additionally, the North-side Alignment Alternative would not result in the impendence or redirection of flows; therefore, it would not result in any adverse effects to the area hydrology.

#### South-side Alignment Alternative

**Surface Water Quality:** As with the North-side Alignment Alternative, the South-side Alignment





**LEGEND**

- POTENTIAL TREATMENT BMP LOCATIONS
- ROADS ON EMBANKMENT OR RETAINING WALL
- RAMP STRUCTURES
- APPROACH STRUCTURES
- CABLE STAYED STRUCTURE
- FOOTINGS AND ABUTMENTS



EXHIBIT 2.2.1-3

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 PLOTBL: N:\S\TDM\SPLOT\_DRV\V8\w8-pdf-p11  
 USER: P0035148

MARK	DATE	BY	REVISIONS	DRAWN	DATE	DESIGNED	P.E. NO.	PROJ. MGR.	P.E. NO.	SECT. HEAD	P.E. NO.	CHIEF HARBOR ENGINEER	P.E. NO.	DATE
				DWP	03/28/08									



**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
**NORTH-SIDE BRIDGE REPLACEMENT ALIGNMENT**  
**POTENTIAL TREATMENT BMP LOCATIONS**

SCALE	SHEET _____ OF _____
SPECIFICATION NUMBER	_____
DRAWING NUMBER	_____



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**Exhibit 2.2.1-4 Typical Biofiltration Swale**



**Exhibit 2.2.1-5 Typical Media Filter (Austin Sand Filter)**



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Alternative is anticipated to increase the volume of surface runoff because of the addition of impervious surface area. The increase in surface runoff would be similar to the North-side Alignment Alternative, as the South-side Alignment Alternative would also require conversion of an additional 11.46 acres (4.63 ha) of unpaved area to impervious surfaces. Storm water runoff would be treated in the same manner as the North-side Alignment Alternative, and the same treatment BMPs are proposed, as shown in Exhibit 2.2.1-6. As described with the North-side Alignment Alternative, with implementation of treatment BMPs, there would be no exceedance of the capacity of the existing storm water drainage systems, and there would be no adverse effects on the storm water drainage system associated with operation of the South-side Alignment Alternative.

Preliminary design indicates that as with the North-side Alignment Alternative, there are eight potential locations for treatment BMPs for the South-side Alignment Alternative, which are shown on Exhibit 2.2.1-6. Out of these eight potential locations, six sites are proposed to be outfitted with media filters, and two sites are proposed to be outfitted with biofiltration swales. Although six media filters and two biofiltration swales are the proposed treatment BMPs for both the North-side and South-side Alignment Alternatives, some of the locations of these treatment BMPs will change based on the alternative selected. Proposed BMP Locations 6, 7, and 8 would remain the same for both the North-side and South-side Alignment Alternatives, while Locations 1, 2, 3, 4, 5, and 6 would change. The six locations where media filters are proposed for the South-side Alignment Alternative are identified as Locations 1, 2, 5, 6, 7, and 8 on Exhibit 2.2.1-6. Location 1 is inside the loop of the proposed on-ramp from Pier T Avenue to the EB direction of the proposed South-side Alignment Alternative replacement bridge. Location 2 is adjacent to the EB approach structures, southwest of the LBGS. Location 5 is adjacent to the north side of the WB bridge approach structure. Location 6 is adjacent to the north side of the EB approach structure, after Ocean Boulevard. Location 7 is approximately 200 ft (61 m) northeast of Location 6. Location 8 is on the inside shoulder of the proposed on-ramp from SB Pico Boulevard to the WB approach structure.

There are two locations where biofiltration swales are proposed, which are identified as Locations 3 and 4 on Exhibit 2.2.1-6. Locations 3 and 4 abut

the Back Channel, and they are proposed under the northern portion of the cable-stayed structures. Location 3 is on the west bank of the Back Channel, while Location 4 is on the east bank.

With implementation of these treatment BMPs, operation of the South-side Alignment Alternative would not have an adverse effect on water quality.

**Groundwater Resources:** Because the proposed treatment BMPs would not infiltrate any runoff into the ground, groundwater would not be affected or used for any purposes related to operation of the South-side Alignment Alternative; therefore, no adverse impacts to groundwater resources would result from operation of the South-side Alignment Alternative.

**Floodplain and Hydrology:** The South-side Alignment Alternative would require new bridge structures, similar to those of the North-side Alignment Alternative. All structures would be located outside of the channel; however, unlike the bridge structures for the North-side Alignment Alternative, all structures necessary for the South-side Alignment Alternative would be located outside of the base floodplain. This is because the boundary of the base floodplain is north of the existing Gerald Desmond Bridge to the south, and moving the bridge further south would locate the bridge further from the base floodplain zone.

The bridge would be placed on piers. There are no levees or dams in the vicinity that would be subject to failure and expose people or structures associated with the proposed project to a significant risk of loss, injury, or death involving flooding. There would be no adverse effects to natural or beneficial floodplain values; therefore, the floodplain would not be adversely affected by operation of the South-side Alignment Alternative. Additionally, the South-side Alignment Alternative would not result in the impendence or redirection of flows; therefore, it would not result in any adverse effects to the area hydrology.

#### Rehabilitation Alternative

**Surface Water Quality:** Because the Rehabilitation Alternative would require compliance with NPDES regulatory requirements, treatment BMPs would be a necessary component of this alternative. Storm water runoff would be treated in a similar manner as the North-side and South-side Alignment Alternatives, and most of the same treatment BMPs are proposed, as shown in Exhibit 2.2.1-7. Because the Rehabilitation Alternative would not add any additional impervious surfaces, no new runoff would be generated, and there would be no

exceedance of the capacity of the existing storm water drainage system. There would be no adverse effects on the storm water drainage system associated with operation of the Rehabilitation Alternative.

Preliminary design indicates that there are five potential locations for treatment BMPs for the Rehabilitation Alternative, which are shown on Exhibit 2.2.1-7. Out of these five potential locations, three sites are proposed to be outfitted with media filters, and two sites are proposed to be outfitted with biofiltration swales. The three locations where media filters are proposed for the Rehabilitation Alternative are identified as Locations 1, 2, and 5 on Exhibit 2.2.1-7. Location 1 is inside the loop of the existing WB off-ramp to Pier T. Location 2 is adjacent to the WB shoulder of Ocean Boulevard, southwest of the LBGS. Location 5 is adjacent to the north side of the WB bridge approach structure.

There are two locations where biofiltration swales are proposed, which are identified as Locations 3 and 4 on Exhibit 2.2.1-7. Locations 3 and 4 abut the Back Channel, and Location 3 is on the west bank of the Back Channel, while Location 4 is on the east bank.

With implementation of these treatment BMPs, operation of the Rehabilitation Alternative would not have an adverse effect on water quality.

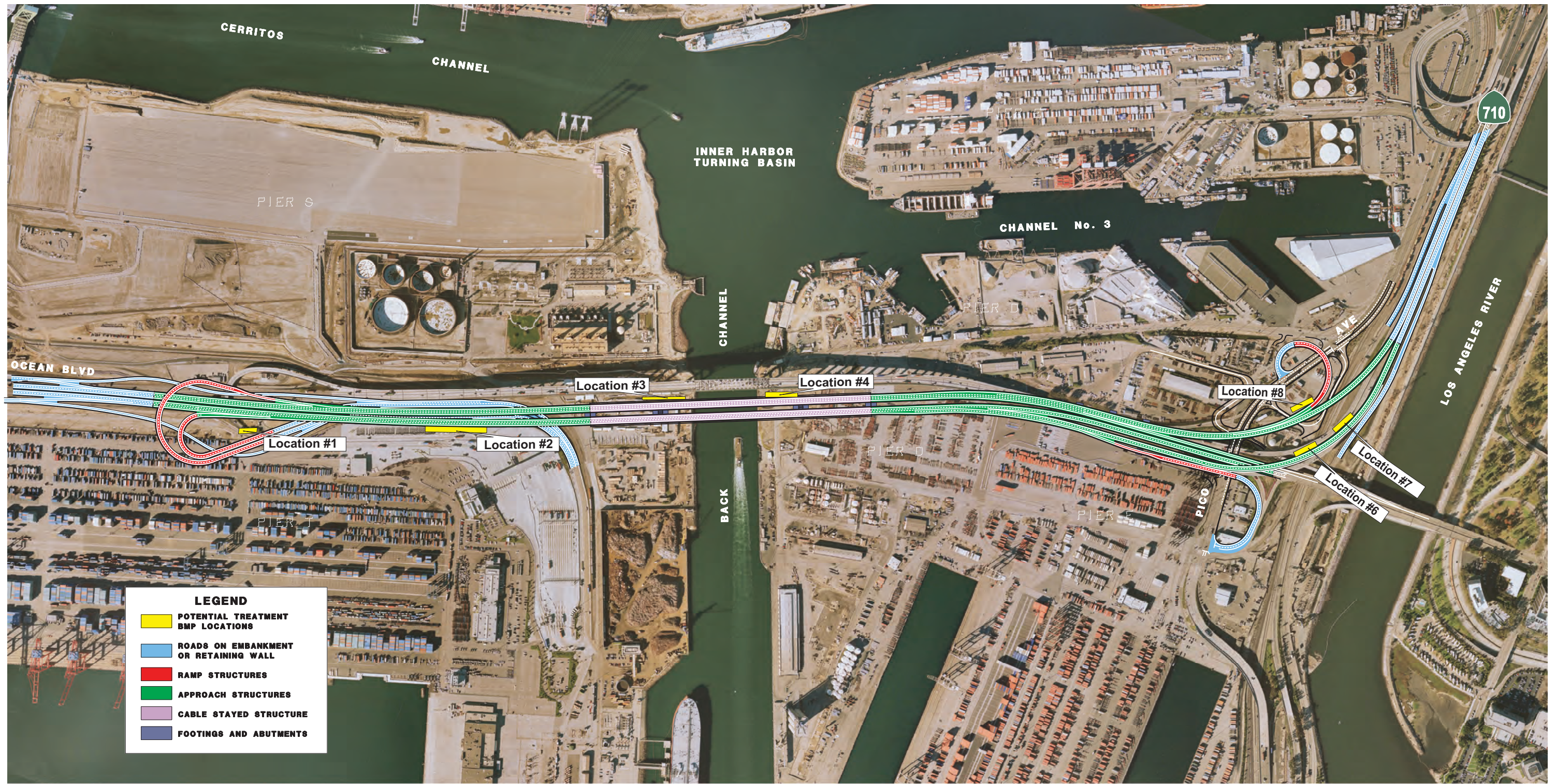
**Groundwater Resources:** Groundwater would not be affected or used for any purposes related to the Rehabilitation Alternative; therefore, no adverse impacts to groundwater resources would result from operations associated with the Rehabilitation Alternative.

**Floodplain and Hydrology:** Operations associated with the Rehabilitation Alternative would not impede or redirect flows; therefore, they would not result in any adverse effects to the area hydrology or floodplain.

#### **2.2.1.4 Avoidance, Minimization and/or Mitigation Measures**

With implementation of the above-mentioned treatment BMPs, construction special provisions, and construction site BMPs, and by adhering to NPDES guidelines, no adverse effects would occur to water resources or hydrology during construction or operation of the new bridge or rehabilitation of the old bridge; therefore, no mitigation measures are required.





**LEGEND**

- POTENTIAL TREATMENT BMP LOCATIONS
- ROADS ON EMBANKMENT OR RETAINING WALL
- RAMP STRUCTURES
- APPROACH STRUCTURES
- CABLE STAYED STRUCTURE
- FOOTINGS AND ABUTMENTS



EXHIBIT 2.2.1-6

FILE: C:\South-Alignment\GDB-ENV-South-Align.dgn  
 DATE: 4/1/2008 TIME: 1:37:08 PM  
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 PLOTBL: N:\S\TDM\SPLOT\_DRV\V8\V8-v8-pdf.plt  
 USER: P0035148

MARK	DATE	BY	REVISIONS	DRAWN	DATE	DESIGNED	P.E. NO.	PROJ. MGR.	P.E. NO.	SECT. HEAD	P.E. NO.
				DWP	03/28/08						



**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
**SOUTH-SIDE BRIDGE REPLACEMENT ALIGNMENT**  
**POTENTIAL TREATMENT BMP LOCATIONS**

SCALE	SHEET _____ OF _____
SPECIFICATION NUMBER	_____
DRAWING NUMBER	_____



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**LEGEND**  
 POTENTIAL TREATMENT BMP LOCATIONS



EXHIBIT 2.2.1-7

MARK	DATE	BY	REVISIONS	DRAWN <u>DWP</u> DATE <u>03/28/08</u> DESIGNED _____ P.E. NO. _____ PROJ. MGR. _____ P.E. NO. _____ SECT. HEAD _____ P.E. NO. <u>C</u>	ASS'T CHIEF HARBOR ENGR. P.E. NO. <u>C-25677</u> , DATE _____ CHIEF HARBOR ENGINEER P.E. NO. <u>C-43069</u> , DATE _____
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**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**  
**REHABILITATION ALTERNATIVE**

SCALE	SHEET _____ OF _____
SPECIFICATION NUMBER	_____
DRAWING NUMBER	_____



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## **2.2.2 Geologic Resources**

This section assesses potential impacts from faulting and seismicity, soil and sediment, liquefaction, subsidence, and tsunami and seiche associated with implementation of the proposed project. This assessment is based on information provided in the *Seismic Ground Motion Study Report for Gerald Desmond Replacement Bridge Project* (EMI, 2005) and *Port Wide Ground Motion Study for Port of Long Beach* (EMI, 2006).

### **2.2.2.1 Regulatory Setting**

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 by CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are a prime consideration in the design and retrofit of structures. Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for bridge projects. The current policy is to use the anticipated MCE, from young faults in and near California for ordinary standard bridges (Caltrans, 2004). Caltrans, with the support of an external Seismic Advisory Board, has developed a set of seismic performance criteria for new major long-span bridges (ATC, 1996). In these criteria, safety-evaluation and functional-evaluation design earthquakes are defined. The safety-evaluation earthquake (SEE) may be defined probabilistically as an earthquake with a 1,000- to 2,000-year return period, and the probabilistic safety-evaluation ground motion must be determined on a site-specific basis. The functional-evaluation earthquake (FEE) is intended to represent an event that has a reasonable probability of not being exceeded during the life of the bridge.

### **2.2.2.2 Affected Environment**

During the 1800s, the shoreline in the project area consisted of a tidal estuary at the mouth of the Los Angeles River. An offshore sandbar called Rattlesnake Island protected this estuary. Development of the various harbor facilities through dredging and construction of landfills has resulted in substantial alteration of the original shoreline. Rattlesnake Island was broadened to become Terminal Island. Wilmington Slough was dredged to form the West Basin of the Los Angeles Harbor. The Los Angeles River was

diverted to the east side of Long Beach Harbor to control the severe silting that occurred whenever the river flooded.

Between 5,000 and 20,000 ft (1,520 and 6,100 m) of poorly to moderately consolidated marine sediment and unconsolidated alluvium underlie the coastal plain between the Newport-Inglewood Fault and San Pedro Bay. The marine sedimentary rocks range in age from middle Miocene to Pliocene (14 million to 2 million years ago). The unconsolidated alluvium ranges in age from Pleistocene to Holocene (2 million years ago to the present). In the project area, sedimentary rocks consist of the Pliocene Repetto Siltstone, and the Malaga Mudstone and Valmonte Diatomite of the Miocene Monterey Formation. The Catalina Schist underlies these sedimentary rocks. The Catalina Schist is exposed only in the Palos Verdes Hills, but it is encountered in numerous oil wells at depths of 5,000 to 14,000 ft (1,520 to 4,270 m) below sea level.

### **Faulting and Seismicity**

The southern California area is seismically active; however, seismicity in the Los Angeles Basin does not clearly correlate to surface faults. There is no concentration or clustering of earthquakes in the site region except along the Newport-Inglewood Structural Zone (NISZ) where a series of aftershocks from the 1933 event are located. It has been suggested that as much as 40 percent of the tectonic strain in southern California is not released on known faults (Ward, 1994).

The largest historical earthquake within the Los Angeles Basin was the 1933 Long Beach earthquake of Magnitude (M) 6.4 and Local Magnitude (ML) 6.3. The 1971 San Fernando (ML 6.4, M 6.7) earthquake occurred outside of the basin along the northern margin of the San Fernando Valley within a zone of mapped surface faults. The more recent 1987 Whittier earthquake (ML 5.9, M 5.9) and the 1994 Northridge (ML 6.4, M 6.7) earthquake occurred under the San Gabriel Valley and the San Fernando Valley, respectively, but they were not associated with surface faults.

The Long Beach earthquake was generally believed to have been associated with the NISZ (Benioff, 1938). This association was based on abundant ground failures along the trend, but no unequivocal surface rupture was identified. Hauksson and Gross (Hauksson and Gross, 1991) re-evaluated the seismic history and relocated the 1933 earthquake to a depth of

approximately 6.2 mi (10 km) below the Huntington Beach-Newport Beach city boundary.

The following sections describe the principal active faults in the Los Angeles region that might contribute to ground shaking in the POLB area. Exhibit 2.2.2-1 shows the locations of these faults. This information is provided from a regional perspective for understanding the nature of the faults.

### **Palos Verdes Fault**

The Palos Verdes fault extends through the POLA from the east side of the Palos Verdes Peninsula southeasterly to the Lasuen Knoll area offshore and northwesterly into the Santa Monica Bay (SMB), for a total length of approximately 62 mi (100 km) (Exhibit 2.2.2-1).

The Palos Verdes fault is predominantly a strike-slip fault, but it has a small vertical component (approximately 10 percent to 15 percent). The slip rate of the Palos Verdes fault is based primarily on the geophysical and geological studies in the outer harbor of the POLA by McNeilan *et al.* (1996). McNeilan *et al.* estimated a long-term horizontal slip rate of between 0.078 and 0.137 inches per year (in/yr) (2.0 and 3.5 millimeters per year [mm/yr]) with a range of approximately 0.09 to 0.117 in/yr (2.3 to 3.0 mm/yr) for the middle- to late-Holocene time period. Such a slip rate makes the Palos Verdes fault one of the most active faults in the Los Angeles region.

There are virtually no direct data to constrain the recurrence interval for large earthquakes on the Palos Verdes fault. There have been no significant earthquakes on the fault since the arrival of the Franciscan missionaries in the 1700s. Using the empirical data of Wells and Coppersmith (1994) to indirectly make judgments on how long it would take to store up enough strain to generate an M 6.8 to 7.4 earthquake, it appears that recurrence intervals for such earthquakes on the Palos Verdes fault would range from a few hundred to a few thousand years. For example, fault rupture scenarios evaluated by McNeilan *et al.* ranged from 180 to 630 years for an M 6.8 event, 400 to 440 years for an M 7.1 event, 1,000 to 1,100 years for an M 7.2 event, and 830 to 1,820 years for an M 7.4 event. Other scenarios may be just as likely and would yield similar ranges.

### **Newport-Inglewood Structural Zone**

The NISZ consists of the northwest-southeast trending series of faults and folds forming an alignment of hills in the western Los Angeles

Basin extending from the Baldwin Hills on the north to Newport Beach on the south (Exhibit 2.2.2-1).

The maximum earthquake used for the NISZ in local geotechnical investigations has generally been M 7.0. This may be relatively small for a feature as long as the SMB zone, but the magnitude is based on the concept that the zone consists of shorter discontinuous faults, or segments, that behave independently. The fault was the source of the 1993 Long Beach earthquake of M 6.3, but as with the Palos Verdes fault, the history of earthquakes on the NISZ is incomplete, so it is difficult to estimate a maximum earthquake. Empirical fault-length/earthquake-magnitude relations (Wells and Coppersmith, 1994) suggest an MCE of approximately 7.0.

The recurrence interval for the maximum earthquake on the NISZ is very long, on the order of a thousand years or more (Schell, 1991; Freeman *et al.*, 1992; Shlemon *et al.*, 1995; Grant *et al.*, 1997).

Although there is quite a wide range of slip rates proposed by various published sources, most of them are of uncertain validity because they are based on short-term, local, vertical components rather than regional horizontal slip. Grant *et al.* (1997) inferred a minimum rate of 0.013 to 0.02 in/yr (0.34 to 0.55 mm/yr), but Shlemon *et al.* estimated a rate of 0.059 to 0.098 in/yr (1.5 to 2.5 mm/yr). The southern segment of the SMB system comprising the Rose Canyon fault in the San Diego area has a slip rate of approximately 0.043 to 0.059 in/yr (1.1 to 1.5 mm/yr) (Lindvall and Rockwell, 1995). The northern part of the NISZ is commonly considered to have a much lower rate, on the order of 0.004 in/yr (0.1 mm/yr). Most seismic hazard studies have used a long-term rate of 0.02 in/yr (0.5 mm/yr) based on offset of Pliocene fold structures and strata (Schell, 1991; Freeman *et al.*, 1992).

### **Cabrillo Fault**

The Cabrillo fault forms a prominent northeast facing scarp in the 100,000 year-old terrace in the San Pedro-Point Fermin area (refer to Exhibit 2.2.2-1). The fault dips approximately 50 degrees to 70 degrees easterly with a vertical displacement of approximately 100 to 200 ft (30 to 61 m) (Woodring *et al.*, 1946). The fault trends northwesterly inland for approximately 4.3 mi (7 km) (Woodring *et al.*, 1946; Dibblee, 1999). Southerly from Cabrillo Beach, the fault extends offshore for a distance of approximately 6.8 mi (11 km) where it appears to merge with the Palos Verdes fault





(Vedder *et al.*, 1986; Fischer *et al.*, 1987). The offshore fault is shown as a zone of disruption up to 1,640 ft (500 m) wide.

The fault is considered to be predominantly a strike-slip fault due to its association with the Palos Verdes fault, but it may also have a normal component of displacement. Based on empirical fault-length/earthquake-magnitude relationships (Wells and Coppersmith, 1994), the fault could be capable of approximately an  $M \sim 6.25$  to 6.5 earthquake. Fischer *et al.* (1987) estimated a vertical slip rate of 0.016 to 0.027 in/yr (0.4 to 0.7 mm/yr), which is greater than the Palos Verdes fault estimates. Most studies suggest that the Cabrillo fault is a minor feature, and Ward and Valensise (1994) estimated a slip rate of 0.004 in/yr (0.1 mm/yr) estimated a slip rate of 0.004 in/yr (0.1 mm/yr).

### **Sierra Madre Fault**

Based on worldwide empirical fault-length/earthquake-magnitude relationships (Wells and Coppersmith, 1994), the Sierra Madre fault is capable of producing earthquakes in the 7.0 to 7.5 magnitude range (Dolan *et al.*, 1995). If the fault ruptures one of the segments independently, then earthquakes of  $M$  7.0 are more likely; if more than one segment ruptures together, then larger earthquakes are possible.

Approximately 12.4 mi (20 km) of the westernmost part of the Sierra Madre fault ruptured the ground surface during the 1971 San Fernando earthquake ( $M$  6.7). Geological studies (trenching) of the 1971 rupture suggested that a previous rupture had occurred on this fault within the prior few hundred years (Bonilla, 1973).

Some geological studies have indicated that the average rate of displacement for the Sierra Madre fault may be as high as approximately 0.117 to 0.156 in/yr (3 to 4 mm/year) (Southern California Earthquake Center, n.d.); however, recent paleoseismological studies suggested an average slip rate of only 0.023 in/yr (0.6 mm/yr) (Rubin *et al.*, 1998). This lower rate is based on only one locality within a very long and complex branching fault system; therefore, this rate may not be representative of the entire fault zone. Paleoseismological studies by Tucker and Dolan (2001) on the eastern part of the fault near Azusa revealed a similar minimum slip rate of 0.023 to 0.035 in/yr (0.6 to 0.9 mm/yr).

### **Malibu Coast, Santa Monica, Hollywood Fault System (Southern Frontal Fault System)**

The fault system consists of the Santa Monica and Hollywood faults and smaller segments, such as the Malibu Coast and Potrero faults. Continuation of the fault to the west of Santa Monica is uncertain, and the fault system may be related to the Dume-Anacapa fault zone in the offshore area south of Malibu. Together, these faults form the southern boundary fault of the Santa Monica Mountains.

Documented slip rates are less than 0.039 in/yr (1.0 mm/yr), but this estimate suffers from lack of data on the lateral slip (Dolan *et al.*, 1997). The California Geological Survey assumes a slip rate up to approximately 0.039 in/yr plus or minus 0.02 in/yr (1.0 mm/yr plus or minus 0.5 mm/yr) (California Geological Survey, 2003).

The great length of the fault system suggests that it is capable of generating a large earthquake ( $M \sim 7.5$ ), but the discontinuous nature of faulting suggests that faults may behave independently and perhaps a smaller maximum earthquake ( $M \sim 6.5$  to 7.0) is more appropriate. Dolan *et al.* (1997) postulated an  $M$  6.6 event for the Hollywood fault. The earthquake recurrence interval is very long and could be on the order of a few thousand years (Dolan *et al.*, 1997).

### **San Pedro Basin Fault**

The fault trends southeasterly from near the base of the Malibu-Santa Monica shelf, past the subsea Redondo Knoll, to approximately Avalon Knoll east of Catalina Island, a distance of approximately 43 to 50 mi (70 to 80 km). The fault is expressed as a complicated association of folds, flower structures, and tensional (normal) structures. The fault dips steeply to nearly vertical, which, along with the structural expression, indicates it is a strike slip fault (Fisher *et al.*, 2003). Southeast of the Palos Verdes Peninsula, this fault coincides with the western limit of a dense distribution of small-magnitude ( $M$  3 to 5) earthquakes.

The slip rate is unknown, but the similarity of geomorphology, structures, and length to the NISZ suggest that they are similar features; therefore, they could have similar slip rates of approximately 0.039 in/yr (1 mm/yr) and similar maximum earthquakes. Fault-length/earthquake-magnitude relationships (Wells and Coppersmith, 1994) indicate a maximum earthquake of approximately  $M$  7.0 to 7.2, but the feature is

highly segmented, indicating smaller magnitudes (M~ 6.5-7.0) may be more likely.

### **Elysian Park Fold and Thrust Belt**

The Elysian Park Fold and Thrust Belt (EPFT) was initially identified by Davis *et al.* (1989), who postulated that the Los Angeles area is underlain by a deep master detachment fault and that most of the folds and faults in the region result from slip along the detachment, causing folding and blind thrust faulting at bends and kinks in the detachment fault. Shaw and Suppe (1996) further developed and refined the detachment/blind thrust model.

The detachment/blind thrust model was initially embraced primarily because the 1987 Whittier Narrows earthquake occurred in proximity to one of the postulated thrust ramps beneath the EPFT. Subsequent work has highly modified the original model (e.g., Shaw and Suppe, 1996; Oskin and Sieh, 1998; Bullard and Lettis, 1993; Shaw and Shearer, 1999; Shaw *et al.*, 2002).

Shaw and Suppe (1996) postulated a slip rate of 0.066 plus or minus 0.016 in/yr (1.7 plus or minus 0.4 mm/yr) for the Elysian Park thrust. Estimates of earthquake magnitudes associated with these thrust faults range from 6.6 to 7.3 depending on the size (area) of the individual segments and whether they rupture independently or together. Recurrence interval estimates range from 340 to 1,000 years. Oskin *et al.* (2000) model the Upper Elysian Park thrust as extending from the Hollywood fault to the Alhambra Wash fault with a slip rate of 0.031 to 0.086 in/yr (0.8 to 2.2 mm/yr) and M 6.2 to 6.7 earthquakes with a recurrence interval in the range of 500 to 1300 years. The California Geological Survey, following the lead of Oskin *et al.* (2000), modeled the Upper Elysian Park thrust as a feature approximately 11.2 mi (18 km) long and dipping 50 degrees northeasterly, with a slip rate estimate of approximately 0.051 plus or minus 0.016 in/yr (1.3 plus or minus 0.4 mm/yr).

### **Puente Hills Fault System**

The Puente Hills Thrust fault system (PHT) is the name currently given to a series of northerly dipping subsurface thrust faults (blind thrusts) extending approximately 24.8 to 30 mi (40 to 45 km) along the eastern margin of the Los Angeles Basin.

Shaw and Shearer (1999) proposed that the Puente Hills fault system was capable of generating approximately M 6.5 to 7.0 earthquakes and had a slip rate of between 0.02 to 0.078 in/yr

(0.5 to 2.0 mm/yr). The 0.02-in/yr (0.5-mm/yr) rate was derived by dividing the postulated slip by the age of strata (i.e., Quaternary ~1.6 million years), whereas the 0.078-in/yr (2.0-mm/yr) slip rate was derived by assuming that all of the unaccounted-for, geodetically determined, crustal shortening of ~0.312 to 0.371 in/yr (~ 8 to 9.5 mm/yr) across the Los Angeles Basin is occurring on the Puente Hills fault system.

Using empirical data on rupture area, magnitude, and coseismic displacement, Shaw *et al.* (2002) estimated earthquakes of M 6.5 to 6.6 and multi-segment rupture of M 7.1. The recurrence intervals for these events are on the order of 400 to 1,320 years for single events and 780 to 2600 years for M 7.1 events. Paleoseismological studies using trenching and borings in the Santa Fe Springs area identified four buried folds that they interpreted to be a result of M = 7.0± earthquakes within the past 11,000 years (Dolan *et al.*, 2003).

### **THUMS-Huntington Beach Fault**

The THUMS-Huntington Beach (THB) fault has been interpreted in many different ways. It has been interpreted as a high-angle normal fault and an oblique right-lateral normal fault (Truex, 1974; Clarke *et al.*, 1987; Wright, 1991).

In the area between Long Beach and Huntington Beach, several offshore geophysical (seismic-reflection) investigations for numerous oil and engineering projects (e.g., pipelines, offshore power plant, drilling islands) have documented several near-surface faults, but these are short, small displacement, discontinuous, random features that do not appear to align such that they could be considered representative of a major regional active fault.

If the THB fault is projected dipping downward to the east, it would intersect the NISZ at approximately 5 to 5.5 mi (8 to 9 km) depth, raising the issue of whether it cuts off the NISZ or whether the NISZ cuts off the THB. The high degree of young deformation on the NISZ and its historical seismic activity indicate that the NISZ is more active; therefore, it favors the latter interpretation.

### **Compton-Los Alamitos Thrust Ramp**

The Compton-Los Alamitos (CLA) thrust model was developed by Shaw and Suppe (1996) following the lead of Davis *et al.* (1989). The feature comprises a thrust ramp and several overlying folds, which are postulated to result from

slip on the deep detachment and interconnected thrust ramps.

Folded Pliocene and Quaternary strata indicate slip rates of 0.055 in/yr (1.4 mm/yr). Assuming that slip is released in large earthquakes, Shaw and Suppe (1996) estimate earthquake magnitudes of 6.3 to 6.8 on individual ramp segments, and M 6.9 to 7.3 if segments rupture together. Recurrence intervals are estimated from empirical earthquake-magnitude/fault-displacement relationships (Wells and Coppersmith, 1994). Estimates of earthquake recurrence intervals range from 380 years for single segments to 1,300 years for multiple segment ruptures.

### **Los Alamitos Fault**

The Los Alamitos fault is a northwest-southeast trending subsurface fault along the northeast side of the NISZ. The fault is not well known because it is not exposed at the surface. The fault extends upward from the basement rocks to an elevation of approximately -300 ft (mean sea level [MSL]), and is subparallel to the NISZ from at least Seal Beach to Rosecrans. The fault is shown as a dotted feature (i.e., buried fault) on the state fault map of Jennings (1994) who assigned it an age of late Quaternary. The Los Angeles County Seismic Safety Element (1990) shows it as potentially active. The fault is shown on the Caltrans seismic hazard map with a maximum earthquake magnitude of 6.0 (Mualchin, 1996).

Although there is no documented surface faulting or even late-Quaternary displacement, the fault should be considered a potential source of small- or moderate-magnitude earthquakes, similar to other buried faults in the Los Angeles Basin. For seismic design purposes, an M 6.0 to 6.5 earthquake is appropriate for the maximum earthquake based on the fault's length according to the empirical fault-length/earthquake-magnitude relationships of Wells and Coppersmith (1994).

### **Other Faults**

There are several minor unnamed faults on the offshore San Pedro shelf. These features were detected by various geophysical surveys for local pipelines. These features are too small and discontinuous to represent a seismic hazard; therefore, they are not significant for seismic design. An example of this type of feature is the Navy Mole Fault.

### **Soil and Sediment**

In the natural regime, the site area was within the delta of the Los Angeles River and its tributaries, and it was characterized by meandering channels,

marshes, tidal channels, and islands. Since the early part of the 20th century, the area has been dredged and filled extensively to form the wharves and shipping channels of the Ports. Although modified extensively, the configuration of many of the channels and wharves still reflect the approximate configuration of the natural channels and islands. For example, Terminal Island was a long narrow sand spit (bay-mouth bar) under natural conditions, which has since been widened with fill. Gerald Desmond Bridge crosses a channel between Terminal Island and the "mainland" of Long Beach.

The site area is underlain by alternating beds of nonindurated (unconsolidated) sands, silts, and clays, with local gravel beds. These are generally considered to be part of the Holocene-latest Pleistocene-age Gaspar Aquifer. The Gaspar deposits fill one of the deep stream channels eroded during the lowered sea level during the Pleistocene ice ages. The Gaspar is approximately 150 to 200 ft (45 to 61 m) thick in the site area. Since approximately 5,000 years ago, when the rising sea level stabilized somewhat near the present level, the site area has alternated between beach, lagoon, and estuary environments in the delta of the Los Angeles River. The site is near the boundary between the natural island and the fill placed to enlarge Terminal Island.

Although quite variable in composition, the sediments underlying the site can be grouped into four general units:

- Unit I: upper unit of loose to dense silty sands and soft to very stiff sandy silts,
- Unit II: a compact to very dense sand unit,
- Unit III: a soft to stiff clayey silt and clay unit, and
- Unit IV: lower sand and silty sand unit.

Unit I is within approximately the upper 20 ft (6 m) and may be fill. The sands of Unit II, from approximately 20 ft (6 m) to 50 ft (15 m) deep, probably represent natural near-shore bay and beach sands deposited within the past few thousand years. The fine-grained deposits of Unit III are from approximately 40 to 50 ft (12 to 15 m) deep to approximately 60 to 70 ft (18 to 21 m) deep, and probably represent lagoon or estuary deposits. The deposits of Unit IV below are primarily sands and silty sands, probably representing stream channel and some bay deposits. This likely represents the early Holocene Gaspar Formation and possibly the Upper

Pleistocene Lakewood Formation at the greatest depths. Bedding was not well developed, but where visible, it is essentially horizontal. Differentiating the young (Holocene) sediments from the Lakewood or San Pedro formations is difficult in boreholes because of their similar origin and characteristics. Except for density, which is generally greater in the older Lakewood and San Pedro formations, the units can only be confidently differentiated by analysis of their fossils.

### **Liquefaction**

Liquefaction susceptibility provides an indication of the possible loss of strength and stiffness of saturated cohesionless soils during a moderate to great earthquake. Physical properties of soil, such as grain size distribution, plasticity index, state of compaction, cementation due to aging effects, and groundwater conditions, influence the degree of resistance to liquefaction.

Saturated portions of the sandy soils of the upper stratum at the project site are potentially susceptible to liquefaction. The liquefiable zone is widespread beneath the main span and both approaches. Beneath the west approach, liquefaction is expected to occur in layers generally up to approximately 13 ft (4 m) thick between the water table near El. -7 ft (-2 m) and El. 46 ft (14 m). Beneath the east approach, where the ground and water table is higher, the liquefiable zone rises higher between the water table near El. 0 and El. -20 ft (-6 m), and grows to approximately 28 ft (8.5 m) in thickness. In the two pylon areas (bridge towers) for the proposed bridge, the liquefaction zone increases to approximately 13 to 20 ft (4 to 6 m) in thickness adjacent to the channel. The materials predominantly represent man-made fills and some natural beach sand.

In addition, localized liquefaction may also occur in discontinuous thin sand lenses embedded in the underlying clay and silt unit of a lower soil stratum down to approximately El. -65 ft (-20 m) at both sides of the channel. These individual lenses predominantly consist of loose to medium dense silty sands with thicknesses of typically less than 5 ft (1.5 m) and limited horizontal extent (exact locations of these pockets of soil cannot be determined).

### **Subsidence**

Subsidence is the sinking of the ground surface, typically caused by extracting fluids from the subsurface. Subsidence has been well documented in the Los Angeles-Long Beach Harbors. Between 1928 and 1965, approximately

29 ft (9 m) of cumulative subsidence was recorded near the eastern end of Terminal Island. A maximum annual rate of subsidence of 2.4 ft (0.7-m) was recorded in 1951, approximately 9 months after the Wilmington Oil Field had attained its peak primary production rate of oil and gas (Mayuga, 1970). Due to the close correlation of the zone of subsidence with areas of oil extraction within the Wilmington Oil Field, it was suggested that the oil production caused reduced subsurface fluid pressure, which in turn induced compaction of the oil-producing zones. This compaction at depth was reflected at the surface by land subsidence. By 1951, subsidence covered an elliptical area of approximately 20 square miles (sq mi) (52 square kilometers [sq km]).

Various oil companies started pilot water injection operations in 1953, 1954, and 1956. The City of Long Beach Department of Oil Properties instituted the first major water injection program in 1958. Since 1958, injection of water into oil-depleted zones has curtailed subsidence, and rebound of much of the subsided area has actually been initiated. By 1967, the area of subsidence had been reduced from 20 to 4 sq mi (52 to 10 sq km), with the subsidence rates decreasing to 1.2 in/yr (30 mm/yr) (Mayuga, 1970). In 1980, the DOGGR, the City of Long Beach, and several oil companies initiated an extensive program to greatly increase water injection. Consequently, if a balance of fluid withdrawal and injection is maintained, regional subsidence should not present further problems in the area.

Surface subsidence could also result from a subsurface slope failure adjacent to a ship channel or slip. Although the existing risk is low, the risk of this type of slope failure increases during seismic events.

### **Tsunami and Seiche**

A tsunami is an ocean wave generated by the rapid displacement of a large volume of seawater, resulting from either submarine faulting or large-scale submarine landslides. These waves may travel thousands of miles across the ocean at speeds of hundreds of mph and reach heights of 10 to 100 ft (3 to 30 m) as they approach the shoreline, where they can cause extensive damage to unprotected coastal areas.

A study of potential tsunami activity was conducted by Moffatt and Nichol (2007) for POLB and POLA. The report concluded that (1) a large, locally generated tsunami could have a wave height of approximately 21 ft (7 m) but would only

occur once every 10,000 years, and (2) the maximum tsunami wave height in the port would be approximately 2.5 ft (0.75-m). This is lower than the historic tsunami wave heights discussed below due to subsequent Port development.

Historically, California has suffered very little damage from tsunamis. Between 1812 and the present, the only tsunami damage in the Los Angeles area resulted from waves generated by the 1964 Gulf of Alaska and 1960 Chilean earthquakes. The maximum crest-to-trough wave height in the Long Beach - Los Angeles Harbor for the tsunami generated by the Alaska earthquake was approximately 5 ft (1.5 m) and by the Chilean earthquake was approximately 3 ft (1 m). Wave heights in San Pedro Bay associated with other historic tsunamis have generally been less than 3 ft (1 m). The location of the Palos Verdes Hills adjacent to the harbor, and the presence of a harbor breakwater, greatly reduces the potential for damage within the project area from tsunamis.

A seiche is a standing-wave oscillation in an enclosed or semi-enclosed body of water that is potentially destructive to structures along the shore of the water body. Seiches can be generated by earthquakes or by mass movement of soil or rock into the water body. Most of the damage to boats and harbor facilities associated with the tsunami caused by the 1960 Chilean earthquake resulted from a seiche within the Cerritos Channel.

### **2.2.2.3 Environmental Consequences**

#### **Evaluation Criteria**

The criteria used in this study to estimate fault activity are described in the Alquist-Priolo Special Studies Zone act of 1972, which addresses only surface fault-rupture hazards. The legislative guidelines to determine fault activity status are based on the age of the youngest geologic unit offset by the fault.

The Seismic Hazards Map Act of 1990 (PRC Sections 2690 and following as Division 2, Chapter 7.8) as supported by the Seismic Hazards Mapping Regulations (CCR, Title 14, Division 2, Chapter 8, Article 10) are intended for the purpose of protecting public safety from the effects of strong ground shaking, liquefaction, landslides or other ground failures, or other hazards caused by earthquakes. Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California (CDMG, 1997) constitutes the guidelines for evaluating seismic hazards other than surface fault-rupture,

and for recommending mitigation measures as required by PRC Section 2695(a).

#### **No Action Alternative**

Under the No Action Alternative, the existing bridge would continue to be used to meet local and regional transportation needs. The bridge was built in 1966 and partially seismically upgraded in 1995 at select columns, such as Piers 15 and 16, which support the main steel truss span. Major seismic deficiencies remain, including lap splices at the base of columns and insufficient confinement reinforcement. These deficiencies substantially reduce the Gerald Desmond Bridge's ability to withstand a MCE without incurring significant damage to the columns and the overall bridge integrity. A major seismic event would likely result in loss of service and bridge demolition.

#### **Construction/Demolition Impacts**

##### North-side Alignment Alternative

The proposed bridge construction project would not adversely affect the geologic environment or geologic processes because:

- Construction would not alter the regional stress regime; thus, it could not possibly trigger an earthquake,
- Construction would not alter the geotechnical properties of harbor sediment or cause regional vibration; thus, it could not possibly cause liquefaction.
- Construction would not alter the regional stress regime; thus, it could not possibly cause seismic ground shaking.
- Construction would not alter the regional tectonic regime; thus, it could not possibly trigger a tsunami.

##### South-side Alignment Alternative

This alternative would be located on the south side of the Gerald Desmond Bridge. Construction and demolition effects on geologic resources and seismic performance during operation would be the same as the North-side Alignment Alternative.

##### Rehabilitation Alternative

Rehabilitation of the Gerald Desmond Bridge would consist of improvements to the existing structure and approaches as discussed in Section 1.6.2. This alternative would not adversely affect the geologic environment or geologic processes because:



- Rehabilitation would not alter the regional stress regime; thus, it could not possibly trigger an earthquake,
- Rehabilitation would not alter the geotechnical properties of harbor sediment or cause regional vibration; thus it could not possibly cause liquefaction.
- Rehabilitation would not alter the regional stress regime; thus, it could not possibly cause seismic ground shaking,
- Rehabilitation would not alter the regional tectonic regime; thus, it could not possibly trigger a tsunami,

### **Operational Impacts**

#### North-side Alignment Alternative

Operation of the proposed bridge would not affect the probability of the occurrence of geologic hazards discussed in Section 2.2.2.2. This geologic resource impact evaluation indicates that the proposed project has a potential to be exposed to geotechnical impacts or constraints; however, the new bridge structure and foundation would be designed and built to handle seismic loads and to meet current seismic standards. Thus, the proposed bridge would be able to withstand the SEE, which represents a rare earthquake event.

**Strong Ground Motion.** The intensity of ground shaking at a specific location depends on several factors, including earthquake magnitude, distance from the source epicenter to the site, activity rate, and site response characteristics, particularly near-surface geologic materials. The faults and fault zones described in Section 2.2.2.2 can contribute to seismic risk associated with strong ground motion at the proposed bridge site. All of the faults are considered in the seismic hazard evaluation. Ground shaking generally causes the most widespread effects, not only because it can propagate considerable distances from an earthquake source, but also because it can trigger secondary effects. These secondary effects include liquefaction and lateral expansion, and slope failure with resultant structural damage to buildings and foundations. The proposed bridge would be designed and built to withstand the SEE, which includes the secondary effects described above. Designing the project to withstand the SEE minimizes the risk for bridge failure and reduces the potential for loss of life or property damage associated with bridge failure.

**Fault Displacement Surface Rupture.** Many recent seismic hazard studies have been conducted within the region, and the project site is reasonably well documented regarding local and nearby faults. Some of these local faults include the THUMS Huntington Beach and the Cabrillo faults, in addition to the Palos Verdes fault. Based on past fault mapping studies, it is generally felt that there are no known faults that would cause ground surface fault rupture hazards at the bridge site.

**Liquefaction.** The Port, as a whole, has a high potential for soil liquefaction due to the presence of a high groundwater table, man-made fills, and the potential for significant ground shaking associated with a moderate to major earthquake. To minimize the potential adverse effects of liquefaction to the proposed project, the foundation designs for the bridge would incorporate soil-structure interaction features. Large-diameter ductile piles would be used to withstand lateral loading from liquefied soil, and the piles would be driven into deep soil strata to resist downdrag force from shallow liquefied soils.

Extensive preliminary design studies have been conducted for the proposed cable-stayed bridge and concrete approach spans resulting in a report entitled *Preliminary Engineering Bridge Report* dated June 2006 (Parsons, 2006b). This report summarizes various studies, including ground motion, fault displacement surface rupture, liquefaction, and preliminary geotechnical investigations consisting of 21 soil borings to depths ranging from 50 to 195 ft (15 to 59 m). Additional soil investigation would be conducted in the final design. In addition, the Port, Caltrans, and the consultant team developed a Design Criteria Document for the bridge, which provides detailed guidance for the preliminary and final designs of the bridge foundations and all structural components. The foundation design would be developed using the latest analytical methods and applicable codes to ensure that liquefaction issues are fully addressed within the design. The proposed "Shear-Link" design for the bridge towers has been proposed for this project because of its capability to handle seismic loads. The two pylons (or towers) of the main bridge will be designed with shear links. These smaller horizontal elements connect the two halves of each tower to stiffen the pylon system, preventing excessive sway in a major earthquake, while also protecting the main vertical load-carrying members from damage. The links act as "structural fuses" that are designed and detailed

to yield and dissipate energy in a seismic event. After a large earthquake, the damaged links can be quickly replaced without significant delays or significant repair to the overall structure. Ground shaking, surface rupture, and liquefaction would not adversely affect the proposed bridge project.

The geographical and morphological setting of the proposed bridge site is protected from tsunami, because the bridge site is not directly exposed to the open ocean. Tsunami modeling only predicts a maximum wave of a couple of feet in height (Moffatt and Nichol, 2007). The morphological setting of the proposed bridge site is protected from seiche because the proposed bridge structures and approaches are elevated and located at higher elevations outside of the harbor; therefore, the potential for tsunami or seiche at the site is not substantial and would not adversely affect the proposed bridge replacement project.

#### South-side Alignment Alternative

This alternative would have the same operational effects on geologic resources and seismic performance as the North-side Alignment Alternative.

#### Rehabilitation Alternative

The Rehabilitation Alternative would withstand the MCE based on the “No Collapse” design criteria (see Section 1.6.2.); however, the “No Collapse” criteria imply that even though the bridge would survive the MCE without collapse and loss of life, there would still be a high probability of it being condemned after an MCE. Condemnation of the Gerald Desmond Bridge would adversely affect Port operations and local/regional transportation and goods movement.

#### **2.2.2.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

### **2.2.3 Hazardous Materials/Wastes**

Hazardous materials are generally substances that, by their nature and reactivity, have the capacity for causing harm or health hazards during normal exposure or an accidental release or mishap, and they are characterized as being toxic, corrosive, flammable, reactive, an irritant, or a strong sensitizer. The term “hazardous substances” encompasses chemicals regulated by United States Department of Transportation (DOT) “hazardous materials” regulations and EPA “hazardous waste” regulations, including emergency response. Hazardous wastes require special handling and disposal due to their potential to damage public health and the environment. A designation of “acutely” or “extremely” hazardous refers to specific listed chemicals and quantities.

Activities and operations that use or manage hazardous or potentially hazardous substances could create a harmful situation if release of these substances occurred. Individual circumstances, including the type of substance, quantity used or managed, and the nature of the activities and operations, affect the probable frequency and severity of consequences from a hazardous release or exposure. Federal, state, and local laws regulate the use and management of hazardous or potentially hazardous substances.

This section discusses human health hazards due to exposure to existing and potential future sources of hazardous materials and wastes due to project construction and operation.

#### **2.2.3.1 Regulatory Setting**

Hazardous materials and hazardous wastes are regulated by 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.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992

- CWA
- Clean Air Act (CAA)
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the statutes listed above, EO 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.

Hazardous waste in California is regulated primarily under the authority of RCRA, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

#### **2.2.3.2 Affected Environment**

##### **Evaluation Criteria**

The proposed project may result in an adverse effect, if it would:

- Create a significant hazard to the public or environment through the routine transport, storage, use, or disposal of hazardous materials
- Create a significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Be located within 0.25-mi (0.4-km) of a site that emits hazardous emissions or handles hazardous or acutely hazardous materials, substances, or wastes
- Be located on a site that is known to contain hazardous materials and, as a result, could create a significant hazard to the public or the environment

An ISA of the Gerald Desmond Bridge and adjacent areas (Diaz Yourman & Associates, 2008) was performed using guidelines of the

American Society for Testing and Materials (ASTM) Designation E 1527, "Standard Practice for Environmental Project Site Assessments: Phase I Environmental Property Assessment Process" and the Caltrans Project Development Procedures Manual. The scope of the ISA included site reconnaissance; historical research related to use, storage, disposal, or release of hazardous materials or petroleum hydrocarbons; review of property records, public records, aerial photographs, and interviews; review of environmental databases and regulatory agency information available to the public for the property and neighboring properties; and report of findings.

Subsequent to preparation of the ISA, groundwater documentation was reviewed to assess the extent of a benzene plume in the vicinity of the proposed project. This groundwater documentation was a literature review that compiled relevant analyses that had been performed in the vicinity of the project; it is included as Appendix B of the ISA. The environmental setting described herein is based on the findings of the ISA and the groundwater documentation.

### **Surrounding Uses**

Activities in the area are dominated by storage and transportation of cargo. Areas beyond the project consist of marine piers, ship building and maintenance, ship fueling, and cargo transfer. The project area is described in more detail below.

**North Side of Ocean Boulevard, West of the Gerald Desmond Bridge.** The below-sea-level LBGS property, which is a power-generating facility, is located north of the project near the bridge. An aboveground storage tank (AST) petroleum tank farm operated by Pacific Pipeline Systems is adjacent to the west side of the power plant. There are approximately 15 active oil wells operating on or adjacent to the north side of the project between the bridge and the power plant. A railroad ROW is located adjacent to the north side of the project alignment, adjacent to the Ocean Boulevard/Seaside Boulevard interchange, which crosses under the elevated Ocean Boulevard structure and curves south to serve the container terminal on the south side of the project (Pier T). Northwest of the project, there is a large area recently filled and graded that is currently under construction as a container terminal (Pier S).

**North Side of Ocean Boulevard, East of the Gerald Desmond Bridge.** There are industrial facilities north of the project corridor within the area between the bridge and Harbor Scenic Drive. The areas nearest the project corridor consist

primarily of asphalt-paved yards, which extend beneath the Ocean Boulevard support structure and are utilized by the Port and Tideland Oil Production Company. There is one active oil well adjacent to the WB ramp from SB Pico Avenue. A truck fueling station, truck maintenance shop, truck scales, and a petroleum pump station are on Pico Avenue north of Ocean Boulevard. The Union Pacific Railroad (UPRR) ROW crosses beneath Ocean Boulevard east of Pico Avenue, and an oil field (Pacific Energy Resources) occupies a narrow strip of land between the railroad and the Los Angeles River levee.

**South Side of Ocean Boulevard, West of the Gerald Desmond Bridge.** The area adjacent to the south side of the project corridor west of the roadway ramps consists of a strip of vacant land within approximately 200 ft (30 m) of pavement. The southern margin of the strip is occupied by oil well operations. Seaside Boulevard and interchange access ramps for Ocean Boulevard are adjacent to the south side of Ocean Boulevard and the bridge. The entire area south of Seaside Boulevard and the oil well operations (Pier T, formerly part of LBNSY) has been developed into the concrete paved TTI container storage and transfer facilities. The area beneath the elevated Ocean Boulevard roadway is occupied by vacant land, access roads to the north, and the railroad crossing, except near the bridge. Near the bridge, an asphalt concrete paved yard, used by Weyerhaeuser Company for building materials storage, occupies the area beneath the elevated roadway and extends several hundred feet to the south. A small oil field facility is beneath the bridge between the Weyerhaeuser Company yard and the Back Channel. A water pumping station facility is also adjacent to the west end of the Weyerhaeuser yard beneath the south side of the bridge.

**South Side of Ocean Boulevard, East of the Gerald Desmond Bridge.** The entire area south of the project corridor, between the east side of the bridge and Pico Avenue, is occupied by a container storage facility, California United Terminals, at Piers D and E. The east side of Pico Avenue is occupied by the International Seafarer's Center, a clinic, and a commercial building that is currently being used by the Harbor Police. There is a railroad parallel to the east side of Harbor Scenic Drive and oil wells east of the railroad next to the Los Angeles River levee.

**West End of the Project.** Ocean Boulevard extends west of the project. The Intersection of Ocean Boulevard with SR 47 is located outside of the project limits to the west.

**East End of the Project.** The Los Angeles River and levees are located at the east end of the project.

### **Environmental Data Base Review**

The purpose of the environmental database review is to obtain and review public records to identify activities at the project site or surrounding properties that could indicate significant potential for recognized environmental conditions (RECs) impacting the project. Environmental Data Resources, Inc. (EDR), completed the database search for the study area.

The database study area extends 0.25-mi (0.4-km) around the outer margin of the project area. Sites beyond this distance are considered unlikely to have the potential to impact the project.

### **Hazardous Waste Site Facilities Located within 0.25-mi (0.4-km) of the Proposed Project Site**

#### Federal NPL, CORRACTS, ROD, CERCLIS, and CERCLIS-NFRAP Sites

The National Priority List (NPL) is the EPA database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. Facilities that have had a release of hazardous waste or constituents to the environment, for which EPA is requiring corrective action, are tracked in the Corrective Action Tracking System (CORRACTS) database. Record of Decision (ROD) documents mandate a permanent remedy at NPL (Superfund) sites and contain technical and health information to aid the cleanup. The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list contains sites that either are proposed to be or are on the NPL and sites that are in the screening and assessment phase for possible inclusion on the NPL. No Further Remedial Action Planned (NFRAP) sites included under the CERCLIS listing may be sites where following an initial investigation, no contamination was found; contamination was removed quickly; or the contamination was not serious enough to require federal Superfund action or NPL consideration.

No NPL or CORRACTS sites were listed in the database within 0.25-mi (0.4-km) of the project at the time that the ISA was prepared.

Two identical CERCLIS and ROD listings were identified within the study radius of 0.25-mi (0.4-km) of the project. Both sites are located within the Former LBNSY. One site is listed as U.S. Navy Naval Station Long Beach, located adjacent to the south side of the western end of the project. The

former federal facility is described in the database as CERCLIS Remedial Investigation/Feasibility Study (RI/FS) and ROD completed in September 2002. The second site is listed as Naval Shipyard Long Beach, located south of the project beyond Seaside Boulevard. The Naval Shipyard Long Beach was assigned a ROD status under CERCLIS completed June 30, 2005.

Four CERCLIS-NFRAP sites were listed on the database within the study radius. All four of these sites are at locations that do not have the potential to impact the project due to hydrologic conditions.

#### Federal RCRIS, TSD, and RCRIS Generator

Regulated hazardous waste activity is tracked under the Resource Conservation and Recovery Information System (RCRIS). Facilities that treat, store, or dispose of (TSD) hazardous waste are listed in the RCRIS-TSD database. Facilities that generate at least 1,000 kilograms per month (kg/mo) of nonacutely hazardous waste, or 1 kg/mo of acutely hazardous waste, are tracked in the RCRIS-LgGen (large generator) database, while those that generate less than 1,000 kg/mo of nonacutely hazardous waste are tracked in the RCRIS-SmGen (small generator) database.

One TSD facility was identified within the 0.25-mi (0.4-km) study radius. The facility is the LBGS power plant facility. The facility received three RCRA TSD notices of violation that were reported as corrected in 1995. The proposed project encroaches upon the facility; therefore, soils within the facility could contain hazardous materials constituents.

Eight sites within the 0.25-mi (0.4-km) search radius were identified in the RCRIS-LgGen database as large-quantity hazardous waste generators. Five of these sites are at locations that do not have the potential to impact the project. Three of the sites are located adjacent to the project.

- AERA Energy, LLC, 7<sup>th</sup> Street Terminal located at 1725 Pier D Street, northeast of the Gerald Desmond Bridge.
- LBGS, currently a peaker plant, located at 2655 West Seaside Boulevard, north of the western end of the project.
- Pacific Pipeline Systems, LLC, tank farm adjacent to the west side of LBGS at 2865 Seaside Boulevard.

No RCRA violations were listed for these sites; therefore, they are not considered an environmental concern to the project.

Thirty-two (32) sites within the 0.25-mi (0.4-km) search radius were identified in the RCRIS-SmGen database as small-quantity hazardous waste generators. Twenty-five (25) of these sites are not located within or adjacent to the project site and are not considered potential environmental concerns. Seven of the sites are located adjacent to or within the project limits north of Ocean Boulevard on Pico Avenue, West Broadway, and Pier D Avenue. The remaining site is at the LBGS. All sites, except for the LBGS, are listed as no violations found and are not a REC to the project due to RCRA SmGen listing. The LBGS site did have three notices of violation reported as corrected in 1995. The project encroaches upon the facility; therefore, soils within the facility could contain hazardous material constituents.

#### Federal ERNS Incidents

The Emergency Response and Notification System (ERNS) is a national database containing records of oil and hazardous substance releases to the air, water, and ground reported to EPA, USCG, the National Response Center, and DOT since 1986. The California Hazardous Material Incident Reporting System (CHMIRS) contains information on reported hazardous materials incidents, such as accidental spills or releases, provided by California Office of Emergency Services. Releases of hazardous substances to the air, water, and ground reported as ERNS and CHMIRS incidents are generally temporary events that are mitigated as much as possible at the time of the event. More serious events requiring investigation and cleanup beyond the initial emergency response commonly become sites listed on other investigation and cleanup databases.

One hundred sixty-five (154) ERNS incidents and 59 CHMIRS incidents were identified on the databases within the 0.25-mi (0.4-km) study radius. Numerous ERNS and CHMIRS sites are at locations adjacent to or within the proposed project area north and south of Ocean Boulevard. Some incidents are on the east side of the Port Back Channel in the vicinity of Pico Avenue, West Broadway, and Pier D Avenue, and others are located on the west side in relation to the LBGS, the Pacific Pipelines Systems tank farm, and oil pipeline facilities in that area.

Generally, these areas are considered "potential recognized environmental conditions" due to past oil field and marine terminal operations activities.

#### State ENVIROSTOR, SLIC and CORTESE Databases

The California Environmental Protection Agency, Department of Toxic Substance Control (DTSC), maintains the Site Mitigation and Brownfield Reuse Program (ENVIROSTOR) database of sites that have known contamination or sites for which there may be reasons to investigate further. California RWQCB maintains a Cal-Sites list of sites previously investigated or currently under investigation that could be actually or potentially contaminated and present a possible threat to human health and the environment. The State Office of Environmental Protection, Office of Hazardous Materials, produces the CORTESE Hazardous Waste and Substances Site List (CORTESE) database of hazardous substance release sites compiled from various other state agencies.

Seven Spills, Leaks, Investigation, and Cleanup (SLIC) sites were identified in the database within the 0.25-mi (0.4-km) study radius. Of these, two sites are located near the project: Tidelands Oil Production Company facilities at 606 Pico Avenue and 696 South Pico Avenue. The database indicates there have been releases of total petroleum hydrocarbons (TPH) related to oil production. The site at 606 Pico Avenue pertains to the oil well field east of Harbor Scenic Drive north of Ocean Boulevard, and the site at 696 South Pico Avenue is located at the Tidelands Oil facility 0.25-mi (0.4-km) southwest of the project. The site at 606 Pico Avenue has been cleaned up. The site at 696 South Pico Avenue is listed as remediation underway. Neither of these cases appears to have the potential to impact the project; however, TPH from oil production has the potential to impact soil throughout the general project area.

Two ENVIROSTOR sites were identified in the 0.25-mi (0.4-km) study radius. Neither has the potential to impact the project due to locations nearly 0.25-mile beyond the western end of the project area.

Fourteen (14) CORTESE sites within 0.25-mi (0.4-km) of the project were identified by the database search. All of the CORTESE sites are listed due to leaking underground storage tank (LUST) cases described below.

#### State UST, LUST, and AST Sites

The state underground storage tank (UST) database is an inventory of regulated USTs, and the AST database is a listing of ASTs. The LUST database is a listing of confirmed or suspected releases from regulated USTs that have been reported to the SWRCB. The SWRCB California



Facility Index Database (CA FID) contains active and inactive UST locations. In addition, the Historic UST (HIST UST) list and the Statewide Evaluation and Environmental Planning System (SWEEPS) UST lists of historical UST records are provided by EDR.

Seventy-two (72) USTs were listed in the database within approximately 0.25-mi (0.4-km) of the project. Registered USTs that have not reported a release are generally not considered an environmental concern unless they are immediately adjacent to an excavation area for the project; however, based on addresses given in the databases, the following UST, historic USTs and SWEEPS locations were evaluated for their potential to be affected by the project.

- International Seafarer's Center 120 Pico Avenue – One 6,000 gallon fuel UST was installed in 1969. No further information was available. Phase II investigations should include determination of the disposition of this reported UST as it is within or adjacent to the proposed South-Side Alignment Alternative.
- Shell Beta Pump Station, 170 Pico Avenue (currently Pacific Energy) – The former UST was removed in 1991 and was reported as not having contamination.
- POLB Maintenance, 1400 W. Broadway – A Business Emergency Plan (BEP) in the Long Beach Fire Department (LBFD) file indicates that the facility retains a 5,000-gallon gasoline UST and one 2,000-gallon diesel fuel UST within the central area of the facility. A previous BEP from 1994 and 2000 also refers to a 1,500- or 2,000-gallon diesel fuel UST at an unidentified location.
- Forest Terminals, 180 N. Pico Avenue (currently Quick Stop Commercial Oil Lube) – Records for this facility indicate that two previous 2,000-gallon USTs installed in 1984 were removed in 1991, with soil sampling indicating no evidence of contamination.
- POLB, 100 Alpine (assumed to be part of POLB) – LBFD files had no record of this address. The address appears to coincide with the POLB Maintenance facility at 1400 W. Broadway, which was previously discussed.
- "Not Reported" 1900 Water Street (previous name of Pier D Street, POLB) – LBFD records indicate that a permit was issued to remove two fuel USTs in 1968. The permit was signed off by a fire department inspector, but there

was no further information in the file regarding removal of these USTs.

- SCE Generating Station, 2665 West Seaside Boulevard – This UST is addressed below as a LUST case.
- "Gas and Oil" auto service station indicated on historic Sanborn maps at 1100 Third Street – Located on the southwest corner of the intersection of Pico Avenue and Third Street, one block north of Broadway. The LBFD had no record of this address. The site is currently a paved parking lot used by the nearby truck scale business. Phase II investigations should include determination of the disposition of this reported UST as it is within the proposed northern alignment alternative.

Four AST sites were identified in the database at the following locations:

- Shell Beta Pump Station, 170 Pico Avenue – Located just northwest of the intersection of Harbor Scenic Drive and Ocean Boulevard.
- Long Beach Pump Station, 2665 Seaside Boulevard (the same address as former SCE LBGS power plant).
- GP Gypsum, Inc. – Located on the north side of Pier D Street, outside of the project impact area.
- Marine Terminal 1, 300 Pier T Avenue – Located south of the Weyerhaeuser storage yard west of the Back Channel and outside of the project impact area.
- Pacific Pipeline Systems, LLC – A large AST tank farm north of the western portion of the project area adjacent to the LBGS. All of these large ASTs are north of the western portion of the project at a much lower elevation, and they are not likely to be an environmental concern.

Sixteen (16) LUSTs were listed in the database within approximately 0.25-mi (0.4-km) of the project. Nine of these sites are at locations that do not have the potential to impact the project due to the distances from the project and hydrologic conditions. Regarding the other seven sites, hazardous materials files for the LUST addresses listed on the database were reviewed at the LBFD, Fire Prevention Bureau. Table 2.2.3-1 describes LUST sites identified in the database and results of the LBFD file review.

<b>Table 2.2.3-1 Leaking Underground Storage Tanks within 0.25-Mile of the Project Site</b>		
<b>Site Name and Address</b>	<b>Location</b>	<b>Discussion</b>
Tidelands Oil Production Co. 696 South Pico Avenue Long Beach, CA	Approximately 300 ft (100 m) west of northern end of project	Database case type listed as “soil only” and status as “leak being confirmed.” LBFD file review indicated that the case was erroneously identified as a UST site and is actually an AST site; no further UST action is required.
Tidelands Oil Production Co. 705 South Pico Avenue Long Beach, CA	Approximately 300 ft (100 m) west of northern end of project	Database case type listed as “soil only” and status as “signed off, with remediation complete or unnecessary.” LBFD file review indicated that the case has low potential for project impact.
Connolly-Pacific Co. 1925 West Pier D Street Long Beach, CA	Approximately 200 ft (60 m) north of Ocean Boulevard, 600 ft (180 m) east of the Gerald Desmond Bridge	Database listed as diesel tank, groundwater impacted, and pollution characterization in 2000. The LBFD file indicates that two USTs were removed in 1998, and samples indicated that petroleum hydrocarbons were not detected in soil beneath the USTs and trace concentrations of methyl tributyl ethylene (MTBE) were detected in groundwater. The case has low potential to impact the project due to the low localized concentrations and distance from the project.
Power Systems Associates 1125 Pier E Street West Long Beach, CA	Approximately 600 ft (180 m) south of Ocean Boulevard near Pico Avenue	The database lists the case as “oil and grease, soil only from a UST, removed in 1993.” There is no record of USTs in the LBFD file, and the site is indicated as vacant and out of business. There is low potential for project impact due to distance and soil-only status.
Hampton Tedder Electric 1120 Pier E Street West Long Beach, CA	Approximately 600 ft (180 m) south of Ocean Boulevard near Pico Avenue	The database lists the case as “soil only, pollution characterization in 1987, with no current information.” There was no LBFD file available. There is low potential for project impact due to distance and soil-only status.
California United Terminals Mechanical Building C 1200 Pier D, Suite C Long Beach, CA	Adjacent to ROW south side, west of SR 710, one block east of Oak Street	The database indicates the case status as “signed off, remediation complete or unnecessary,” and case closed in 1986. LBFD file review did not provide any additional information. The case has low potential for project impact due to the age and the closed status.
LBGS 2665 Seaside Boulevard Long Beach, CA	Central area of the power plant, north of Ocean Boulevard, west of Gerald Desmond Bridge	The database indicates the case status as “groundwater impacted by gasoline, and remediation plan developed in 2000.” The LBFD file indicates that fuel hydrocarbons were detected in the groundwater during removal of a 1,000-gallon UST in 1999. The case has low potential to impact the project due to the below-sea-level elevation of the power plant and low groundwater elevation relative to the project.

Source: Diaz Yourman & Associates, 2008.

#### State Toxic Pits and Landfill Sites

The Solid Waste and Landfill (SWLF) database is a collection of known regulated and unregulated landfill, transfer, or incinerator facilities. The toxic pits database is a list of sites identified by SWRCB as pond cleanup sites.

No SWLF or toxic pits sites were identified within 0.25-mi (0.4-km) of the project.

#### ASTM Supplemental Lists

The environmental database report includes several proprietary databases and additional non-ASTM California databases that may contain sites that impact the project. These databases include California DTSC DEED Restrictions, Los Angeles County Site Mitigation, manufactured gas plants (MGPs), dry cleaners, historic auto stations, and voluntary cleanup program (VCP) sites.

One site, the LBGS, was reported on the DTSC DEED Restrictions database for land-use restrictions used to protect the public from unsafe exposures to hazardous substances and waste.

The existence and location of MGP or "Coal Gas" are provided by the environmental database report. One former MGP site was identified within the search radius of 0.25-mi (0.4-km), identified as "West Ocean and Seaside" located southeast of Ocean Boulevard and Harbor Scenic Drive. Based on an environmental report regarding this site, the MGP does not appear to have the potential to impact the project.

### **Site Reconnaissance**

#### Visual Observation

A visual reconnaissance of the project site was conducted on November 5, 2007, and on March 14, 2008. The area beneath the elevated portion of Ocean Boulevard west of the bridge was a vacant paved area, a building materials storage area for Weyerhaeuser, and an oil well facility in a small area next to the west side of the Back Channel. Seaside Boulevard is located adjacent to the south side of Ocean Boulevard, and a large, open, paved container terminal (Pier T) is south of Seaside Boulevard. The strip of land adjacent to the north side of Ocean Boulevard west of the bridge was approximately 20 ft (6 m) bgs of the area directly beneath Ocean Boulevard. The depressed area contains pipelines, oil wells, ASTs, and the LBGS power plant. A large, recently filled and graded, unpaved pad under construction for a proposed marine terminal is to the northwest of the western portion of the project area.

The land area adjacent to the eastern portion of the project between the bridge and Pico Avenue on the south side consists of a large paved shipping container storage facility with Pier D Avenue crossing beneath the bridge near the Back Channel. The International Seafarer's Center and a clinic are on the east side of Pico Avenue, south of Ocean Boulevard. A railroad, Harbor Scenic Drive, a narrow strip of land with oil wells, and the levee of the Los Angeles River channel are east of the buildings.

West Broadway Avenue, Pier D Avenue, and paved yards for industrial facilities are adjacent to the north side of Ocean Boulevard east of the bridge. Several active pumping oil wells were observed adjacent to the north side of Ocean Boulevard. A petroleum pumping station with an AST, the railroad tracks, Harbor Scenic Drive, and a narrow strip of land with oil wells and the levee

of the Los Angeles River channel are east of the buildings.

#### UST and AST

A group of fuel USTs with approximately six pump dispenser islands is located at Port Petroleum Inc., east of Pico Avenue and north of Ocean Boulevard. One AST was observed within the project ROW identified as the Shell Beta Pump Station located northwest of the intersection of Harbor Scenic Drive and Ocean Boulevard. Two ASTs were observed within the Pacific Energy Resources oil field, adjacent to the Los Angeles River levee, immediately north of the Ocean Boulevard bridge over the river. At least six ASTs were observed within the Pacific Pipeline System tank farm located adjacent to the east side of the LBGS, north of Ocean Boulevard on the west side of the Back Channel.

#### Hazardous Materials

During the site reconnaissance, areas in close proximity to the project corridor that were visually observed to be storing aboveground hazardous materials consisted mainly of the industrial facilities north of Ocean Boulevard between the Gerald Desmond Bridge and Harbor Scenic Drive.

- Fire Boat Station #20
- Connolly Pacific
- Port Maintenance Yard
- Tidelands Oil Production Co. (Topko Yard)
- COLB Harbor Department
- THUMS Long Beach Co.
- Quick Stop Oil and Lube

Additionally, a truck maintenance service and the Shell Beta Pump Station, located on the east side of Pico Avenue, northwest of the intersection of Harbor Scenic Drive and Ocean Boulevard, had hazardous materials placards. The truck maintenance facility also had a storage shed containing ASTs for vehicle maintenance fluid products and waste oil.

Also, LBGS stores RCRA hazardous materials and has had LUSTs (Table 2.2.3-1). The entire LBGS facility is approximately 10 to 16 ft (3 to 5 m) below sea level and is continuously dewatered, causing inward flow of groundwater towards the facility; therefore, it is hydraulically downgradient and has low potential to impact the project.

There was no evidence of obvious environmental concerns associated with these hazardous materials storage areas observed from public access viewpoints.

### PCB-Containing Equipment

Older electrical transformers may contain oil with PCBs. Some overhead pole-mounted transformers were observed. The pole-mounted transformers are owned and maintained by the local power company and were not considered an environmental concern for the project. There were pad-mounted transformers observed at the Shell Beta Pump Station, 170 Pico Avenue, northwest of the intersection of Harbor Scenic Drive and Ocean Boulevard and at a water pump station located adjacent to the east end of the Weyerhaeuser storage yard. Pad-mounted transformers were observed on the east side of Pier D Avenue immediately south of the street underpass beneath the bridge. No evidence of leaks was observed at these transformer locations. The LBGS power plant is located adjacent to the project north of Ocean Boulevard and west of the bridge. Power plants are commonly associated with potential PCB contamination from transformer oil. Soil and groundwater within the LBGS facility may contain PCBs.

### Preliminary ACM and LBP Evaluation

The bridge and appurtenances may have ACM in the form of expansion joint compound. According to Port officials, the bridge structure is likely to have LBP coatings that would be disturbed by demolition.

Building and bridge structures within the project corridor may contain ACM and/or LBP. All buildings and bridge structures should be screened for ACM and LBP prior to demolition.

Existing yellow striping on pavement may contain lead or other heavy metals. Removal of this yellow pavement marking may produce debris containing heavy metals.

### **Prior Use History**

Prior uses of the project area were investigated as part of the ISA. Oil wells (see Section 2.1.4 [Utilities and Service Systems]) and one area of REC related to previous soil and groundwater contamination (see following groundwater documentation) appear to have the potential to directly impact the project. Groundwater in the western end of the project beneath the Seaside Boulevard interchange has been impacted by VOCs, primarily benzene, from the former LBNSY installation restoration (IR) Site 9, south of the project area (see Exhibit 2.2.1-1 in Section 2.2.1 [Water Resources and Hydrology]). Based on the LBNSY environmental report for IR Site 9, groundwater is expected at approximately 17 ft

(5 m) below MLLW. The lithologic description of water-bearing units beneath the area indicates a lens of the upper Gaspur aquifer (as described by DWR Bulletin 104) was encountered at an elevation of approximately 60 ft (18 m) below MLLW, and it extends to more than 120 ft (36 m) below MLLW. A sample from that water-bearing zone reportedly contained a benzene concentration of 1,400 µg/L at the time of the investigation (Bechtel, 1997b).

Generally, the project corridor and Terminal Island in its entirety have a history as an oil field since the 1930s. Since the early 1900s, dredged fill has been placed in the project area to raise the ground elevation. Due to the oil field history and gradual buildup of earth fill, it is likely that localized zones of soil impacted by former oil field activities may be encountered. As indicated by the state oil field map of Terminal Island, it is possible that abandoned oil wells could be encountered during construction for the project.

Other than the former LBNSY IR Site 9 in the southwestern area of the project, laboratory analysis of groundwater samples for hazardous constituents taken from various investigations throughout the project corridor have not detected substantial groundwater contamination; however, due to the history of the area as an oil field, industrial facilities, and the former LBNSY, shallow groundwater anywhere along the project may have localized concentrations of chemical constituents that would prohibit uncontrolled discharge of groundwater extracted for construction into the surrounding drainage features.

Surface soil adjacent to paved areas within the project corridor may contain aerially deposited lead (ADL) from vehicle exhaust. The bridge and appurtenances may have ACMs in the form of expansion joint compound.

LBP coating has been previously identified on the bridge to the extent that the entire bridge was scheduled for removal of LBP and repainting prior to acceptance of the bridge by Caltrans; however, the LBP replacement plans were discontinued when plans to replace the bridge were developed (POLB, 2002). Based on this information, LBP is likely to be present on the bridge.

### **Groundwater Documentation**

Groundwater documentation was prepared to supplement the ISA and assess the extent of the benzene plume in the vicinity of the proposed project. This literature search compiled and analyzed relevant studies that had been

performed in the vicinity of the project (see detailed groundwater discussion in Section 2.2.1) (Parsons-HNTB, 2006).

Several groundwater studies have been performed at the LBNSY IR Site 9 location. Bechtel performed studies in 1997, 1998, and 2001. Woodward-Clyde and HLA performed studies in 1998 and 2000, respectively. Based on the studies, the full vertical and lateral extent of the plume was never determined. Benzene was detected in several locations that could potentially be affected by the proposed project. These locations are shown on Exhibit 2.2.3-1.

### **ISA Conclusions and Recommendations**

Extensive soil and groundwater investigations have been performed at the LBNSY IR Site 9, and they are documented in the reviewed reports (see Section 2.2.1). Although benzene has impacted the shallow and lower water-bearing intervals in the immediate vicinity of Site 9, located approximately 300 ft (91 m) south of West Seaside Boulevard and 600 ft (183 m) west of the intersection of Weaver Street and Corvette Street, there were no benzene detections in the zone between these intervals (identified as the "fine-grained, water-bearing interval"). After all of these investigations, the source of the benzene plume is still being disputed by the potential responsible parties.

In the immediate vicinity of the Gerald Desmond Bridge, benzene impacts to groundwater have been reported. It should be noted that these data were developed in 1997 and potentially do not represent current groundwater conditions in the immediate vicinity of the Gerald Desmond Bridge; however, it is likely that benzene is still a contaminant of concern.

If it is determined that workers may be exposed to contaminated groundwater or there is a potential for cross-contamination, then a risk assessment to assess potential health impacts to workers during bridge construction activities may be required. The risk assessment would need to consider how construction would impact the water-bearing intervals and if workers may potentially be exposed to impacted water. In addition, construction activities would need to include mitigation measures to ensure that cross-contamination between the water-bearing intervals does not occur.

If groundwater is encountered during excavation activities and dewatering would be necessary, then all dewatering activities would be in compliance with Los Angeles RWQCB regulatory

requirements. Any dewatering activities, including those that may contact contaminated groundwater, shall be treated to remove pollutants to meet Los Angeles RWQCB discharge requirements, or hauled offsite and properly disposed of. Additionally, where applicable, bridge pile installation would be conducted by driving piles in lieu of pre-drilling to avoid or minimize the need for additional dewatering (see Section 2.2.1 [Water Resources and Hydrology] for more detail).

### **2.2.3.3 Environmental Consequences**

#### **Evaluation Criteria**

The proposed project may result in adverse effects if it would:

- Create a significant hazard to the public or environment through the routine transport, storage, use, or disposal of hazardous materials
- Create a significant hazard to the public through reasonably foreseeable upset and accident considerations involving the release of hazardous materials into the environment
- Be located within 0.25-mi (0.4-km) of a site that emits hazardous emissions or handles hazardous or acutely hazardous materials, substances, or wastes
- Be located on a site that is known to contain hazardous materials and, as a result, could create a significant hazard to the public or the environment.

#### **No Action Alternative**

Under the No Action Alternative, the Gerald Desmond Bridge would continue to be used until it is replaced. The lack of shoulders and bridge capacity would result in congestion and increased response times to reach spills within the project limits. The No Action Alternative would result in increased future congestion resulting in greater spill response times. The No Action Alternative would have an adverse effect on releases of hazardous materials resulting from traffic-related accidents.

Under the No Action Alternative, there would be no disturbance of ACM or LBP on the bridge or potentially contaminated areas adjacent to the Gerald Desmond Bridge; therefore, the No Action Alternative would have no effect on existing hazardous waste/materials within the project area.

## **Construction and Demolition Impacts**

### North-side Alignment Alternative

The following impact assessment is based on the results of the ISA conducted for this project (Diaz Yourman & Associates, 2008) and the Groundwater Documentation (Parsons-HNTB, 2006). During final design, a Phase II Site Investigation would be performed to assess potential soil and groundwater contamination in areas proposed for construction. Construction areas where excavation exceeds 5 ft (1.5 m) bgs would have excavated soil screened for VOC vapors using a photoionization detector (PID) meter. At the discretion of the sampler, vapor readings above background may be (1) further screened for benzene vapors using dragger tubes and/or (2) soil samples may be obtained and submitted to a fix laboratory for VOC analysis. Additionally, groundwater samples would be obtained in areas where groundwater may be encountered and submitted for analysis. The site investigation must be completed prior to any acquisition of ROW and initiation of construction.

**USTs.** As discussed in Section 2.2.3.2, USTs are currently located within areas that would be affected by construction. Prior to construction, the tanks would be removed under permit from the Lbfd. Subsequent to removal, soil and groundwater sampling would be completed in accordance with state, county, and city requirements for tank removal and closure. If contaminated soil or groundwater exists, then the site would be classified as a LUST and would require cleanup prior to closure.

Additionally, USTs were permitted for three locations (Seafarer's Union, 1900 Water Street [also known as Pier D Street], and 1100 Third Street), but no final records were found indicating a "clean" site. It is likely these former USTs have been removed; however, since there are no records of "clean" removal, follow-up Phase II soil testing at the suspected UST locations to check for tanks/contamination would be completed. If tanks or contaminated soil and/or groundwater are present, then the Port would consult the Lbfd, regarding reporting, removal, and closure requirements.

If unknown USTs are discovered during construction, then work in this location would be stopped and the POLB would consult with the Lbfd regarding appropriate reporting and closure requirements.

### **Groundwater Contamination at LBNSY IR Site 9.**

According to the ISA, groundwater beneath the Seaside Boulevard interchange has been

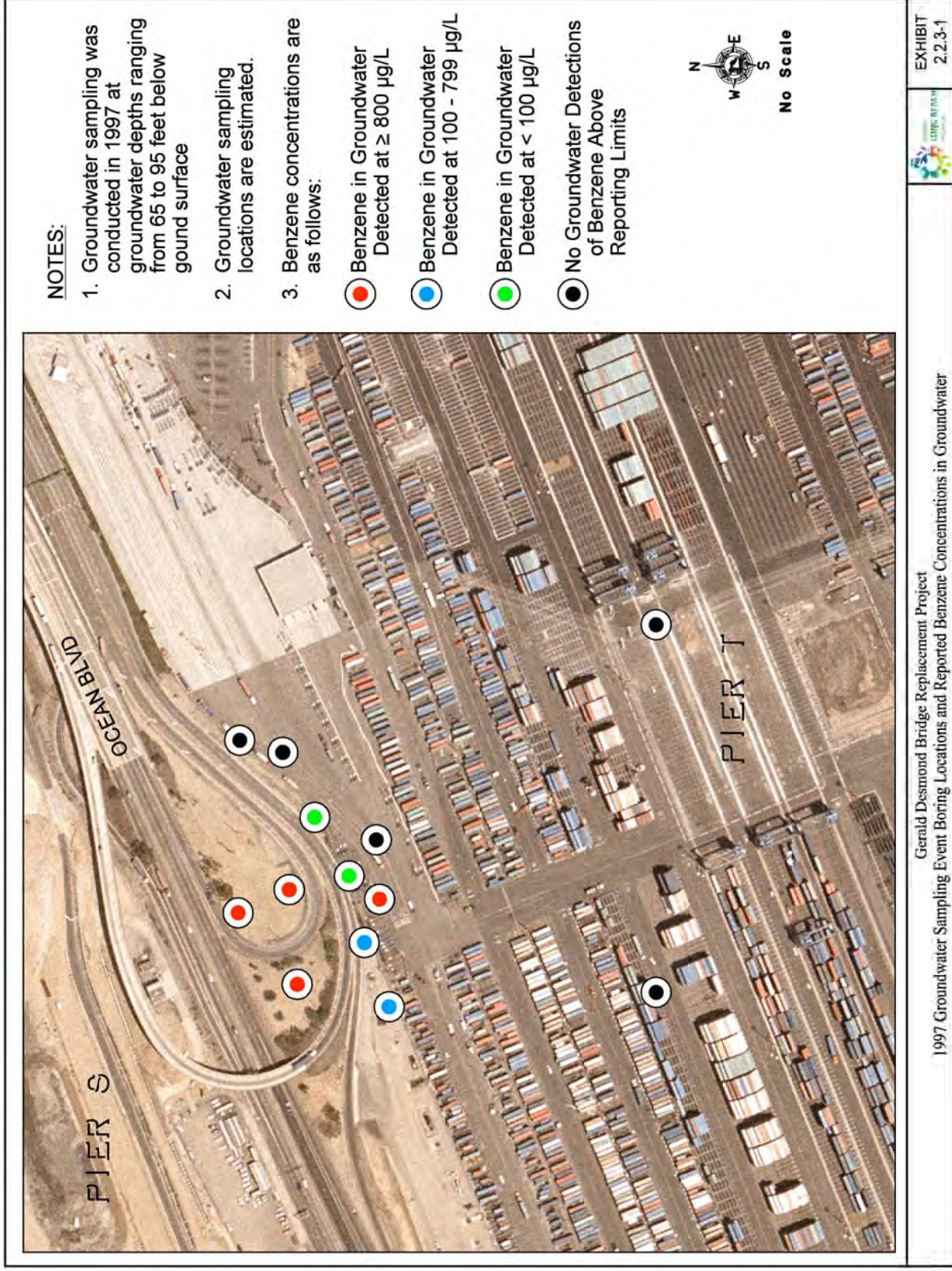
impacted by benzene and possibly other VOCs as a result of the activities at the former LBNSY IR Site 9, located approximately 300 ft (91 m) south of West Seaside Boulevard and 600 ft (183 m) west of the intersection of Weaver Street and Corvette Street (see also Section 2.2.1 [Water Resources and Hydrology]). Contaminated groundwater could potentially be affected if deep excavation penetrates multiple water-bearing intervals and allows for cross-contamination between these intervals during construction. Contaminated groundwater could also potentially be affected if dewatering is required. Currently, excavation of the magnitude required to facilitate the cross contamination has not been identified. If dewatering is required, then appropriate dewatering measures will be used to prevent impacts on construction activities and to ensure that polluted runoff does not leave the site. Disposal of the excess water shall comply with the applicable NPDES permit and water quality standards. Potential project impacts associated with the contaminated groundwater are discussed in detail in Section 2.2.1 (Water Resources and Hydrology).

**Oil Wells.** Due to the oil field history and gradual buildup of earth fill, it is likely that localized zones of soil impacted by former oil field activities may be encountered at unpredictable depths when excavating. Prior to project construction, an oil well abandonment plan, as applicable, would be coordinated with DOGGR. All excavation of contaminated soils would be handled and disposed of in accordance with federal and state laws. The potential for contaminated soils and abandoned oil wells would not result in an adverse effect on human health or the environment during construction of the proposed project.

**ADL.** Surface soil adjacent to paved areas within the project corridor may contain ADL from vehicle exhaust. Areas within the proposed project corridor where soil may be disturbed during construction will be tested for ADL in accordance with a hazardous waste management plan that will be developed for this project based on the findings of the Phase II Site Investigation referenced above. Potential for ADL would not result in an adverse effect on human health or the environment.

**ACM and LBP Coatings.** The buildings and bridge and appurtenances may contain ACM and LBP coatings. ACM, if it exists, is likely to be nonfriable. During demolition, if ACM fibers are airborne, then bridge/building demolition could potentially adversely affect humans due to inhalation hazard; however, potential adverse





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effects of ACM during demolition would be minimized by completing ACM and LBP surveys and removal prior to demolition activities. Additionally, the contractor would comply with SCAQMD Rule 1403 notification and removal processes and RWQCB disposal requirements. Human health effects would be less than adverse with screening, removal prior to demolition, and Rule 1403 and RWQCB disposal requirement compliance.

To prevent potential introduction of LBP into receiving waters, the contractor would take appropriate measures to eliminate LBP from reaching receiving waters. It is likely that paint from the bridge would be chemically removed at a suitable offsite location. If LBP removal is necessary during the bridge demolition process, then the contractor will comply with all applicable laws and regulations relative to this process. LBP removed from the bridge would be handled and disposed of in accordance with all applicable laws and regulation. Adverse effects are not anticipated.

#### South-side Alignment Alternative

Construction and demolition effects under the South-side Alignment Alternative would be the same as those described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

During final design, a Phase II Site Investigation would be performed to assess potential soil and groundwater contamination in areas proposed for rehabilitation/retrofit activities. Construction areas where excavation exceeds 5 ft (1.5 m) bgs would have excavated soil screened for VOC vapors using a PID meter. At the discretion of the sampler, vapor readings above background may be (1) further screened for benzene vapors using dragger tubes and/or (2) soil samples may be obtained and submitted to a fix laboratory for VOC analysis. Additionally, groundwater samples would be obtained in areas where groundwater may be encountered and submitted for analysis. The site investigation must be completed prior to initiation of construction activities.

This alternative would require improvements to the bridge that have the potential to disturb ACM. The ACM in the bridge, if it exists, is likely to be nonfriable. During rehabilitation of the bridge, if ACM fibers are airborne, ACM fibers could potentially adversely affect humans due to inhalation hazard; however, potential adverse effects of ACM bridge rehabilitation activities would be minimized by requiring the contractor to comply with SCAQMD Rule 1403 notification and

removal processes and RWQCB disposal requirements. Human health effects would be less than adverse with Rule 1403 compliance and RWQCB disposal requirements.

Also, the Rehabilitation Alternative would require the removal of LBP and repainting of the steel structure. The contractor would be responsible to ensure that LBP removal is completed in accordance with all federal and state laws to prevent releases to the environment. The contractor would prepare a Lead Compliance Plan in accordance with CCR Title 8 Section 1532.1. Potential measures the contractor could use to avoid release to the environment include but are not limited to the following:

- Erect shrouds around working areas and suspending nets and tarps below the bridge 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.

#### **Operational Impacts**

##### North-side Alignment Alternative

Once the new bridge is constructed and the old bridge is demolished, impacts to the environment or general public due to hazardous materials releases or spills associated with bridge operation could occur from traffic-related accidents involving hazardous material carriers. Responses to hazardous material releases would be provided by the City of Long Beach and City of Los Angeles Fire Departments. The impact to the environment and general public due to hazardous materials releases or spills is expected to be reduced under the North-side Alignment Alternative compared to the No Action Alternative and the Rehabilitation Alternative. This is due to the fact that the new bridge would provide more and wider traffic lanes and shoulders, thus enhancing safety to the commuters and truck drivers using this transportation route.

No adverse effects associated with hazardous materials/wastes would occur due to operation of the proposed project. Releases of hazardous materials resulting from traffic-related accidents during project operation are unavoidable and would occur under all alternatives. These releases would

be cleaned up as part of the emergency/hazardous materials response to each vehicle crash.

South-side Alignment Alternative

Operational Effects under the South-side Alignment Alternative would be the same as those described under the North-side Alignment Alternative.

Rehabilitation Alternative

Subsequent to bridge rehabilitation, impacts to the environment or general public due to hazardous materials releases or spills associated with bridge operation could occur from traffic-related accidents involving hazardous material carriers. Responses to hazardous material releases would be provided by the City of Long Beach and City of Los Angeles Fire Departments. The impact to the environment and general public due to potential hazardous materials releases or spills would be similar to the No Action Alternative. The Rehabilitation Alternative would not include more or wider traffic lanes and shoulders; therefore, it would not enhance safety for commuters and truck drivers using this transportation route.

No adverse effects associated with hazardous materials/wastes would occur due to operation of the proposed project. Releases of hazardous materials resulting from traffic-related accidents during project operation are unavoidable and would occur under all alternatives. These releases would be cleaned up as part of the emergency/hazardous materials response to each vehicle crash.

**2.2.3.4 Avoidance, Minimization and/or  
Mitigation Measures**

**Temporary Measures**

**HM-1** A Phase II Site Investigation shall be performed in construction areas where excavation will exceed 5 ft (1.5 m) bgs, where groundwater may be encountered and in areas where USTs were removed without closure. The results of the Phase II investigation would be incorporated into the Safety Plan to protect construction workers against known contamination in construction areas. A Hazardous Waste Management Plan based on the results of the Phase II investigation will also be incorporated into the Final Design to ensure proper disposal of contaminated materials and contaminated groundwater found in the construction areas.

**HM-2** A risk assessment shall be performed prior to construction to determine how construction activities will impact the

water-bearing levels and, as applicable, to determine health risks to construction workers.

**HM-3** To minimize cross contamination of the water-bearing zones, the construction contractor shall employ construction techniques to minimize the need for dewatering.

**HM-4** The Port shall conduct a survey to screen for ACM and LBP in all affected buildings and the bridge prior to any demolition activities. Identification of locations of buildings or structures containing ACMs and LBP will be clearly identified on the construction plans and incorporated into the project safety plan and hazardous waste management plan. Any disturbance/demolition to structures containing ACM or LBP will be completed in accordance with the contract specifications and all federal, state, and local laws and regulations.

**HM-5** Prior to construction, the Port shall test areas within the proposed project corridor where soil may be disturbed for ADL. If ADL levels meet or exceed the action level set forth by the hazardous waste management plan for the project, then ADL-contaminated soils shall be removed in accordance with federal, state, and local regulations.

**HM-6** A Safety Plan will be required to address any exposure to hazardous materials. The Safety Plan will include proper personal protective equipment (PPE) work requirements, soil and air space monitoring requirements, documentation and reporting requirements, and action levels.

**HM-7** The contractor shall prepare a Lead Compliance Plan in accordance with CCR Title 8 Section 1532.1. The Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene

**HM-8** If it is determined that the project would require the removal or disturbance of any existing yellow thermoplastic traffic lane striping in the project area, then Caltrans standard measures shall be implemented to ensure the proper removal, storage, and disposal of the material, as applicable.

**Permanent Measures**

No measures are required.

## **2.2.4 Public Health and Safety**

This section addresses the potential for public exposure to unsafe situations associated with implementation of the proposed project and the potential for disruption to emergency response services provided by the police and fire departments.

### **2.2.4.1 Affected Environment**

The primary police and fire services for the Port are provided by the City of Long Beach. The Long Beach Police Department provides police protection within the vicinity of the Port. Police services within the project vicinity are also supported by the POLB Harbor Patrol. The two closest police stations to the Port are the South Patrol Division, located at Broadway and Magnolia Avenue, and the West Patrol Station, at Santa Fe Avenue and PCH. The South Patrol Division is responsible for responding to calls for service.

The Harbor Patrol supplements City police protection and provides 24-hour service to Port property through radio-directed patrol cars. Emergency response time is approximately 3 to 5 minutes.

The LBFD provides fire protection within the City of Long Beach, including the Port. The Operations Bureau of the LBFD is responsible for 23 fire stations, which house 23 pumpers, 4 support trucks, 8 paramedic rescue vehicles, 1 foam apparatus, 3 airport fire-fighting and rescue vehicles, 2 harbor fireboats, and 1 technical rescue vehicle. The bureau is also responsible for the operations of the Marine (Lifeguard) Division, which maintains 9 lifeguard facilities with a staff of 26 lifeguards. The Port and adjacent areas are located within the District 1 service area. District 1 is geographically located in the southwest area of the city, encompassing the Port and the downtown. It is comprised of Fire Stations 1, 2, 3, 4, 6, 10, 15, 20, and 24. Daily staffing for the district includes 52 personnel, with the following apparatus assigned to its stations:

- One battalion chief command suburban
- Eight fire engines
- One support truck
- Four paramedic ambulances
- Two fire boats
- One technical rescue vehicle

Additionally, The Los Angeles Fire Department (LAFD) has a mutual aid agreement with the LBFD. LAFD Station No. 40 and a Fire Boat

Station, located at 330 Ferry Street, are located on Terminal Island approximately 1.5 mi (2.4 km) from the Port. Station No. 111, located at 1411 South Seaside Avenue (Berth 256), also has one fireboat.

Emergency response within marine water is within the jurisdiction of USCG. Spill containment and cleanup, however, is generally the responsibility of the parties involved.

Other organizations that provide emergency assistance include United States Customs, Federal Bureau of Investigation (FBI), California Department of Fish and Game (CDFG) and Department of Homeland Security Transportation Security Administration (TSA).

### **2.2.4.2 Environmental Consequences**

#### **Evaluation Criteria**

The proposed project may result in an adverse effect on public health and safety, if it would:

- Impair or interfere with implementation of an adopted emergency response plan or emergency evacuation plan
- Substantially diminish the level of fire and police services (i.e., reduction of acceptable response time)
- Create a significant hazard to the public through the generation of heavy machinery, vehicles, or equipment; or the creation of attractive nuisances, accessible excavations, or accessible open body of water

#### **No Action Alternative**

The main purpose of the project is to replace an aging transportation structure with a seismically resistant bridge that would function as a dependable transportation link for the region between the City of Long Beach and Terminal Island for its planned 100-year design life. Under the No Action Alternative, there would be no health and safety effects associated with construction, demolition, or rehabilitation activities. The physically deteriorated Gerald Desmond Bridge would continue to be used by commuters and to access Port facilities on Terminal Island. Spalling concrete on the Gerald Desmond Bridge resulted in the Port installing protective netting beneath the bridge deck to protect Port facilities (e.g., Fireboat Station No. 20) and workers below. When considering future transportation demand, insufficient roadway capacity would result in increased delay for commuters and Port users. When maintenance and protection measures are



no longer feasible to ensure the safety of the traveling public, bridge closure may be required until seismic retrofit is completed or a replacement bridge could be constructed. Potential closure of the bridge would adversely affect regional traffic patterns, Port operations, and goods transport.

### **Construction and Demolition Impacts**

#### North-side Alignment Alternative

Construction activities are anticipated to take place in logical sequence, including footing construction, column construction, tower construction, approach span erection, and main-span erection. These sequences are expected to overlap. The construction duration is estimated to be 48 months. During the period of construction, the existing Gerald Desmond Bridge would continue its normal use; therefore, there would be no major obstruction to emergency response routes during construction of the new bridge. Project construction would not likely be concurrent with construction of the Schuyler Heim Bridge replacement; therefore, all routes to Terminal Island would remain open during construction, and they would not adversely affect emergency vehicle access routes.

Safety of workers and the general public may potentially be adversely affected due to the use of heavy machinery and equipment throughout the construction phase. With implementation of Office of Safety and Health Administration (OSHA) regulations related to safety in the construction site and coordination with USCG, who has policing authority in the water, no adverse effects on worker or general public safety are anticipated.

Reconstruction of all ramps for the existing Terminal Island East interchange and the four existing ramp connections to Pico Avenue could result in some periodic ramp closures. This could potentially adversely affect emergency response times or interfere with the emergency response services. Potential effects on emergency response times would be minimized by submitting bridge construction, demolition, and ramp closure schedules to the Long Beach Police and Fire Departments, USCG, and Caltrans at least 2 weeks before closures would occur. Advance notification and planning with emergency service providers would provide adequate time for these agencies to plan for alternative routes in case of emergencies. No adverse effect on emergency response time or service is anticipated during construction (see Section 2.1.5 [Traffic and Circulation]).

Demolition of the Gerald Desmond Bridge would occur subsequent to completion of the new bridge. Demolition would generally be conducted in logical sequence, staged over a period of approximately 15 months. The demolition phase would include removal of approach span decks, approach span girders, concrete piers, and concrete footings. Conventional means of demolition would be used (e.g., saw-cut, breaking, and hauling away as rubble). Potentially adverse effects to the health and safety of nearby business operators, Port tenants, and commuters using the new bridge and Ocean Boulevard could result from on-road traffic hazards associated with movement of heavy equipment and vehicles. Road hazard impacts would be minimized with adherence to a TMP (see Section 2.1.5 [Traffic and Circulation]). The TMP would address traffic management and safety procedures for travel within the project area. With implementation of the TMP, effects of road hazards on the nearby business operators, Port tenants, and commuters would be less than adverse. Potential road hazards would not affect emergency response routes. All traffic would be routed to the new bridge and ramps during demolition activities. Construction equipment hauling demolition debris would utilize designated haul routes. Demolition materials would be recycled to the extent possible in accordance with Port standards and the City of Long Beach Construction and Demolition Recycling Program. All designated haul routes would be located outside of nearby communities. Local community traffic circulation would not be affected during demolition of the Gerald Desmond Bridge. Road hazards would not affect the health and safety of area residents.

In addition to the on-road traffic hazards, marine transportation hazards could potentially adversely affect ships navigating through the Back Channel during the bridge construction and demolition phases. Potential marine transportation effects on ships utilizing the Back Channel would be minimized by notifying all marine transportation and recreational boating companies of scheduled work over the Back Channel. With proper notification, no adverse effects resulting from potential marine transportation hazards are anticipated.

#### South-side Alignment Alternative

Although the location of this alternative would be different, the scope and schedule of the construction and demolition phases and the potential effect on public health and safety would be very similar to that of the North-side Alignment



Alternative. Construction and demolition impacts to public health and safety under the South-side Alignment Alternative would be the same as those described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

As discussed in Chapter 1 (Project Description and Alternatives), the construction activities identified below are required to bring the Gerald Desmond Bridge up to current seismic standards and prevent ongoing bridge deterioration:

- Replacement of the main span bridge deck
- Replacement of all expansion joints
- Replacement of the sway bracings for the main span
- Painting of all steel members
- Seismic retrofit of foundations, columns, bent caps, abutments, and superstructure

The estimated construction time for this alternative is 40 months. With the exception of the bridge deck replacement, all activities would be completed from the bridge or from the ground adjacent to the bridge. Bridge deck replacement would likely be completed at night, one lane at a time. This would allow traffic to be maintained in all 5 lanes during peak operating hours. Bridge deck replacement would occur during 12-hour closures from 7:00 p.m. to 7:00 a.m. This alternative would have very little impact on bridge traffic and practically no impact on Port operations.

No substantial obstructions affecting emergency response routes during rehabilitation of the Gerald Desmond Bridge are anticipated.

Any potential effects on emergency response would be minimized by submitting bridge rehabilitation schedules to the Long Beach Police and Fire Departments, USCG, and Caltrans at least 2 weeks prior to construction. Advance notification and planning with emergency service providers would provide adequate time for these agencies to plan for alternate routes in case of emergencies. No adverse effect on emergency response time or service is anticipated during construction (see Section 2.1.5 [Traffic and Circulation]).

During bridge deck replacement activities, the lane closure would provide construction access for work from the bridge, as well as for replacement of the bridge deck. During these activities, construction equipment, as well as barriers to protect workers, would result in

increased road hazards. The associated reduced capacity and heavy equipment could potentially adversely affect bridge users; however, with implementation of OSHA regulations related to safety in the construction site, coordination with USCG, and deck replacement activities occurring during off peak hours, no adverse effects on workers or general public safety are anticipated.

In addition to on-road traffic hazards, marine transportation hazards could potentially adversely affect ships utilizing the Back Channel during bridge rehabilitation activities. Potential marine transportation hazard effects on ships utilizing the Back Channel would be minimized by notifying all marine transportation and recreational boating companies of scheduled work over the Back Channel. With proper notification, no adverse marine hazard effects would occur.

#### **Operational Impacts**

##### North-side Alignment Alternative

Subsequent to completion of the new bridge, ground transportation between SR 710 and Ocean Boulevard would be via the new approach spans and bridge. Once the new bridge is in operation, traffic and worker safety would increase due to the wider and structurally sound bridge. The additional capacity would improve traffic circulation within the Port and between the City of Long Beach and Terminal Island. The roadway shoulders would improve traffic safety by providing additional capacity for breakdowns. Additionally, the wider bridge would improve emergency vehicle access, potentially contributing to reduced response times during major incidents on the roadway or at the industries on Terminal Island. Implementation of the proposed alternative would improve traffic and personal safety. No adverse effects on public health and safety resulting from operation of the North-side Alignment Alternative are anticipated.

##### **Accident/Terrorist Vulnerability Assessment.**

An analysis of accident and terrorist vulnerability of the new bridge was recommended by the Gerald Desmond Bridge Technical Advisory Panel (TAP). The TAP further recommended that the above assessment be performed prior to beginning final design. The intent of this assessment is to address the potential vulnerability of the bridge and develop conceptual modifications to the bridge design as required. Detailed design of anti-terrorist modifications (e.g., changes to bridge components, armoring) is not included in this environmental assessment. This analysis would

be performed as an integral component of the final design phase.

Following the vulnerability assessment, security and hardening measures would be incorporated into the final bridge design to reduce the potential for substantial structural damage during a terrorist attack. Measures may include restricting access to vulnerable elements by using fencing and gates; installing security systems, such as advanced-technology closed-circuit monitors; and strengthening critical bridge elements.

#### South-side Alignment Alternative

This alternative would result in the same beneficial operational effects on public health and safety. Permanent impacts to public health and safety under the South-side Alignment Alternative would be the same as those described under the North-side Alignment Alternative. Prior to construction, this alternative would also require an accident/terrorist vulnerability assessment.

#### Rehabilitation Alternative

The Rehabilitation Alternative would improve structure safety and stability by preventing collapse and associated loss of life during major seismic events for the next 30 years; however, it would not provide additional capacity for emergency vehicle access or for breakdowns. This alternative would also result in a continued reduction in the LOS associated with forecasted increased travel demand (see Section 2.1.5 [Traffic and Circulation]) and could result in increased response times during major incidents on the roadway or at the industries on Terminal Island. Additionally, the Rehabilitation Alternative would not eliminate the need for future transportation improvements to address the other deficiencies identified in the Purpose and Need (see Chapter 1). The bridge would still require replacement within the 30-year design life of the Rehabilitation Alternative.

### **2.2.4.3 Avoidance, Minimization, and/or Mitigation measures**

#### **Temporary Measures**

##### North- and South-side Alignment Alternative

**HS-1** An Accident and Terrorist Vulnerability assessment of the build alternative shall

be completed and all recommendations incorporated into the project during final design. The assessment will analyze and considerer applicable protection measures for the construction and the operational phases of the proposed project.

**HS-2** The Port shall submit all bridge work schedules to the Long Beach Police and Fire Departments, USCG, and Caltrans at least 2 weeks prior to initiation of work to provide adequate time for the agencies to plan for alternate routes in case of emergencies.

**HS-3** Prior to initiation of construction activities, the Port shall notify all businesses, tenants, and utility companies (i.e., SCE, gas, water, oil, and telecommunications) within the project area of the proposed work schedules and associated roadway and ramp closures.

**HS-4** The Port shall notify all marine transportation and recreational boating companies 2 weeks prior to initiation of planned work activities potentially affecting normal operations within the Back Channel.

**HS-5** The Port shall regularly notify USCG and all Port tenants of scheduled work over the Back Channel during construction and demolition of the project.

**HS-6** The contractor shall prepare an emergency response and health and safety plan in accordance with all applicable federal, state, and OSHA standards. The plan should address potential emergency situations and assure the safety and health of workers by setting and enforcing standards to reduce occupational injuries and accidents. The Port will review and approve the plans prior to initiation of construction activities.

##### Rehabilitation Alternative

See measures HS-2 through HS-6 above.

#### **Permanent Measures**

No measures are required.

## **2.2.5 Air Quality**

The information and analysis within this section is taken from the Gerald Desmond Bridge Air Quality Technical Study (Parsons, 2009d).

### **2.2.5.1 Regulatory Setting**

Many statutes, regulations, plans, and policies have been adopted that address air quality issues. For purposes of summarization, both federal and non-federal regulatory measures are discussed in this section. The proposed project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. Adherence to these measures has produced substantial progress in improving air quality in South Coast Air Basin (SCAB or Basin) over the past 30 years. Relevant plans, policies, and regulations applicable to the proposed project are discussed below

#### **Federal Regulation/Standards**

**The Federal Clean Air Act.** The CAA was passed in 1970 and last amended in 1990. It forms the basis for the national air pollution control effort. Basic elements of the CAA include national ambient air quality standards (NAAQS) for criteria air pollutants, hazardous air pollutants (HAPs) emission standards, state attainment plans, motor vehicle emissions standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone (O<sub>3</sub>) protection, and enforcement provisions.

The NAAQS have two tiers: primary standards to protect public health and secondary standards to prevent environmental degradation (e.g., damage to vegetation and property, and visibility impairment). The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 Amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that are most applicable to the project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

Title I of the CAA identifies attainment, nonattainment, and unclassifiable areas with regard to the criteria pollutants, and it sets deadlines for all areas to reach attainment for the following criteria pollutants: O<sub>3</sub>, nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulates less than ten microns in diameter (PM<sub>10</sub>), carbon monoxide (CO), and Pb. The NAAQS were amended in July 1997 to include the 8-hour O<sub>3</sub> standard and an NAAQS for fine particulates less than 2.5 microns in diameter (PM<sub>2.5</sub>). Table 2.2.5-1 presents the standards that are currently in effect for all criteria pollutants. Table 2.2.5-2 includes the potential health effects resulting from exposure to these pollutants.

Title II of the CAA contains a number of provisions with regard to mobile sources, including motor vehicle emission standards (e.g., new tailpipe emissions standards for cars and trucks, and nitrogen oxide [NO<sub>x</sub>] standards for heavy-duty vehicles), fuel standards (e.g., requirements for reformulated gasoline), and a program for cleaner fleet vehicles.

EPA amended the NAAQS in 1997 to include an 8-hour standard for O<sub>3</sub> (0.08 parts per million [ppm]) and to adopt new NAAQS for PM<sub>2.5</sub>. EPA reviews the most up-to-date scientific information and the standard for each pollutant every 5 years and obtains advice from the Clean Air Scientific Advisory Committee on each review. Based on these reviews, EPA considers revision to the NAAQS accordingly. The NAAQS for particulate matters were amended by EPA in September 2006 to strengthen the 24-hour PM<sub>2.5</sub> standard from 65 micrograms per cubic meter (µg/m<sup>3</sup>) to 35 µg/m<sup>3</sup> and revoke the annual PM<sub>10</sub> NAAQS due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution. The area designation for the new PM<sub>2.5</sub> standard became effective in October 2009. Furthermore, based on new scientific studies and several health risk assessment results, EPA revised the lead NAAQS to provide increased protection for children and other at-risk populations against adverse health effects, most notably including neurological effects in children. The revised standard level is 0.15 µg/m<sup>3</sup> over rolling 3-month periods. The final rule was signed on October 15, 2008. The area designation/classification based on the new standard will become effective within 2 years (i.e., 2010), and attainment demonstration SIPs will be due by 2013. Additionally, on March 12, 2008, EPA strengthened the 8-hour O<sub>3</sub> NAAQS based on new scientific evidence about the effects of ground-level O<sub>3</sub> on public health and the environment. The new standard (primary and secondary) is 0.075 ppm. Nonattainment

**Table 2.2.5-1  
Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>a,c</sup> Concentration	National Standards <sup>b,c</sup>	
			Primary	Secondary
Ozone (O <sub>3</sub> )	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	—	—
	8 Hour	0.07 ppm (137 µg/m <sup>3</sup> )	0.075 ppm (147 µg/m <sup>3</sup> ) <sup>d</sup>	—
Respirable Particulate Matter (PM <sub>10</sub> )	24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary
	Annual Average (AAM)	20 µg/m <sup>3</sup>	— <sup>e</sup>	
Fine Particulate Matter (PM <sub>2.5</sub> )	24 Hour	No Separate State Standard	35 µg/m <sup>3</sup> <sup>f</sup>	Same as Primary
	Annual Average (AAM)	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	—
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Average (AAM)	0.030 ppm (56 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary
	1 Hour	0.18 ppm (338 µg/m <sup>3</sup> )	—	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Average (AAM)	—	0.030 ppm (80 µg/m <sup>3</sup> )	—
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (365 µg/m <sup>3</sup> )	—
	3 Hour	—	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	—	—
Lead (Pb) <sup>g</sup>	30-Day Average	1.5 µg/m <sup>3</sup>	—	—
	Rolling 3-Month <sup>h</sup>	—	0.15 µg/m <sup>3</sup>	Same as Primary
Visibility Reducing Particles	8 Hour	In sufficient amount to produce extinction coefficient of 0.23 per kilometer due to particles when relative humidity is less than 70%	No Federal Standards	
Sulfates	24 Hour	25 µg/m <sup>3</sup>		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )		
Vinyl Chloride <sup>g</sup>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )		

<sup>a</sup> California standards for O<sub>3</sub>, CO (except Lake Tahoe), SO<sub>2</sub> (1- and 24-hour), NO<sub>2</sub>, suspended particulate matter—PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the CCR.

<sup>b</sup> National standards (other than O<sub>3</sub>, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

<sup>c</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to these reference conditions; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

<sup>d</sup> The new standard of 0.075 ppm (previously 0.08 ppm) was adopted on March 12, 2008, and became effective in June.

<sup>e</sup> The annual standard of 50 µg/m<sup>3</sup> was revoked by EPA in December 2006 due to lack of evidence linking health problems to long-term exposure to coarse particulate pollution.

<sup>f</sup> Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM<sub>2.5</sub> from the previous level of 65 µg/m<sup>3</sup>. The updated area designation became effective in October 2009.

<sup>g</sup> The California Air Resources Board (CARB) has identified Pb and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow implementation of control measures at levels below the ambient concentrations specified for these pollutants.

<sup>h</sup> Final rule for the new federal standard was signed on October 15, 2008.

AAM – Annual Arithmetic Mean; mg/m<sup>3</sup> – milligrams per cubic meter; µg/m<sup>3</sup> – micrograms per cubic meter; ppm – parts per million

Source: California Air Resources Board, 2010a.

**Table 2.2.5-2  
Health Effects Summary for Air Pollutants**

<b>Pollutant</b>	<b>Sources</b>	<b>Primary Effects</b>
Ozone (O <sub>3</sub> )	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory diseases; irritation of eyes; impairment of pulmonary function; plant leaf injury.
Nitrogen Dioxide (NO <sub>2</sub> )	Motor vehicle exhaust; high temperature; stationary combustion; atmospheric reactions.	Aggravation of respiratory illness; reduced visibility; reduced plant growth; formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; and natural events, such as decomposition of organic matter.	Reduced tolerance for exercise; impairment of mental function; impairment of fetal development; impairment of learning ability; death at high levels of exposure; aggravation of some cardiovascular diseases (angina).
Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	Fuel combustion in vehicles, equipment, and industrial sources; construction activities; industrial processes; residential, agricultural burning; atmospheric chemical reactions.	Reduced lung function; aggravation of the effects of gaseous pollutants; aggravation of respiratory and cardio-respiratory diseases; increased cough and chest discomfort; soiling; reduced visibility.
Sulfur Dioxide (SO <sub>2</sub> )	Combustion of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ores; industrial processes.	Aggravation of respiratory and cardiovascular diseases; reduced lung function; carcinogenesis; irritation of eyes; reduced visibility; plant injury; deterioration of materials (e.g., textiles, leather, finishes, coating).
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve construction; behavioral and hearing problems in children.

Source: EPA, 2006a.

designations are categorized by EPA into seven levels of severity: basic, marginal, moderate, serious, severe-15, severe-17, and extreme.

The South Coast Air Basin (SCAB or Basin) is currently classified as a nonattainment area for O<sub>3</sub> and fine particulates (PM<sub>10</sub> and PM<sub>2.5</sub>). Based on 1990 CAA Amendments (CAAAAs), the SCAB nonattainment designations are as follows: nonattainment for PM<sub>2.5</sub>, requiring attainment by 2014; and "severe-17" for O<sub>3</sub>, requiring attainment with the 8-hour O<sub>3</sub> standard by 2021 (the former 1-hour O<sub>3</sub> standard was revoked by EPA on June 15, 2005; thus, it is no longer in effect for the state of California).

The SCAB was in serious nonattainment status for PM<sub>10</sub> until 2006. The Basin met the PM<sub>10</sub> standards at all stations except for western Riverside County, where the annual PM<sub>10</sub> standard was not met as of 2006. The annual standard was then revoked by EPA in December 2006 due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution. The 24-hour PM<sub>10</sub> standard is retained at its existing value. Currently, the Basin meets the 24-hour average federal standard.

When exceedances do occur, they are usually associated with high wind natural events or exceptional events due to wildfires.

For CO, attainment demonstrations were previously submitted to EPA in 1992, 1994, and 1997 to bring the SCAB into attainment with the federal standard in 2000. In 2001, the CO standard was exceeded in the SCAB on 3 days, thus leaving the basin in nonattainment status. In January 2005, the California Air Resources Board (CARB) declared CO attainment for the SCAB based on air quality data collected during 2001 through 2003. The redesignation was approved by the State Office of Administrative Law and became effective on July 23, 2004. The 2005 CO Redesignation Request and Maintenance Plan for SCAB was reviewed and approved by EPA, and the federal CO attainment status for SCAB became effective on June 11, 2007.

All nonattainment areas are subject to a "transportation conformity" measure, requiring local transportation and air quality officials to coordinate their planning to ensure that transportation projects do not hinder an area's ability to reach its clean air goals. These

requirements become effective 1-year after an area's nonattainment designation.

For a nonattainment area, the CAA provides voluntary reclassification of the area to a higher classification by submitting a request to EPA. For O<sub>3</sub>, SCAQMD has requested (as part of its 2007 Air Quality Management Plan [AQMP] submittal to EPA), a reclassification of the Basin from "severe-17" to "extreme" nonattainment. This would extend the 8-hour O<sub>3</sub> attainment date to 2024 and allow attainment demonstration to rely on emission reductions from measures that anticipate the development of new technologies or improving of existing control technologies.

Furthermore, SCAQMD has proposed an extension for attainment demonstration of the federal new standard for 24-hour PM<sub>2.5</sub> by 2015 instead of 2014.

**Transportation Conformity Rule.** The CAA mandates that the state submit and implement an SIP for each criteria pollutant that violates the applicable NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. 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. EPA has 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.

The Transportation Conformity Rule, as defined in 40 CFR Parts 51 and 93, was established by EPA and the United States Department of Transportation (DOT) on November 30, 1993, to implement the federal CAA conformity provisions. The CAAs of 1990 require that transportation plans, programs, and projects that are funded by or approved under Title 23 U.S.C. or the Federal Transit Act conform to state or federal air quality plans for achieving NAAQS. The Southern California Association of Governments (SCAG) is the federally designated Metropolitan Planning Organization (MPO) responsible for transportation planning in the SCAB. 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 FHWA and Federal Transit

Administration (FTA) funding of transportation plans, programs, and projects. These requirements were not changed with enactment of SAFETEA-LU on August 10, 2005. Conformity with the CAA takes place on both regional and local levels.

In March 2006, the Transportation Conformity Rule was updated to include regulations for performing qualitative analysis of PM<sub>10</sub> and PM<sub>2.5</sub> hot-spot impacts. Only projects that are considered "Projects of Air Quality Concern" (POAQC) are required to perform an analysis. POAQCs are defined, generally, as: (1) new or expanded highway projects that have a significant number of or significant increase in diesel vehicles, (2) projects affecting intersections that are LOS D, E, or F with a significant number of diesel vehicles, (3) new or expanded bus and rail terminals and transfer points with a significant number of diesel vehicles congregating in a single location, and (4) projects in or affecting locations, areas, or categories of sites that are identified in the PM<sub>10</sub> or PM<sub>2.5</sub> applicable implementation plan as sites of possible violation.

#### Regional Conformity Determination

In determining whether a project conforms with an approved air quality plan, agencies must use current emission estimates based on the most recent population, employment, travel, and congestion estimates determined by an area's MPO. The MPOs are required to develop and maintain long-term and short-term plans and programs such as 20-year RTPs and 4-year RTIPs. These plans set out transportation policies and programs for the region. A conforming RTIP/TIP model outcome projects that the regulated pollutants will be reduced to acceptable levels within time frames that meet the NAAQS.

SCAG, as the MPO for the project region, is responsible for developing the RTP and RTIP for the region, including Los Angeles, Orange, San Bernardino, Riverside, Imperial, and Ventura counties. The RTP provides a long-term vision of regional transportation goals, policies, objectives, and strategies; assesses current and projected demand for travel and goods movement; and identifies necessary actions to meet the region's mobility and accessibility needs. The Final 2008 RTP was adopted by SCAG on May 8, 2008; and it was approved by FHWA and FTA on June 5, 2008. The 2008 RTP presents the transportation vision for the region through the year 2035.

The 2008 RTIP was developed in accordance with state and federal requirements. Under state law, county transportation commissions have the



responsibility of proposing county projects, using policies, programs, and projects of the current RTP as a guide, from among submittals by cities and local agencies. The local priority lists of projects were forwarded to SCAG for review. From these lists, SCAG developed the 2008 RTIP based on consistency with the current RTP, inter-county connectivity, financial constraints, and conformity requirements. The 2008 RTIP is SCAG's compilation of state, federal, and local funded transportation projects and includes a listing of all transportation projects proposed over a 6-year period, Fiscal Years (FY) 2008/09 – 2013/14. The 2008 RTIP was adopted by SCAG on July 17, 2008, and it was approved by FHWA and FTA on November 17, 2008.

To be in conformance, a project must be included in the list of projects of the federally approved transportation plans and programs.

#### Project-Level Conformity

A project-level conformity determination is required for projects in CO, PM<sub>10</sub>, and PM<sub>2.5</sub> nonattainment and maintenance areas. As discussed previously, a region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant NAAQS. Areas that were previously designated as nonattainment, but have recently met the NAAQS, are called maintenance areas. In general, projects must not cause the CO standard to be violated, and in nonattainment areas, the project must not cause any increase in the number and severity of violations.

Furthermore, based on the 2006 update of the Transportation Conformity Rule, specifically section 40 CFR 93.105 (c)(1)(i), an interagency consultation for project-level conformity of the proposed project is required. Pursuant to this requirement, a qualitative PM hot-spot analysis was performed and submitted to SCAG for conformity determination.

**EPA Rule on Control of Mobile Source Air Toxics.** Controlling air toxic emissions became a national priority with the passage of the CAAA, whereby Congress mandated that EPA regulate 188 air toxics, also known as HAPs. Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined in the CAA as HAPs. MSATs are compounds emitted from roadway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary

combustion products. Airborne toxic metals can also result from engine wear or from impurities in oil or gasoline (see document No. EPA420-R-00-023, December 2000). EPA has assessed the expansive list of HAPs in their latest rule on the *Control of Hazardous Air Pollutants from Mobile Sources* (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their *Integrated Risk Information System* (IRIS) ([www.epa.gov/ncea/iris/index.html](http://www.epa.gov/ncea/iris/index.html)). In addition, EPA identified 6 compounds with significant contributions from mobile sources (FHWA, 2006) that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). The list of priority MSATs was revised in the 2009 Update Memorandum (FHWA, 2009), which added one more compound to the previous list. The priority MSATs are acrolein, benzene, 1,3-butadiene, diesel particulate matter (DPM) plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these priority MSATs, the list is subject to change and may be adjusted in consideration of future EPA rules. Of these pollutants, DPM, 1,3-Butadiene, and benzene account for approximately 89 percent of the total toxic air pollutants for potential excess cancer risk. DPM accounts for 71.2 percent of the total toxic air pollutants for potential excess cancer risk (FHWA, 2009; FHWA, 2006a; CARB, 2000).

FHWA released interim guidance on February 3, 2006, determining when and how to address MSAT impacts in the NEPA process for transportation projects. The guidance document was updated on September 30, 2009 (FHWA, 2009). FHWA has identified three levels of analysis:

- 1) No analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- 2) Qualitative analysis for projects with low potential MSAT effects; and
- 3) Quantitative analysis for projects with higher potential MSAT effects.

Under Category 1, three types of projects are included: (a) projects qualifying as a categorical exclusion under 23 CFR 771.117(c); (b) projects exempt under the CAA conformity rule under 40 CFR 93.126; and (c) other projects with no meaningful impacts on traffic volumes or vehicle mix.

The types of projects included in Category 2 are those that serve to improve operations of highway, transit, or freight movement without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions. This category covers a broad range of projects. Any projects not meeting the threshold criteria for higher potential effects set forth in Category 3 below and not meeting the criteria in Category 1 should be included in this category. Examples of these types of projects are minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street or where design year traffic is not projected to meet the "140,000 to 150,000 annual average daily traffic (AADT)" criterion.

Category 3 includes projects that have the potential for meaningful differences among project alternatives. Only a limited number of projects meet this two-pronged test. To fall into this category, projects must.

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of DPM in a single location; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Projects proposed to be located in proximity to populated areas or in rural areas in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

**EPA Emission Standards for Off-Road and On-Road Diesel Engines.** EPA has established a series of increasingly strict standards to reduce emissions from new off-road diesel engines, culminating in the Tier 4 Final Rule of June 2004. Tier 1 standards were phased in from 1996 to 2000 (manufacture year), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards are being phased in from 2006 to 2008. Tier 4 standards, which likely will require supplemental emission control equipment to attain them, will be phased in from 2008 to 2015 (69 FR 38957-39273; June 29, 2004). These standards apply to construction equipment for the proposed project.

EPA has also established a series of increasingly strict standards to reduce emissions from new on-road heavy-duty diesel engines starting in 1988. The final and cleanest standards were established with the *2007 Heavy-Duty Highway Rule* (EPA, 2007). These emission standards, which were promulgated on December 21, 2000, require a 0.01 gram per horsepower-hour (g/hp-hr) for the new heavy-duty vehicles beginning with model year 2007. In addition, the NO<sub>x</sub> and non-methane hydrocarbons (NMHC) standards of 0.20 g/hp-hr and 0.14 g/hp-hr, respectively, will be phased in between 2007 and 2010, on a percent-of-sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010 (gasoline engines are subject to these standards based on a phase-in requiring 50 percent compliance in 2008 and 100 percent compliance in 2009). These standards result in substantial reduction in emissions of VOCs, and approximately 90 percent reduction in DPM and NO<sub>x</sub> emissions for new heavy-duty trucks. Furthermore, with these rules, sulfur emissions from heavy-duty highway vehicles for the 2007 model year and newer will be reduced by more than 90 percent. The estimated future diesel truck emissions that are reported in the estimation of project emissions have factored in these regulations because they are incorporated in the CARB emissions model EMFAC2007, which was released in November 2006.

**Climate Change.** Climate change is analyzed in Chapter 3. Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA's climate change Web site<sup>7</sup>, climate change considerations should be integrated throughout the transportation decision-making process – from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision making and improve efficiency at the program level, and it will inform the analysis and stewardship needs of project-level decision making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed

<sup>7</sup> <http://www.fhwa.dot.gov/hep/climate/index.htm>

in Chapter 3 of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours traveled.

**State Regulation/Standards**

**California Clean Air Act.** The State of California began to set California Ambient Air Quality Standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The California Clean Air Act (CCAA) was enacted on September 30, 1988, and it became effective January 1, 1989. The CCAA requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. Table 2.2.5-1 shows the CAAQS for criteria pollutants, as well as the other pollutants recognized by the state. As shown in

this table, the CAAQS are generally more stringent than the NAAQS for most of the criteria air pollutants. In addition, the CAAQS include standards for other pollutants recognized by the state. These include sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Moreover, on April 28, 2005, CARB approved a new 8-hour-average O<sub>3</sub> standard of 0.070 ppm to further protect California's most vulnerable population (i.e., children) from the adverse health effects associated with ground-level O<sub>3</sub>. The standard went into effect in early 2006.

According to the CAAQS, the SCAB is classified as an extreme nonattainment area for O<sub>3</sub> and nonattainment area for PM<sub>10</sub> and PM<sub>2.5</sub>. The SCAB complies with the state standards for sulfates, hydrogen sulfide, and vinyl chloride, but it is unclassified for the California standard for visibility-reducing particles. Table 2.2.5-3 provides the Basin's attainment status with respect to federal and state standards.

<b>Table 2.2.5-3 South Coast Air Basin Attainment Status</b>		
<b>Pollutant</b>	<b>Attainment Status Basis</b>	
	<b>National Standard</b>	<b>California Standard</b>
Ozone (O <sub>3</sub> ), 1-hour average	N/A <sup>a</sup>	Extreme
Ozone (O <sub>3</sub> ), 8-hour average	Severe-17 <sup>b</sup>	Nonattainment
Carbon Monoxide (CO)	Attainment/Maintenance <sup>c</sup>	Attainment <sup>c</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment/Maintenance	Nonattainment <sup>d</sup>
Sulfur Dioxide (SO <sub>2</sub> )	Attainment	Attainment
PM <sub>10</sub>	Serious	Nonattainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
Lead (Pb)	Attainment <sup>e</sup>	Nonattainment
Sulfates (SO <sub>4</sub> <sup>2-</sup> )	N/A	Attainment

N/A = not applicable

<sup>a</sup> The National 1-hour O<sub>3</sub> standard was revoked on June 15, 2005.

<sup>b</sup> A request for reclassification status to "extreme" nonattainment was submitted to EPA in September 2007.

<sup>c</sup> The SCAB was redesignated by EPA as attainment for CO effective June 11, 2007.

<sup>d</sup> State NO<sub>2</sub> standard was amended on February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. The Office of Administrative Law approved the proposed amendments, and the new standards became effective March 20, 2008.

<sup>e</sup> In August 2009, CARB submitted a recommendation for nonattainment status of the Los Angeles County portion of SCAB based on the new federal lead standard (0.15 µg/m<sup>3</sup> rolling 3-month concentration).

Source: EPA, 2010; CARB, 2010b; SCAQMD, 2007.

**California Diesel Fuel Regulations.** This rule sets sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles (CARB, 2004). Harbor-craft and intrastate locomotives were originally excluded from the rule but they were later included by a 2004 rule amendment (CARB, 2005). Under this rule diesel fuel used in motor vehicles, except harbor-craft and intrastate locomotives, has been limited to 500 ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006. (A federal diesel rule similarly limited sulfur content nationwide for on-road vehicles to 15 ppm beginning October 15, 2006.) Diesel fuel used in harbor craft in the SCAB also was limited to 500 ppm of sulfur starting January 1, 2006, and 15 ppm of sulfur by September 1, 2006. Diesel fuel used in intrastate locomotives (i.e., switch locomotives) was limited to 15 ppm of sulfur starting January 1, 2007.

**Heavy-Duty Diesel Truck Idling Regulation.** This CARB rule became effective February 1, 2005, and it prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time, unless they are queuing, and provided that the queue is located beyond 100 ft (30.5 m) from any homes or schools (CARB, 2006).

**California Drayage Truck Rule.** In December 2007, CARB approved a new regulation to reduce emissions from heavy-duty drayage trucks (i.e., trucks committed to container cargo transport) at ports and intermodal railyards. This regulation includes an accelerated phase-out of existing vehicles to trucks that meet 2007 emission standards by 2014 (CARB, 2009). The regulation requires all drayage trucks that operate at ports and railyards to be registered in a “drayage truck registry” (DTR) by September 30, 2009. The rule sets two compliance deadlines:

- Phase 1: By January 1, 2010, all pre-1993 model year (MY) engines are to be retired and all drayage trucks with 1994-2003 MY engines would be required to be equipped with a CARB-approved Level 3 verified diesel emission control system (VDECS), such as a particulate filter.
- Phase 2: By January 1, 2014, all trucks would be required to further reduce emissions to meet the 2007 MY California or federal heavy-duty diesel-fueled on-road emission standards.

The regulation is expected to significantly reduce emissions of DPM and NO<sub>x</sub>. In 2010, after full implementation of Phase 1, DPM emissions from drayage trucks would be reduced by 86 percent

and NO<sub>x</sub> emissions would be reduced by approximately 3 percent from 2007 levels. In 2014, after full implementation of Phase 2, NO<sub>x</sub> emissions would be reduced by nearly 56 percent from 2007 levels. The regulation is expected to prevent approximately 1,200 premature deaths, with significant health cost savings of \$8.7 billion through 2020.

**California Climate Change Regulations.** Climate change regulations and analysis are addressed in Chapter 3 of this EIR/EA.

### **Local Plans and Regulations**

**Regional Air Quality Plan.** CARB coordinates and oversees state and federal air pollution control programs in California. CARB has divided the state into 15 air basins. Authority for air quality control within each basin has been given to local Air Pollution Control Districts (APCD) or Air Quality Management Districts (AQMD) to regulate stationary source emissions and develop local plans for achieving and maintaining attainment.

SCAQMD is the agency responsible for attaining state and federal clean air standards in the SCAB. SCAQMD works directly with SCAG, county transportation commissions, and local governments, and it cooperates actively with all state and federal government agencies. SCAQMD regulates stationary source emissions and has been given the authority to regulate mobile emissions as an indirect source. As such, it also has transportation-related programs aimed primarily at reducing the number of cars on the road and promoting the use of cleaner fuels and vehicles. In addition, SCAQMD is responsible for developing and adopting an AQMP that serves as the blueprint for all future rules necessary to bring the SCAB into compliance with federal and state clean air standards. CARB regulates motor vehicles and fuels.

SCAQMD is required to update its plans on a regular basis. Updates may be in the form of a new plan or an amendment. Plans range in scope from the regional AQMP to plans dealing with specific pollutants in specific geographic locales. Every 3 years, SCAQMD prepares an overall plan for air quality improvement. Each update of the plan includes revisions and amendments to the previous plan and has a 20-year horizon. The currently applicable Plan is the 2007 AQMP. It employs the most recent scientific findings, primarily in the form of updated emission inventories, ambient measurements, new meteorological episode data, and new modeling tools. The 2007 AQMP also incorporates a comprehensive

strategy aimed at controlling pollution from all sources, including stationary sources, area sources, and on-road and off-road mobile sources.

The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The 2007 AQMP Transportation Conformity Budgets were adopted by the Board on July 13, 2007, and they forwarded to CARB for its approval and subsequent submittal to EPA. Furthermore, on June 22, 2007, a state strategy was proposed by the AQMD Board that recommended more-aggressive actions to reduce emissions from mobile sources that contribute more than 80 percent of the particulate matter pollution in the region. On September 27, 2007, CARB adopted the revised State Strategy for the 2007 SIP and the 2007 AQMP as part of the SIP.

The Final 2007 AQMP builds upon improvements accomplished from previous plans, and it aims to incorporate all feasible control measures while balancing costs and socioeconomic impacts. The 2007 AQMP outlines the air pollution control measures needed to meet federal health-based standards for O<sub>3</sub> (8-hour standard) by 2024 and PM<sub>2.5</sub> by 2015. Because it will be more difficult to achieve the 8-hour O<sub>3</sub> standard compared to the 1-hour standard, the 2007 AQMP contains a substantial number of additional and improved emission reduction measures. The basic PM (PM<sub>10</sub> and PM<sub>2.5</sub>) control strategy contained in the 1997 and 2003 Plans, augmented by the additional PM<sub>2.5</sub> control measures included in this Plan revision (2007 AQMP), appears to be adequate to demonstrate attainment of the new federal PM<sub>2.5</sub> standard. The emissions reductions are expected to be achieved through implementation of new and advanced control technologies, as well as improvement of existing control techniques.

The 2007 AQMP includes 31 stationary and 30 mobile source control measures. These measures are derived from:

- SCAQMD Stationary and Mobile Source Control Measures;
- State Control Measures proposed by CARB;
- SCAQMD staff-proposed Policy Options to supplement CARB's Control Strategy; and
- Transportation Strategy and Control Measures provided by SCAG.

The AQMP control strategy for stationary and mobile source emissions is based on the following approaches:

- Energy efficiency and conservation;
- Equipment and facility modernization;
- Good management practices;
- Area source emission control programs;
- Market incentive/compliance flexibility; and
- Mobile source emission reduction programs.

AQMP control measures include further emission reductions from large VOC sources and in-use off-road vehicles and equipment, an Emission Fee Program for Port-related mobile sources, strengthening of high-occupancy vehicle (HOV) measures, introducing and enhancing transit and system management measures, establishing information-based transportation strategies, accelerating retirement of older high-emitting vehicles, improving smog checks, and modifying stationary source monitoring requirements.

The AQMP specifically listed control measures for Marine Vessels and Port Equipment. It indicated that through implementation of the cost-effective SCAQMD and CARB programs, the emissions have been reduced significantly. Currently, the California Maritime Air Quality Technical Working Group, which is comprised of CARB, EPA, SCAQMD, and the Ports, is exploring promising retrofit technologies to be used on marine vessels. The group has identified technologies that can reduce up to 90 percent of NO<sub>x</sub> and PM emissions. For portside equipment, the new technologies that are being studied can have the potential to reduce VOC emissions by up to 40 percent and PM emissions up to 90 percent.

SCAQMD has published a handbook (*CEQA Air Quality Handbook, November 1993*) that provides local governments with guidance for analyzing and mitigating project-specific air quality impacts. This handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, and it was used extensively in the preparation of this analysis. In addition, SCAQMD has published a guidance document (*Localized Significance Threshold Methodology for CEQA Evaluations, June 2003b*) for evaluating localized effects from mass emissions during construction. This document was also used in the preparation of this analysis. The localized significance threshold (LST) methodology was provisionally adopted by the Governing Board in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005. SCAQMD currently recommends LSTs for PM<sub>10</sub>, NO<sub>2</sub>, and CO. LSTs represent the

maximum level of pollutant emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. The significance thresholds are developed based on: (1) the ambient concentrations of the pollutants for each source receptor area, and (2) the distance to the nearest sensitive receptor. For PM<sub>10</sub>, LSTs were derived based on requirements in SCAQMD Rule 403 – *Fugitive Dust*.

On October 6, 2006, the SCAQMD Governing Board adopted the “*Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM<sub>2.5</sub> Significance Threshold*”. The document provides guidelines to estimate regional and localized PM<sub>2.5</sub> emissions and includes PM<sub>2.5</sub> LSTs for projects in SCAQMD jurisdiction.

SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. The most pertinent SCAQMD rules to the proposed project are listed below.

- **Rule 402 – Nuisance:** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **SCAQMD Rule 403 – Fugitive Dust:** This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During proposed project construction, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site pre-watering and re-watering as necessary to maintain sufficient soil moisture content. Additional requirements apply to construction projects on property with 50 or more acres of disturbed surface area, or for any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cu yd or more three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintaining dust control records, and designating an SCAQMD-certified dust control supervisor.

- **Rule 431.2 – Sulfur Content of Liquid Fuels:** This rule is established to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of sulfur oxides and particulates during combustion and to enable the use of add-on control devices for diesel-fueled internal combustion engines. The Rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as users of diesel, low-sulfur diesel, and other liquid fuels for stationary source applications in the District. The Rule also affects diesel fuel supplied for mobile source applications. Low-sulfur diesel fuel (less than 15 ppm by weight sulfur) should also be utilized in all diesel-powered construction equipment.
- **Rule 1113 – Architectural Coatings:** Compliance with SCAQMD Rule 1113 on the use of architectural coatings and asphalt operations shall be implemented to reduce VOC emissions, as feasible. The rule limits the VOC content of architectural coatings and asphalt off-gas in the Basin so that these emissions do not exceed the allowable specified limits.
- **SCAQMD Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities:** The purpose of this rule is to limit emissions of asbestos, which is a toxic air contaminant, from structural demolition/renovation activities. The rule requires people to notify SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of ACMs. The rule also includes notification requirements for any intent to disturb ACM; emission control measures; and ACM removal, handling, and disposal techniques. All proposed structural demolition activities associated with proposed project construction would need to comply with the requirements of Rule 1403.

**POLB/POLA Vessel Speed Reduction Program (VSRP).** The Ports began this voluntary program in May 2001 for ships that call at the Ports to reduce their speed to 12 knots (kts) or less within 20 nautical miles (nm) of the Point Fermin Lighthouse. A reduction in vessel speed in the offshore shipping lanes (up to 13 kts for the largest container ships) can substantially reduce emissions from the main propulsion engines of the ships. The Clean Air Action Plan (CAAP) adopted the VSRP as control measure OGV-1, and it



expands the program out to 40 nm from the Point Fermin Lighthouse.

**POLB Clean Trucks Program (CTP).** The POLB approved the Ports-specific CTP on February 19, 2008. The CTP was developed in collaboration with POLA and became a part of the CAAP. The POLB CTP requires drayage truck owners to scrap and replace old-model polluting trucks (approximately 16,000 trucks) working at the ports, with the assistance of a Port-sponsored grant or loan subsidy. Under the POLB “concession” plan, truckers can lease to own a new truck at an affordable rate, for as little as \$500 per month. They can choose to work as employees or owner-operators.

Beginning October 1, 2008, pre-1989 trucks were banned. Beginning January 1, 2010, 1993 and older trucks will be banned, and 1994-2003 trucks will need to be retrofitted or replaced. The program progressively bans all trucks that do not meet 2007 EPA emission standards by 2012. To finance the \$2 billion truck replacement program, POLB started a fee plan on loaded containers (\$35 per loaded TEU and smaller; \$70 for larger containers) since October 1, 2008.

**Port of Long Beach Green Port Policy.**

In November 2004, the POLB Board of Harbor Commissioners (BHC) directed the Port to develop a policy that would provide guidance for decision making and to establish a framework for environmentally friendly Port operations. The POLB Green Port Policy (GPP) was based on the previous Healthy Harbor Program, with environmental enhancement goals including air quality policies that would reduce harmful air emissions from Port activities (Ports, 2006b). As a means to implement the GPP, the POLB, in conjunction with POLA, adopted a Clean Air Action Plan for the Ports.

**San Pedro Bay Clean Air Action Plan.** The Ports jointly prepared the *San Pedro Bay Ports CAAP* in cooperation with SCAQMD, CARB, and EPA. The CAAP was developed to define implementation strategies to meet shared air quality improvement goals for both Ports. The CAAP includes a comprehensive set of goals, implementation strategies, and initiatives to reduce emissions from trucks, locomotives, harbor craft, and cargo-handling equipment.

CAAP Goals include a set of commitments (i.e., Foundations) that are addressed to achieve improved air quality and reduced health risks, while at the same time facilitating growth in regional economic benefits generated by the

Ports. Accompanying the Foundations are a set of standards that apply to San Pedro Bay as a whole, individual projects proposed within the two Ports, and specific emissions sources. The latter standards apply to heavy-duty trucks, ocean-going vessels, cargo-handling equipment, harbor craft, and railroad locomotives. Implementation strategies embodied in the CAAP include lease requirements, changes in tariff policies, CEQA mitigations, incentives, voluntary measures, credit trading, capital lease-backs, government-backed loan guarantees, third-party discount leasing/purchasing, franchises, joint powers authority trucking entity, environmental mitigation fee, and a recognition program.

The Ports released the Draft CAAP on June 28, 2006, for public review, and the revised Final Plan was approved by both the Los Angeles and Long Beach Board of Harbor Commissioners on November 20, 2006. The CAAP focuses on reducing emissions with two main goals: (1) reduce Port-related air emissions in the interest of public health; and (2) accommodate growth in trade. The Plan includes near-term measures implemented largely through the CEQA/NEPA process, tariffs, and new leases at both Ports.

The Port has negotiated and signed environmentally friendly “green” leases with several terminal customers. These “green” leases require environmental compliance that is above requirements by federal and state law. As a landlord port, leases are the primary mechanism for the Port to implement its environmental initiatives, including the CAAP.

The Port measures progress toward the goals of its air quality program by: (1) development of periodic annual emission inventories of Port operations (years 2002 and 2005 to date); and (2) updates to the CAAP. These efforts allow the Port, the community, and regulators to assess the progress of air quality programs and determine the best use of resources to address air quality problems. In addition, the Port maintains air monitoring locations in the Port to provide the community with information on current air quality conditions.

**San Pedro Bay Standards.** The POLB and the POLA are in the process of establishing the San Pedro Bay Standards (SPBS), which they will use as tools for future air quality planning. The SPBS will help the ports and air agencies to better understand and evaluate the long-term cumulative effects of future ports projects in conjunction with

implementation of CAAP measures and existing regulations.

There are two components to the SPBS: (1) the Health Risk Reduction Standard, which proposes to reduce health risks from Port-related DPM emissions in residential areas surrounding the Ports by 85 percent in year 2023 compared to 2005 levels; and (2) the Emission Reduction Standard, which proposes to achieve a “fair share” reduction of Ports-related air emissions. These components address the primary air quality goals of the Port to reduce health risks to local communities from Port operations and to assist the region in attaining the ambient air quality standards. Once the SPBS are adopted, the Port will commit to revising the CAAP to require implementation of additional emissions control measures for purposes of achieving these goals.

The SPBS includes methodologies that can be used to assess whether a project is consistent with the SPBS. Based on the current draft methodologies, a project would be consistent with the Health Risk and Emission Reduction Standards if:

- The project environmental analysis is consistent with assumptions regarding the projected growth of operations at the Ports and the effect of existing CAAP and regulatory measures that were used to develop the Standards;
- The project complies with all of the applicable laws and regulations;
- The project implements all applicable Project-Specific and Source Specific Standards in the then-existing version of the CAAP; and
- The project environmental analysis assesses potentially practicable new emission reduction technologies beyond those required under the then-existing version of the CAAP and imposes a requirement that the project use any such technologies found to be feasible, available, and effective at reducing emissions as needed to achieve the Standards.

Development of the SPBS is a complex process that includes input from several members of the SPBS Technical Working Group (TWG), which is comprised of representatives from CARB, SCAQMD, and EPA. The Ports recently completed the Draft SPBS, which is currently under review by members of the SPBS TWG. The Ports anticipate that agreement between the TWG and the Ports on the SPBS will be achieved shortly, and at that time the Standards would be available for public review. These standards and guidelines are

mainly related to the proposed project construction. The project air quality utilized all applicable standards and methodologies and is consistent with the SBPS.

***POLB Climate Change/Greenhouse Gas Strategic Plan.*** The Port’s commitment to protecting the environment from the harmful effects of Port operations, as stated in the Green Port Policy, necessitates the development of programs and projects to reduce GHG emissions. In addition to CARB’s actions to formalize GHG regulations for the goods movement sector, the Port has begun work in this area.

The Ports Climate Change Program is discussed further in Section 3.3 of this EIR/EA.

The analysis conducted for this EIR/EA assumes that the proposed project will comply with the CAAP. Project mitigation measures applied to reduce air emissions and public health impacts are consistent with, and in some cases exceed, the emission-reduction strategies of the CAAP.

## **2.2.5.2 Affected Environment**

### **Regional Setting**

The Port is located within the 6,745-sq-mi (17,469-sq-km) SCAB. The SCAB is defined as encompassing all of Orange County; Los Angeles County, with the exception of Antelope Valley; and the non-desert portions of Riverside and San Bernardino counties. It consists of a coastal plain with interconnecting broad valleys and low hills. Elevations range from sea level to more than 11,000 ft (3,353 m) above MSL. SCAQMD has jurisdiction over air quality issues within the SCAB.

The project site is located within a major ocean port, characterized by heavy industrial and transportation uses, including ocean-going vessels; heavy-duty on-road and off-road vehicles; and light-duty motor vehicles. There is little open space or recreational and residential land use in the project vicinity. The applicable general plans (City of Long Beach and Port) envision future intensification of cargo-handling activities within the Port.

The climate of the project region is categorized as Mediterranean, characterized by warm, dry summers, low precipitation, and mild winters. The average daily winter temperature is 56 degrees Fahrenheit (°F) (13.3°C), and the average daily summer temperature is 75°F (23.9°C). More than two-thirds of the annual rainfall occurs from December through March, with approximately 90 percent occurring between December and April.

The mean annual precipitation in the Long Beach area over a 50-year period (1958-2007) was 11.96 in (304 mm). In nearly all months of the year, evaporation exceeds precipitation.

Topography is a major factor influencing wind direction over the project area. The predominant daily winds in the Long Beach area are onshore morning flows from the southwest at a mean speed of 7.3 mph (11.75 kilometers per hour [km/hr]). The afternoon and evening winds are generally northeasterly at speeds ranging from 0.2 to 4.7 mph (0.3 to 7.6 km/hr). There is little seasonal variability in this pattern. Occasionally during autumn and winter, "Santa Ana" conditions develop from a high-pressure zone to the east, bringing dry, high-velocity winds from the deserts over Cajon Pass to the coastal region. These winds, gusting to more than 80 mph (129 km/hr), can reduce relative humidity to less than 10 percent. Generally, the worst air quality in the coastal area occurs during Santa Ana winds, as they transport contaminated air from the east to the ocean.

The Palos Verdes Hills, located north of the project site, have a major influence on wind flow in the Port area. For example, during afternoon southwesterly sea breezes, the Palos Verdes Hills often block this flow and create a zone of lighter winds in the inner harbor area. During strong sea breezes, this flow can bend around the north side of the hills and end up as a northwest breeze in the inner harbor area. This topographic feature also deflects northeasterly land breezes that flow from the coastal plains to northerly direction through both San Pedro Bay Ports.

The SCAB experiences a persistent temperature inversion (i.e., increasing air temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical mixing and dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground, the lower air layer is warmed and its temperature approaches that of the base of the inversion (upper) layer until the inversion layer finally breaks, which allows vertical mixing with the lower layer. This phenomenon is observed in the mid to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid morning.

The greatest air pollution impacts throughout the Basin occur from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This

frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O<sub>3</sub> concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert.

### **Existing Ambient Air Quality**

**Criteria Pollutants.** A network of air quality monitoring stations, located throughout the SCAB, characterize the air quality environment in the Basin by measuring and recording pollutant concentrations in the local ambient air. The Basin is divided into 38 source/receptor areas (SRAs), and the project is located in SRA number 4, South Coastal Los Angeles County. The nearest SCAQMD air monitoring station to the project site is the North Long Beach Monitoring Station (Station No. 072), which is located at 3648 Long Beach Boulevard, approximately 4 mi (6.4 km) northeast of the project site. All criteria pollutants are monitored at this station (i.e., O<sub>3</sub>, CO, NO<sub>2</sub>, Pb, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>). Federal and state standards that have been established represent the maximum allowable atmospheric concentrations of these pollutants (see Table 2.2.5-1).

Ambient air quality data from the North Long Beach monitoring station for the past 4 years (2005 through 2009), are summarized in Table 2.2.5-4. The table includes maximum recorded pollutant levels and the number of days in each year that the pollutant level exceeded the national and state standards.

Table 2.2.5-4 also shows that exceedances of the California standards, as recorded at the North Long Beach station for O<sub>3</sub> (1-hour, California standard), PM<sub>10</sub> (24-hour and annual), and PM<sub>2.5</sub> (24-hour and annual) on one or more occasions from 2005 through 2008. The national standards were exceeded only for PM<sub>2.5</sub> (24-hour and annual). No exceedances of either the state or national standards were recorded for SO<sub>2</sub>, Pb, NO<sub>2</sub>, or CO.

In 2006, the Ports initiated air monitoring studies to collect representative ambient pollutants and meteorological data within the Ports' operational region of influence (ROI). The POLB air monitoring stations are located in two areas at the Port: one in the Inner Harbor area, near West Long Beach, and a second in the Outer Harbor area, near the breakwater at the end of Navy Mole Road. These monitoring stations were developed to expand upon and complement other regional air monitoring efforts. The data gathered at these

**Table 2.2.5-4  
Summary of Criteria Pollutants Data  
(Measured at North Long Beach Monitoring Station)**

Pollutant	Averaging Time	Standard	2005	2006	2007	2008	2009
Ozone (O <sub>3</sub> )	(1-Hour)	Maximum Concentration (ppm)	0.09	0.08	0.1	0.09	0.09
		Days > CAAQS (0.09 ppm)	0	0	1	0	0
	(8-Hour)	Maximum Concentration (ppm)	0.069	0.058	0.073	0.074	0.067
		Days > NAAQS (0.08 ppm)	0	0	0	0	0
		Days > CAAQS (0.07 ppm) <sup>a</sup>	0	0	1	1	0
Particulate Matter (PM <sub>10</sub> )	(24-Hour)	Maximum Concentration (µg/m <sup>3</sup> )	66	78	75*	62	62
		Days > NAAQS (150 µg/m <sup>3</sup> )	0	0	0	0	0
		Days > CAAQS (50 µg/m <sup>3</sup> )	24	30	30	6	n/a
	(Annual)	National Annual Average (50 µg/m <sup>3</sup> ) <sup>b</sup>	30	31	34	29	n/a
		State Annual Average (20 µg/m <sup>3</sup> ) <sup>b</sup>	30	31	31	31	n/a
Particulate Matter (PM <sub>2.5</sub> )	(24-Hour)	Maximum Concentration (µg/m <sup>3</sup> )	54	59	83	57	63
		Days > NAAQS (35 µg/m <sup>3</sup> ) <sup>c</sup>	12	5	14	8	6
		98 <sup>th</sup> Percentile (µg/m <sup>3</sup> )	41	35	41	39	34
		3-year Avg 98th Percentile (µg/m <sup>3</sup> ) <sup>d</sup>	45	41	39	38	37
	(Annual)	Annual Arithmetic Mean (15 µg/m <sup>3</sup> )	15.9	14.1	14.6	14.1	13.6
Carbon Monoxide (CO)	(1-Hour)	Maximum Concentration (ppm)	4.2	4.2	3.3	3.3	2.9
		Days > NAAQS (35 ppm)	0	0	0	0	0
		Days > CAAQS (20 ppm)	0	0	0	0	0
	(8-Hour)	Maximum Concentration (ppm)	3.5	3.4	2.6	2.5	2.2
		Days > CAAQS (9.0 ppm)	0	0	0	0	0
Nitrogen Dioxide (NO <sub>2</sub> )	(1-hour)	Maximum Concentration (ppm)	0.14	0.10	0.11	0.13	0.11
		Days > CAAQS (0.25 ppm) <sup>e</sup>	0	0	0	0	0
	(Annual)	Maximum Concentration (ppm)	0.024	0.022	0.020	0.021	0.021
		Days > NAAQS (0.053 ppm)	0	0	0	0	0
Sulfur Dioxide (SO <sub>2</sub> )	(24-hour)	Maximum Concentration (ppm)	0.010	0.010	0.010	0.012	0.005
		Days > CAAQS (0.04 ppm)	0	0	0	0	0
		Days > NAAQS (0.14 ppm)	0	0	0	0	0
	(Annual)	Annual Arithmetic Mean (0.03 ppm)	0.002	0.001	0.003	0.002	n/a

Exceedances shown in **bold**; ppm – parts per million; µg/m<sup>3</sup> – micrograms per cubic meter; n/a – not available

\* The data reported for 2007 represent the second high value. The first high value measured at the station (232 µg/m<sup>3</sup>) is flagged as “exceptional event” and occurred on October 21, 2007, which coincides with southern California wildfires in 2007.

<sup>a</sup> The new California 8-hour-average O<sub>3</sub> standard was adopted by CARB on April 28, 2005; therefore, the exceedance statistics are not applicable before this date.

<sup>b</sup> State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

<sup>c</sup> Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM<sub>2.5</sub> from the previous level of 65 µg/m<sup>3</sup>. The updated area designation became effective in October 2009.

<sup>d</sup> Attainment condition for PM<sub>2.5</sub> is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard (35 µg/m<sup>3</sup>).

<sup>e</sup> NO<sub>2</sub> standard was amended on February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. The Office of Administrative Law approved these amendments, and the new standards became effective March 20, 2008.

Source: CARB, 2009a; and EPA, 2009.

stations are available from September 2006 (POLB, 2008b). These data are considered in context with the North Long Beach monitoring station for comparison purposes and to ensure the use of representative ambient data. Table 2.2.5-5 presents the maximum pollutant concentrations measured at these stations for the past 3 years (2007 to 2009). It should be noted that according to the POLB monitoring Web site, all available data is preliminary (as of July 2010). At the time of preparation of this EIR/EA, the POLB meteorological monitoring program had not finalized a completed set of annual meteorological data. Of the four POLA monitoring stations, the annual data currently available from the POLA Wilmington Community site (located at the Saints Peter and Paul School) are the most representative of the project area conditions. These data were used as input for the dispersion modeling and health risk analysis in determining potential project impacts.

**Toxic Air Contaminants:** Toxic air contaminants (TACs) consist of a variety of compounds, including metals, minerals, hydrocarbon-based chemicals, and soot. There are hundreds of

different types of air toxics, with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust. TACs are a concern in the SCAB because of the large number of mobile sources and industrial facilities throughout the basin. Toxicity of TACs is studied by the California Office of Environmental Health Hazard Assessment (OEHHA).

California regulates TACs through its Air Toxics Program, which is mandated in Chapter 3.5 – Toxic Air Contaminants of the Health and Safety Code (H&SC Section 39660 *et seq.*) and Part 6 – Air Toxics “Hot Spots” Information and Assessment (H&SC Section 44300 *et seq.*).

The regulatory approach used in controlling TAC levels relies on a quantitative risk assessment process rather than on ambient air conditions to determine allowable emissions from the source. In addition, for carcinogenic air pollutants, there is no safe concentration in the atmosphere. Local concentrations can pose a health risk and are termed “toxic hot spots”.

**Table 2.2.5-5  
Maximum Pollutant Concentrations  
Measured at POLB Air Monitoring Stations from 2007 to 2009\*\***

Pollutant (Concentration Unit)	Averaging Period	National Standard	State Standard	Inner Port Station Data			Outer Port Station Data		
				2007	2008	2009	2007	2008	2009
Ozone (ppm)	1-hour	— <sup>a</sup>	0.09	0.093	<b>0.106</b>	<b>0.100</b>	<b>0.1</b>	<b>0.397</b>	<b>0.127</b>
	8-hour	0.075	0.07	0.067	0.068	0.055	0.064	0.068	0.072
PM <sub>10</sub> (µg/m <sup>3</sup> )	24-hour	150	50	<b>175<sup>c</sup></b>	<b>161</b>	<b>579<sup>**</sup></b>	<b>119<sup>c</sup></b>	<b>133</b>	<b>201<sup>c</sup></b>
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	24-hour	35 <sup>b</sup>	—	60 <sup>c</sup>	56	<b>105<sup>c,**</sup></b>	61 <sup>c</sup>	<b>67</b>	<b>66</b>
CO (ppm)	1-hour	35	20	12.3	<b>24.5</b>	17.8	— <sup>d</sup>	— <sup>d</sup>	— <sup>d</sup>
	8-hour	9	9.0	8.8	7.9	4.4	— <sup>d</sup>	— <sup>d</sup>	— <sup>d</sup>
NO <sub>2</sub> (ppm)	1-hour	—	0.18	0.123	0.135	0.123	0.159	0.123	0.23
SO <sub>2</sub> (ppm)	1-hour	—	0.25	<b>0.31</b>	<b>0.35</b>	0.23	<b>0.32</b>	<b>0.33</b>	
	24-hour	0.14	0.04	0.039	0.026	0.022	0.030	0.031	0.026

Exceedances shown in **bold**

\*\* According to the POLB monitoring Website *all data is preliminary* (accessed July 8, 2010).

<sup>a</sup> The National 1-hr ozone standard was revoked on June 15, 2005.

<sup>b</sup> Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM<sub>2.5</sub> from the previous level of 65µg/m<sup>3</sup>. The updated area designation will become effective in October 2009.

<sup>c</sup> Excludes elevated values that were recorded during wildfires.

<sup>d</sup> Data are not available.

Source: POLB, 2010.

SCAQMD conducted the most comprehensive study on air toxics in the SCAB called *Multiple Air Toxics Exposure Study* (MATES-II [March 2000] and MATES III [January 2008]). The monitoring program measured more than 30 air toxics, including gaseous and particulate TACs. The monitoring program was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region, based on emissions and weather data. MATES-II found that the average cancer risk in the region from carcinogenic air pollutants ranged from approximately 1,100 in a million to 1,750 in a million, with an average regional risk of approximately 1,400 in a million. The higher risk levels were found in the urban core areas in south central Los Angeles County, in Wilmington adjacent to the Port, and near freeways.

Overall, the study showed that airborne DPM contributed approximately 70 percent of the total cancer risk. Mobile sources accounted for approximately 90 percent of that risk, and industries and other stationary sources accounted for the remaining 10 percent.

In January 2008, a draft study report of MATES III became available for a 90-day public review and comment period, which ended April 4, 2008. The study is a follow-up to MATES II and focuses on the carcinogenic risk from exposure to air toxics. The Draft MATES III Report was revised after the public review period; the revised document, the Final MATES III Report, was released in September 2008. The results indicate that:

- Across the Basin, the population-weighted risk was 853 in one million, which is approximately 8 percent lower compared to the MATES II period of 931 per million;
- The overall average lifetime risk from TACs in the Ports area experienced an approximate 17 percent increase in risk. The 2005 average population-weighted air toxics risk in the Ports area was estimated to be approximately 1,415 per million, compared with 1,208 per million lifetime cancer risk as estimated for the MATES II period (1998-1999);
- Mobile source toxics account for 94 percent of risk; and
- Diesel accounts for 84 percent of air toxics risk.

As described above, the Ports' CAAP is designed to substantially reduce DPM emissions and health risks from the operations of port-related ships, trains, trucks, terminal equipment, and harbor

craft (Ports, 2006a). The CAAP proposes to cut DPM emissions from port-related sources by at least 47 percent within 5 years (i.e., by 2011) (Ports, 2006a).

Based on the finding that DPM is a significant contributor to cancer risk in the region, SCAQMD has approved fleet rules to limit diesel exhaust emitted by municipal vehicle fleets, trash trucks, street sweepers, taxis, shuttles, and buses in the region. That rule will be one of many measures outlined in a comprehensive plan to reduce toxic air pollution from mobile and stationary sources. Other programs to reduce diesel emissions include SCAQMD grant programs that cover conversion of diesel equipment to alternative fuels.

AB 1807 (Tanner) set up a statewide process to determine the need for methods to set standards for TACs. The process includes identification of TACs, determination of emissions and ambient levels of the identified compounds, preparation of regulatory needs documents, and establishment of minimum statewide emission control standards by CARB.

**Asbestos.** According to the California Division of Mines and Geology (CDMG), the project location is not an area of naturally occurring asbestos. Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks, which are not present in the project area (CDMG, 2003). Based on the project's ISA study, the bridge and appurtenances may have ACM in the form of expansion joint compound (Diaz Yourman & Associates, 2007). ACM has been identified as a hazardous airborne contaminant; therefore, demolition of the existing Gerald Desmond Bridge would be subject to the applicable rules and regulations, as listed earlier in this section. These regulations require demolition activities to minimize asbestos released into the air. The ISA also suggests that all buildings requiring demolition should be screened for ACM.

**Secondary PM<sub>2.5</sub> Formation.** Primary PM<sub>2.5</sub> particles are directly emitted into the atmosphere, while secondary particulates are formed through atmospheric chemical reactions of precursor gases. Primary PM<sub>2.5</sub> includes diesel soot, fossil fuel combustion products, road dust, and other fine particles. Secondary PM<sub>2.5</sub>, which includes products such as sulfates, nitrates, and complex carbon compounds, are formed from reactions with directly emitted NO<sub>x</sub>, SO<sub>x</sub>, VOCs, and



ammonia (SCAQMD *et al.*, 2006). Project-generated emissions of NO<sub>x</sub>, SO<sub>x</sub>, and VOCs would contribute toward secondary PM<sub>2.5</sub> formation some distance downwind of the emission sources; however, the air quality analysis in this EIR/EA focuses on the effects of direct PM<sub>2.5</sub> emissions generated by the proposed project and their ambient impacts. This approach is consistent with the recommendations of SCAQMD (SCAQMD, 2006d).

**Ultrafine Particles.** Although EPA and the State of California currently regulate and monitor respirable particulate matter (PM<sub>10</sub>) and fine particulate matter (PM<sub>2.5</sub>), there is an increased level of interest on the health impacts of the smallest size fraction of particulates, namely the ultrafine particles (UFP). UFPs are defined as the particles with diameter of less than or equal to 0.1 micron (µm). UFPs are formed mainly during a combustion cycle, independent of fuel type. With diesel fuel, UFPs can be formed directly during combustion. With gasoline and natural gas (liquefied or compressed), the UFPs are derived mostly from the lubricant oil. UFPs are emitted directly from the tailpipe as solid particles, such as soot (i.e., elemental carbon) and metal oxides; and semi-volatile compounds (e.g., sulfates and hydrocarbons) that coagulate to form particles.

The research regarding UFPs is in its infancy but suggests that UFPs might be more hazardous to human health than the larger PM<sub>10</sub> and PM<sub>2.5</sub> particles (termed fine particles) due to size and shape. Because of the smaller size, UFPs are able to travel more deeply into the lung (i.e., the alveoli) and are deposited in the deep lung regions more efficiently than fine particles. UFPs are inert; therefore, normal bodily defense mechanisms do not recognize the particle. UFPs might have the ability to travel across cell layers and enter into the bloodstream and/or into individual cells. With a large surface area-to-volume ratio, other entities might attach to the particle and travel into the cell as a kind of "hitchhiker." Current UFP research primarily involves roadway exposure. Preliminary studies suggest that more than 50 percent of an individual's daily exposure is from driving on highways. Levels appear to drop off rapidly as one moves away from major roadways. Little research has been done directly on ships and off-road vehicles. CARB is currently measuring and studying UFPs at the San Pedro Bay Ports. Work is being done on filter technology, including filters for ships, which appears promising. The Port actively participates in the CARB testing at the

Port and will comply with all future regulations regarding UFPs. In addition, measures included in the CAAP aim to reduce all emissions Port-wide.

**Atmospheric Deposition.** The fallout of air pollutants to the surface of the earth is known as atmospheric deposition. Atmospheric deposition occurs in both a wet and dry form. Wet deposition occurs in the form of precipitation or cloud water and is associated with the conversion in the atmosphere of directly emitted pollutants into secondary pollutants such as acids. Dry deposition occurs in the form of directly emitted pollutants or the conversion of gaseous pollutants into secondary PM. Atmospheric deposition can produce watershed acidification, aquatic toxic pollutant loading, deforestation, damage to building materials, and respiratory problems.

The CARB and the SWRCB are in the process of examining the need to regulate atmospheric deposition for the purpose of protecting fresh and saltwater bodies from pollution. Port emissions deposit into local waterways and regional land areas. Emission sources from the proposed project alternatives would produce DPM, which contains trace amounts of toxic chemicals. Through the CAAP, the Port will reduce air pollutants from its future operations, which will work towards the goal of reducing atmospheric deposition for purposes of water quality protection. The CAAP will reduce air pollutants that generate acidic and toxic compounds, including emissions of DPM, NO<sub>x</sub>, and SO<sub>x</sub>.

**Sensitive Receptors.** Some population groups, such as children, the elderly, and acutely and chronically ill persons, especially those with cardio-respiratory problems, are considered more sensitive to air pollution than others. Sensitive receptor locations, as defined by SCAQMD (2006), include schools, residential areas, day-care centers, convalescent homes, hospitals, and rehabilitation centers. Residential areas are considered sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants. The nearest residences are located east of the eastern project limit.

Sensitive receptors in the project vicinity are shown in Exhibit 2.2.5-1. The nearest schools to the project area include Cesar Chavez (730 W. 3rd Street) and Edison Elementary Schools (625 Maine Avenue), located approximately 0.3-mi and 0.35-mi (483 m and 567 m) east of the project site, respectively. The nearest daycare facility is

the Childtime Learning Center (1 World Trade Center), 0.5-mi (800 m) east of the project site. The nearest medical facility is the St. Mary Medical Center (432 E. 10th Street) approximately 1.3 mi (2 km) northeast of the eastern project limit.

### 2.2.5.3 Environmental Consequences

The NEPA baseline conditions for determining project impacts is based on the No Action Alternative, which is defined as activities associated with the existing bridge maintenance, and it would not require federal permits or funding. Impacts associated with the proposed project are determined by comparing the project-related emissions level to the No Action Alternative conditions (i.e., the incremental difference). Comparison of the project-related emissions with the year 2005 (year of the notice of preparation [NOP] of the environmental document – CEQA Baseline) is also provided in this analysis; however, discussion of the results in terms of CEQA effects and the significance of these effects when compared to the CEQA Baseline or thresholds are provided in Chapter 3 of this EIR/EA. Any references to CEQA, state, or local agency thresholds have been included for consideration of the potential impacts pursuant to CEQA provided in Chapter 3 (Section 3.2.2 [Air Quality]).

**Applicable CAAP Control Measures.** As part of the Port's commitment to promote the GPP and implement CAAP, the proposed project construction and operation would employ all applicable control measures included in the CAAP. The measures employed by the project to reduce air pollutant emissions include:

- Project construction contractors would use construction equipment that, at a minimum, would achieve EPA Tier 3 non-road equivalent standards.
- Project heavy-duty construction equipment would use clean fuels, such as ultra-low sulfur fuel or compressed natural gas, and oxidation catalyst.
- On-road heavy-duty trucks during construction, as well as the heavy-duty trucks that call at the Port's terminals, would comply with the CAAP control measure HDV1, which would replace or retrofit the existing Port's truck fleet by 2012 to comply with the "clean" truck measure. The control measure requires trucks of model year 1992 and older to meet or be cleaner than the EPA 2007 on-road truck emission standard (0.01 g/bhp-hr for PM) and have the cleanest available NO<sub>x</sub> emission rate

at the time of replacement or retrofit, but not greater than the 2007 NO<sub>x</sub> emission standards.

- In the event that tugboats are used in construction activities, they would be of EPA Tier 2 through 4 standards, which is with the highest standards available at the time of project construction.

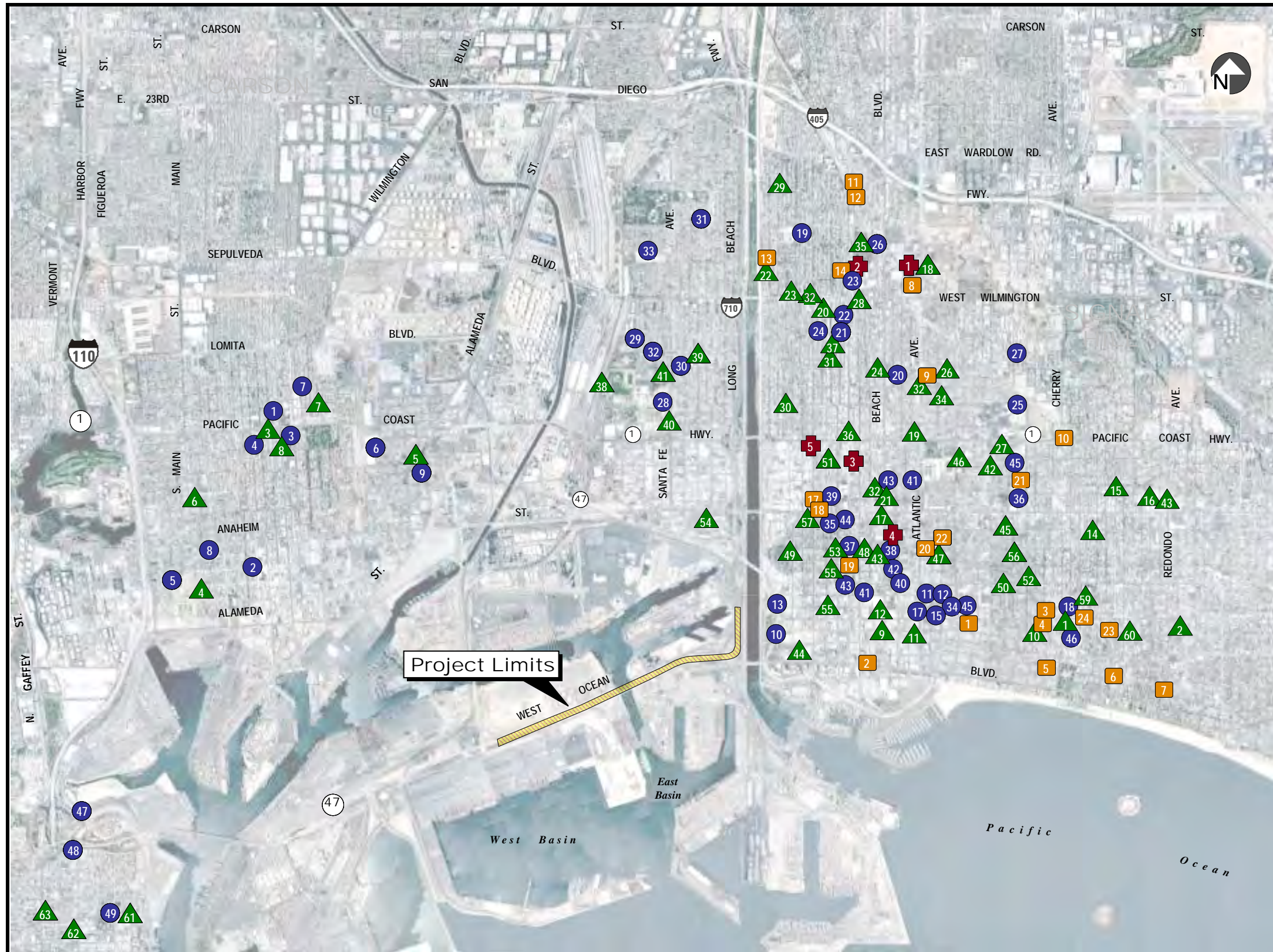
Furthermore, construction of the proposed project would comply with SCAQMD applicable rules and regulations, such as Rule 403 (Fugitive Dust Control), to reduce regional and localized PM<sub>10</sub> and PM<sub>2.5</sub> emissions associated with earthwork activities; Rule 1113 (Architectural Coatings) to limit the amount of VOC emissions from paving, asphalt, concrete curing, and cement coating operations; and Rule 1403, to control asbestos emissions from demolition activities.

### Air Quality Assessment Methodology

This air quality analysis is based on the methodology and assumptions which are consistent with the requirements of NEPA, CEQA, the CAAAs of 1990, the CCAA of 1988, and the CAAP. The study also utilizes guidelines and procedures provided in applicable air quality analysis protocols such as *Air Quality and Risk Assessment Protocol for Projects at the Port of Long Beach* (POLB, 2007c); *Transportation Project-Level Carbon Monoxide Protocol (CO Protocol)* (Caltrans, 1998a [UCD-ITS-RR-97-21, 1997]); *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas (Guidelines)* (EPA, 2006a); and *Interim Guidance Update on Air Toxics Analysis in NEPA Documents* (FHWA, 2009).

**Construction Emissions.** Construction impact analysis is not required by Caltrans and FHWA, pursuant to NEPA for projects having a construction schedule not longer than 5 years. The proposed project has an estimated construction schedule that extends into a fifth year if demolition of the existing bridge is included; therefore, it would qualify for quantitative analysis under that criterion. However, Caltrans, as a matter of policy, does not provide quantitative construction impact analysis, except for projects proposed within the San Joaquin Valley, where it is required by regulation. The POLB, which is the local agency sponsor for the proposed project, requires such an analysis for all of its projects; therefore, a quantitative construction impact analysis is included pursuant to POLB CEQA requirements.





SENSITIVE RECEPTORS	
<b>▲ Child Care Centers</b>	<b>19 Schools</b>
<ol style="list-style-type: none"> <li>1 Our Saviour's Lutheran Preschool</li> <li>2 Phases An Early Learning Comp.</li> <li>3 Munchkin Center</li> <li>4 New Harbor Vista Child Development Center</li> <li>5 Wilmington Park Children's Center</li> <li>6 Yvette's Daycare</li> <li>7 Sanchez Family Child Care</li> <li>8 Voal/Cesar Chavez Head Start</li> <li>9 A Love 4 Learning Academy</li> <li>10 Carousel Preschool</li> <li>11 YMCA Fairfield 3rd Street Preschool</li> <li>12 Young Horizon's Child Development Centers</li> <li>13 Coronado Head Start Child Care Center</li> <li>14 First Foursquare Church Preschool</li> <li>15 Huntington Academy Preschool</li> <li>16 Simply Kare Child Development Center</li> <li>17 12th Street Head Start</li> <li>18 Long Beach Day Nursery</li> <li>19 Atlantic Headstart</li> <li>20 Comprehensive Child Development</li> <li>21 Elm Street Head Start</li> <li>22 Fords Family Daycare</li> <li>23 Kelly's Kids Daycare Center</li> <li>24 Long Beach Blvd. Head Start</li> <li>25 Long Beach Center For Child Development</li> <li>26 Long Beach Child Development Center</li> <li>27 Long Beach City College Child Development</li> <li>28 Oakwood Children's Center</li> <li>29 Old King Cole Day Care</li> <li>30 P.A.L. Family Day Care</li> <li>31 Pacific Head Start</li> <li>32 Ruiz Family Daycare</li> <li>33 Signal Hill Head Start</li> <li>34 Smart &amp; Manageable</li> <li>35 Tender Child Care</li> <li>36 Young Horizons Child Development Centers</li> <li>37 Young Horizons Child Development Centers</li> <li>38 Cabrillo Child Development Center</li> <li>39 Garfield Child Head Start</li> <li>40 Job Corp Head Start</li> <li>41 West Child Development Center</li> <li>42 Bundle of Joy Day Care 2</li> <li>43 Child Care Center at St. Mary Medical Center</li> <li>44 Childtime Learning Center</li> <li>45 Gabiola Head Start</li> <li>46 Jenkins Day Care</li> <li>47 Kelly's Care</li> <li>48 Little Lighthouse Educational Childcare Center</li> <li>49 Lucy's Baby Care</li> <li>50 My Three Kids Tons Of Fun Day Care</li> <li>51 N2 Lil Folkz</li> <li>52 Ole King Cole Dev Center</li> <li>53 Pine Head Start</li> <li>54 Play House, The</li> <li>55 Progressive Steps Children Center</li> <li>56 Vincent Family Child Care</li> <li>57 West Anaheim Child Care Center</li> <li>58 Young Horizons/Lel Jardin De La Felicidad</li> <li>59 Bethany Preschool</li> <li>60 Great Beginnings</li> <li>61 World of Tots LA</li> </ol>	<ol style="list-style-type: none"> <li>1 Avalon High School</li> <li>2 Banning New Elementary School #1</li> <li>3 First Baptist Christian School</li> <li>4 Fries Ave. Elementary School</li> <li>5 Hawaiian Avenue Elementary School</li> <li>6 Holy Family Preschool and Elementary School</li> <li>7 Phineas Banning Senior High School</li> <li>8 Saints Peter &amp; Paul School</li> <li>9 Wilmington Park Elementary School</li> <li>10 Cesar Chavez Elementary</li> <li>11 Constellation Community Charter Middle</li> <li>12 Saint Anthony High School</li> <li>13 Edison Elementary</li> <li>14 Franklin Classical Middle</li> <li>15 Saint Anthony Preschool/Elementary</li> <li>16 Select Community Day (Secondary)</li> <li>17 Stevenson Elementary</li> <li>18 City Christian School</li> <li>19 Birney Elementary</li> <li>20 Burnett Elementary</li> <li>21 Cambodian Christian</li> <li>22 Holy Innocent Elementary School</li> <li>23 Jackie Robinson Academy</li> <li>24 Lafayette Elementary School</li> <li>25 Mary Butler Elementary</li> <li>26 Oakwood Academy</li> <li>27 Signal Hill Elementary School</li> <li>28 Cabrillo (Juan Rodriguez) High School</li> <li>29 Hudson Daycare and Elementary School</li> <li>30 James A. Garfield Elementary</li> <li>31 Muir Elementary</li> <li>32 Saint Lucy School</li> <li>33 Stephens Middle</li> <li>34 Abraham Lincoln Elementary School</li> <li>35 Artesia Well Preparatory Academy</li> <li>36 Creative Arts Daycare and Elementary School</li> <li>37 First Baptist Church School</li> <li>38 First Lutheran Daycare, Preschool &amp; Elementary School</li> <li>39 George Washington Middle School</li> <li>40 Long Beach Montessori School</li> <li>41 Polytechnic High School</li> <li>42 Renaissance High School for the Arts</li> <li>43 Roosevelt Academy</li> <li>44 The New City School</li> <li>45 John G. Whittier Elementary School</li> <li>46 Burbank Elementary</li> <li>47 Harbor Occupational Center</li> <li>48 Barton Hill Elementary School</li> <li>49 Port of LA High School &amp; Charter School</li> </ol>
<b>4 Hospitals</b>	
<ol style="list-style-type: none"> <li>1 Miller Children's Hospital; Long Beach Memorial Medical Center</li> <li>2 Pacific Hospital of Long Beach</li> <li>3 Long Beach Doctors Hospital</li> <li>4 St Mary Medical Center</li> <li>5 Tom Redgate Memorial Hospital</li> </ol>	
<b>11 Convalescent Homes</b>	
<ol style="list-style-type: none"> <li>1 Bellagio Manor</li> <li>2 Breakers Of Long Beach, The</li> <li>3 Colonial Care Center</li> <li>4 Crofton Manor Inn</li> <li>5 Wells House</li> <li>6 Broadway By The Sea</li> <li>7 Villa Via Redondo Care Home</li> <li>8 Atlantic Memorial Care Center</li> <li>9 Caruthers Royale Care</li> <li>10 Courtyard Care Center</li> <li>11 Deluxe Guest Home</li> <li>12 Deluxe Guest Home II</li> </ol>	<ol style="list-style-type: none"> <li>13 Rmr Residential Care Facility, LLC</li> <li>14 Royal Care Skilled Nursing Center</li> <li>15 Burnett Home Care</li> <li>16 Loram Manor</li> <li>17 Harbor View Rehabilitation Center</li> <li>18 Regency High School</li> <li>19 Healthview Pine Villa Assisted Living</li> <li>20 Olive Tree Home</li> <li>21 Skylight Convalescent Hospital</li> <li>22 Villa Maria Care Center</li> <li>23 Edgewater Convalescent Hospital</li> <li>24 Ruby's Guest House</li> </ol>

Exhibit 2.2.5-1 Sensitive Receptor Locations



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Federal guidance is not available for calculating construction impacts. Accordingly, the screening criteria, significance thresholds, and analysis methodologies in SCAQMD's guidance document *CEQA Air Quality Handbook, November 1993* (Handbook) were used to calculate air pollutant emissions from construction of the proposed project and to determine the significance of construction emissions. SCAQMD has promulgated daily emission thresholds for construction and operational activities. SCAQMD thresholds are set at a level that either promotes or maintains regional attainment of the relevant ambient air quality standards. Based on the Handbook guidelines, daily emissions were calculated for a worst-case day. The worst-case day represents the maximum or peak daily emissions that can reasonably be expected during any phase of construction. The construction schedule and information needed to perform emissions analysis were provided by the project construction engineers. This information include type and number of pieces of equipment used in each phase, amount or area of soil disturbance and cut and fill material, number of haul trucks and construction workers, and average trip length of haul trucks and workers commuting to and from the jobsite.

To estimate peak daily construction emissions, daily emissions were forecast for a period with most-intensive construction activities wherein a relatively large amount of construction would occur from overlapping construction phases during each year of construction.

The CARB OFFROAD 2007 model was used to develop exhaust emission factors for the various types of off-road construction equipment that would be used for the project construction. The EMFAC2007 model was used to develop the emission factors for on-road trucks and employee vehicles. Fugitive dust emission factors were based on guidance from SCAQMD.

The localized effects from the onsite portion of the mass daily emissions to the offsite sensitive receptors were evaluated for each phase of construction using the guidelines in the *Localized Significance Threshold Methodology for CEQA Evaluations* (SCAQMD, 2003b). It should be noted again that Caltrans does not utilize these thresholds, and they have been included for purposes of CEQA impact analysis discussed in Section 3.2.2.

**Operational Emissions.** For operational emissions, the impacts of the project-related air

pollutant emissions from direct and indirect sources were considered in the analysis.

Regional air quality impacts directly associated with operation of the project would include emissions from vehicle traffic along the study area roadways. The Bridge Replacement Alternatives would provide a new bridge with more vertical clearance than the existing bridge. In general, this could affect vessel traffic by allowing the passage of taller, larger marine vessels through the Back Channel, and could indirectly affect local air quality; however, as discussed below, vehicular emissions would constitute the primary emission source associated with operation of the proposed project. The direct emissions associated with vehicle traffic were estimated based on the daily traffic volumes and vehicle miles traveled (VMT) within the project study area, using the modeled emission factors from EMFAC2007.

For this study, the operational emissions were estimated for the opening year 2015 and the horizon year 2030. Evaluation of the local impacts includes the following analysis.

**Localized CO Analysis.** The localized CO impacts from project operations were evaluated following the guidelines and procedures of the Caltrans CO Protocol (UC Davis, 1997). Supporting documentation, including the screening procedure for determining the project-level conformity requirements, applicable to the proposed project, are provided in Appendix B2 of the Air Quality Technical Study. Following the screening procedure, the localized concentrations of CO were calculated using the CALINE4 microscale dispersion model, which was developed by Caltrans, in combination with EMFAC2007 emission factors for the project analysis years. EMFAC2007 is the latest EPA-approved emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. Traffic volumes from the project traffic study (Iteris, 2009) were used to estimate CO concentrations at a distance of 10 ft (3 m) from the study intersections. The annual VMT data, also provided by the traffic report, were used to estimate regional emissions.

**Particulate Matter Hot-Spot Analysis.** To implement the PM hot-spot analysis requirements of the March 10, 2006, final rule, the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas* (Guidance) [EPA420-B-06-902, March 2006a],

which was developed by EPA and FHWA, was used to perform a qualitative hot-spot analysis and conduct an interagency consultation with SCAG for project conformity determination.

**Mobile Source Air Toxics Emissions.** MSATs are released as part of vehicle exhaust emissions and include benzene, naphthalene, acrolein, 1,3-butadiene, formaldehyde, DPM and diesel exhaust organic gases, and polycyclic organic matter (POM) (FHWA, 2009). Prolonged exposure to MSATs may cause cancer and/or other serious health effects, such as reproductive problems and birth defects. Such effects are also influenced by other variables, such as distance between sources of MSAT and sensitive receptors. The extent of potential health effects of MSATs can only be determined by conducting a detailed health risk assessment (HRA) to assess carcinogenic risks and acute and chronic non-cancer health effects. For assessment of project-specific health impacts from MSATs, the currently available tools and techniques are limited (FHWA, 2006a). FHWA has prepared a guidance document and its update for when and how to analyze MSATs in the NEPA process: *Interim Guidance on Air Toxics Analysis in NEPA Documents* (FHWA, 2006a) and *Interim Guidance Update on Air Toxics Analysis in NEPA Documents* (FHWA, 2009). Analysis of potential impacts of MSAT emissions was conducted using these Guidance documents to determine in which category the proposed project falls (i.e., no analysis, qualitative analysis, or quantitative analysis). The analysis then uses the prototype language or provided data as prescribed in the Update Guidance document.

Based on the review of the Interim Guidance, and in consideration of the project alternatives, the proposed project would be in Category 2 and qualifies for a qualitative MSAT analysis; however, because of (1) the high percentage of diesel trucks using the local roadways in the project area, and (2) the enhanced capacity of the project corridor, a more conservative approach of a quantitative MSAT analysis was completed for the project. This conservative approach is consistent with the approach of the Schuyler Heim Bridge Replacement Project, which is similar to and in close proximity to the proposed Gerald Desmond Bridge Replacement Project. As previously discussed, there are only a few sensitive receptors in close proximity to the proposed project corridor.

Because evaluation of the project-level impact of MSATs for transportation projects is an emerging

process, guidance manuals and protocols to assess air quality impacts are currently in the development stage. For instance, UC Davis and Caltrans developed a methodology and a Spreadsheet Tool for estimation of the project-level MSAT emissions in 2006 (UC Davis-Caltrans, 2006). In 2008, the spreadsheet tool was replaced with the CT-EMFAC version 2.6 (UC Davis-Caltrans, 2008), which is a model to estimate transportation projects emissions. CT-EMFAC is an interpretation of the CARB EMFAC model that simplifies the process of getting composite emission factors. It also extends EMFAC to include the priority MSATs, which otherwise require off-model speciation of total organic gases (TOG) when the standard EMFAC model is used (as used in the 2006 Spreadsheet Tool). The model is capable of estimating project-level emissions of MSATs, as well as criteria pollutants and CO<sub>2</sub>. It includes two main modules: an *Emissions Factors* module that creates emission factors from EMFAC2007 for pollutants based on the project location (county, air basin, or statewide), and analysis year(s); and an *Emission Calculations* module that uses the estimated emission factors from the Emission Factor run, combined with the user-provided travel activities, to generate project-level emissions values for selected pollutants. CT-EMFAC version 2.6, which was released on May 29, 2008, was used to provide an estimate of the MSAT emissions along the project segments and project corridor for the base year 2005 and the future years (opening year 2015, and horizon year 2030) for the build and no-build alternatives. It should be noted that at the time of preparation of this EIR/EA, there was not an update to the 2008 release of CT-EMFAC to include data for the revised priority MSAT list.

### **Air Quality Analysis**

#### **Transportation Conformity**

The Transportation Conformity Rule requires a regional emission analysis to be performed by the MPO for projects within its jurisdiction. The regional emissions analysis includes all projects listed in the RTP and RTIP. Projects listed in the RTP and RTIP are considered to have met the requirement for regional emissions conformity. Both plans must support an affirmative conformity finding to obtain FHWA approval.

The currently approved plans are the 2008 RTP and the 2008 RTIP. The 2008 RTP was adopted by SCAG on May 8, 2008, as Resolution #08-497-2, and it was approved by FHWA and FTA on



June 5, 2008. The 2008 RTIP was adopted by SCAG on July 17, 2008, and was federally approved on November 17, 2008.

The Gerald Desmond Bridge Replacement Project is included in the 2008 RTP and RTIP, and assumptions in SCAG's regional emissions analysis. The originally proposed project, which is referenced in the Project Listing Report of the 2008 RTP within the "2008 RTP – Los Angeles County RTIP Projects" list, and in the "Final 2008 RTIP – Los Angeles County Local Highways Project List" under the conformity category "non-exempt," includes the bridge replacement portion of the project. The project description in the Final 2008 RTP and in the most recent 2008 RTIP, including Amendments #1 through 43, includes the bridge replacement portion of the project. The Port, in coordination with Caltrans, is in the process of updating the RTIP description to include the improvements along Ocean Boulevard and freeway ramps. The revised project description is one of the projects in the 2008 RTIP Amendment #44, which was submitted to SCAG on June 21, 2010. SCAG approval is anticipated by early August. The following revised description is in the formal amendment request submitted to SCAG:

Project ID: LA000512

*Description: Ocean Boulevard, from the Los Angeles River over UPRR and Back Channel, to 0.1 mile E of State Route 47, replace existing 5 lane Gerald Desmond Bridge with new 6 lane bridge (3 lane in each direction); other improvements include construction of relocated approach structures and roads, reconstruction of existing horseshoe interchange ramp connectors, reconstruction of the existing connectors to SR-710, and reconstruction of two ramp connections to Pico Avenue.*

The design concept and scope of the preferred alternative is consistent with the revised project description. Subsequent to approval of Amendment #08-44, FHWA will issue a project-level conformity determination in accordance with the requirements of the Transportation Conformity Rule.

The 2008 RTIP was federally approved on November 17, 2008, and it is also consistent with the 2008 State Transportation Improvement Program (STIP) cycle and incorporates the SCAG portion of the 2008 STIP. Given that the proposed project is consistent with the 2008 RTP and included in the 2008 RTIP, it will not interfere with the timely implementation of all Transportation

Control Measures (TCMs) identified in the currently approved SIP. Because the proposed project is included in the regional analysis for determining emissions budgets of the RTIP, the project meets the regional air quality conformity criteria.

**Construction/Demolition Impacts**

No Action Alternative

The No Action Alternative assumes that the bridge structure and interchanges within the project area would remain unchanged. This alternative would not include any planned construction activities. Periodic maintenance activities would be provided to keep the bridge open to traffic; therefore, there would be no impacts associated with construction emissions.

North-side Alignment Alternative

**Construction Process.** Project's construction-related emissions are based on equipment emission factor data and the magnitude of daily construction activities. The total amount and duration of construction and the intensity of construction activities could have a substantial effect upon the daily emissions level, pollutant concentrations, and the resulting impacts occurring at any one time. The emission forecasts provided in this analysis reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Because of these conservative assumptions, actual construction emissions would be, in all probability, less than those forecasted. Exhibit 2.2.5-2 shows an outline of the estimated construction schedule and worst-case day with maximum concurrent construction activities (see Section 1.6.1.3 [Proposed Construction and Phasing]). The last phase of construction (Phase 5) consists of tie-in activities and demobilization of equipment, and air quality issues would not be of general concern.

At this time, it is envisioned that there would be two potential contractor staging areas. One could be located in or around the lumberyard located on the southwest side of the existing Gerald Desmond Bridge on Pier T Avenue, and the other is the current location of the Port Maintenance Yard on the east side of the existing bridge on Broadway. The Port Maintenance Yard is proposed to be relocated prior to construction of the Gerald Desmond Bridge. Emissions associated with the demolition of Port Maintenance Yard buildings were accounted for within Phase I of the construction phasing.

**Regional Construction Air Quality Effects.**

Construction of the proposed project has the potential to affect regional air quality through the use of heavy-duty construction equipment within the construction site, and through vehicle trips generated from construction workers traveling to and from the project site. In addition, fugitive dust emissions would result from earthwork (e.g., excavation and demolition) and onsite construction activities. Off-road (onsite) mobile source emissions, primarily NO<sub>x</sub>, would result from the use of construction equipment such as bulldozers, cranes, and loaders. During the finishing phase, paving operations and the application of architectural coatings and other building materials would release reactive organic compounds and off-gassing products (e.g., paints and asphalt). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific mix of construction equipment and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

Based on the expected construction schedule, calculation of the peak daily construction emissions were based on three timelines during construction and one timeline during demolition. Each timeline represents maximum daily activities from overlapping construction subphases. The three selected timelines during construction of the proposed new bridge include:

- month 9 of construction Year 1,
- month 9 of construction Year 2, and
- month 3 of construction Year 3.

Estimation of the peak daily emissions during demolition of the old bridge (which would occur subsequent to completion of the new bridge) was also included in the impact analysis (see Exhibit 2.2.5-2).

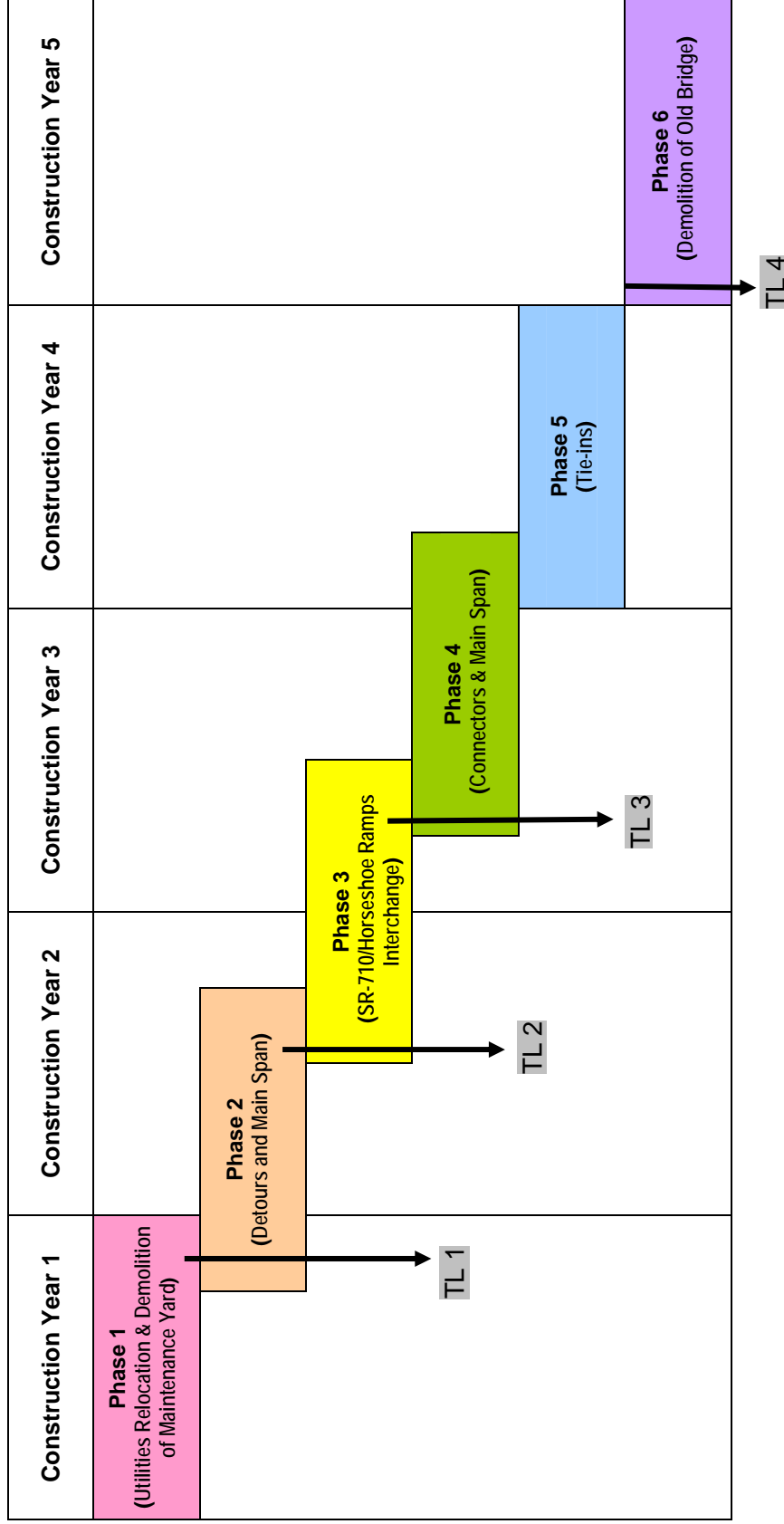
Table 2.2.5-6 summarizes the estimates of unmitigated mass daily emissions for the selected timelines. Emissions exceeding the SCAQMD regional threshold criteria are shown in bold type. As shown, Year 2 of construction activities would include the highest peak daily pollutant emissions. Table 2.2.5-6 also indicates that the unmitigated daily emissions of NO<sub>x</sub> would exceed the SCAQMD regional significance threshold during peak overlapping activities of each year of construction of new bridge. Peak daily emissions of other criteria pollutants would not exceed the SCAQMD significance thresholds. Peak daily emissions during demolition of the old bridge

would not exceed the significance thresholds for any criteria pollutant. In conclusion, without mitigation, the regional construction emissions of NO<sub>x</sub> would result in a short-term adverse effect during construction of the new bridge.

**Localized Air Quality Construction Effects.** The localized effects from onsite construction emissions were evaluated to determine whether the proposed project concentration would result in offsite ambient air pollutant concentrations that would exceed an SCAQMD threshold of significance. A screening analysis was conducted using the methodology promulgated by SCAQMD in its LST Methodology for CEQA Evaluations (SCAQMD, 2003a). It was estimated that the project's maximum daily disturbed area during any construction phase would be 4 to 5 acres (1.5 to 2 ha). This corresponds with the lookup tables in the LST document for projects that have maximum disturbance areas at any time of less than or equal to 5 acres (2 ha). The project onsite construction emissions of NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> were compared with the threshold values in lookup tables C-1, C-2, C-4, and C-5 of the 2005-2007 LSTs, respectively.

Localized construction emissions were estimated using the peak onsite mass daily emissions. The closest sensitive receptors to the construction site include the residences located northeast of Ocean Boulevard and West Broadway, approximately 0.3-mi (500 m) from the project's eastern boundary; and the Cesar Chavez Elementary School, which is also approximately 0.3-mi (500 m) northeast of the project corridor. The projected maximum daily localized emissions are provided in Table 2.2.5-7. As shown, the screening analysis indicates that at the nearest sensitive receptors, the estimated localized mass daily emissions would exceed the SCAQMD daily significance thresholds for NO<sub>x</sub> during the second and third years of construction. As such, potential localized impacts of construction NO<sub>x</sub> emissions at the nearest sensitive receptors may be significant during these years of construction; however, given the specific project construction site boundaries and the fact that concurrent construction activities take place at two separate sites (at the east and west portions of the project corridor) during years 2 and 3 of construction, a more refined dispersion modeling analysis using the EPA AERMOD program was performed for NO<sub>x</sub> emissions during peak construction activities. Table 2.2.5-8 presents the maximum ambient offsite impact estimated for unmitigated project construction NO<sub>2</sub> emissions during year 2 of construction. It should

Exhibit 2.2.5-2  
Outline of Construction Schedule



TL #: Analyzed timeline in a month (of each construction year) with maximum concurrent construction activities; selected to estimate worst-case daily emissions.

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<b>Table 2.2.5-6 Estimate of Unmitigated Peak Daily Regional Construction Emissions<sup>a</sup> – North- and South-Side Alignment Alternatives (pounds/day)</b>					
Construction Year - Stage	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub> <sup>b</sup>	PM <sub>2.5</sub>
<b>Year 1: Peak Construction Activities (month 9)</b>					
Onsite	33	88	7.5	97	23
Offsite <sup>c</sup>	29	20	3.6	1	1
Total <sup>d</sup>	62	108	11	98	24
<i>SCAQMD Regional Daily Significance Threshold</i>	550	100	75	150	55
Over/(Under)	(488)	<b>8</b>	(64)	(52)	(31)
Exceed Threshold?	No	Yes	No	No	No
<b>Year 2: Peak Construction Activities (month 9), worst case</b>					
Onsite	304	731	67	122	50
Offsite <sup>c</sup>	36	19	4	1	1
Total <sup>d</sup>	340	750	71	123	51
<i>SCAQMD Regional Daily Significance Threshold</i>	550	100	75	150	55
Over/(Under)	(210)	<b>650</b>	(4)	(27)	(4)
Exceed Threshold?	No	<b>YES</b>	NO	NO	NO
<b>Year 3: Peak Construction Activities (month 3)</b>					
Onsite	187	426	40	108	37
Offsite <sup>c</sup>	32	16	4	1	1
Total <sup>d</sup>	219	442	44	109	38
<i>SCAQMD Regional Daily Significance Threshold</i>	550	100	75	150	55
Over/(Under)	(331)	<b>342</b>	(31)	(41)	(17)
Exceed Threshold?	No	<b>YES</b>	No	No	No
<b>Demolition of Old Bridge – New Bridge Opening Year, 2015</b>					
<b>Peak Construction Activities (month 8)</b>					
Onsite	24	38	4	8	3
Offsite <sup>c</sup>	5	8	1	<1	<1
Total <sup>d</sup>	29	46	5	8	3
<i>SCAQMD Regional Daily Significance Threshold</i>	550	100	75	150	55
Over/(Under)	(521)	(54)	(70)	(142)	(52)
Exceed Threshold?	No	No	No	No	No

Note: Exceedances from thresholds are shown in bold type.

<sup>a</sup> Compiled using the CEQA Air Quality Handbook and the emissions inventory from OFFROAD model. The equipment mix and use assumption for each phase is provided by the construction engineer, a list of which is included in Appendix A.

<sup>b</sup> Onsite PM<sub>10</sub> emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

<sup>c</sup> Offsite emissions include motor vehicle emissions associated with construction equipment transport to site, workers' commute, and debris hauling activities.

<sup>d</sup> Maximum annual construction emissions of GHGs (based on peak-day construction activities) were calculated and provided below. The emissions are presented in metric ton per year of CO<sub>2</sub> equivalent (MT CO<sub>2</sub>e):

<u>Construction year</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Demolition of old bridge (opening year)</u>
GHG emission (MT CO <sub>2</sub> e)	1,187	10,771	4,503	2,845	307

Source: Parsons, 2009d.

Analyzed Construction Stage/Phase	Maximum Onsite Pollutants Emissions			
	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Nearest Sensitive Receptors<sup>a</sup> – 500 meters from project eastern boundary</b>				
Year 1	33	88	98	23
Year 2	304	<b>731</b>	122	50
Year 3	187	<b>426</b>	108	37
Gerald Desmond Bridge Demolition	24	38	8	3
<i>SCAQMD Localized Daily Significance Threshold<sup>b</sup></i>	<i>10,198</i>	<i>143</i>	<i>191</i>	<i>120</i>
Exceed Threshold?	No	<b>YES</b>	No	No

<sup>a</sup> The nearest sensitive receptors include Cesar Chavez Elementary School and the multi-family residences that are located approximately 0.30-mi (483 m) to the east of the construction site boundary. The project site is located in SCAQMD SRA No. 4. This analysis assumed that no more than 5 acres (2 ha) would actively be disturbed at one time. The LSTs are for a 5-acre site with a receptor at a 1,640-ft (500-meter) distance in SRA No. 4. Construction assumptions and equipment list for peak daily construction activities in each year are presented in Appendix A.

<sup>b</sup> The project site is located in SCAQMD SRA No. 4. It was estimated that the project's maximum daily disturbed area during any construction phase would be 4 to 5 acres (1.5 to 2 ha) (see Appendix A). The localized significance thresholds (LST) in the table are from the lookup tables for a 5-acre (2-ha) site at 1,640-ft (500-m) distance in SRA No. 4, South Coastal LA County; Tables C-1, C-2, C-4, and C-5 of the 2005-2007 lookup tables were used for LSTs of NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, respectively.

Source: Parsons, 2009d.

Receptor Type	Nearest Receptors	Project Impact at the Nearest Sensitive Receptors (µg/m <sup>3</sup> )	Distance from Construction Site Boundary (m)	Maximum Project Impact + Background (µg/m <sup>3</sup> )	SCAQMD Threshold (µg/m <sup>3</sup> )
School	Cesar Chavez Elementary	31	457	269	338
	Edison Elementary	27	488	265	
Daycare	Childtime Learning Center	41	663	279	
	Lucy's Baby Care	64	1,178	302	
Hospital	St Mary Medical Center	52	2,200	290	
Convalescent	The Breakers of Long Beach	27	1,557	265	

a As recommended by SCAQMD, offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling; however, onsite truck emissions were included in the modeling (SCAQMD, 2005).

b NO<sub>2</sub> concentrations were calculated using the conversion rate from NO<sub>x</sub> to NO<sub>2</sub> based on the distance of the receptor from the construction site boundary (SCAQMD, 2003).

Table 2-4. NO<sub>2</sub>-to-NO<sub>x</sub> Ratio as a Function of Downwind Distance

Downwind Distance (m)	NO <sub>2</sub> /NO <sub>x</sub> Ratio
20	0.053
50	0.059
70	0.064
100	0.074
200	0.114
500	0.258
1000	0.467
2000	0.75
3000	0.9
4000	0.978
5000	1

c Background concentration of 238 µg/m<sup>3</sup> was estimated based on the ambient concentration trends and the last 3 years of monitored data at the POLB Inner Harbor Monitoring Station (<http://polb.airsis.com/HistoricalSummary.aspx>). These data are preliminary; however, the estimate provides a conservative value that is higher than the North Long Beach Monitoring Station (215 µg/m<sup>3</sup>).

Source: Parsons, 2010.



be noted that the shape and location of the construction site for years 2 and 3 of construction activities are similar; therefore, the modeling was performed for year 2 with highest mass daily NO<sub>2</sub> emissions level as a worst-case scenario.

Table 2.2.5-8 shows that construction concentrations of NO<sub>2</sub> at the nearest sensitive receptors remain below the CAAQS for 1-hour NO<sub>2</sub> during the peak construction activities; therefore, no significant localized impact would occur as a result of project construction activities.

**Toxic Air Contaminants** The potential for TAC emissions during construction would be related to DPM emissions associated with heavy equipment operations. The analysis of construction impacts on air quality, provided above, shows that the peak daily emissions of PM<sub>10</sub> (surrogate for diesel PM, OEHHA, 2003) at both the regional and localized levels would be expected to be below the significance thresholds established by SCAQMD. This indicates that even the worst-case daily emission of construction-related DPM is not at a significant level. Further analysis and discussion are provided in the HRA section of this EIR/EA. The analysis concludes that potential impacts related to TAC emissions during construction of the proposed project alternatives would be well below the criterion for adverse health effects.

**Odors.** During project construction, objectionable odors would be mainly related to operation of diesel-powered equipment and to off-gas emissions during road-building activities, such as paving and asphaltting. Objectionable odors may also occur as a result of construction in marine sediments during drilling and auguring activities for the support piers for the bridge if contaminated sediments and/or soils that would release odorous gases to the atmosphere were encountered. Such odors, however, would be short-term and limited to the area where the specific activity is occurring. The perception of these odors would be dependent upon climatic conditions such as temperature, humidity, wind speed, and wind direction.

SCAQMD Rule 1113 (Architectural Coatings) limits the amount of VOCs from paving, asphalt, concrete curing, and cement coating operations. Construction of the proposed project would be performed in compliance with SCAQMD Rules, which limits VOC emissions. In addition, construction activities would 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. No adverse effects from odors associated with construction are anticipated.

#### South-Side Alignment Alternative

The construction activities and associated air quality emissions for this alternative would be the same as those of the North-side Alignment Alternative.

#### Rehabilitation Alternative

Construction emissions from the Rehabilitation Alternative were estimated in a similar way as the Bridge Replacement Alternatives. The assessment of maximum daily emissions was based on the expected construction schedule, the level of activity, and the specific mix of construction equipment for a worst-case with maximum daily activities from overlapping construction subphases.

The daily activity was assumed on an 8-hour per day schedule, based on the fact that the equipment used during the day (i.e., activities other than the bridge deck replacement) would be different from those employed during nighttime bridge deck replacement activities. Table 2.2.5-9 summarizes the estimates of unmitigated mass daily emissions from construction activities of the Rehabilitation Alternative. As shown, peak daily emissions associated with construction of the Rehabilitation Alternative would not exceed the thresholds for any criteria pollutant; therefore, no adverse air quality impacts would be anticipated during construction of the Rehabilitation Alternative.

#### **Operational Impacts**

Regional and localized operational emissions were evaluated for the project corridor. The considered project corridor extends along Ocean Boulevard from just west of Navy Way/Seaside Avenue on Terminal Island to Pine Avenue in downtown Long Beach; as well as connector ramps along the project segments of Ocean Boulevard.

#### No Action and Rehabilitation Alternatives

The Rehabilitation Alternative would include retrofit activities only and would be operationally equivalent to the No Action Alternative.

Operational analysis for the Rehabilitation Alternative would be the same as the No Action Alternative; therefore, it would not result in any operational air quality effects

<b>Table 2.2.5-9 Estimate of Peak Daily Construction Emissions<sup>a</sup> – Rehabilitation Alternative (pounds/day)</b>					
Construction Year – Stage	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub> <sup>b</sup>	PM <sub>2.5</sub>
<b>Regional Emissions</b>					
<b>Peak Construction Activities (September 2012)</b>					
Onsite	27	57	5	90	21
Offsite <sup>c</sup>	15	13	2	1	<1
Total	42	70	7	91	21
<i>SCAQMD Regional Daily Significance Threshold</i>	<i>550</i>	<i>100</i>	<i>75</i>	<i>150</i>	<i>55</i>
Over/(Under)	(508)	(30)	(68)	(59)	(34)
Exceed Threshold?	No	No	No	No	No
<b>Localized Emissions</b>					
<b>Nearest Sensitive Receptors<sup>d</sup> – 500 meters from project eastern boundary</b>					
Maximum Construction Onsite Emissions	27	57	—	91	21
<i>SCAQMD Localized Daily Significance Threshold<sup>e</sup></i>	<i>10,198</i>	<i>179</i>	—	<i>191</i>	<i>120</i>
Exceed Threshold?	No	No	—	No	No

<sup>a</sup> Compiled using the CEQA Air Quality Handbook and the emissions inventory from OFFROAD model. The equipment mix and use assumption for each phase is provided by the construction engineer, a list of which is included in the Air Quality Technical Study Report and Appendix A.

<sup>b</sup> Onsite PM<sub>10</sub> emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression. A copy of Rule 403 is provided in Appendix A.

<sup>c</sup> Offsite emissions include motor vehicle emissions associated with construction equipment transport to site, workers commute, and debris hauling activities.

<sup>d</sup> The nearest sensitive receptors include Cesar Chavez Elementary School and the multi-family residences that are located approximately 0.3-mi (483 m) to the east of the construction site boundary.

<sup>e</sup> The project site is located in SCAQMD SRA No. 4. In regard to the LST lookup tables, this analysis assumed that no more than 5 acres (2 ha) would actively be disturbed at one time. The LSTs are for a 5-acre (2-ha) site with a receptor at 1,640 ft (500 m) distance in SRA No. 4.

Source: Parsons, 2009d.

#### North- and South-side Alignment Alternatives

Operational emissions were estimated for the opening year 2015 and the horizon year 2030. Air quality impacts from operational emissions of the proposed project were assessed by comparing the No Action Alternative with build emissions, for each year analyzed. The North and South-side Alignment Alternatives would operate the same and are referenced as the Build Alternatives.

**Direct Operational Emissions.** Project direct operational emissions are mainly from vehicular traffic within the project area. The amount of pollutant emission from vehicle traffic is proportional to VMT. The peak-hour VMT data and projected average vehicle speeds along segments of the project corridor were provided by the project Traffic Study (Iteris, 2009). Vehicle emission factors at the average travel speeds were obtained using the EMFAC2007 model (CARB, 2007).

**Indirect Operational Emissions.** The existing Gerald Desmond Bridge provides a vertical clearance of 156 ft (47.5 m) above MHWL with two through lanes and a truck climbing lane in each direction. The Bridge Replacement Alternative would provide a higher vertical clearance of 200 ft (61 m), and provide additional capacity along Ocean Boulevard (three through lanes in each direction). As discussed in Section 2.1.2 (Growth Inducement), the Bridge Replacement Alternative would have the potential to indirectly influence growth when considered in the context of future cumulative development that is likely to occur within the Ports and the surrounding communities associated with the traffic congestion relief and redistribution of trips on roadways within the vicinity of the Port to the new bridge and the potential for increased throughput associated with larger vessel access to the back channel; however, predicting air quality effects associated with the potential

indirect growth is too speculative for further analysis of air quality emissions to provide credible evaluation of these indirect effects.

For this reason, the possible impact of vessel-produced indirect emissions was not quantified in this analysis.

**2005 Base Year.** The 2005 base year emissions are established based on the existing roadways and traffic. This is also used for CEQA analysis to determine changes in air quality associated with the alternatives from 2005 through the horizon year 2030. See Chapter 3 for CEQA air quality analysis.

**Year 2015 – New Bridge Opening Year.** For all of the alternatives, the facility is scheduled to be opened to traffic in the year 2015. For the Build Alternatives, there would be two distinct activities during the opening year. First, all traffic would be rerouted from the old bridge onto the new facility. Second, the old bridge structure would be demolished and the debris would be disposed of. The demolition and removal activities would be completed by the end of the year. A worst-case for daily emissions during opening year would be associated with emissions from the simultaneous demolition of the Gerald Demand Bridge and operational emissions during the overlapping period for the Build Alternatives.

**Year 2030 – Horizon Year.** Operation phase motor vehicle emissions would result from vehicle exhaust and fugitive particulate emissions. Operational phase motor vehicle emissions were calculated for the No Action Alternative future and for the future with implementation of the proposed Build Alternatives.

**Regional Operational Air Quality Effects.** To determine the regional direct operational impact, the roadway traffic emissions along the segments of the project corridor were estimated for the base year 2005, opening year 2015, and horizon year 2030. The peak-hour VMT data and projected average vehicle speeds along each roadway segment were provided by the project Traffic Study (Iteris, 2009). Vehicle emission factors at the average travel speeds were obtained using the EMFAC2007 model (CARB, 2007). The re-entrained road dust emission factor was computed using the equation provided in the fifth edition of EPA's AP-42 document.<sup>8</sup>

For the opening year, the emissions associated with demolition of the old bridge structure were

added to the operational emissions to evaluate the peak daily project emissions. The results of project operational emissions analysis are summarized in Table 2.2.5-10.

For the future analyzed years (i.e., 2015 and 2030), the data in Table 2.2.5-10 show that:

- For the No Action/Rehabilitation Alternative, the daily operational emissions for all criteria pollutants would be less than the operational emission levels during the base year 2005.
- For the Bridge Replacement Alternative, the project daily operational emissions of CO, NO<sub>x</sub>, VOCs, SO<sub>2</sub> and PM<sub>2.5</sub> would be less than the operational emission levels during the base year 2005, and only the daily emissions of PM<sub>10</sub>, including the re-entrained road dust, show a relatively small increase in the future analyzed years compared with the 2005 emissions; however, the emission increments remain well below the SCAQMD daily threshold and would decrease with time (2015 versus 2030).

The emissions reduction over time is due to modeled emission factors (from EMFAC 2007) that incorporate newer vehicle fleet composition and compliance with adopted regulations in the AQMP that are aimed at controlling emissions from mobile sources. Compliance measures include the use of alternative or reformulated fuels, retrofit control on engines, and installing or encouraging the use of new engines and cleaner in-use heavy-duty vehicles. In conclusion, the estimated operational emissions show reductions for all pollutants except PM<sub>10</sub> as compared with the 2005 daily emissions. The increase of PM<sub>10</sub> operational emission during future analyzed years, compared with the 2005 level would be well below the SCAQMD daily operational threshold.

The data in Table 2.2.5-10 also show a net increase in daily operational emissions for the Bridge Replacement Alternative compared to the No Action/Rehabilitation Alternative during the opening year 2015 and horizon year 2030. The net increase in daily operational emissions is due to increases in ADT. The net increases of project operational emissions relative to the No Action Alternative emissions would be relatively small, with the exception of NO<sub>x</sub>. The net change in NO<sub>x</sub> emissions between proposed Project and No Action Baseline during 2015 is estimated to be approximately 154 pounds per day, which would exceed the SCAQMD threshold. During the horizon year 2030, the net change in daily emissions would be below the SCAQMD thresholds for all criteria pollutants.

<sup>8</sup> The AP-42 emission factor assumes that road dust emissions are proportional to VMT, roadway silt loading, and average vehicle weight.

**Table 2.2.5-10  
Summary of Project Daily Operational Emissions**

Project Scenario/Roadway Segments	Emissions (pounds/day)					
	CO	NOx	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Base Year 2005</b>						
Ocean Boulevard						
Navy Way to Pier S Avenue	277	250	8	2	26	11
Pier S Avenue to Terminal Island Freeway	124	79	14	<1	9	5
Terminal Island Freeway to Horseshoe Ramps	339	334	18	3	32	15
Gerald Desmond Bridge	446	436	16	3	44	18
NB SR 710 Connector Ramp	112	146	9	1	12	6
SB SR 710 Connector Ramp	41	60	4	<1	4	2
Ocean Boulevard Connector Ramps to Downtown	88	31	4	<1	8	2
<b>Total Year 2005</b>	<b>1,428</b>	<b>1,337</b>	<b>73</b>	<b>11</b>	<b>136</b>	<b>59</b>
<b>Year 2015 – Opening Year – No Action/Rehabilitation Alternative</b>						
Ocean Boulevard						
Navy Way to Pier S Avenue	96	124	8	<1	21	7
Pier S Avenue to Terminal Island Freeway	97	111	7	<1	21	7
Terminal Island Freeway to Horseshoe Ramps	65	69	7	<1	11	4
Gerald Desmond Bridge	275	308	26	1	48	17
NB SR 710 Connector Ramp	58	90	5	<1	12	5
SB SR 710 Connector Ramp	27	50	3	<1	6	2
Ocean Boulevard Connector Ramps to Downtown	33	17	1	<1	8	2
<b>Total Year 2015 – No Action/Rehabilitation</b>	<b>651</b>	<b>770</b>	<b>57</b>	<b>3</b>	<b>127</b>	<b>45</b>
<b>Net Change from 2005</b>	<b>-777</b>	<b>-607</b>	<b>-16</b>	<b>-8</b>	<b>-9</b>	<b>-14</b>
<b>Year 2015 – Opening Year – North- and South-side Alignment Alternatives</b>						
Ocean Boulevard						
Navy Way to Pier S Avenue	98	123	8	<1	21	7
Pier S Avenue to Terminal Island Freeway	114	132	8	<1	25	8
Terminal Island Freeway to Horseshoe Ramps	60	62	6	<1	10	4
New Bridge	267	353	22	1	55	19
NB SR 710 Connector Ramp	68	108	6	<1	14	6
SB SR 710 Connector Ramp	49	86	5	<1	10	4
Ocean Boulevard Connector Ramps to Downtown	48	24	2	<1	11	3
<b>Total On-Road – Operational Emissions</b>	<b>704</b>	<b>887</b>	<b>57</b>	<b>3</b>	<b>147</b>	<b>51</b>
Demolition of Old Bridge – Construction Emissions	23	37	5	<1	8	3
<b>Total Year 2015 – Project Opening Year</b>	<b>727</b>	<b>924</b>	<b>62</b>	<b>3</b>	<b>155</b>	<b>54</b>
<b>Net Change from 2005</b>	<b>-701</b>	<b>-414</b>	<b>-11</b>	<b>-8</b>	<b>19</b>	<b>-5</b>
<b>Net Change from No Action Alternative</b>	<b>76</b>	<b>154</b>	<b>5</b>	<b>&lt;1</b>	<b>28</b>	<b>11</b>
<b>Horizon Year 2030 – No Action/Rehabilitation Alternative</b>						
Ocean Boulevard						
Navy Way to Pier S Avenue	50	53	4	<1	22	6
Pier S Avenue to Terminal Island Freeway	45	44	3	<1	20	5
Terminal Island Freeway to Horseshoe Ramps	31	29	3	<1	11	3
Gerald Desmond Bridge	130	129	14	1	44	12
NB SR 710 Connector Ramp	27	33	2	<1	11	3
SB SR 710 Connector Ramp	14	19	1	<1	5	2
Ocean Boulevard Connector Ramps to Downtown	14	5	<1	<1	8	2
<b>Total Year 2030 – No Action/Rehabilitation Alternative</b>	<b>310</b>	<b>311</b>	<b>27</b>	<b>3</b>	<b>121</b>	<b>33</b>
<b>Net Change from 2005</b>	<b>-1,118</b>	<b>-1,026</b>	<b>-46</b>	<b>-8</b>	<b>-15</b>	<b>-26</b>

**Table 2.2.5-10  
Summary of Project Daily Operational Emissions**

Project Scenario/Roadway Segments	Emissions (pounds/day)					
	CO	NOx	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Horizon Year 2030 – North- and South-side Alignment Alternatives</b>						
Ocean Boulevard						
Navy Way to Pier S Avenue	52	53	4	<1	23	6
Pier S Avenue to Terminal Island Freeway	54	53	4	<1	24	6
Terminal Island Freeway to Horseshoe Ramps	25	25	3	<1	9	3
New Bridge	126	136	11	1	53	14
NB SR 710 Connector Ramp	33	42	3	<1	13	4
SB SR 710 Connector Ramp	25	33	2	<1	9	3
Ocean Boulevard Connector Ramps to Downtown	21	7	<1	<1	12	2
<b>Total Year 2030 – With Project</b>	<b>335</b>	<b>349</b>	<b>28</b>	<b>3</b>	<b>143</b>	<b>39</b>
<b>Net Change from 2005</b>	-1,092	-989	-45	-7	7	-20
<b>Net Change from No Action Alternative</b>	25	38	1	<1	22	6
<b>SCAQMD Daily Significance Thresholds</b>	550	55	55	150	150	55

Notes: NB: northbound; SB: southbound.

- Exceedances from thresholds are shown in **bold, underlined** type.
- Emissions are calculated using emission factors from EMFAC2007, at the projected average speed, and VMT of each roadway segment within the study area (from Traffic Study).
- Estimates of *directly emitted PM emissions include tailpipe, tire wear, break wear, and the contribution from road dust emissions. The Paved Road Dust emission factor was calculated using EPA’s empirical equation (AP-42):*

$$E = k \left( \frac{sL}{2} \right)^{0.65} \times \left( \frac{W}{3} \right)^{1.5} \times \left( 1 - \frac{P}{4N} \right)$$

Where, E= particulate emission factor; k=particle size multiplier; sL=road surface silt loading; W=average weight (tons) of vehicles traveling the road; P=number of days per year with >0.01 inch rain; N=days per period (365 days /year).

- The emissions data are rounded to the nearest integer number; thus, the “total” values in table may differ 1 unit from the added numbers as presented.
- Calculation worksheets are provided in Appendix B of project’s Air Quality/HRA Technical Study Report.

Source: Parsons, 2009d.

It should be noted that as described in the analysis methodology, the emission results are obtained using the emission factors generated from the EMFAC2007 model run (with the exception of re-entrained road dust emission factors). The model was released in November 2006 and, as such, only the control and mitigation measures that were approved by that time were incorporated in the development of the available version of the model; however, after 2007, the Port truck fleet has begun experiencing changes due to implementation of the Ports CAAP, and specifically the Port CTP, with the goal of eliminating “dirty trucks” from the fleet and regional roadways. Specific commitments of the Port CTP were not incorporated into the project truck fleet profiles to capture these important improvements in the project build-out years 2015 and 2030.

Furthermore, according to the California Drayage regulation, by January 1, 2014, 100 percent of Port

trucks will meet the 2007 model year standards that will result in reduction of diesel PM and NO<sub>x</sub> by 86 percent and 56 percent, respectively.

Moreover, Port replacement/retrofit programs will encourage alternatively fueled vehicles, such as LNG trucks. As a result, the project emissions in Table 2.2.5-10 present a worst-case scenario and over-estimates the actual project operational emissions.

**Localized Operational Air Quality Impacts.** The local analysis is commonly referred to as project-level air quality or hot-spot analysis. The primary focus is the operational impact on air quality created by the proposed improvement. The analysis for localized NO<sub>x</sub> impacts was conducted for the project opening year, 2015, when the Build Alternative would generate NO<sub>x</sub> in excess of the SCAQMD regional threshold. The year 2015 represents the time with the highest project emissions, and the analysis is consistent with SCAQMD

requirements. For CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, the analysis years consist of the project opening year and the design or horizon year, consistent with the federal transportation conformity requirements.

NO<sub>x</sub> Local Effects

The 2015 roadway emissions from project operations were combined with the emissions from demolition of the old bridge to determine the highest potential pollutant concentrations at the offsite sensitive receptor locations. A dispersion modeling analysis using the EPA-approved AERMOD model was performed to estimate NO<sub>2</sub> local concentrations in the vicinity of the project corridor. The meteorological data used in the model were from POLA's Wilmington Community Station, which is located at the Saints Peter and Paul School, as the available data most representative of the ambient data for the project site and vicinity. The closest sensitive receptors to the project corridor are the residences located east of SR 710 across the Los Angeles River approximately 0.3-mi (485 m) from the project corridor. Vehicle movements in each segment of the project corridor were simulated as a line source in the modeling analysis and represented as a series of separated volume sources. Mobile source NO<sub>x</sub> emissions along each segment of the project corridor were used for model inputs. The details of model inputs and assumptions are provided in Appendix D.

To determine whether project emissions create significant adverse localized NO<sub>2</sub> impacts, the emissions contribution from the project is added to

ambient concentrations and the total is then compared to the most stringent applicable state and/or federal ambient air quality standards for NO<sub>2</sub>. The modeled incremental impacts from project activities were added to the background values to estimate the peak impacts downwind of the activities.

Table 2.2.5-11 presents comparison of the SCAQMD significance thresholds with the estimated maximum localized NO<sub>2</sub> concentrations at the nearest sensitive receptors to the project corridor. As shown, the local concentrations would not exceed the localized operational thresholds; therefore, project local NO<sub>2</sub> impact is considered less than adverse.

CO and PM Local Effects

Table 2.2.5-10 indicates that the project-related emissions of other criteria pollutants, including CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, would not exceed the SCAQMD regional significance threshold at any future operating year of the project; however, following the requirements of transportation conformity, the local effects of CO and PM are provided here to ensure the local conformity of the project with CAA standards.

Based on the project traffic study (Iteris, 2009), some local roadways would have an increase in traffic volume in excess of 5 percent. Tables 2.2.5-12 and 2.2.5-13 summarize the ADT volumes with and without the project for the opening year 2015 and the horizon year 2030, respectively. According to the CO Protocol, these increases would be sufficient to warrant the preparation of a quantitative CO analysis.

Averaging Time	Background NO <sub>2</sub> Concentration <sup>a</sup> (µg/m <sup>3</sup> )	Maximum Ambient NO <sub>2</sub> Impact at the Nearest Sensitive Receptors <sup>b,c</sup>								SCAQMD Significance Threshold <sup>d</sup>
		Residential		School		Medical		Daycare		
		Project Increment	NO <sub>2</sub> Conc. (µg/m <sup>3</sup> )	Project Increment	NO <sub>2</sub> Conc. (µg/m <sup>3</sup> )	Project Increment	NO <sub>2</sub> Conc. (µg/m <sup>3</sup> )	Project Increment	NO <sub>2</sub> Conc. (µg/m <sup>3</sup> )	
1-hour	226	22	248	19	245	27	253	28	254	338
Annual	43	2.5	45.5	1.2	44.2	2.9	46	1.9	44.9	56

<sup>a</sup> The thresholds for CO and NO<sub>2</sub> are combined thresholds; therefore, impacts from project emissions plus background pollutant concentrations are compared to the thresholds.

<sup>b</sup> The nearest sensitive receptors include single-family residences located approximately 500 m northeast of the project and east of SR 710; Cesar Chavez Elementary School and Edison Elementary School, both located within 500 m east of the project eastern limit; Childtime Learning Center located approximately 1,000 m east of the project corridor; and Saint Mary Medical Center located approximately 2,000 m northeast of project site.

<sup>c</sup> NO<sub>2</sub> concentrations were calculated using the conversion rate from NO<sub>x</sub> to NO<sub>2</sub> based on the distance of receptor from the emission source. NO<sub>2</sub>/NO<sub>x</sub> ratios were obtained using Figure 2-5 and Table 2-4 in the LST Methodology document (SCAQMD, 2003).

<sup>d</sup> Estimated based on ambient concentration trends and the last 4 years of recorded data at the North Long Beach Monitoring Station.

Source: Parsons, 2009.



Roadway Segment	Traffic Direction	AADT <sup>1</sup> (All Vehicles)			Truck AADT <sup>1</sup>		
		No Action <sup>2</sup>	Build <sup>3</sup>	% Change	No Action	Build	% Change
Ocean Boulevard							
Navy Way to Pier S Avenue	EB	41,910	43,440	3.7	12,810	12,860	0.4
	WB	37,910	38,980	2.8	11,400	11,530	1.1
Pier S Avenue to Terminal Island Freeway	EB	35,660	32,030	11.3	7,900	8,660	9.6
	WB	30,750	32,200	4.7	5,650	5,960	5.5
Terminal Island Freeway to Horseshoe Ramps	EB	37,780	42,260	11.9	10,130	11,440	12.9
	WB	33,700	36,690	8.9	7,380	9,170	24.3
Between SR 710 Connector Ramps and Downtown Long Beach	EB	9,040	10,248	13.4	96	120	25.0
	WB	12,196	12,712	4.2	2,084	2,148	3.1
Gerald Desmond Bridge/New Bridge	EB	40,870	46,070	12.7	12,240	14,000	14.4
	WB	36,200	40,660	12.3	10,550	12,100	14.7
NB SR 710 Connector Ramp	-	14,092	20,480	45.3	8,472	9,792	15.6
SB SR 710 Connector Ramp	-	12,840	17,880	39.3	8,844	11,796	33.3

<sup>1</sup> AADT: annual average daily traffic

<sup>2</sup> No Action Alternative traffic numbers are equivalent to the Rehabilitation Alternative traffic numbers.

<sup>3</sup> Build traffic numbers are equivalent to North- and South-side Alignment Alternative traffic numbers.

Source: Iteris, 2009.

Roadway Segment	Traffic Direction	AADT <sup>1</sup> (All Vehicles)			Truck AADT <sup>1</sup>		
		No Action <sup>2</sup>	Build <sup>3</sup>	% Change	No Action	Build	% Change
Ocean Boulevard							
Navy Way to Pier S Avenue	EB	59,540	62,410	4.8	22,020	22,220	0.9
	WB	57,720	59,620	3.3	22,650	22,580	-0.3
Pier S Avenue to Terminal Island Freeway	EB	48,310	51,210	6.0	15,540	21,960	41.3
	WB	49,230	51,820	5.3	16,730	17,470	4.4
Terminal Island Freeway to Horseshoe Ramps	EB	54,350	58,830	8.2	19,840	21,840	10.1
	WB	56,030	58,340	4.1	21,300	19,130	-10.2
Between SR 710 Connector Ramps and Downtown Long Beach	EB	9,912	11,824	19.3	104	116	11.5
	WB	12,956	13,948	7.7	2,104	2,124	1.0
Gerald Desmond Bridge/New Bridge	EB	62,170	68,850	10.7	26,280	29,120	10.8
	WB	62,500	67,080	7.3	28,080	30,610	9.0
NB SR 710 Connector Ramp	-	18,300	21,056	15.1	9,944	12,300	23.7
SB SR 710 Connector Ramp	-	14,040	19,136	36.3	10,424	14,200	36.2

<sup>1</sup> AADT: annual average daily traffic

<sup>2</sup> No Action Alternative traffic numbers are equivalent to the Bridge Rehabilitation traffic numbers.

<sup>23</sup> Build traffic numbers are equivalent to North and South-side Alignment Alternative traffic numbers.

Source: Iteris, 2009.

**Localized CO Analysis.** Localized CO effects were assessed by estimating the maximum ambient CO concentrations near the intersections with the greatest potential for hot-spot generation. The concentration estimates were conducted for the opening and horizon years of 2015 and 2030, respectively. The predicted concentrations were compared to the NAAQS and CAAQS for CO. SCAQMD recommends a hot-spot evaluation of potential localized CO impacts at intersections when an intersection decreases in LOS by one level beginning when LOS changes from C to D, and at intersections with LOS D or worse where LOS does not change but v/c ratio increases by 2 percent or more. Intersections were selected for analysis based on information provided in the project Traffic Study (Iteris, 2009). Tables 2.2.5-14 and 2.2.5-15 provide comparison of intersection traffic conditions for the No Action and Build Alternatives for the base year (2005), opening year (2015), and horizon year (2030).

Tables 2.2.5-14 and 2.2.5-15 show that traffic conditions under the project Build Alternatives would improve compared to the No Action Alternative at all of the studied intersections except three. As shown, at the intersection of Navy Way and Seaside Avenue, either a peak-hour LOS would decline (MD peak hour during 2015) or the LOS would be the same, but the v/c ratio would increase by 2 percent or more. The intersection of Ocean Boulevard and Magnolia Avenue would be affected during the morning peak hour in 2015 (increase in v/c) and during AM, mid-day, and PM peak hours in 2030 (decline in LOS) by the proposed project. The intersection of Ocean Boulevard and Golden Shore Street is projected to be affected only during the PM peak hour in 2030 (LOS decline). These intersections and three other intersections projected to operate at LOS E or F were analyzed for potential CO hot-spot generation during opening year 2015 and horizon year 2030.

CO concentrations were projected using the CALINE 4 traffic pollutant dispersion model. Tables 2.2.5-16 and 2.2.5-17 show the concentrations at 10 ft (3 m) from the studied intersections, projected for the years 2015 and 2030, respectively. As indicated, 1-hour CO concentrations would range from approximately 5.4 ppm to 6.9 ppm in 2015 and from 5.3 ppm to 6.0 ppm in 2030. Eight-hour CO concentrations are anticipated to range from approximately 4.1 ppm to 5.2 ppm in 2015 and from 4.0 ppm to 4.6 ppm in 2030. The state and federal 1- and 8-hour standards would not be exceeded. No localized operational adverse air quality CO effect is anticipated.

**Localized Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>) Analysis.** Pursuant to Federal Conformity

Regulations (specifically, 40 CFR 93.105 [c] [1][i]), a qualitative analysis of the localized PM emissions was conducted following the methodology provided in the EPA Guidelines (EPA, 2006a). The qualitative PM hot-spot analysis was submitted to the SCAG Transportation Conformity Working Group (TCWG) and was discussed among representatives at their meeting on February 27, 2007. The TCWG determined that the “analysis [was] deemed acceptable for NEPA circulation.” A copy of the TCWG conformity determination (from the minutes of the work group meeting) is provided in Appendix A. The qualitative analysis is presented in this section.

*a) Standards and Conformity Conditions*

**PM<sub>10</sub>** nonattainment and maintenance areas are required to attain and maintain two standards:

- **24-hour standard: 150 µg/m<sup>3</sup>:** The 24-hour PM<sub>10</sub> standard is attained when the average number of exceedances in the previous 3 calendar years is less than or equal to one. An exceedance occurs when a 24-hour concentration of greater than the standard 150 µg/m<sup>3</sup> is measured at a monitoring site near the project site. The annual PM<sub>10</sub> standard is attained if the average of the annual arithmetic means for the previous 3 calendar years is less than or equal to 50 µg/m<sup>3</sup>.
- **Annual standard: 50 µg/m<sup>3</sup>:** This standard was revoked by EPA on December 17, 2006, due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution (EPA, 2006b); however, the 2006 RTIP conformity determination for PM<sub>10</sub> was made on October 2, 2006, and it was based on the previous annual standard of 50 µg/m<sup>3</sup>. To maintain consistency with the conformity determination, the PM<sub>10</sub> hot-spot analysis includes an analysis of the annual PM<sub>10</sub> standard.

**PM<sub>2.5</sub>** nonattainment and maintenance areas are required to attain and maintain two standards as well. The standards are described below.

- **24-hour standard: 35 µg/m<sup>3</sup>:** The standard, as established in 1997, was 65 µg/m<sup>3</sup>. Based on 2004-2006 monitored ambient data, EPA strengthened the standards for PM<sub>2.5</sub>. This standard became effective on December 17, 2006. It is expected that EPA will designate the new 24-hour PM<sub>2.5</sub> nonattainment areas by November 2009, and they will become effective April 2010. A SIP revision will be due to EPA by April 2013 demonstrating an attainment date of April 2015 with a possible extension to

**Table 2.2.5-14  
Comparison of Intersection Traffic Conditions  
for the No Action/Rehabilitation and Build Alternatives (Opening Year 2015)**

Intersection	Peak Hour	Base Year 2005			Opening Year – 2015					
		CEQA Baseline			No Action <sup>1</sup>			Build Alternatives <sup>2</sup>		
		LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle
Terminal Island Interchange Ramps / Ocean Boulevard	AM	C	0.792	-	B	0.661	-	B	0.648	-
	MD	D	0.833	-	E	0.966	-	D	0.899	-
	PM	E	0.912	-	D	0.865	-	D	0.813	-
Pier S Avenue / Ocean Boulevard	AM	C	0.709	-	B	0.681	-	B	0.679	-
	MD	C	0.700	-	C	0.761	-	B	0.656	-
	PM	D	0.824	-	B	0.650	-	A	0.597	-
Pier S Avenue / New Dock Street	AM	A	0.327	-	A	0.328	-	A	0.352	-
	MD	A	0.350	-	A	0.420	-	A	0.432	-
	PM	A	0.356	-	A	0.337	-	A	0.337	-
Navy Way / Seaside Avenue	AM	A	0.474	-	C	0.735	-	C	0.776	-
	MD	A	0.414	-	C	0.753	-	<b>D</b>	0.768	-
	PM	A	0.581	-	E	0.914	-	E	0.935	-
Pico Avenue Pier B Street / 9th Street	AM	A	0.428	-	B	0.606	-	A	0.594	-
	MD	A	0.455	-	A	0.594	-	B	0.613	-
	PM	A	0.494	-	A	0.575	-	A	0.588	-
Pico Avenue / Pier C Street	AM	A	0.309	-	A	0.376	-	A	0.378	-
	MD	A	0.340	-	A	0.309	-	A	0.306	-
	PM	A	0.343	-	A	0.306	-	A	0.308	-
Pico Avenue / Pier D Street	AM	B	-	10.1	C	-	23.3	A	0.492	-
	MD	B	-	11.3	C	-	19.2	A	0.432	-
	PM	B	-	10.7	C	-	15.5	A	0.399	-
Pico Avenue / Pier E Street	AM	A	-	9.9	B	-	12.4	A	0.331	-
	MD	B	-	11.8	B	-	14.0	A	0.410	-
	PM	B	-	11.3	C	-	18.9	A	0.582	-
Terminal Island Freeway SB Off-Ramp/ New Dock Street	AM	B	-	10.8	B	-	12.2	B	-	10.8
	MD	A	-	9.1	B	-	13.3	B	-	12.1
	PM	A	-	9.3	B	-	10.5	B	-	10.3
Terminal Island Freeway NB On-Ramp/ New Dock Street	AM	A	-	7.4	A	-	9.1	A	-	8.9
	MD	A	-	7.6	B	-	11.9	B	-	11.1
	PM	A	-	7.9	B	-	10.8	B	-	10.1
Pico Avenue / Broadway	AM	B	-	10.6	B	-	10.6	B	-	10.3
	MD	B	-	11.2	A	-	9.8	A	-	9.9
	PM	B	-	10.5	A	-	9.3	A	-	10.0
Ocean Boulevard/ Golden Shore Street	AM	A	0.570	-	B	0.628	-	B	0.637	-
	MD	A	0.569	-	B	0.691	-	C	0.708	-
	PM	A	0.593	-	B	0.693	-	C	0.719	-
Ocean Boulevard/ Magnolia Avenue	AM	B	0.693	-	E	0.907	-	<b>E</b>	0.929	-
	MD	A	0.575	-	C	0.741	-	C	0.785	-
	PM	B	0.601	-	C	0.771	-	C	0.765	-

<sup>1</sup> No Action Alternative intersection conditions are equivalent to the Bridge Rehabilitation intersection conditions.

<sup>2</sup> Build intersection conditions are equivalent to North- and South-side Alignment Alternative intersection conditions.

Notes: SB – southbound; NB – northbound; AM – morning peak hour; MD – mid-day peak hour; PM – afternoon peak hour

v/c – Vehicle to capacity ratio, presents traffic conditions for signalized intersections.

Delay/Vehicle – delay per vehicle in seconds, presents traffic conditions for unsignalized intersections.

LOS of intersections that are not improved by the proposed project are shown in **bold** type.

Source: Iteris, 2009.

**Table 2.2.5-15  
Comparison of Intersection Traffic Conditions  
for the No Action/Rehabilitation and Build Alternatives (Horizon Year 2030)**

Intersection	Peak Hour	Base Year 2005			Horizon Year – 2030					
		CEQA Baseline			No Action <sup>1</sup>			Build Alternatives <sup>2</sup>		
		LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle
Terminal Island Interchange Ramps / Ocean Boulevard	AM	C	0.792	-	F	1.255	-	F	1.130	-
	MD	D	0.833	-	F	1.471	-	F	1.304	-
	PM	E	0.912	-	F	1.181	-	F	1.170	-
Pier S Avenue / Ocean Boulevard	AM	C	0.709	-	F	1.110	-	F	1.008	-
	MD	C	0.700	-	F	1.274	-	F	1.202	-
	PM	D	0.824	-	F	1.114	-	F	1.011	-
Pier S Avenue / New Dock Street	AM	A	0.327	-	B	0.678	-	A	0.591	-
	MD	A	0.350	-	D	0.843	-	C	0.739	-
	PM	A	0.356	-	B	0.684	-	A	0.588	-
Navy Way / Seaside Avenue	AM	A	0.474	-	E	0.904	-	<b>E</b>	0.931	-
	MD	A	0.414	-	D	0.854	-	<b>D</b>	0.875	-
	PM	A	0.581	-	F	1.091	-	<b>F</b>	1.125	-
Pico Avenue Pier B Street / 9th Street	AM	A	0.428	-	C	0.766	-	C	0.708	-
	MD	A	0.455	-	D	0.897	-	B	0.640	-
	PM	A	0.494	-	B	0.688	-	B	0.625	-
Pico Avenue / Pier C Street	AM	A	0.309	-	A	0.442	-	A	0.446	-
	MD	A	0.340	-	A	0.385	-	A	0.381	-
	PM	A	0.343	-	A	0.402	-	A	0.402	-
Pico Avenue / Pier D Street	AM	B	-	10.1	F	-	55.1	B	0.630	-
	MD	B	-	11.3	E	-	42.0	A	0.529	-
	PM	B	-	10.7	E	-	36.8	A	0.543	-
Pico Avenue / Pier E Street	AM	A	-	9.9	C	-	18.7	A	0.465	-
	MD	B	-	11.8	C	-	23.9	A	0.559	-
	PM	B	-	11.3	E	-	47.6	C	0.782	-
Terminal Island Freeway SB Off-Ramp / New Dock Street	AM	B	-	10.8	F	-	95.1	E	-	48.2
	MD	A	-	9.1	E	-	47.3	D	-	29.6
	PM	A	-	9.3	C	-	15.4	C	-	15.3
Terminal Island Freeway NB On-Ramp / New Dock Street	AM	A	-	7.4	C	-	15.9	B	-	13.9
	MD	A	-	7.6	D	-	30.6	C	-	22.5
	PM	A	-	7.9	D	-	32.7	C	-	21.7
Pico Avenue / Broadway	AM	B	-	10.6	B	-	11.9	B	-	11.9
	MD	B	-	11.2	B	-	10.7	B	-	11.3
	PM	B	-	10.5	B	-	10.3	B	-	11.4
Ocean Boulevard/ Golden Shore Street	AM	A	0.570	-	B	0.658	-	B	0.670	-
	MD	A	0.569	-	C	0.733	-	C	0.735	-
	PM	A	0.593	-	C	0.739	-	<b>D</b>	0.801	-
Ocean Boulevard/ Magnolia Avenue	AM	B	0.693	-	E	0.982	-	<b>F</b>	1.099	-
	MD	A	0.575	-	D	0.869	-	<b>E</b>	0.912	-
	PM	B	0.601	-	D	0.865	-	<b>E</b>	0.930	-

<sup>1</sup> No Action Alternative intersection conditions are equivalent to the Bridge Rehabilitation intersection conditions.

<sup>2</sup> Build intersection conditions are equivalent to North- and South-side Alignment Alternative intersection conditions.

Notes: SB – southbound; NB – northbound; AM – morning peak hour; MD – mid-day peak hour; PM – afternoon peak hour

v/c – Vehicle to capacity ratio, presents traffic conditions for signalized intersections.

Delay/Vehicle - delay per vehicle in seconds, presents traffic conditions for unsignalized intersections.

LOS of intersections that are not improved by the proposed project are shown in **bold** type.

Source: Iteris, 2009.

**Table 2.2.5-16  
Year 2015 Localized Carbon Monoxide Concentrations**

Intersection	Peak Hour	1-hour Concentration (ppm)			8-hour Concentration (ppm)		
		Base Year 2005	No Action <sup>1</sup>	Build Alternatives <sup>2</sup>	Base Year 2005	No Action	Build Alternatives
Navy Way and Seaside Avenue	AM	8.1	6.6	6.7	6.1	5.0	5.0
	MD	8.1	6.4	6.5	6.1	4.8	4.9
	PM	9.1	6.8	6.9	6.8	5.1	5.2
Ocean Boulevard and Pier S Avenue	AM	8.2	5.7	5.8	6.2	4.3	4.4
	MD	8.2	5.9	5.8	6.2	4.5	4.4
	PM	8.7	5.9	5.8	6.5	4.5	4.4
Ocean Boulevard and Terminal Island Freeway	AM	8.3	6.1	6.0	6.2	4.6	4.5
	MD	8.2	6.4	6.4	6.2	4.8	4.8
	PM	9.0	6.8	6.6	6.7	5.1	5.0
SB Off-Ramp/ New Dock Street and Terminal Island Freeway	AM	6.3	5.5	5.4	4.8	4.2	4.1
	MD	6.3	5.5	5.4	4.8	4.2	4.1
	PM	6.4	5.4	5.4	4.9	4.1	4.1
Ocean Boulevard/ Golden Shore Street	AM	8.8	6.4	6.4	6.6	4.8	4.8
	MD	8.2	6.2	6.3	6.1	4.7	4.7
	PM	8.3	6.2	6.2	6.2	4.7	5.2
Ocean Boulevard/ Magnolia Avenue	AM	8.4	6.2	6.2	6.3	4.7	4.7
	MD	7.8	6.0	6.0	5.9	4.5	4.5
	PM	7.9	6.0	6.0	5.9	4.5	4.5
State Standard (ppm)		20			9.0		
Federal Standard (ppm)		35			9.0		

<sup>1</sup> No Action Alternative concentrations are equivalent to the Bridge Rehabilitation concentrations.

<sup>2</sup> Build concentrations are equivalent to North- and South-side Alignment Alternative concentrations.

Notes: Total CO concentrations include background 1-hour and 8-hour concentrations of 5.1 and 3.9 ppm, respectively, based on SCAQMD projected future concentration for Long Beach monitoring station in SRA number 4 (SCAQMD, 2007).

Base-year CO levels refer to 2005 and include worst-case background concentrations of 5.9 ppm, 1-hour average, and 4.55 ppm, 8-hour average. Background concentrations are based on a 3-year average of the highest 1-hour and 8-hour concentrations measured at the Central Los Angeles (Main Street) air monitoring station. This scenario presents conditions for CEQA thresholds.

AM – morning peak hour; MD – mid-day peak hour; PM – afternoon peak hour; ppm – parts per million

Source: Parsons, 2009d.

**Table 2.2.5-17  
Year 2030 Localized Carbon Monoxide Concentrations**

Intersection	Peak Hour	1-hour Concentration (ppm)			8-hour Concentration (ppm)		
		Base Year 2005	No Action <sup>1</sup>	Build Alternatives <sup>2</sup>	Base Year 2005	No Action	Build Alternatives
Navy Way and Seaside Avenue	AM	8.1	6.0	6.0	6.1	4.5	4.5
	MD	8.1	5.9	5.9	6.1	4.5	4.5
	PM	9.1	6.1	6.1	6.8	4.6	4.6
Ocean Boulevard and Pier S Avenue	AM	8.2	5.5	5.5	6.2	4.2	4.2
	MD	8.2	5.6	5.6	6.2	4.3	4.3
	PM	8.7	5.6	5.6	6.5	4.3	4.3
Ocean Boulevard and Terminal Island Freeway	AM	8.3	5.7	5.7	6.2	4.3	4.3
	MD	8.2	5.7	5.7	6.2	4.3	4.3
	PM	9.0	6.0	5.9	6.7	4.5	4.5
SB Off-Ramp/ New Dock Street and Terminal Island Freeway	AM	6.3	5.5	5.4	4.8	4.2	4.1
	MD	6.3	5.4	5.4	4.8	4.1	4.1
	PM	6.4	5.3	5.3	4.9	4.0	4.0
Ocean Boulevard/ Golden Shore Street	AM	8.8	5.7	5.7	6.6	4.3	4.3
	MD	8.2	5.6	5.6	6.1	4.2	4.2
	PM	8.3	5.6	5.6	6.2	4.2	4.2
Ocean Boulevard/ Magnolia Avenue	AM	8.4	5.6	5.6	6.3	4.2	4.2
	MD	7.8	5.5	5.6	5.9	4.1	4.2
	PM	7.9	5.5	5.6	5.9	4.1	4.2
State Standard (ppm)		20			9.0		
Federal Standard (ppm)		35			9.0		

<sup>1</sup> No Action Alternative concentrations are equivalent to the Bridge Rehabilitation concentrations.

<sup>2</sup> Build concentrations are equivalent to North- and South-side Alignment Alternative concentrations.

Notes: Total CO concentrations include background 1-hour and 8-hour concentrations of 5.1 and 3.9 ppm, respectively, based on SCAQMD projected future concentration for Long Beach monitoring station in SRA number 4 (SCAQMD, 2007).

Base-year CO levels refer to 2005 and include worst-case background concentrations of 5.9 ppm, 1-hour average, and 4.55 ppm, 8-hour average. Background concentrations are based on a 3-year average of the highest 1-hour and 8-hour concentrations measured at the Central Los Angeles (Main Street) air monitoring station. This scenario presents conditions for CEQA thresholds.

AM – morning peak hour; MD – mid-day peak hour; PM – afternoon peak hour; ppm – parts per million

Source: Parsons, 2009d.

April 2020. The PM<sub>2.5</sub> conformity for the proposed project is based on trend analysis and is applicable to the current standard and the previous 24-hour standard of 65 µg/m<sup>3</sup>.

- **Annual standard: 15.0 µg/m<sup>3</sup>:** The 24-hour PM<sub>2.5</sub> standard is based on a 3-year average of the 98th percentile of 24-hour recorded concentrations; the annual standard is based on a 3-year average of the annual arithmetic mean PM<sub>2.5</sub> recorded at the monitoring station. A PM<sub>2.5</sub> hot-spot analysis must

consider both standards unless it is determined for a given area that meeting the controlling standard would ensure that CAA requirements are met for both standards.

*b) Project Compliance with CFR 93.116 and 93.123*

Section 93.116 (a) of 40 CFR states that an FHWA/FTA project must not cause or contribute to any new localized PM<sub>2.5</sub> violations or increase the frequency or severity of any existing PM<sub>10</sub> or PM<sub>2.5</sub> violations in nonattainment or maintenance



areas. The regulations further state that projects may satisfy this requirement without an analysis of their potential to create particulate matter hot spots, provided that they do not meet the criteria set forth in Section 93.123 (b) for "Project of Air Quality Concern (POAQC)."

A project may be considered to have one of three types of status: (1) Exempt; (2) Not be exempt but not be a POAQC based on the specific parameters established in the regulations; and (3) It may be a POAQC, which requires that a qualitative hot-spot analysis be conducted. The Gerald Desmond Bridge Replacement Project does not meet the definition of an exempt project under Section 93.126 or 93.128.

The 2006 Final Transportation Conformity Rule defines a POAQC that requires PM<sub>10</sub> and PM<sub>2.5</sub> hot-spot analysis in 40 CFR 93.123(b)(1) as:

- i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- ii) Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- v) Projects in or affecting locations, areas, or categories of sites that are identified in the PM<sub>2.5</sub> and PM<sub>10</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project falls within the category of new or expanded highway projects with a significant number of diesel vehicles, and it would be affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles. The proposed project is a POAQC 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 to assess whether the project would cause or contribute to any new localized PM<sub>10</sub> or PM<sub>2.5</sub> violations, or increase the frequency or severity of any existing violations, or delay timely attainment of the PM<sub>10</sub> or PM<sub>2.5</sub> NAAQS.

c) Analysis Methodology and Types of Emissions Considered

As mentioned above, the qualitative PM hot-spot analysis was performed following the EPA document *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas* (Guidelines - EPA, March 2006b).

The analysis was based on directly emitted PM<sub>2.5</sub> emissions, including tailpipe, brake wear, and tire wear. Secondary particles formed through PM<sub>2.5</sub> precursors take several hours to form in the atmosphere and would be dispersed beyond the immediate project vicinity; therefore, they are not considered in a hot-spot analysis. Secondary emissions are included in the regional emission analysis prepared for the conforming RTP and TIP. Vehicles cause dust from paved and unpaved roads to be re-entrained or re-suspended in the atmosphere. According to the 2006 Final Rule, road dust emissions are to be considered for PM<sub>10</sub> hot-spot analysis. For PM<sub>2.5</sub>, road dust emissions are only to be considered in hot-spot analysis if EPA or the state air agency has made a finding that such emissions are a significant contributor to the PM<sub>2.5</sub> air quality problem (40 CFR 93.102(b)(3)). EPA and CARB have not made such findings; therefore, these emissions are not included in this analysis.

Additionally, the proposed project construction would last less than 5 years; therefore, temporary construction emissions are not considered in this analysis.

**Trend Analysis,** For performing the trend analysis, PM<sub>10</sub> and PM<sub>2.5</sub> ambient air quality data from monitoring stations within the proposed project area were utilized. This data was compared with PM<sub>10</sub> and PM<sub>2.5</sub> NAAQS and also examined for trends to predict future conditions in the project vicinity. In the following sections, the project impacts, as well as the likelihood of these impacts interfering with the ambient PM<sub>2.5</sub> and PM<sub>10</sub> levels to cause hot spots, are discussed. The opening year (2015), as well as the horizon year of 2030, were considered for the analysis.

d) Data Consideration

Recent data available from the North Long Beach Monitoring Station include the years 1999 to 2006. Table 2.2.5-17 and Exhibit 2.2.5-3 show the particulate concentrations and their historical trend (both PM<sub>10</sub> and PM<sub>2.5</sub>), as recorded at this monitoring station. Table 2.2.5-18 provides the measured concentrations and the number of days that the applicable NAAQS was exceeded. Exhibit

2.2.5-3 includes normalized concentrations and shows the trend of the pollutant changes in the area. Normalized concentrations represent the ratio of the highest measured concentrations in a given year to the applicable national standard; therefore, normalized concentrations lower than one indicate that the measured concentrations were lower than the ambient air quality standard. The monitored data show the following trends:

- **Respirable Particulate Matter (PM<sub>10</sub>)** – During the recorded period of 1999 to 2006, both the 24-hour maximum and the annual average monitored data were well below the NAAQS. The highest recorded 24-hour concentration during the period of 1999 to 2006 was 91 µg/m<sup>3</sup>, which was recorded in 2001. The highest annual average was 39 µg/m<sup>3</sup> for 1999. The NAAQS were not exceeded at any time during the last 8 years at the monitoring station.
- **Fine Particulate Matter (PM<sub>2.5</sub>)** – During the recorded period of 1999 to 2006, the 24-hour 98th percentile concentration, which was averaged over 3 years, remained below the NAAQS (57 to 45 µg/m<sup>3</sup>, or between 88 percent and 70 percent of the standard level), with a higher declining rate since 2002. The annual mean PM<sub>2.5</sub> concentration exceeded the NAAQS every year; however, the data show a declining trend. Specifically, from 2001 to 2003 the annual average concentrations show an

approximate 8.5 percent reduction rate, which is very little change from 2003 and 2004, and a higher reduction rate of approximately 12 percent from 2004 to 2005 (17.9 µg/m<sup>3</sup> to 15.9 µg/m<sup>3</sup>) concentrations. The data indicate a general declining trend for the ambient PM<sub>2.5</sub> concentrations in the project area.

**Future Air Quality Trends.** The area surrounding the project is mostly built out and consists primarily of industrial and Port-related uses. The climate and meteorology at the project site are typical of coastal areas, with variable winds during the day that facilitate the dispersion of pollutants better than in the inland areas; therefore, future air quality is expected to improve per the trend shown in Table 2.2.5-18, Exhibit 2.2.5-3, and in the SIP.

The proposed project is included in the RTP; thus, it is included in the SCAB air quality modeling efforts for the region, as provided in the 2007 AQMP.

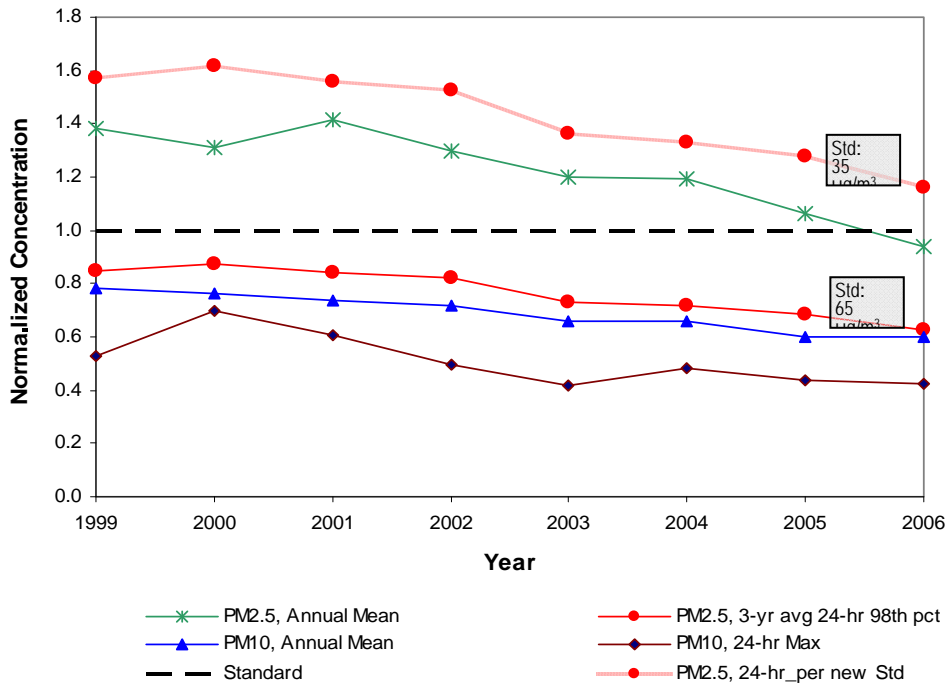
**Basin Trends.** SCAQMD's 2007 AQMP includes modeled estimates of future air quality levels within the SCAB. The modeling results that are reported in the 2007 AQMP indicate that particulate matter emissions and other criteria pollutants have decreased significantly with implementation of new air quality standards and more stringent rules and regulations. Additionally, comparisons with recent year projections show that the air quality is improving at a greater rate than what was projected by the models.

Pollutant	Standard (µg/m <sup>3</sup> )	Recorded Concentrations (µg/m <sup>3</sup> )							
		1999	2000	2001	2002	2003	2004	2005	2006
Respirable Particulate Matter (PM <sub>10</sub> )	(24-Hour)								
	1st Maximum Concentration	79	105	91	74	63	72	66	51
	Days > NAAQS (150 µg/m <sup>3</sup> )	0	0	0	0	0	0	0	0
	(Annual Average)								
	Annual Arithmetic Mean (50 µg/m <sup>3</sup> )	39	38	37	36	33	33	30	31
Fine Particulate Matter (PM <sub>2.5</sub> )	(24-Hour)								
	1st Maximum Concentration	67	82	73	63	115	67	54	59
	98th Percentile of 24-hour Concentration	51	64	49	47	47	46	41	50
	Days > NAAQS (65 µg/m <sup>3</sup> )	0	0	0	0	0	0	0	0
	3-year Average 98th Percentile <sup>a</sup>	55	57	55	53	48	47	45	46
	(Annual Average)								
	Annual Arithmetic Mean (15 µg/m <sup>3</sup> )	<b>20.7</b>	<b>19.7</b>	<b>21.2</b>	<b>19.5</b>	<b>18.0</b>	<b>17.9</b>	<b>15.9</b>	<b>15.2</b>

<sup>a</sup> Attainment condition for PM<sub>2.5</sub> is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed 65 µg/m<sup>3</sup>. Annual exceedances are shown in **bold** type.

Source: CARB, 2008.

**Exhibit 2.2.5-3  
Normalized Monitored PM Concentrations – 1999 to 2006,  
North Long Beach Monitoring Station**



Pollutant (Averaging Time)	Standard ( $\mu\text{g}/\text{m}^3$ )	2005		2015 <sup>a</sup>		2021	
		Observed Max Value ( $\mu\text{g}/\text{m}^3$ )	% Above Standard	Projected Max Value ( $\mu\text{g}/\text{m}^3$ )	% Above Standard	Projected Max Value ( $\mu\text{g}/\text{m}^3$ )	% Above Standard
PM <sub>10</sub> (24-hour)	150	131	Met	117	Met	111	Met
PM <sub>2.5</sub> (Annual)	15	21	40	15	Met	<15	Met
PM <sub>2.5</sub> (24-hour)	Current	65	104	57	Met	52	Met
	New	35	279	57	63	52	49

<sup>a</sup> Projected data include the 2007 Control Strategies.

Source: SCAQMD, 2007 AQMP, Chapter 10.

Table 2.2.5-19, which was derived from Chapter 10 (Looking beyond Current Requirements) of the 2007 AQMP, provides a comparison of the monitored 2005 PM levels to the model predicted values for 2015 and 2021. As shown, the projected data indicate a trend of decreasing ambient PM concentrations from 2005 to 2021.

The monitored PM ambient concentrations at the Long Beach Station, shown in Table 2.2.5-18, support the modeled predicted trends, as the recorded PM<sub>10</sub> and PM<sub>2.5</sub> levels at the monitoring station between the years 1999 and 2006 for both the 24-hour levels and average annual values show a general declining trend.

e) Traffic Condition Effects

The proposed project would replace the existing physically and functionally deficient Gerald Desmond Bridge with a new structure that would be able to carry the projected traffic volume increase in the area. In addition, the project includes reconfiguration of freeway interchanges within the project limits and some arterial street intersections; therefore, the project would improve traffic operations along the project corridor, including segments of Ocean Boulevard over the new bridge, and freeway ramps and interchanges, as well as intersections within the study area. The effects of the Build Alternatives on the roadway segment and intersections are discussed below.

**Roadway Segments.** The existing bridge has two travel lanes in each direction, with a truck-climbing lane approach grade of 6 percent up to the crest of the bridge where they merge back to the two-lane configuration. The need for the truck climbing lanes, coupled with traffic congestion during the morning and afternoon peak operation hours, has resulted in traffic congestion along the bridge. The Gerald Desmond Bridge Replacement Project would accommodate current and future car and truck traffic volumes by providing three travel lanes and shoulders in each direction. The addition of the third lane, combined with the reduced approach grade, would eliminate the current merging movement and improve LOS. In addition, the roadway shoulders would reduce nonrecurring congestion in the project area. Nonrecurring congestion is traffic congestion related to automobile crashes, disabled vehicles, work zones, adverse weather events, and planned special events (FHWA, 2006b). The addition of a 9.8-ft-wide (3-m) outside shoulder and an 11.8-ft-wide (3.6-m) inside shoulder at the approaches of the new bridge would provide room for emergency response vehicles, roadway maintenance personnel, and disabled automobiles without causing major congestion/roadway closures to occur. These improvements in access would reduce delays in traffic, thereby providing the benefit of improved air quality in the project area. Furthermore, the proposed improved 5 percent approach grade would help reduce emissions of pollutants from faster-moving trucks in comparison to the emissions from the slower truck traffic and higher revolution-per-minute trucks to climb uphill on the existing steep grade of the climbing lane.

**Intersections.** As a result of the proposed project, delays due to traffic congestion at most of the studied intersections in the project area would be

greatly reduced, and the average vehicle travel speed would slightly increase. Both of these effects would translate into a decrease in vehicle emissions. In 2030, the LOS at the intersections within the project area would be improved with implementation of the Build Alternatives. Tables 2.2.5-14 and 2.2.5-15 compare the peak-hour intersection conditions of the No Action Alternative to the Build Alternatives for 2015 and 2030, respectively. Among the 13 intersections that were analyzed, the LOS of the Build Alternatives would improve at all but three intersections when compared to the No Action Alternative.

The intersection of Navy Way and Seaside Avenue would have a worse v/c compared to the No Action Alternative. The effect would be more significant for the AM peak hour during the opening year. The mid-day and PM peak-hour LOS would not change and would result in only a slight increase in v/c. The two intersections of Ocean Boulevard at Golden Shore Street and at Magnolia Avenue would have worse v/c and/or LOS compared with the No Action Alternative. The effect at these two intersections would be more significant for the horizon year, when the PM LOS at Golden Shore Street and Ocean Boulevard changes from C to D, and the LOS at the intersection of Magnolia Avenue and Ocean Boulevard would decline at all peak hours.

An increase of PM emissions would occur if the project significantly increased ADT in the project area and at locations where there are more traffic delays. Traffic delays would occur at intersections where vehicles are accumulating and idling. It is unlikely that PM hot spots would be associated with the proposed project because local accumulation and delay of vehicles would be reduced by the project. For all intersections except one, LOS would improve under the Build Alternatives when compared to the No Action Alternative. Potential localized PM increases associated with the increase in ADT 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 an adverse affect with respect to localized concentrations of PM<sub>2.5</sub> or PM<sub>10</sub>, at any nearby sensitive receptor.

**Emissions Calculation**

Table 2.2.5-10 presents emissions, including PM<sub>10</sub> and PM<sub>2.5</sub>, from vehicles traveling along the project corridor for the years 2005, 2015, and 2030. The particulate emissions in Table 2.2.5-10 include PM emissions from vehicle exhaust, brake

wear, tire wear, and re-entrained road dust. The emission inventories presented in the SCAQMD 2007 AQMP show that emissions from paved roads are a significant contributor to directly emitted PM<sub>10</sub> and PM<sub>2.5</sub>. Because the 2007 AQMP is incorporated as part of the California 2007 SIP, PM from re-entrained roads was included in the hot-spot analysis. Re-entrained road dust was estimated based on VMT, and Chapter 13.2.1 of *AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors* (EPA, 2006c).

As shown in Table 2.2.5-10, estimates of PM<sub>10</sub> and PM<sub>2.5</sub> emissions for base, opening, and horizon years show that project implementation would not generate significant additional daily emissions. Because the VMT and the number of trucks (not percentage) are predicted to increase with time, the paved road dust emissions would also increase with time. This finding is consistent with the emission inventories reported in the SCAQMD 2007 AQMP, which also shows an increase of road dust emissions with time. Because paved road emissions are included in the 2007 AQMP and the PM<sub>2.5</sub> SIP, paved road emissions have been accounted for as part of the PM<sub>2.5</sub> attainment plan; therefore, the proposed project is not expected to cause new violations or increase the frequency or severity of any existing violations, or delay timely attainment of the NAAQS.

In conclusion, the proposed project would improve the operations of the intersections and increase vehicle speeds in the project area, compared to the No Action scenario. Accordingly, it is reasonable to conclude that PM emissions associated with the proposed action would not generate high concentrations of PM (hot spots); therefore, the project meets the project-level conformity requirements for PM<sub>10</sub> and PM<sub>2.5</sub> as defined in 40 CFR Sections 93.116 and 93.123.

**Mobile Source Air Toxics.** As described in Section 2.2.5.1, EPA issued a Final Rule on *Controlling Emissions of Hazardous Air Pollutants from Mobile Sources*, 66 FR 17229 (March 29, 2001). Furthermore, several studies have concluded that mobile sources (i.e., on-road and non-road combined) are responsible for most of the excess cancer risk associated with exposure to urban air toxics. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. Currently, the tools and techniques for assessing project-specific health impacts from MSATs are limited. Moreover, EPA has not established regulatory

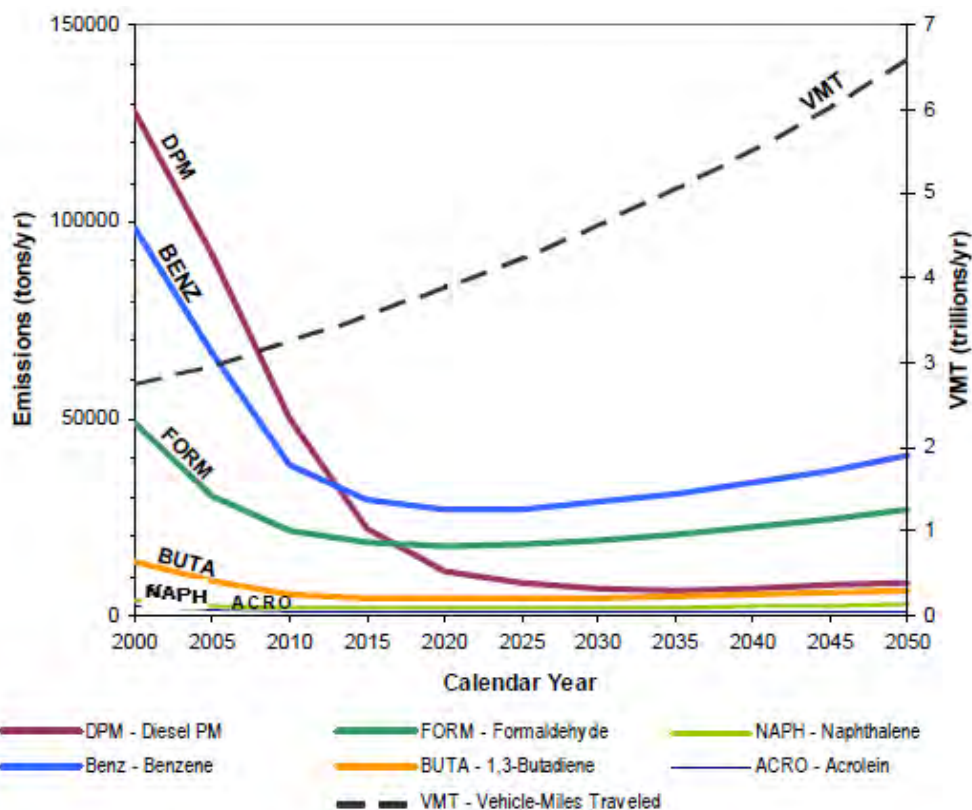
concentration targets for the relevant MSAT pollutants appropriate for use in the project development process. For the same reason, states are not required to achieve an identified level of air toxics in the ambient air or to identify air toxics reduction measures in the SIP. Developing strategies for reduction of MSATs is a cooperative effort between federal and local authorized agencies. The CAA provides EPA with the authority to establish and regulate emission standards for engines and vehicles. The State of California also has the right to adopt its own emission regulations, which are often more stringent than the federal rules. To reduce mobile source emissions, mandatory and incentive-based programs are developed in conjunction with new engine emission regulations; additional emission testing requirements (i.e., supplemental emission test [SET], not-to-exceed [NTE] limits); and limiting fuel sulfur content. These programs are implemented by all levels of government: federal, state, and local (Dieselnet, 2007). Currently, FHWA's interim guidance update (FHWA, 2009) is used for analysis of potential impacts of MSATs to be included in environmental documents.

The 2007 EPA rule mentioned in Section 2.1.1.3 requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Exhibit 2.2.5-4.

California's vehicle emission control and fuel standards are more stringent than federal standards and are effective sooner, so the effect of combined state and federal regulations is expected to result in a greater reduction of MSATs sooner than the FHWA analysis predicts.

Based on FHWA's tiered approach in their interim guidance document, the proposed project would be considered to have minimal potential MSAT effects. The following analysis provides an assessment of project local MSAT effects. The analysis was conducted using the projected traffic data, including local roadway traffic volumes and VMT, vehicle mix, traffic diversion data, average speed, and associated changes in MSATs for the project alternatives.

**Exhibit 2.2.5-4  
National MSAT Emissions Trend, 1999 - 2050  
for Vehicles Operating on Roadways**



- Notes: (1) The projected data were estimated using EPA's MOBILE6.2 Model run August 20, 2009.  
 (2) Annual emissions of polycyclic organic mater are projected to be 561 tons per year for 1999, decreasing to 373 tons per year for 2050.  
 (3) Trends for specific location may be different, depending on locally derived information representing VMT, vehicle speeds, vehicle mix, fuels, emission control programs, methodology, and other factors.

Source: FHWA, 2009.

**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, a variety of studies show that some 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.

Exposure to toxics has been a focus of many of EPA's efforts. Most notably, the agency conducted the NATA in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best

illustrate the levels of various toxics when aggregated to a national or State level.

As described in Section 2.2.5.2, SCAQMD conducted a comprehensive study on air toxics within the SCAB. The MATES-II and MATES-III Studies (SCAQMD, 2000 and 2008, respectively), which monitored more than 30 toxic air pollutants, included estimates of cancer risk from exposure to DPMs. The MATES studies identified particulate emissions, attributed mostly to diesel engines, as an important cancer risk factor. According to MATES-III, DPMs accounted for approximately 84 percent of the total cancer risk associated with the investigated group of air pollutants. MATES studies also provided regional trends in estimated outdoor cancer risk from air toxics emissions.



EPA is in the process of assessing the risks of various kinds of exposures to MSAT emissions. The EPA IRIS is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries. This information is taken from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as a human carcinogen by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure. **Naphthalene**, which is the replacement for acetaldehyde in the 2009 update memorandum, is also a probable human carcinogen based on observations of respiratory tumors in mice after inhalation and oral exposure. Noncancer effects of concern in humans exposed to naphthalene include hemolytic anemia, cataract, and respiratory toxicity.
- **Diesel exhaust (DE)** is likely to be carcinogenic to humans by inhalation from environmental exposures. DE, as reviewed in this document, is the combination of DPM and DE organic gases. **DE** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.
- **Polycyclic Organic Matter (POM)** consists of a mixture of hundreds of chemicals, including

polycyclic aromatic hydrocarbons (PAHs), their oxygenated products, and their nitrogen analogs (nitro-PAHs). Sources of airborne POM include various mobile-source combustion, industrial, and domestic processes. Occupational and community studies suggest that exposure to mixtures containing POM (and specifically PAHs) is associated with carcinogenic and reproductive effects, although it is not possible specifically to implicate POM or its individual components as being causally related to these health effects. Recent evidence from occupational epidemiologic studies indicated that exposure to high concentrations of PAHs is associated with mortality from respiratory and cardiovascular effects.

Other studies have addressed MSAT health impacts in proximity to roadways. The Health Effects Institute, which is a nonprofit organization funded by EPA, FHWA, and the 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.

SCAQMD's MATES studies offer an opportunity to estimate air toxics-related health risks from roads; however, while at the regional scale the studies approximate air toxics-related health risk from roads, they were not designed to provide accurate approximations of risk as a function of proximity to roads. Monitoring data near freeways were limited to three sites, and modeling results were not finely resolved to provide concentration gradients near roads. The MATES monitoring results are consistent with other research indicating that pollutant concentrations are often close to or approximately the same as background conditions beyond 328 ft (100 m) from a road. Furthermore, the studies caution that results are highly dependent upon the unit risk factors assumed, particularly for DPM, for which uncertainties are an order of magnitude or more. At the microscale, neither MATES-II nor MATES-III was designed to effectively assess changes in pollutant concentrations with varying distance from roadways; therefore, the available methodology and techniques need to be refined so that they provide tools and information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

### **MSAT Effect Analysis**

Emissions of priority MSATs were estimated along the project corridor. Emissions were estimated for opening year 2015 and the horizon year 2030, as well as for the CEQA baseline base year 2005. The 2005 emissions are included to show the effect of current VMT levels and the degree of control plans on MSAT emissions.

The analysis was conducted for six air toxics that are identified as priority MSATs by EPA. The EMFAC2007 model was used to provide the emission factors of total organic gas (TOG) and PM in Los Angeles County for the analysis years (i.e., base year 2005, year 2015, and horizon year 2030). The PM data from EMFAC provide information for DPM. For the remaining priority MSATs (i.e., acrolein, acetaldehyde, formaldehyde, benzene, and 1,3-butadiene), CARB-supplied speciation factors can be used to obtain each MSAT compound as a fraction of TOG data.

It should be noted that because at the time of this writing the methodology for MSAT estimation was not updated to include the revised MSAT list as defined in FHWA's 2009 Update Guidance document, the analysis is provided for the six MSATs identified in the 2006 Guidelines. Furthermore, this analysis was conducted using EMFAC2007 and the UC-Davis Spreadsheet Tool, and because the methodology is similar to the use of CT-EMFAC, the results presented herein would be valid for the purpose of comparison and evaluation of the MSAT effects.

As described in Section 2.2.5.3, the UC Davis-Caltrans Project-Level MSAT Analysis Spreadsheet Tool (UC-Davis and Caltrans, 2006), was used to provide a comparison of MSAT emissions for the local roadways with and without the proposed project. The analysis was conducted for the project corridor along Ocean Boulevard and the Gerald Desmond Bridge. The traffic volumes and average speeds during peak and non-peak hours, percent of trucks, and VMT were used as input data. The spreadsheet tool applies the traffic activity data to the emission factors and estimates MSAT emissions for different scenarios.

Exhibit 2.2.5-5 and Table 2.2.5-20 present the results from the spreadsheet tool for estimated daily emissions for the analyzed roadway segment. As shown, a significant decrease in MSAT emissions can be expected for the proposed project from the base year (2005) levels through future year levels. This decrease is prevalent for all of the priority MSATs, and it is

consistent with EPA's study. For all studied roadways, MSAT emissions are projected to decline markedly in the future (i.e., compared to base year 2005). This is directly due to the improved pollution emission performance of a modernizing fleet of all diesel-fueled vehicles, which is a trend that is anticipated to continue throughout the planning horizon. The estimated emission increase along the project corridor for the opening year 2015 (3.9 percent compared to No Action) and horizon year 2030 (4.7 percent compared to No Action) is due to an increase in ADT.

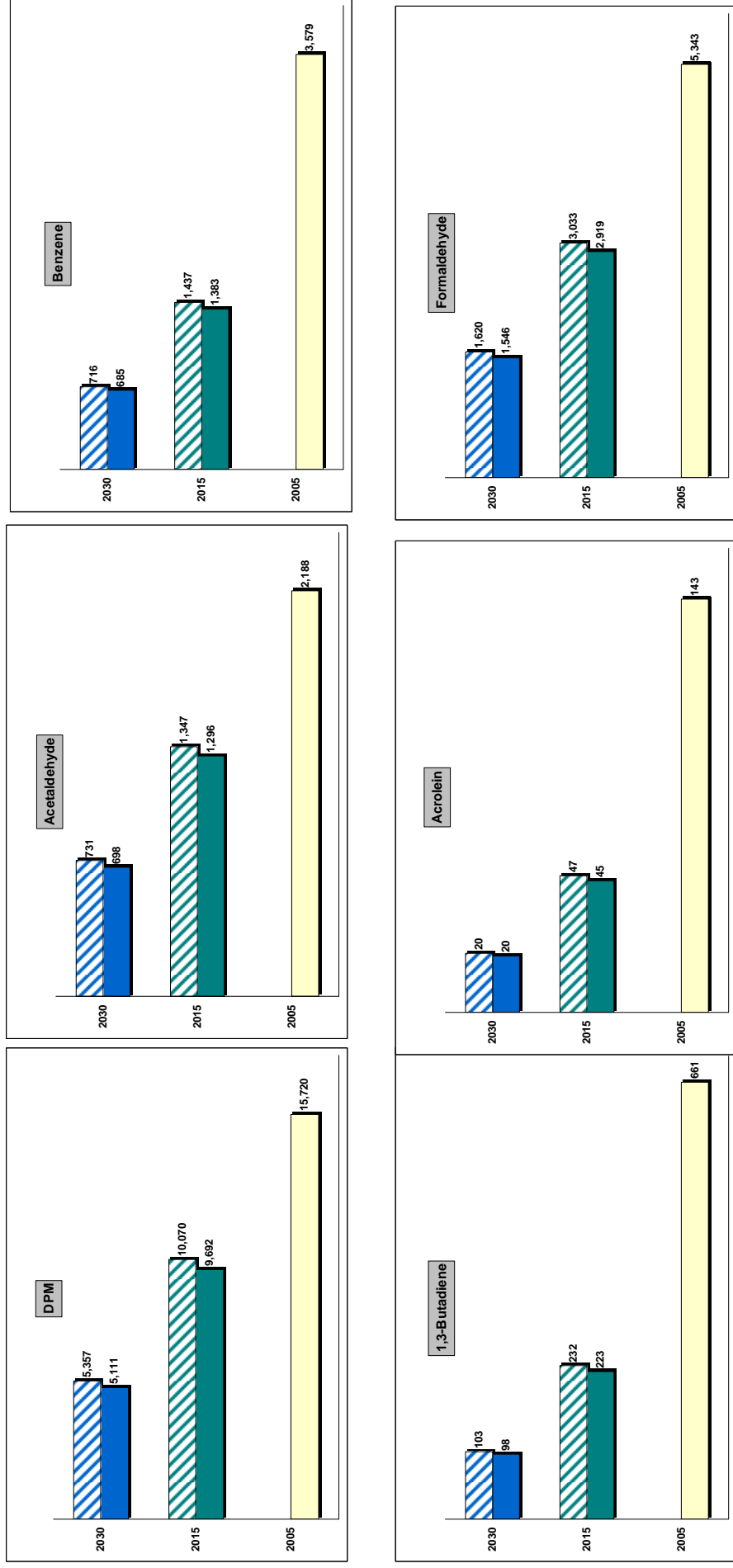
#### **2.2.5.4 Human Health Risk**

The previous section presented the MSAT emissions analysis for compliance with FHWA's NEPA guidance. This section provides the HRA that is prepared for the Port to use in their CEQA analysis.

As previously discussed under Project-Level Construction Air Quality Effects and Mobile Air Source Toxics, combined emissions from project construction and operations would include TACs that could affect public health; therefore, an HRA was conducted to evaluate the health effects of project-related TAC emissions on the public.

The HRA was conducted in accordance with the *Air Quality and Health Risk Assessment Analysis Protocol for Proposed Projects at the Port of Long Beach* (HRA Protocol) (POLB, 2007c). In general, the Protocol follows the methods for preparing Tier 1 risk assessments described in *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2003); *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588)* (SCAQMD, 2005); and *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions* (SCAQMD, 2002). The methods in these guidance documents are incorporated into the Hotspots Analysis and Reporting Program (HARP) model released by CARB in December 2003 (CARB, 2003a). In May 2009, OEHHA released a revision to their 2003 Air Toxics Hot Spots Risk Assessment Guidelines, titled *Technical Support Document for Cancer Potency Factors: Methodologies for derivations, listing of available values, and adjustments to allow for early life stage exposures* (OEHHA, 2009). The revised document provides procedures to consider the increased susceptibility of infants and children compared to adults to carcinogens.

Exhibit 2.2.5-5  
Local Area Emissions of Priority MSATs from Ocean Boulevard Segment for Scenario Years  
CEQA Base Year (2005), Opening Year (2015), and Horizon Year (2030)



Legends:

- Opening Year 2005;
- Opening Year 2015 (No Action and Rehabilitation Alternative);
- Opening Year 2015 (Project Build Alternatives);
- RTP Horizon Year 2030 (No Action and Rehabilitation Alternative);
- RTP Horizon Year 2030 (Project Build Alternatives);

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**Table 2.2.5-20  
Estimate of Priority MSATs Emissions for the Project Corridor along Ocean Boulevard  
(grams/day)**

Year/Scenario	DPM	Benzene	1,3- Butadiene	Acetaldehyde	Acrolein	Formaldehyde	Total MSATs
Baseline – 2005	15,720	3,579	661	2,188	143	5,343	27,634
Opening Year 2015 – No Action <sup>1</sup>	9,692	1,383	223	1,296	45	2,919	15,558
Opening Year 2015 –Build Alternatives <sup>2</sup>	10,070	1,437	232	1,347	47	3,033	16,166
Horizon Year 2030 – No-Action	5,111	685	98	698	20	1,546	8,158
Horizon Year 2030 – Build Alternatives	5,357	716	103	731	20	1,620	8,547

<sup>1</sup> No Action Alternative MSAT emissions are equivalent to the Bridge Rehabilitation conditions.

<sup>2</sup> Build MSAT emissions are equivalent to North- and South-side Alignment Alternative conditions.

Source: Parsons, 2009d.

This HRA used the HARP model to perform all health risk calculations. Furthermore, the most recent OEHHA guidelines (OEHHA, 2009) were used to incorporate the age-specific weighting factors in calculating cancer risk from exposures of infants, children, and adolescents to reflect their anticipated special sensitivity to carcinogens. The HRA estimated the individual lifetime cancer risks, cancer burden, and chronic and acute non-cancer hazard indices associated with the proposed project. The complete HRA report is provided in Appendix D of the Air Quality Technical Study (under separate cover).

The HARP model, as was originally developed, includes a hard-coded version of EPA's ISCST3 (Industrial Source Complex Short-Term Version 3) model for calculating pollutant dispersion; however, since November 2006, AERMOD (American Meteorological Society/EPA Regulatory Model Improvement Committee MODEL) became EPA's preferred dispersion model. Consequently, CARB has developed the program "HARP On-Ramp," which converts AERMOD air dispersion output files into text files that can be imported by the HARP Risk Module for performing the risk analysis (CARB 2007b). Thus, AERMOD was used for conducting the air dispersion analysis for this HRA in conjunction with the risk module in HARP.

Individual lifetime cancer risk represents the chance that an individual would contract cancer after a lifetime of exposure to the TACs of concern. The CEQA threshold for significance, used to evaluate the impact of exposure to TACs is 10 excess cancer cases per one million (10x10<sup>-6</sup>).

This threshold is recommended by SCAQMD and CARB explicitly to determine project-specific health risk impacts. Although Caltrans has not adopted HRA thresholds and is not subject to local jurisdictions or their thresholds of significance, Caltrans supports the Port's efforts and remains committed to thoroughly analyzing air quality impacts and incorporating measures to avoid, minimize and if necessary mitigate them.

Cancer burden is an estimate of the number of persons that would contract cancer from exposure to project TAC emissions within the project's zone of influence (ZOI). SCAQMD considers a cancer burden of 0.5 or higher associated with a proposed project to be significant.

For non-cancer health effects, estimates of chronic and acute hazard indices represent predicted long- and short-term health impacts from exposure to certain TACs, respectively. The hazard indices are calculated by dividing model-predicted TAC concentration by the TAC reference exposure levels (RELs) established by OEHHA. A health hazard index (HHI) equal to or greater than one indicates the potential for adverse health effects. These include cardiovascular or respiratory diseases, exacerbation of asthma, bronchitis, decrease in lung function, and mortality.

Estimates of project health effects include the evaluation of operational emissions associated with the Gerald Desmond Bridge Replacement Project.

The HRA methodology includes four procedural steps to estimate health impact results:

1. Quantify project-generated emissions;
2. Identify ground-level receptor locations that may be affected by the emissions (including a regular grid of receptors and any special sensitive receptor locations, such as schools, hospitals, convalescent homes, and child-care centers);
3. Perform dispersion modeling analyses to estimate ambient TAC concentrations at each receptor location; and
4. Use a risk characterization model (i.e., HARP) to estimate the potential health risk at each receptor location.

The following describes in detail the methods used to develop each step of the project HRA.

### Emission Sources

The proposed project is a transportation corridor and the emission sources are vehicles traveling along the roadways affected by the project implementation. The emissions considered for HRA include vehicle engine exhaust, tire wear, and brake wear. The project corridor was modeled as a system of 12 roadway links/segments, each with

uniform width, traffic volume, vehicle fleet mix, and average speed. The distinct links were selected based on the project traffic analysis report (Iteris, 2009). Table 2.2.5-21 lists the roadway links as the emission sources for the HRA.

For the determination of significance from a NEPA standpoint, this HRA determined the incremental increase in health effects values associated with the proposed project by estimating the net change in impacts between the proposed Build Alternatives and the No Action/Rehabilitation Alternative scenario (NEPA Baseline). These project increments (proposed Build Alternatives minus No Action Alternative) were compared with the SCAQMD thresholds to determine if an adverse effect on human health would occur.

The determination of health risks in this HRA required the calculation of 70-year average and maximum annual TAC emission rates. The HRA used 70-year annual average emission rates to determine individual lifetime cancer risks. The 70-year averaging period coincided with 2015 through 2084, or project years one through 70.

**Table 2.2.5-21  
Identified Project Emission Sources for HRA**

<b>Link<sup>a</sup> ID (as used in AERMOD)</b>	<b>Description of Line Source as the Vehicle Traffic along the Link</b>
OCBL1	Ocean Boulevard Segment 1 – between Navy Way off-ramp and the EB and WB horseshoe ramps
OCBL2	Ocean Boulevard Segment 2 (includes New Bridge) – between Horseshoe ramps and SR 710 connector ramps
OCBL3	Ocean Boulevard Segment 3 – from SR 710 connector ramps to Downtown Long Beach
NWYOF	Off-ramp from WB Ocean Boulevard to Navy Way
OFFEB	Off-Ramp from EB Ocean Boulevard to EB Seaside Avenue
ONEB	Horseshoe ramp from WB Seaside Avenue to EB Ocean Boulevard
OFFWB	Horseshoe ramp from WB Ocean Boulevard to Seaside Avenue
ONWB	On-ramp from Seaside Avenue to WB Ocean Boulevard
ONPICO	Connector on-ramp, from SB Pico Avenue to WB Ocean Boulevard
OFFPICO	Connector off-ramp, from WB Ocean Boulevard to NB Pico Avenue
NBRAMP	SR 710 NB Connector Ramp – WB Ocean Boulevard off-ramp to NB SR 710
SBRAMP	SR 710 SB Connector Ramp – on-ramp to WB Ocean Boulevard from SB SR 710

<sup>a</sup> Roadway link is defined as a discrete segment of roadway with unique estimates for the vehicle-fleet specific population and average speed. A roadway link is classified as a highway, ramp, major arterial, minor arterial, or collector/connector.



### **Emissions Characterization**

The emissions from project sources included in the HRA are vehicle engine exhaust emissions and tire wear and brake wear. As previously described, emissions from vehicle movement along each roadway link were simulated as line source emissions in the modeling analysis and represented as a series of separated volume sources. Volume source emissions were simulated by AERMOD to mimic the initial lateral dispersion of emissions by the exhaust stack's movement through the atmosphere. Key model parameters for volume sources include emission rate, source release height, and initial lateral and vertical dimensions of volumes.

The HRA analyzed the risk from combined emissions from all individual roadway links using the link-specific data and assumptions as described above. Emissions from trucks were assigned a release height of 15 ft (4.5 m) and for automobiles an initial release height of 3 ft (0.6-m). The width of the volume sources were set equal to the width of the roadway link plus 10 ft (3 m) in each side. The base elevations were adjusted for the elevated portions of the project corridor, such as the Gerald Desmond Bridge and the Horseshoe off-ramp from WB Ocean Boulevard to Seaside Avenue.

Mobile source emissions along each link were estimated based on link-specific vehicle activity data including fleet mix, traffic volumes and VMT for each vehicle type, and peak and average travel speed. Vehicle emissions factors at the average link speed and at peak-hour speed (for acute hazard effects analysis) were obtained using the EMFAC2007 model. The total emission rate of each link (line source) was then divided by the number of volume sources in that link to obtain emissions per volume source. It should be noted that the construction emissions of DPM were not included in the health risk analysis, because of the temporary and intermittent nature of construction emissions and because (1) even based on the peak daily emissions of DPM, the total construction DPM emissions is only approximately 5 to 6 percent of the operational emissions of DPM; (2) the main portion of construction activities occur prior to the opening year of the new bridge to traffic; and (3) the duration of construction activities is only 5 years. As such, the risk from construction emissions of toxics would be considerably lower than the estimated sensitive receptors risk (9-year period); therefore, construction emissions would not cause adverse risk impacts to nearby schools and other sensitive receptors.

Based on project traffic, vehicle mix within the project corridor was assumed to consist of heavy-duty diesel trucks and PCEs, for non-diesel trucks. Emissions of TACs from project operational sources include exhaust emissions from diesel trucks, gasoline-fueled PCEs, and particulate emissions from vehicles tire wear and brake wear.

For diesel truck engines, exhaust PM<sub>10</sub> (modeled as DPM) is the only pollutant analyzed as a surrogate for diesel exhaust TACs. The cancer and chronic non-cancer toxicity factors established by the OEHHA for the assessment of DPM emissions include consideration of all toxic compounds associated with diesel combustive emissions. Although no specific risk factors have been developed for UFP, they are major constituents of DPM emissions resulting from transportation sources. DPM emissions are analyzed in the HRA, and they include the entire range of diesel particulate sizes, including UFP, and the risk factors established for DPM for use in health risk analysis incorporated all DPM constituents during the regulatory review process.

Gasoline vehicle exhaust TAC emissions were speciated to the MSAT pollutants benzene, acrolein, acetaldehyde, 1-3 butadiene, and formaldehyde. The TOG speciation factors for gasoline vehicles were identified and taken from the most recent Caltrans inventory tool for MSATs (UC Davis, 2006).

For vehicle tire and brake wear, fugitive PM<sub>10</sub> emissions were speciated into their respective TAC components using CARB profiles.

In accordance with CARB recommendations, speciation profiles developed for the California Emission Inventory and Reporting System (CEIDARS) were used in this study (CARB 2002 and 2003b). In this study, TOG emissions were derived from VOC emissions using conversion factors provided with the TOG speciation profiles.

The estimates of TAC emissions for the No Action/ Rehabilitation Alternative and Build Alternative scenarios, and speciation profiles are provided in Appendix D.

### **Risk Characterization and Assessment Approach**

Risk characterization involves the evaluation of potential health risks based on the amount of exposure to TACs in exposed individuals and the exposure scenario (i.e., the environment in which receptors are exposed). For this HRA, the main exposure pathway is inhalation.

Two types of cancer risks were estimated in this HRA: individual excess cancer risk and population cancer burden. The individual excess cancer risk represents the potential risk to a single maximally exposed individual who may be exposed over a 70-year lifetime to a facility's emissions for a residential exposure (or a 40-year work lifetime for occupational exposure). Population cancer burden is an estimate of the increased number of cancer cases in a population as a result of exposure to emitted substances. The excess cancer burden for a population unit is the product of the exposed population and the estimated individual risk of that population (i.e., exposure concentrations are based on the average over that population presumed to be at the population centroid) associated with exposure through all exposure routes of emissions from the facility. The effect on the public would be considered adverse if the predicted cancer burden is greater than 0.5.

To estimate the cancer risk effect, source emissions were projected over a 70-year period, from 2015 through 2084. The 70-year projection of activity levels requires incorporation of traffic volume increase based on project area development and associated changes in truck trips, and vehicle travel speeds. Traffic numbers were provided for all alternatives for 2005 (baseline year), 2015 (opening year), and 2030 (horizon year). Due to the difficulty in predicting beyond 2030 and the fact that POLB would reach build-out traffic conditions for Port-generated land uses by the year 2030, the analysis assumed build-out constant traffic activities beyond the horizon year; however, for the CEQA baseline scenario, activity levels in the baseline year of 2005 were held constant over the entire 70-year period.

Pursuant to the recently released Technical Support Document for Cancer Potency Factors: (OEHHA, 2009), the cancer risk values were adjusted to consider the increased susceptibility to carcinogens of infants and children compared to adults. The study concludes that based on the analysis of the potency by lifestage at exposure (using the recent toxicological and epidemiological studies), OEHHA proposes weighting cancer risk by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures that occur from 2 years through 16 years of age. The proposed adjustments were incorporated in the estimated cancer risks for residential and sensitive receptors, including schools and daycare centers.

Cancer burden was determined with the approach used by CARB in the HARP program (CARB, 2003a). To estimate cancer burden, the incremental cancer risk was determined for each

census block within the project's ZOI, which is defined as the area within the isopleth representing a one in one million ( $1 \times 10^{-6}$ ) cancer risk increment.

To estimate project non-cancer effects, the HRA focused on operations in year 2015. This was determined based on annual emissions to represent the year with the greatest incremental impact between the operational and baseline conditions.

The HRA evaluated cancer risks and chronic and acute hazard indices to residential, occupational, and sensitive receptors (e.g., schools, child-care centers, and elderly care facilities). Each receptor type has specific exposure duration, breathing rate, and other parameters for risk assessment. Cancer burden was calculated using residential exposure assumptions.

Table 2.2.5-22 presents estimates of maximum individual cancer risk, and chronic and acute non-cancer hazard indices increments associated with the proposed project. The projected values for each receptor type correspond to the receptor with the maximum increment. All other incremental health impacts within the modeling domain would be less than those shown in Table 2.2.5-22. Estimation of project-related incremental cancer burdens is also included in the table.

#### Health Risk Effects

Table 2.2.5-22 shows that the maximum project-related increment for residential cancer risk at the nearest residential area (northeast of project corridor) is predicted to be less than 1.5 in one million ( $1.42 \times 10^{-6}$ ). This risk value is well below the adverse effect criterion of 10 in one million ( $10 \times 10^{-6}$ ) excess cancer risk; therefore, no adverse effect on any residential receptor is anticipated.

The maximum project-related increment for occupational (workers) cancer risk is projected to be less than one in one million ( $0.33 \times 10^{-6}$ ), and the maximum increment for cancer risk at a sensitive receptor, including schools and daycare centers, is estimated to be less than 1 in a million ( $0.5 \times 10^{-6}$ ). The estimated risk values are all well below the adverse effect criterion of 10 in one million ( $10 \times 10^{-6}$ ) excess cancer risk.

Table 2.2.5-22 also shows that the estimated maximum project-related increments for the chronic and acute hazard indices are substantially (by orders of magnitude) less than one at all receptors; therefore, the non-cancer short- or long-term health effects of the proposed project would be negligible and are not adverse. Additionally, as presented in Table 2.2.5-22, the cancer burden for all receptors would also be well below the adverse effect threshold of 0.5.

**Table 2.2.5-22  
Estimate of Maximum Health Impacts due to the Proposed Project**

Health Impact	Receptor Type	Proposed Project	No Action	Project-Related Increment	CEQA <sup>b</sup> Baseline	CEQA Increment	Significance Threshold
Cancer Risk <sup>a</sup>	Residential	4.94 x 10 <sup>-6</sup>	3.52 x 10 <sup>-6</sup>	1.42 x 10 <sup>-6</sup>	8.87 x 10 <sup>-6</sup>	-3.93 x 10 <sup>-6</sup>	10 x 10 <sup>-6</sup>
	Occupational	1.44 x 10 <sup>-6</sup>	1.11 x 10 <sup>-6</sup>	0.33 x 10 <sup>-6</sup>	2.79 x 10 <sup>-6</sup>	-1.35 x 10 <sup>-6</sup>	
	Sensitive	1.82 x 10 <sup>-6</sup>	1.32 x 10 <sup>-6</sup>	0.50 x 10 <sup>-6</sup>	3.34 x 10 <sup>-6</sup>	-1.52 x 10 <sup>-6</sup>	
Chronic Hazard Index	Residential	0.0029	0.0021	0.0008	0.0033	-0.0004	1.0
	Occupational	0.009	0.007	0.002	0.011	-0.006	
	Sensitive	0.0012	0.0009	0.0003	0.013	-0.001	
Acute Hazard Index	Residential	0.0004	0.0003	0.0001	0.0034	-0.003	1.0
	Occupational	0.0006	0.0005	0.0001	0.0057	-0.005	
	Sensitive	0.0002	0.0002	0.00	0.0017	-0.0015	
Cancer Burden				0.003		-0.011	0.5

<sup>a</sup> The estimated cancer risks include OEHHA default age sensitivity factors (ASF) to adjust for higher risks to infants and children as follows:

<u>Adjustment Period</u>	<u>ASF</u>
third trimester to age 2 years	10
age 2 to age 16 years	3
age 16 to 70 years (for residential)	1

Source: OEHHA, 2009 – page 61

No adjustment used for occupational risk estimates.

<sup>b</sup> Health Impacts Pursuant to CEQA are discussed in Chapter 3.

Source: Parsons, 2010.

As Table 2.2.5-22 shows, the future health risk compared to the base year 2005 show significant reduction. This is primarily attributed to the reduction in TAC emissions from the use of new controls and regulations.

Uncertainties in Risk Evaluation Results

Risk assessment procedure requires the integration of many variables and assumptions. Uncertainties in HRAs arise from the limitations of methodologies and data accuracy used in estimating health risks. The estimated TAC concentrations and risk levels produced by a risk assessment are based on assumptions, many of which are designed to be health protective so that potential risks to individuals are not underestimated. They are also the product of many factors affecting each component of the risk assessment process, including: (1) projection of emission rates; (2) air dispersion modeling uncertainties; (3) exposure assessment, and (4) toxicity assessment uncertainties. These factors

generally include, at a minimum, measurement errors, conservative exposure and modeling assumptions, and uncertainty and variability of the toxicity values used in the assessment. The compounding effects of these uncertainties can be two orders of magnitude or more.

Furthermore, the cancer risk values of the 70-year average emissions scenario are likely overestimated due to the conservative assumptions used in the analysis. The analysis used traffic projections and the regulatory programs that were approved by the time of performing this analysis. It is highly likely that over the next 70 years additional regulations will be adopted, mandating increasingly stringent motor vehicle emissions standards that will substantially reduce emissions profiles. The 70-year average emissions scenario did not consider the emergence of new technology for goods movement transport aimed at reducing vehicle traffic and combustion emissions, although it can be anticipated that

technology will improve over the next decades and that emission profiles will be substantially reduced.

In conclusion, a quantitative assessment of the effects of air toxic emission impacts on human health cannot be made with a high level of confidence at the project level. Risk estimates generated by an HRA should not be interpreted as the expected rates of disease in the exposed population, but rather as estimates of potential risk based on current knowledge and many assumptions. Additionally, the uncertainty factors integrated within the estimates of non-cancer RELs are meant to overestimate the risk on the side of public health protection. Risk assessment is best used as a tool to compare one source with another and to prioritize concerns. Consistent approaches to risk assessment are necessary to fulfill this function (OEHHA, 2003).

Caltrans believes that in the future some of this uncertainty may be overcome and the value and/or confidence in the use of results of HRAs may be increased through an analysis of this study, along with other recent and future project-level HRAs that are completed using different analytical approaches. The approaches and results can be compared and assessed as to their explanatory value, as well as the time and cost involved with their preparation. Caltrans believes that this process will help to establish the outlines of a broader HRA analysis framework for transportation projects that can be used to gather multi-agency input and to gain consensus from other regional, state, and federal partner agencies on the need for these studies and the usefulness of different HRA options.

### **2.2.5.5 Avoidance, Minimization and/or Mitigation Measures**

#### **Temporary Measures**

##### North- and South-side Alignment Alternatives

**AQ-C1:** Construction processes shall adhere to all applicable SCAQMD rules and regulations concerning the operation of construction equipment and dust control.

Emissions of NO<sub>x</sub> are mainly associated with exhaust emissions from the heavy-duty construction equipment that would operate simultaneously onsite. Because the analysis assumes that the use of alternative clean fuels for off-road (i.e., construction) equipment would be incorporated as a project feature, few feasible mitigation measures are available to reduce exhaust emissions in a more efficient manner. The following mitigation measures include the best

management practices (BMP) for construction equipment use and maintenance. These measures would provide a further 5 to 15 percent reduction.

**AQ-C2:** Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

**AQ-C3:** During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts.

**AQ-C4:** To the extent feasible, use electricity from power poles rather than temporary diesel or gasoline power generators.

**AQ-C5:** As part of the Port's commitment to promote the Green Port Policy and implement CAAP, the proposed project construction would employ all applicable control measures included in the CAAP and relevant clean air technologies. Project heavy-duty construction equipment would use clean fuels, such as ultra-low sulfur fuel, or compressed natural gas and oxidation catalysts.

**AQ-C6:** Construction activities that affect traffic flow on the arterial roadways shall be scheduled to off-peak hours to the extent possible. Additionally, construction trucks shall be directed away from congested streets or sensitive receptor areas.

**AQ-C7:** During the construction period, temporary traffic controls, such as flaggers and improved signal flow for synchronization to maintain smooth traffic flow, shall be provided.

The following mitigation measures would further reduce the combustive emissions from construction equipment.

**AQ-C8:** Trucks used for construction prior to 2015 shall use engines with the lowest certified NO<sub>x</sub> emission levels, but not greater than the 2007 NO<sub>x</sub> emission standards.

**AQ-C9:** Where feasible, construction equipment shall meet the EPA Tier 4 non-road engine standards. The equipment with Tier 4 engine standards becomes available starting in year 2012.

Rehabilitation Alternative

No measures required.

**Permanent Measures**

- No permanent measures required; however, the Port is committed to promote the Green Port Policy and implement CAAP. The proposed project would employ all applicable control measures included in the CAAP and relevant clean air technologies. On-road heavy-duty trucks that call at the Port's terminals would comply with the CAAP control measure HDV1, which would replace or retrofit the existing Port's truck fleet by 2012 to comply with the "clean" truck measure.

As described earlier, the POLB CTP, which aims to reduce truck emissions, includes measures that will provide further reduction than CARB's current requirements for clean trucks. The CTP has set a replacement/retrofit program as follows:

- Ban pre-1993 trucks by January 2010;
- Ban un-retrofitted trucks of model years 1994-2003 by January 2010; and
- Ban all trucks that do not meet the EPA *2007 Heavy-Duty Highway Rule* emission standards by January 2012.

Although not quantified in the analysis of the operational emissions mitigation for the project, these programs would result in reduction in air pollutants from project corridor operation.

## 2.2.6 Noise

This section addresses potential noise effects associated with the construction and operation of the proposed Gerald Desmond Bridge Replacement Project. Noise discussion is based on the 2009 Noise Technical Study (Parsons, 2009).

### 2.2.6.1 Regulatory Setting

NEPA and CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

#### California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA 23 CFR 772 noise analysis; please see Chapter 3 for further information on noise analysis under CEQA.

#### National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). The closest noise-sensitive receptors are located to the east of the project area, across the Los Angeles River. Land use within these areas falls within Activity Category B. All other potentially affected areas to the north, south, and west of the project area are characterized predominantly by Port or Port-related industrial/ commercial developments. Land use within these areas fall within Activity Category C. Table 2.2.6-1 lists the NAC for use in the NEPA 23 CFR 772 analysis.

**Table 2.2.6-1  
Noise Abatement Criteria**

Activity Category	Noise Abatement Criteria (dBA) $L_{eq}$	Description of Activity Category
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 sports 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)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR Part 772, 2001.

Exhibit 2.2.6-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

In accordance with the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (2006), a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. If noise abatement measures are determined to be reasonable and feasible, then they would be incorporated into the project plans and specifications during final design.



Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
<u>Jet Fly-over at 300m (1000 ft)</u>	<b>110</b>	<u>Rock Band</u>
<u>Gas Lawn Mower at 1 m (3 ft)</u>	<b>100</b>	
<u>Diesel Truck at 15 m (50 ft), at 80 km (50 mph)</u>	<b>90</b>	<u>Food Blender at 1 m (3 ft)</u>
<u>Noisy Urban Area, Daytime</u>	<b>80</b>	<u>Garbage Disposal at 1 m (3 ft)</u>
<u>Gas Lawn Mower, 30 m (100 ft)</u>	<b>70</b>	<u>Vacuum Cleaner at 3 m (10 ft)</u>
<u>Commercial Area</u>		<u>Normal Speech at 1 m (3 ft)</u>
<u>Heavy Traffic at 90 m (300 ft)</u>	<b>60</b>	
<u>Quiet Urban Daytime</u>	<b>50</b>	<u>Large Business Office</u>
		<u>Dishwasher Next Room</u>
<u>Quiet Urban Nighttime</u>	<b>40</b>	<u>Theater, Large Conference Room (Background)</u>
<u>Quiet Suburban Nighttime</u>		<u>Library</u>
<u>Quiet Rural Nighttime</u>	<b>30</b>	<u>Bedroom at Night,</u>
		<u>Concert Hall (Background)</u>
	<b>20</b>	<u>Broadcast/Recording Studio</u>
	<b>10</b>	
<u>Lowest Threshold of Human Hearing</u>	<b>0</b>	<u>Lowest Threshold of Human Hearing</u>

**Exhibit 2.2.6-1  
 Typical Sound Levels from Indoor and Outdoor Noise Sources**

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The Caltrans *Traffic Noise Analysis Protocol* sets forth criteria for determining when an abatement measure is reasonable and feasible. A minimum 5-dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is primarily a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

### **City of Long Beach Noise Ordinance**

According to the City of Long Beach Noise Control Ordinance, within any area of the Port (i.e., industrial land use), a noise level of 70 dBA  $L_{eq}$  is considered the threshold for construction and operational impacts during any time of the day or night. For predominantly residential areas with other land uses also present, defined in the ordinance as Land Use District One, the presumed noise limit during daytime hours is 50 dBA. For areas where the ambient noise levels already exceed the presumed permissible noise limits, the allowable noise exposure limits for the appropriate land use districts shall be increased by 5-dB increments to encompass or reflect the ambient noise level. For example, if the existing ambient noise level at a residential area were measured at 62 dBA, then the allowable noise limit would be increased to 65 dBA. In addition, it is stated in the ordinance that construction activities should occur only during the hours of 7:00 a.m. to 7:00 p.m. on weekdays, 9:00 a.m. to 6:00 p.m. on Saturdays, and no construction activities should occur on Sunday except for emergency work authorized by the building official or for work authorized by a permit issued by the noise control officer.

#### **2.2.6.2 Affected Environment**

Noise is often defined as unwanted sound. Sound is easily measured with instruments, but the human variability in subjective and physical responses to sound complicates the understanding of its impact on people. People judge the relative magnitude of sound by subjective terms such as "loudness" or "noisiness."

Physically, sound-pressure magnitude is measured and quantified in terms of a logarithmic

scale in decibels (dB). Research on human hearing sensitivity has shown that a 3-dB increase in sound is barely noticeable and a 10-dB increase would be perceived as twice as loud. The human hearing system, however, is not equally sensitive to sound at all frequencies; therefore, a frequency-dependent adjustment called "A-weighting" has been devised so that sound may be measured similar to the way the human hearing system responds. The A-weighted sound level is often abbreviated "dBA" or "dB (A)." Exhibit 2.2.6-1 provides typical A-weighted sound levels of various common indoor and outdoor activities.

Community noise levels usually change continuously during the day; however, community noise exhibits a daily, weekly, and yearly pattern. Several descriptors have been developed to compare noise levels over different time periods. One of the most common descriptors is the energy equivalent sound level ( $L_{eq}$ ). The  $L_{eq}$  is the equivalent steady-state A-weighted sound level that would contain the same acoustical energy as the time-varying A-weighted sound level during the same time interval. To adjust for the increased sensitivity to noise during evening (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.), the Community Noise Equivalent Level (CNEL) is often used in California. CNEL adjusts for the increased sensitivity by adding factors of 5 dBA and 10 dBA to noises generated during the evening and nighttime periods, respectively.

The maximum sound level ( $L_{max}$ ) is the highest instantaneous sound level measured during a single noise measurement interval no matter how long this sound may persist and whether the noise source is ambient or project related. Another sound descriptor is the Percentile-Exceeded Sound Level ( $L_{xx}$ ), which represents the sound level exceeded a percent of a specific time period.  $L_{10}$  is the sound level exceeded 10 percent of the time.

**Existing Noise Environment.** The project is located in the middle of an industrial district within the POLB. Laborers that work outdoors at adjacent facilities within areas of close proximity to the project site are the only identified potential noise-sensitive receptors. The only other noise-sensitive receptors are located at a distance of approximately 1,300 to 1,500 ft (396 to 457 m) across the river; they include Cesar Chavez Park and Cesar Chavez Elementary School, as well as several condominium buildings. The existing noise environment in the vicinity of the proposed project consists primarily of typical noise sources related

to port operations and associated transportation traffic noise. Noise-sensitive receptors, discussed above, located outside of the Port's boundaries may be affected by traffic noise generated by local freeways and major surface streets.

A major freeway, such as the adjacent Long Beach Freeway (SR 710), usually is the dominant noise source for adjacent land uses in urbanized areas. SR 710 generates noise levels greater than 75 dBA CNEL within 100 ft (30 m) of the freeway and approximately 65 dBA at 700 ft (213 m) from the freeway (URS, 2001).

Per noise measurements conducted by the POLB for the Middle Harbor Project, existing peak daytime ambient noise levels (Year 2006) within the noise-sensitive areas on the east side of the Los Angeles River ranged from 61 to 68 dBA; nighttime noise levels ranged from 47 to 56 dBA (POLB, 2009). Additional noise measurements were conducted on July 16, 2009, to evaluate existing ambient noise levels at the noise-sensitive receptors. The 2009 measurements were collected at two locations. These measurements are representative of existing noise levels at: (1) Cesar Chavez Park and adjacent condominium buildings; and (2) the outdoor use areas at Cesar Chavez Elementary School. At the park and adjacent condominium buildings, the measured daytime  $L_{eq}$  was 61 dBA. At the outdoor use area of the school, the measured daytime  $L_{eq}$  was 64 dBA.

### 2.2.6.3 Environmental Consequences

#### Evaluation Criteria

Neither the federal government nor the state has specific regulations for community noise. FHWA and Caltrans have established noise standards for traffic noise. The State of California requires that counties and cities prepare and implement noise elements as part of their mandated general plans. Counties and cities also have noise ordinances protecting the public from potential hearing damage and various other possible adverse psychological and social effects associated with noise. Noise impacts associated with the project may be considered adverse if:

- There is a substantial noise increase;
- The predicted operational noise levels at noise-sensitive locations with frequent outdoor use areas approach or exceed the NAC; or
- Construction or operational noise levels exceed the City of Long Beach Noise Control Ordinance thresholds during construction or operation.

#### No Action Alternative

Under the No Action Alternative, only increases in ambient noise levels associated with increases in future traffic or from surrounding land use activities are anticipated.

#### Construction and Demolition Impacts

##### North-side Alignment Alternative

Normally, construction activities are carried out in phases, and each phase has its own noise characteristics based on the mix of construction equipment in use. The maximum construction noise levels for this project are expected to be generated during the demolition phases. Table 2.2.6-2 presents the noise level of individual equipment and the overall noise level for each of the construction phases. Distances referenced in the table are at 50 ft (15 m) from the center of the construction activity, as well as, at 500, 1,300, and 1,500 ft (152, 396, and 457 m). All surrounding land uses in the immediate project vicinity are zoned industrial, except for sensitive land uses east of the Los Angeles River. In computing the  $L_{eq}$  for equipment noise, it was assumed that during use most of the equipment would be operating at, or near, maximum sound levels 30 percent of the time and the pile driver would be operating at maximum sound levels 20 percent of the time.

All construction activities are assumed to occur Monday through Friday 7:00 a.m. to 7:00 p.m. and on Saturday 9:00 a.m. to 6:00 p.m. No construction activity is expected to occur on Sundays or on legal holidays. As shown in Table 2.2.6-2, at 500 ft (152 m) from the construction activity, the highest noise levels when all equipment is operating simultaneously are expected to reach approximately 68 dBA (i.e., below the threshold for allowable construction noise for the industrial land use district) during demolition of the existing bridge main span and side span. At 1,300 and 1,500 ft (396 and 457 m) from the construction activity, which corresponds to the distances from the nearest demolition activity to the nearest noise-sensitive receptors at Cesar Chavez Park and Cesar Chavez Elementary School, the noise levels are expected to be approximately 60 and 59 dBA, respectively. Consistent with the Long Beach municipal code, given the measured ambient noise level of 61 to 64 dBA, the allowable noise exposure limit would be 65 dBA. Demolition noise levels at these receptor locations would be below the allowable limit in accordance with the City of Long Beach ordinance.

**Table 2.2.6-2  
 Estimated Construction Noise Levels**

Construction Activity Equipment	Number of Equipment Vehicles	Max Sound Level at 50 ft [15 m], dBA	Effective Usage Factor	L <sub>eq</sub> (h) at 50 ft [15 m], dBA	L <sub>eq</sub> (h) at 500 ft [152 m], dBA	L <sub>eq</sub> (h) at 1300 ft [396 m], dBA	L <sub>eq</sub> (h) at 1500 ft [457 m], dBA
<b>CONSTRUCTION OF NEW BRIDGE</b>							
<b>Piling Operation</b>							
Pile Driver	1	97	0.15	89	69	60	59
Drill Rig	1	80	0.30	75	55	46	45
140T Crane	1	83	0.30	78	58	49	48
Flat Bed Truck	1	80	0.15	72	52	43	42
Portable Generator (5 kw)	1	71	0.30	66	46	37	36
<b>Overall L<sub>eq</sub> =</b>				<b>89</b>	<b>69</b>	<b>61</b>	<b>60</b>
<b>Footing Construction</b>							
140T Crane	1	86	0.30	81	61	52	51
Hydraulic Excavator	1	85	0.30	80	60	51	50
Dump Truck	2	80	0.23	74	54	45	44
Main Generator (15 kw)	1	76	0.15	68	48	39	38
<b>Overall L<sub>eq</sub> =</b>				<b>82</b>	<b>62</b>	<b>53</b>	<b>52</b>
<b>Column Construction</b>							
140T Crane	1	86	0.30	81	61	52	51
Main Generator (15 kw)	1	76	0.30	71	51	42	41
<b>Overall L<sub>eq</sub> =</b>				<b>81</b>	<b>61</b>	<b>53</b>	<b>52</b>
<b>Tower Construction</b>							
Tower Crane	1	84	0.30	79	59	50	49
Main Generator (15 kw)	1	76	0.30	71	51	42	41
<b>Overall L<sub>eq</sub> =</b>				<b>79</b>	<b>59</b>	<b>51</b>	<b>50</b>
<b>Approach Span Erection</b>							
275T Crane	1	88	0.15	80	60	51	50
Segment Delivery Truck	2	85	0.30	80	60	51	50
Service Crane	1	83	0.30	78	58	49	48
Flat Bed Truck	1	80	0.15	72	52	43	42
Forklift	1	67	0.15	59	39	30	29
Main Generator (15 kw)	1	76	0.30	71	51	42	41
Portable Generators (5 kw)	2	71	0.30	66	46	37	36
<b>Overall L<sub>eq</sub> =</b>				<b>84</b>	<b>64</b>	<b>56</b>	<b>55</b>
<b>Main Span Erection</b>							
Segment Lifters	4	83	0.60	81	61	52	51
Delta Frame Lifters	2	83	0.30	78	58	49	48
Segment Delivery Truck	2	85	0.30	80	60	51	50
Service Crane	1	83	0.15	75	55	46	45
Flat Bed Truck	1	80	0.15	72	52	43	42
Forklift	1	67	0.15	59	39	30	29
Main Generator (15 kw)	1	76	0.30	71	51	42	41
Portable Generators (5 kw)	2	71	0.30	66	46	37	36
<b>Overall L<sub>eq</sub> =</b>				<b>85</b>	<b>65</b>	<b>57</b>	<b>56</b>

Source: Parsons

**Table 2.2.6-2 (continued)  
Estimated Construction Noise Levels**

Construction Activity Equipment	Number of Equipment Vehicles	Max Sound Level at 50 ft [15 m], dBA	Effective Usage Factor	L <sub>eq</sub> (h) at 50 ft [15 m], dBA	L <sub>eq</sub> (h) at 500 ft [152 m], dBA	L <sub>eq</sub> (h) at 1300 ft [396 m], dBA	L <sub>eq</sub> (h) at 1500 ft [457 m], dBA
<b>DEMOLITION OF EXISTING BRIDGE</b>							
<b>Main Span and Side Span Deck Demolition</b>							
100T Derrick	2	84	0.30	79	59	50	49
Backhoe w/Breaker	2	90	0.30	85	65	56	55
Concrete Saws	2	83	0.60	81	61	52	51
Dump Trucks	4	80	1.20	81	61	52	51
Generator (15 kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>88</b>	<b>68</b>	<b>60</b>	<b>59</b>
<b>Truss Demolition - Main Span</b>							
100T Crane	2	84	0.60	82	62	53	52
65T R/T Crane	2	85	0.60	83	63	54	53
Flat Bed Truck	4	80	1.20	81	61	52	51
Generator (15kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>85</b>	<b>65</b>	<b>56</b>	<b>55</b>
<b>Truss Demolition - Side Span</b>							
100T Crane	2	84	0.60	82	62	53	52
200T Crane	2	88	0.60	86	66	57	56
Flat Bed Truck	4	80	1.20	81	61	52	51
Generator (15kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>85</b>	<b>65</b>	<b>56</b>	<b>55</b>
<b>Approach Span Deck Demolition</b>							
Backhoe w/Breaker	2	90	0.60	88	68	59	58
Concrete Saws	2	83	0.60	81	61	52	51
Dump Trucks	4	80	1.20	81	61	52	51
Generator (15kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>89</b>	<b>69</b>	<b>61</b>	<b>60</b>
<b>Demolition of Approach Span Girders</b>							
200T Crane	2	88	0.60	86	66	57	56
Flat Bed Truck	4	80	1.20	81	61	52	51
Generator (15kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>82</b>	<b>62</b>	<b>53</b>	<b>52</b>
<b>Concrete Pier Demolition</b>							
Backhoe w/Breaker	2	90	0.60	88	68	59	39
200T Crane	2	88	0.60	86	66	57	37
Concrete Saws	2	83	0.60	81	61	52	51
Dump Trucks	4	80	1.20	81	61	52	51
Generator (15kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>89</b>	<b>69</b>	<b>61</b>	<b>60</b>
<b>Concrete Footing Demolition</b>							
Backhoe w/Breaker	2	90	0.60	88	68	59	58
Dump Trucks	4	80	1.20	81	61	52	51
Generator (15kw)	2	76	0.60	74	54	45	44
<b>Overall L<sub>eq</sub> =</b>				<b>89</b>	<b>69</b>	<b>60</b>	<b>59</b>
<b>REHABILITATION OF EXISTING BRIDGE</b>							
<b>Deck Replacement, Steel Column Casings, and other Retrofits</b>							
Excavator	1	76	0.30	71	51	42	41
Crawler	1	80	0.30	75	55	46	45
Mobile Crane	1	84	0.30	79	59	50	49
Concrete Saws	2	83	0.60	81	61	52	51
Genie Lifts	2	75	0.60	73	53	44	43
Haul Trucks	2	80	0.60	78	58	49	48
Concrete Trucks	2	80	0.30	75	55	46	45
<b>Overall L<sub>eq</sub> =</b>				<b>85</b>	<b>65</b>	<b>57</b>	<b>56</b>

Source: Parsons



During the period when there is piling activities, hourly  $L_{eq}$  noise levels are expected to be approximately 69 dBA at a distance of 500 ft (152 m). Other than the port/harbor workers who may be working outdoors in areas close to the construction sites, no other noise-sensitive receptors closer than 1,300 ft (396 m) are expected to be in the vicinity of the nearest piling activity. Port workers working in areas closer than 450 ft (137 m) during a piling activity would potentially be affected by these intermittent elevated noise levels that exceed the City of Long Beach threshold for construction activities.

Noise levels during piling activities at the nearest sensitive receptors outside of the industrial land use district (i.e., Cesar Chavez Park [1,300 ft] and Cesar Chavez Elementary School [1,500 ft]) are predicted to be 61 and 60 dBA, respectively. Piling activity noise levels at these receptor locations would be below the allowable limit in accordance with the City of Long Beach ordinance of 65 dBA, as previously described.

Even though no adverse construction noise impacts are anticipated, in response to comments on the revised Draft EIR/EA and in the interest of maintaining a noise environment that results in less intrusion on students and Cesar Chavez Elementary School, the contract specifications will incorporate the following noise control measures:

- The Contractor will install noise barriers between pile-driving activities and Cesar Chavez Elementary School at all pile-driving locations within 0.5-mile (2,640 ft) of the school; and
- Pile-driving activities will be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays, between 9:00 a.m. and 6:00 p.m. on Saturdays, and prohibited anytime on Sundays and holidays, as prescribed by Section 8.80.202 of the LBMC
- Comply with all appropriate provisions of the City Noise Ordinances including, but not limited to, the restrictions on hours of construction and mechanical equipment noise levels; however, in the event that construction schedule necessitates construction activities to occur outside of the hours allowed by the City's noise ordinance, a variance/permit would be obtained from the noise control officer.
- Where applicable, alternative construction methods or equipment, (i.e., alternative pile

driving methods) that generate the lowest noise levels will be required.

- Whenever possible, construction will be scheduled in a manner that would reduce the amount of concurrent noise sources.
- When feasible, the duration and timing of construction activities will be scheduled to minimize noise impacts on potentially exposed individuals.
- Area residents and businesses will be informed of the schedule, duration, and progress of the construction to minimize public objections of unavoidable noise. This will include notification of potentially affected parties in advance of high noise construction activities (e.g., pile-driving).

Temporary increases in noise on terrestrial special-status species at existing falcon and bat nesting/roosting areas associated with construction and demolition activities could influence nesting/roosting site selection. No substantial effect on aquatic species is anticipated because all work would occur outside of the channel (at least 150 ft [45 m]). Subsequent to completion of the proposed project, no long-term effects on special-status terrestrial or aquatic wildlife species are anticipated (see Section 2.3.5 [Threatened and Endangered Species]). There would be no adverse noise effects associated with the North-side Alignment Alternative construction and demolition activities.

#### South-Side Alignment Alternative

The construction and demolition scope, as well as the overall project magnitude, would be essentially the same as discussed for the North-side Alignment Alternative. There would be no discernable difference in overall construction activities, the types or amount of construction equipment, or the noise effects on Port/harbor workers, sensitive receptors, or on protected wildlife between the North- and South-side Alignment Alternatives. This alternative would comply with the City of Long Beach noise ordinance and would incorporate all other measures as discussed under the North-side Alignment Alternative. There would be no adverse noise effects associated with the South-side Alignment Alternative construction and demolition activities.

#### Rehabilitation Alternative

Construction activities for the Rehabilitation Alternative would result in improvements to the existing facility only. This alternative would have a shorter construction duration and would eliminate

the need for the bridge demolition phase. This alternative would require less construction equipment and less pile driving; therefore, the Rehabilitation Alternative would result in reduced construction noise effects when compared with the North- and South-Side Alignment Alternatives. Most of the retrofit activities would occur during normal daytime construction hours; however, bridge deck replacement activities would occur between the hours of 7:00 p.m. and 7:00 a.m. Nighttime construction noise levels at the nearest sensitive receptor are predicted to be 56 to 57 dBA, which is below ambient conditions; however, construction activity would still require a variance/permit from the City noise control officer.

As shown in Table 2.2.6-2, the predicted construction noise levels associated with this alternative would not be higher than 65 dBA at a distance of 500 ft (152 m) and further. Additionally, the nighttime bridge deck replacement activities would be located on the Gerald Desmond Bridge, more than 0.3-mi (1,500 ft) from the nearest potential sensitive receptor, which is Cesar Chavez Elementary School, located at 730 West Third Street. This alternative would comply with the City of Long Beach construction noise threshold. There would be no adverse noise effects associated with the Rehabilitation Alternative construction activities.

### **Operational Impacts**

#### North Side-Alignment Alternative

According to the Caltrans Noise Analysis Protocol, this project is considered a Type 1 project. A Type 1 project is defined as construction on a roadway that substantially changes its horizontal or vertical alignment, or which increases the number of through-traffic lanes. The major source of operational noise would be associated with vehicular traffic within the project area and on other nearby roadways. The predominant traffic noise sources within the project area are the vehicular traffic on Ocean Boulevard, which includes the Gerald Desmond Bridge, and the I-710 freeway.

The segments of Ocean Boulevard were analyzed using a computer noise prediction model. Noise levels for the future conditions with and without the project were predicted using the FHWA Traffic Noise Model (FHWA-RD-77-108).

Freeway traffic noise is not expected to increase. SR 710 is congested and already operating at its capacity. Maximum (i.e., worst-case) traffic noise is generated when traffic is operating at the highest

capacity under free-flowing conditions. Because the project would not increase capacity on SR 710, no increase in vehicle speed is anticipated; therefore, freeway traffic noise would not increase during operation of the proposed project.

The closest noise-sensitive areas to SR 710 potentially affected by operation of the proposed project include Cesar Chavez Park and adjacent residences and Cesar Chavez Elementary School. Cesar Chavez Park, the nearest sensitive land use, is located a minimum of 1,200 ft (366 m) east of the I-710 ROW across the Los Angeles River. Future noise levels were modeled to assess potential noise impacts at the sensitive receptors. An analysis of the worst-case scenario was modeled based on 2030 predicted AM peak-hour traffic volumes on the SR 710 mainlines, which included the highest percentage of trucks throughout the day (4,203 cars and 2,262 trucks on the NB side; 4,066 cars and 2,110 trucks on the SB side). For the worst-case scenario, all trucks were assumed to be heavy trucks, and no intervening terrain or natural barriers were taken into account. Based on the analysis, the predicted peak-hour  $L_{eq}$  noise levels at a distance of 1,200 ft (366 m) from SR 710 are not expected to exceed 64 dBA. This is below the NAC and would not be considered a substantial noise increase (i.e., when the existing noise level is exceeded by 12 dB or more as a result of the project); therefore, no adverse noise impacts at the sensitive receptors are anticipated.

Ocean Boulevard traffic data for 2005 was used for the existing baseline condition. The existing and future vehicular traffic noise levels generated by Ocean Boulevard were assessed by analytical procedures using a computer noise prediction model. Vehicular traffic noise levels for the future conditions with and without the project were predicted using procedures in the FHWA Traffic Noise Model (FHWA-RD-77-108).

Predicted Ocean Boulevard traffic data for 2030 were used to calculate future noise levels. Table 2.2.6-3 presents the traffic data used for the traffic noise analysis, and Table 2.2.6-4 summarizes the results of the traffic noise analysis. Traffic modeling output files are available for review in the Appendix of the Noise Technical Study.

No substantial increases in future noise levels were predicted. Based on the expected increase in traffic volumes, the noise study results indicate that the future traffic noise levels with the project at all other modeled distances from the roadway centerline would not exceed the applicable noise

standards for the proposed project. At a 500-ft (152-m) distance from the roadway centerline, the noise contribution from Ocean Boulevard is not expected to exceed 69 dBA. At 1,000 ft (305 m), the highest noise level expected from the roadway would be 64 dBA. The expected increase in overall noise levels due to operation of the North-side Alignment Alternative, when compared to the overall future ambient noise levels without the project, would be no more than 1-dBA (2030 No Action versus Build). This difference in noise levels would normally be imperceptible to the human hearing; therefore, no adverse operational noise effects are anticipated as a result of the project.

No substantial operational noise effects on falcons and bats within the project area are expected. Operational effects on falcons and bats would be mainly associated with the demolition of their existing nesting/roosting locations. The North-side Alignment Alternative includes creation of nesting/roosting locations on the new bridge (see Section 2.3.5 [Threatened and Endangered Species]). Assuming that falcons and bats find the new nesting/roosting locations suitable for use, these species would acclimate to the new noise environment just as they have to past noise increases associated with the adjacent industrial/commercial area where the ambient noise level is already high. It is not anticipated that the predicted increase of 1-dB, would be a main factor in future use of the new bridge by falcons and bats. No adverse noise effects on falcons and bats associated with the long-term operation of the North-side Alignment Alternative are anticipated.

#### South-side Alignment Alternative

The operational noise analysis for the North-side Alignment Alternative is based on noise levels associated with forecasted traffic volumes and vehicle fleet composition. Implementation of the South-side Alignment Alternative would not result in a discernable difference in operational characteristics, forecasted volumes, or fleet composition compared to the North-side Alignment Alternative. The operational noise effects for the South-side Alignment Alternative would be the same as discussed under the North-side Alignment Alternative. There would be no adverse noise effects associated with the long-term operation of the South-side Alignment Alternative.

#### Rehabilitation Alternative

This alternative would not result in any changes to the profile, lane configuration, or roadway capacity. The operational noise effects associated with this alternative would be the same as discussed/ modeled for the future No Action Alternative. The Rehabilitation Alternative would result in increased ambient noise levels associated with increased future traffic volumes and surrounding land use activities. There would be no adverse noise effects associated with the long-term operation of the Rehabilitation Alternative.

#### **2.2.6.4 Avoidance, Minimization and/or Mitigation Measures**

No measures required.

**Table 2.2.6-3  
Traffic Data Used for Noise Analysis**

Roadway Segment	Traffic Volumes												Speed (mph)	
	ADT		A.M. Peak Hr		A.M. Peak Hr %		Mid-day Peak Hr		Mid. Peak Hr %		P.M. Peak Hr			P.M. Peak Hr %
	Total Vol.	Trucks*	Cars	Trucks*	Peak Hr %	Cars	Trucks*	Peak Hr %	Cars	Trucks*	Cars	Trucks*		
	Year 2005 Existing Condition													
<b>Ocean Boulevard</b>														
Navy Way to Pier S	62,000	17,500	2,530	1,038	5.8%	1,977	1,329	5.3%	3,485	983	7.2%	45		
Pier S to Route 47	67,000	18,700	2,510	1,178	5.5%	1,917	1,438	5.0%	3,414	1,145	6.8%	45		
Route 47 to Terminal Island East Interchange (Pier T)	62,400	17,000	2,386	947	5.3%	1,804	1,255	4.9%	3,211	886	6.6%	45		
Terminal Island East Interchange (Pier T) to Pico Ave	59,700	15,200	2,836	1,104	6.6%	2,239	1,101	5.6%	3,373	855	7.1%	45		
<b>Ocean Boulevard</b>														
Year 2030 Without Project														
Navy Way to Pier S	117,260	44,670	3,941	2,754	5.7%	2,598	3,229	5.0%	5,099	2,204	6.2%	45		
Pier S to Route 47	97,540	32,270	2,348	1,517	4.0%	1,720	1,393	3.2%	3,244	1,134	4.5%	45		
Route 47 to Terminal Island East Interchange (Pier T)	110,380	41,140	2,662	1,780	4.0%	2,254	1,979	3.8%	4,113	1,438	5.0%	45		
Terminal Island East Interchange (Pier T) to Pico Ave	124,670	54,360	2,468	2,052	3.6%	2,045	2,288	3.5%	3,619	1,771	4.3%	45		
<b>Ocean Boulevard</b>														
Year 2030 With Project														
Navy Way to Pier S	122,030	44,800	4,138	2,760	5.7%	2,813	3,214	4.9%	5,435	2,240	6.3%	50		
Pier S to Route 47	103,030	39,430	2,616	1,643	4.1%	1,902	1,580	3.4%	3,596	1,288	4.7%	50		
Route 47 to Terminal Island East Interchange (Pier T)	117,170	40,970	2,647	1,958	3.9%	2,237	2,219	3.8%	4,015	1,611	4.8%	50		
Terminal Island East Interchange (Pier T) to Pico Ave	135,930	59,730	2,770	2,464	3.9%	2,312	2,810	3.8%	4,244	2,055	4.6%	50		

\* All trucks are considered heavy trucks.  
ADT - Average daily traffic

Source: Iteris, 2009

**Table 2.2.6-4  
 Predicted Traffic Noise Levels**

Location	Distance from Roadway Centerline, Feet [meters]	Predicted Noise Levels, Hourly Leq, dBA <sup>1,2</sup>									
		Existing Conditions			Ambient w/o Project			Future Conditions - Design Year 2030			
		A.M. Peak Hr.	Mid-day Peak Hr.	P.M. Peak Hr.	A.M. Peak Hr.	Mid-day Peak Hr.	P.M. Peak Hr.	A.M. Peak Hr.	Mid-day Peak Hr.	With Project	P.M. Peak Hr.
<b>Ocean Boulevard</b>											
Navy Way to Pier S	300 [91]	67	68	67	72	72	71	72	73	71	71
	500 [152]	63	64	64	68	69	68	69	69	68	68
	1000 [305]	58	59	59	63	64	63	64	64	63	63
Pier S to Route 47	300 [91]	68	69	68	69	69	68	70	70	69	69
	500 [152]	65	66	65	66	65	65	67	66	66	66
	1000 [305]	60	60	60	61	60	60	62	61	61	61
Route 47 to Pier T Interchange	300 [91]	67	68	67	70	70	69	71	71	70	70
	500 [152]	64	65	64	66	67	66	67	68	67	67
	1000 [305]	59	60	59	61	62	61	62	63	62	62
Pier T Interchange to Pico Avenue	300 [91]	68	68	67	71	71	70	72	72	71	71
	500 [152]	65	65	64	67	67	67	68	69	68	68
	1000 [305]	60	59	59	62	62	62	63	64	63	63

Notes

- 1 - All noise levels are expressed in hourly Leq, which is an average level in dBA (dB re: 20 µ Pa)
- 2 - All noise levels calculated assuming that all trucks are heavy trucks.

Source: Parsons

## **2.2.7 Energy**

This section addresses the potential impacts to energy resources, including fossil fuels, associated with implementation of the proposed project.

### **2.2.7.1 Regulatory Setting**

The CEQA Guidelines, Appendix F, Energy Conservation, states that EIRs are required to include a discussion of potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

NEPA (42 U.S.C. Part 4332) requires consideration of all potentially significant impacts to the environment, including energy impacts.

### **2.2.7.2 Affected Environment**

Southern California has had the benefit of sufficient energy supplies to serve the rapid growth that has taken place over the past 50 years. Much of the energy consumed in the region is for residential, commercial, and transportation purposes. SCAG tracks and forecasts energy use in the southern California area. Transportation energy for motor vehicles is primarily by direct combustion of petroleum fuels (i.e., gasoline and diesel), with smaller contributions from compressed natural gas. Electricity is used in a relatively small number of electric-powered vehicles.

According to the California Energy Commission (CEC), in addition to hydrocarbon energy sources, 300 operational power plants are located in the counties of Los Angeles, Orange, Riverside, and San Bernardino that produce at least 100 kW (0.1-MW) of electricity each (CEC, 2007a). Electric energy in the region is provided primarily through SCE and LADWP distribution networks, along with 3 municipalities that have their own power plants located in the region (i.e., Glendale, Burbank, and Pasadena). Imperial Irrigation District and San Diego Gas & Electric provide service to the extreme southern areas of Riverside and Orange counties, respectively. Because of the recent restructuring of the electric energy industry throughout California, many of the facilities owned by investor-owned utilities have been divested. Twenty-three (23) new power-generating facilities are planned for the Los Angeles region, and they are currently going through the permitting process (CEC, 2007a).

Most of the electric energy used in southern California is imported to the region from coal-fired

and hydroelectric generating facilities located elsewhere in California and out of state. Utilities in southern California participate in power-sharing arrangements with many other entities throughout the western United States. In 2005, the SCAG region consumed almost 128,000 gigawatt-hours (GWh) of electricity, which was approximately 48 percent of the total consumption in the state. Electricity consumption has been increasing approximately 1.3 percent per year (SCAG, 2007).

In 2005, the region consumed approximately 8.8 billion gallons of vehicle fuels, which was an increase of more than 20 percent from 1995 (SCAG, 2007). CEC predicts that the natural gas demand in on-road vehicles will increase from 75 million therms in 2003 to 200 million therms in 2025. Transportation electricity will grow from 600 million kilowatt-hours (kWh) in 2003 to 1,800 kWh in 2025.

### **2.2.7.3 Environmental Consequences**

#### **Evaluation Criteria**

Potential energy consumption of the Build Alternatives is compared to the No Action Alternative to assess the project's potential energy impacts within the vicinity of the Port (as defined by I-110 to the west, I-405 to the north, I/SR 710 to the east, and the Pacific Ocean to the south). The proposed project may result in substantial impacts if it would:

- Use fuel, water, or energy in a wasteful manner; or
- Result in the loss of availability of a known mineral resource that would be of future value to the region and residents of the state.

#### **No Action Alternative**

The No Action Alternative would not cause any immediate increase in demands on energy and fuel consumption in the project area.

#### **Construction and Demolition Impacts**

##### North- and South-side Alignment Alternatives

Construction equipment and construction worker vehicles operated during project construction of the Bridge Replacement Alternatives and during demolition of the Gerald Desmond Bridge and supporting structures would use fossil fuels. This increased fuel consumption would be temporary and cease at the end of the construction activities, and it would not have a residual requirement for additional energy input. The marginal increases in fossil fuel use resulting from project construction



are not expected to have appreciable impacts on energy resources.

Bridge demolition would also result in the accumulation of large amounts of scrap bridge materials. These materials may be reused if disposed of properly (see Section 2.1.4 [Utilities and Service Systems] for further discussion of waste disposal and recycling).

Rehabilitation Alternative

Construction equipment and construction worker vehicles operated during rehabilitation of the existing bridge and supporting structures would use fossil fuels. This increased fuel consumption would be temporary and cease at the end of the rehabilitation activities, and it would not have a residual requirement for additional energy input. The marginal increase in fossil fuel use resulting from the bridge rehabilitation is not expected to have appreciable impacts on energy resources.

**Operational Impacts**

Operational energy impacts of the proposed project are primarily related to fuel consumption. The anticipated effects on energy use associated with the operation of the proposed alternatives are discussed below.

No Action/Rehabilitation Alternative

Forecasts by CEC indicate that statewide VMT for all on-road vehicles will increase annually by an average of 1.7 percent between 2005 and 2030 (CEC, 2007b). Even though VMT is predicted to increase, forecasted gasoline consumption is

variable for the period and ranges from an annual average decrease of 0.5 percent to an increase of 0.6 percent. Diesel fuel average annual consumption would increase from 2.1 to 3.0 percent. The variability is primarily related to modeling variables related to price and implementation of greenhouse gas (GHG) standards.

Statewide gasoline use for 2030 would be 14 to 18.6 billion gallons; forecast diesel use would be 6.7 to 8.3 billion gallons CEC, 2007b).

Daily VMT within the vicinity of the Port from the traffic study was used in combination with the average fuel efficiencies to estimate the energy use for the opening and horizon years. The VMT data and associated fuel consumption is provided below in Table 2.2.7-1.

Determining the future (2015 and 2030) fuel consumption requires estimation of future fuel efficiencies for gasoline and diesel vehicles. It is assumed that fuel efficiency would improve with advances in alternative fuel and engine technology. This forecast in future fuel efficiency is difficult to accurately predict, so this analysis will consider the “worst-case scenario,” which utilizes the current fuel efficiencies and assumes that there are no improvements in alternative fuel or engine technology or increases in alternative fuel use.

Consumption was calculated by dividing future auto VMT by the average gasoline (20.75 miles per gallon [mpg]) fuel efficiency and future truck

<b>Table 2.2.7-1 Daily VMT and Fuel Consumption in Project Vicinity</b>						
	<b>No Action/ Rehabilitation Alternative</b>	<b>Bridge Replacement Alternative</b>	<b>Increase/ (Decrease)</b>	<b>No Action/ Rehabilitation Alternative</b>	<b>Bridge Replacement Alternative</b>	<b>Increase/ (Decrease)</b>
	<b>2015 Daily VMT Project Vicinity</b>			<b>2015 Daily Fuel Consumption</b>		
Total Autos - Gasoline	4,475,415	4,466,876	(8,539)	215,683	215,271	(412)
Total Trucks - Diesel	850,846	847,881	(2,964)	167,820	167,235	(585)
Total All Vehicles- Gallons	5,326,260	5,314,757	(11,503)	383,503	382,506	(997)
	<b>2030 Daily VMT Project Vicinity</b>			<b>2030 Daily Fuel Consumption</b>		
Total Autos - Gasoline	4,950,124	4,937,966	(12,157)	238,560	237,974	(586)
Total Trucks - Diesel	1,144,522	1,138,963	(5,560)	225,744	224,647	(1,097)
Total All Vehicles- Gallons	6,094,646	6,076,929	(17,717)	464,304	462,621	(1,683)

Source: Iteris, 2009.

VMT by the average diesel (5.07 mpg) fuel efficiency. Gasoline and diesel use associated with the No Action/Rehabilitation Alternative in 2015 yields a daily use estimate of 215,683 gallons and 167,820 gallons, respectively. Estimates for 2030 gasoline and diesel consumption yield a total daily use estimate of 238,560 gallons and 225,744 gallons, respectively. Operation of the Rehabilitation Alternative would be identical to the No Action Alternative. No adverse effects on energy supplies resulting from operation of the Rehabilitation Alternative are anticipated.

#### North- and South-side Alignment Alternatives

Energy use (fuel consumption) for the Bridge Replacement Alternatives was also calculated as previously discussed utilizing the VMT data shown in Table 2.2.7-1 and average fuel efficiencies. Gasoline and diesel use associated with the Bridge Replacement Alternatives in 2015 yields a daily use estimate of 215,271 gallons and 167,235 gallons, respectively. In 2030, the daily use estimate of gasoline and diesel yields 237,974 gallons and 224,647 gallons, respectively. Overall daily VMT and energy use associated with operation of the Bridge Replacement Alternatives

would decrease compared to the No Action/Rehabilitation Alternative. The decrease in energy use is due to the associated decrease in VMT resulting from the redistribution of traffic as motorists modify their travel paths to take advantage of the congestion-relief benefits of these alternatives (see Section 2.1.5 [Traffic and Circulation]).

Total daily VMT in 2015 and 2030 would decrease by 11,503 and 17,717 miles traveled, respectively. This corresponds to a reduction of total daily energy use in 2015 and 2030 of 996 and 1,683 gallons of fuel, respectively.

The Bridge Replacement Alternatives are expected to result in a net daily decrease in energy use. Fossil fuels will continue to have future value to the region and residents of the state. Although the estimated energy savings associated with these alternatives may be considered minor, the reduced energy use would have a beneficial affect on energy supplies.

#### **2.2.7.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

*Section 2.3*  
*Biological Environment*



**2.3 BIOLOGICAL ENVIRONMENT**

Information within this section is summarized from the 2008 Revised Natural Environment Study Report.

**2.3.1 Natural Communities**

**2.3.1.1 Regulatory Setting**

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. This section also includes information on wildlife corridors (including fish passage as appropriate) and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation includes the potential for dividing sensitive habitat and thereby lessening its biological value.

Critical habitat areas designed under the Federal Endangered Species Act (ESA) are discussed in Section 2.3.5 (Threatened and Endangered Species). Habitat areas related to Wetlands and Other Waters of the U.S. are Section 2.3.2.

**2.3.1.2 Affected Environment**

**Literature Review**

Terrestrial and marine biological resources within the project vicinity were first examined in existing documents, including:

- Final Environmental Impact Statement/ Environmental Impact Report for the Disposal and Reuse of Long Beach Naval Complex,

Long Beach, California. Volume I (U.S. Navy/ City of Long Beach, 1998).

- Baseline Biological Studies of the Los Angeles and Long Beach Harbors conducted in 2000-2001 (MEC, 2002).
- Biological Baseline Study of Selected Areas of Long Beach Harbor: Final Report (SAIC and MEC, 1997).
- Peregrine Falcon Monitoring and Mitigation for the Desmond Bridge Widening Project. (BioResource Consultants, 1998).
- Foraging Surveys of the California Least Tern at the Shallow Water Habitat Area Long Beach Outer Harbor Port of Long Beach. (Keane Biological Consulting, 2001).
- California Least Tern Breeding Survey, 2005 Season (Marschalek, 2006).
- Documents providing information on special-status species that may occur in the Biological Study Area (BSA) and its vicinity; these are further discussed in Section 2.3.5 (Threatened and Endangered Species).

The study methodology also included consultation with state and federal resource agencies and the Port. Agency coordination took place through e-mail, fax, mail, and telephone correspondence, as summarized in Table 2.3.1-1. In addition, agencies were sent an NOP/Preliminary Environmental Assessment Report (PEAR) in November 2002 and the December 2005 revised NOP.

<b>Name (Agency)</b>	<b>Date</b>	<b>Subject</b>
Annie (Hoecker) Little, Biologist, USFWS	July 25, 2002	Peregrine falcons, special-status bats, and birds in the BSA
Kerri Davis, Biologist (USFWS)	August 6, 2002	
Warren Wong, Biologist, CDFG	August 8, 2003	
Stephanie Remington, Bat Specialist	November and December 2005	
Stacey Crouch, Senior Environmental Specialist, POLB	July 31, 2002 August 2, 2002 August 23, 2002	Peregrine falcon nesting in the BSA
Carl G. Thelander, Biologist and Peregrine Falcon Specialist Expert Specialist, BioResource Consultants	July 31, 2002 March 30, 2006	
Jeffery Sipple, Peregrine Falcon Specialist	April 6, 2006 April 10, 2006	

### **The Biological Study Area (BSA)**

The BSA for the proposed project is located entirely within the Inner Harbor portion of the Long Beach Harbor (Exhibit 2.3.1-1). It includes the area potentially affected by the proposed bridge replacement, as well as areas potentially affected by the proposed realignment of transmission lines (part of the North- and South-side Alignment Alternatives) from the Terminal Island generating station, across the Cerritos Channel up to the proposed Anaheim Substation north of Anaheim Street (see Exhibit 1-5). Specifically, the BSA includes existing terrestrial environment on both sides of the bridge extending approximately 0.25-mi (0.4-km) to the north and 0.25-mi (0.4-km) to the south. This area would include new bridge piers and footings, and adjacent areas for construction staging. In addition to terrestrial resources, the BSA includes marine resources beneath the bridge in the Back Channel and transmission lines over the Cerritos Channel, as well as nesting, roosting, and perching habitat for birds and bats provided by the existing bridge (Exhibit 2.3.1-2). Habitats of the outer Long Beach and Los Angeles Harbors (Exhibit 2.3.1-2) are not within the BSA because they would not be directly affected by the proposed project; however, threatened and endangered species known to occur in the outer harbor are discussed in this section because they may be indirectly affected by the proposed project.

Field surveys of the BSA's terrestrial resources were conducted on October 25, 2002, by Parsons staff environmental specialists and biologists Jay Officer and Rosemarie Crisologo. Surveys examined the vegetation of the BSA within the approaches to and beneath the bridge, including the shoreline of the Back Channel and the Cerritos Channel. Surveys also documented wildlife species observed in the BSA. In addition to general surveys, Parsons staff biologist John Martin conducted diurnal and nocturnal bat surveys, along with other biological resources surveys, to detect use of the bridge by bats. Bats were visually observed and audibly detected using a Skye Instruments Sonic Bat Detector beneath and adjacent to the bridge from 5:00 p.m. to 11:00 p.m. from July 31 through August 2, 2003.

No surveys of the BSA's marine resources were conducted because the literature review described above provided sufficient recent information on the marine resources of the BSA and vicinity.

The literature review also provided sufficient information on special-status species<sup>8</sup> in the BSA, and the field survey indicated that aside from some foraging opportunities, no habitat<sup>9</sup> to support special-status species was present in the BSA; therefore, aside from bat surveys described above, no focused surveys for special-status species were conducted.

Development of Long Beach Harbor through dredging, filling, and channelization over the past 100 years has altered the original physiography and habitats of the area. Once an estuary of the Los Angeles and San Gabriel Rivers, development of Long Beach Harbor has been transformed from a shallow estuarine habitat into mainly deepwater habitat. Dredge-and-fill operations to deepen channels to accommodate deep draft vessels and to develop terminals have eliminated former habitats.

Since the early 1900s, fills of land in the site area were constructed by hydraulic placement of material dredged from the harbor floor. The hydraulic fill deposits range from soft silt and clay to fine-grained, loose, silty sand and sand. These deposits were then overlain by 4 to 8 ft (1.2 to 2.5 m) of compacted hydraulic fill retained by rock dikes. These dikes may consist of several lifts of quarry waste containing sandy gravel with cobbles (typically less than 12 in. [304 mm] in diameter) and some silt. No sandy beach or salt marsh habitat and very little shallow-water habitat remain in the Port.

### **2.3.1.3 Environmental Consequences**

#### **Evaluation Criteria**

The following criteria are the basis for evaluating whether there are substantial adverse effects to natural communities resulting from project development. Would the project:

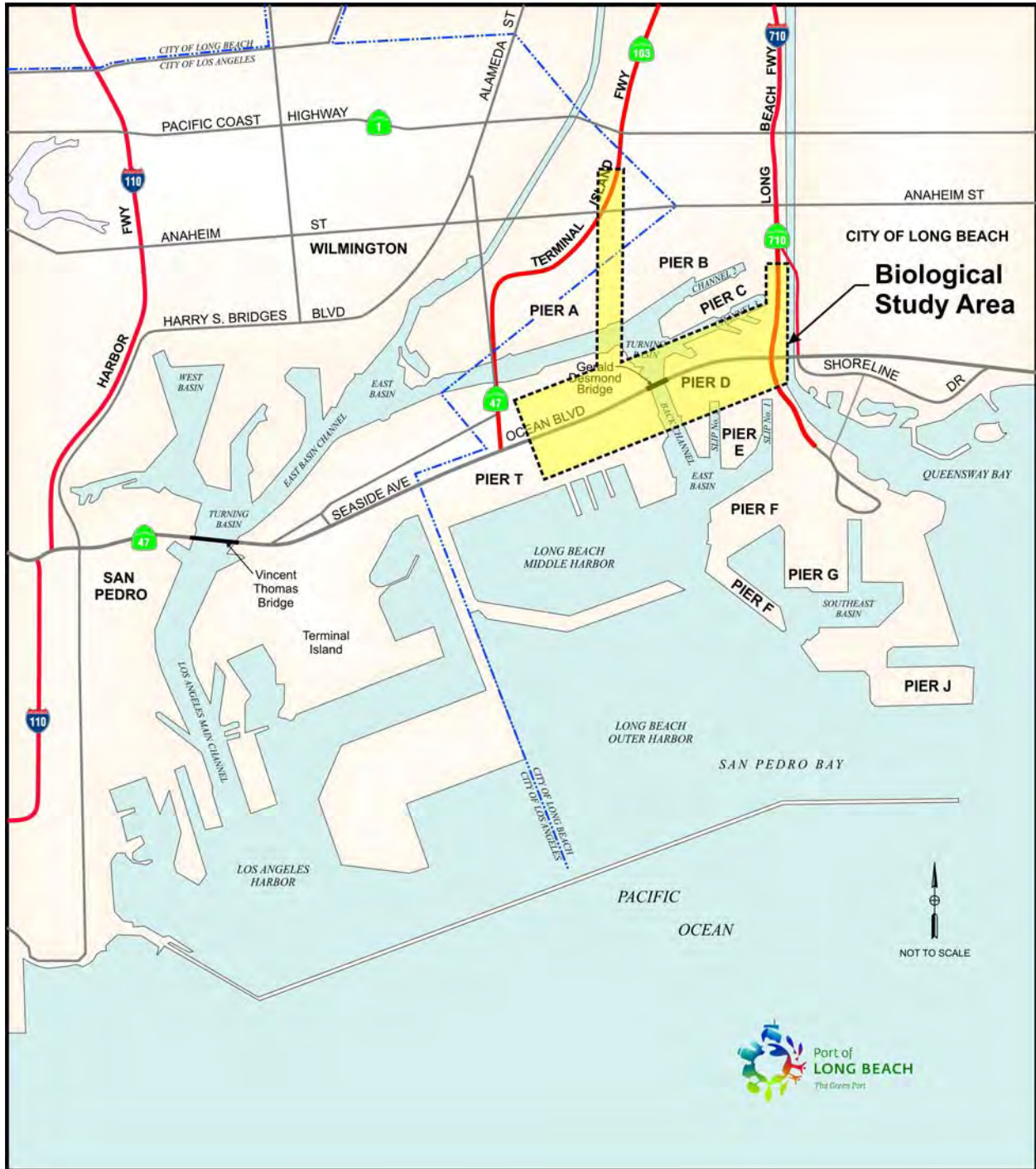
- Have a substantial adverse effect on any sensitive natural community identified in any federal plans, policies, or regulation, or by the U.S. Fish and Wildlife Service (USFWS).

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<sup>8</sup> Species that have been afforded special recognition by state and federal resource agencies and resource conservation organizations due to declining or limited population sizes.

<sup>9</sup> A place exhibiting environmental conditions under which a given species would normally and naturally live. Generally, these conditions include food availability (i.e., soil nutrients for plants), water, shelter (i.e., escape cover, protection from weather), and space requirements.

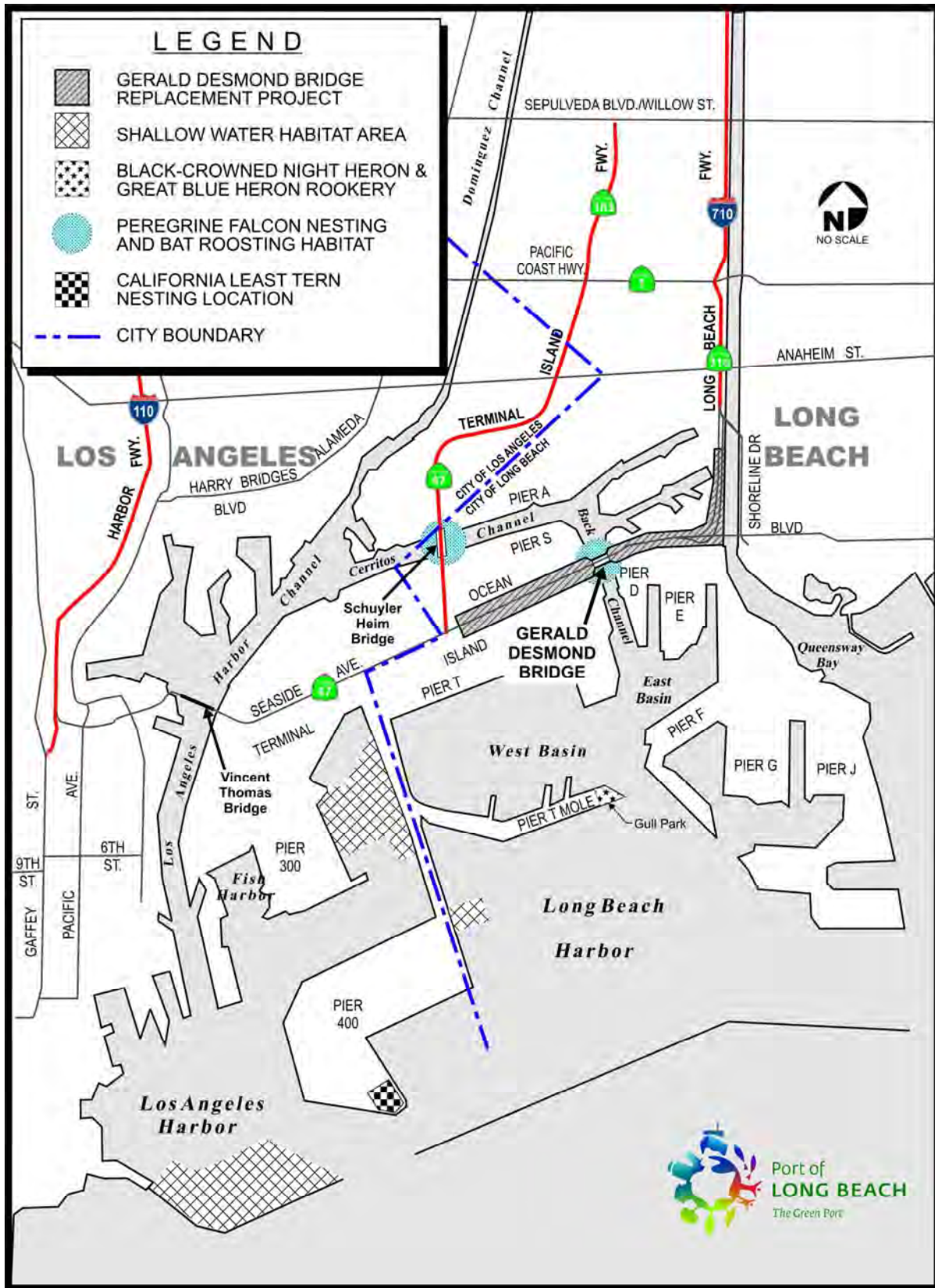




**EXHIBIT 2.3.1-1**  
Biological Study Area



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**Exhibit 2.3.1-2**  
Sites of Sensitive Habitats in the Area of the Gerald Desmond Bridge Replacement Project

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- Conflict with any other federal policies or ordinances protecting biological resources, such as the Migratory Bird Treaty Act of 1918 (MBTA).

### **No Action Alternative**

No natural communities of concern were identified within the study area. Under the No Action Alternative, the existing bridge would continue to be in service, and no construction activities would occur. The No Action Alternative would not affect any sensitive natural communities.

### **Construction and Demolition Impacts**

#### North and South-side Alignment Alternatives

No natural communities of concern were identified within the BSA. Construction of these alternatives would not affect any sensitive natural communities.

#### Rehabilitation Alignment Alternative

No natural communities of concern were identified within the BSA. Construction of the Rehabilitation Alternative would have no effect on sensitive natural communities.

### **Operational Impacts**

#### North- and South-side Alignment Alternatives

No natural communities of concern were identified within the BSA. Operation of these alternatives would not affect any sensitive natural communities.

#### Rehabilitation Alignment Alternative

No natural communities of concern were identified within the BSA. Operation of the Rehabilitation Alternative would have no effect on sensitive natural communities.

#### **2.3.1.4 Avoidance, Minimization and/or Mitigation Measures**

No measures are required.

### **2.3.2 Wetlands and Other Waters**

#### **2.3.2.1 Regulatory Setting**

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the CWA (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States 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 CWA, 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 CWA.

Section 404 of the CWA 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 substantially degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by EPA.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that (1) there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by CDFG and RWQCBs. In certain circumstances, the CCC (or Bay Conservation and Development Commission) may also be involved. 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, then 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 USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. RWQCB also issues water quality certifications in compliance with Section 401 of the CWA. See Section 2.2.1 (Water Resources and Hydrology) for additional details.



### **2.3.2.2 Affected Environment**

Wetlands do not occur within the project area; therefore, no wetlands will be affected by this project. More information on effects to water resources within the Cerritos Channel, Back Channel, and Dominguez Channel is discussed in the Section 2.2.1 (Water Resources and Hydrology). Effects to marine life within the study area are discussed in Sections 2.3.3.2 (Marine Communities and Plants [Algae]) and Section 2.3.4.2 (Marine Animals and Plankton).

### **2.3.2.3 Environmental Consequences**

#### **Evaluation Criteria**

The criterion below is the basis for evaluating whether there are substantial adverse effects to wetlands and other waters resulting from project development. Would the project:

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means.

#### **No Action Alternative**

Under the No Action Alternative, the existing bridge would continue to be in service and no construction activities would occur. The No Action Alternative would not affect any wetlands or other waters of the U.S.

#### **Construction and Demolition Impacts**

##### North- and South-side Alignment Alternative

No wetlands were identified within the BSA, and all construction activities would be located outside of the Back Channel. The North- and South-side Alignment Alternatives would have no effect on wetlands or other waters of the U.S.

##### Rehabilitation Alternative

No wetlands were identified within the BSA, and all construction activities would be located outside of the Back Channel. The Rehabilitation Alternative would have no effect on wetlands or other waters of the U.S.

#### **Operational Impacts**

##### North- and South-side Alignment Alternative

Operation of the North- and South-side Alignment Alternatives would have no effect on wetlands or other waters of the U.S.

##### Rehabilitation Alternative

Operation of the Rehabilitation Alternative would have no effect on wetlands or other waters of the U.S.

### **2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures**

No measures are required.

### **2.3.3 Plant Species**

#### **2.3.3.1 Regulatory Setting**

USFWS and CDFG share regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the ESA and/or the California Endangered Species Act (CESA). See Section 2.3.5 (Threatened and Endangered Species) for detailed information regarding these species.

This section of the document discusses all of the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for ESA can be found at 16 U.S.C. Section 1531, *et. seq.* (see also 50 CFR Part 402). The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, *et. seq.* Port projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and CEQA, PRC Sections 2100-21177.

#### **2.3.3.2 Affected Environment**

##### **Terrestrial Plant Communities**

Overall, the BSA's terrestrial habitats are developed and industrialized in the form of container terminals and ancillary port uses on Terminal Island and Pier D; therefore, native vegetation communities that once occurred in the area are fragmented and disturbed.

Other than a few isolated areas of ornamental plantings, vegetation consists of exotic (non-



native) annual weeds that proliferate at curbs and asphalt cracks with occasional ornamental tree species. This habitat type is termed ruderal-disturbed (termed *non-native grasslands* by Holland, 1986; *annual grassland series* by Sawyer and Keeler-Wolf, 1995).

The following was observed during surveys of the BSA on October 25, 2002:

- A row of approximately 15 introduced evergreens (*Pinus*<sup>10</sup> spp.) is present along the roadway at the corner of SR 710 and Ocean Boulevard, west of Pico Avenue on the north side of the approach to the bridge. Approximately 20 ft (6 m) high, these pines line the north side of a triangular property at this location.
- On either side of the bridge, the shoulders of Ocean Boulevard are vegetated with eucalyptus (*Eucalyptus* spp.), a non-native tree common in the California landscape. Approximately 11 mature fan palms (*Washingtonia* spp.) roughly 50 ft (15 m) high are located along the south shoulder of Ocean Boulevard at the west end of the bridge. Other exotic plants observed at various locations included iceplant (*Carpobrotus* spp.), oleander (*Nerium oleander*), tree tobacco (*Nicotiana glauca*), and non-native yucca (*Yucca* spp.).
- Fan palms are also found at the northeast and southeast approach to the bridge on the shoulders of Ocean Boulevard.
- The northern facing underside of the bridge east of the Back Channel contains a steep, sloped road shoulder across from the LBGS. This sandy, sloped face is vegetated with exotic weedy species that include horseweed (*Conyza canadensis*) and an isolated fan palm. Surface water runoff has eroded this area, and it is highly disturbed from debris that falls from the bridge above. This sloped face does not appear to have been treated for erosion control or otherwise landscaped, setting it apart from other soil surfaces within the zone of effect.

<sup>10</sup> Scientific names are provided only after the first mention of the common name for the species in this section. Scientific nomenclature and common names follow taxonomy, and nomenclature in this report follow Hickman (1993) for plants, Robins *et al.* (1991) for fish, Committee on Standard English and Scientific Names (2003) for herpetofauna, American Ornithologists' Union (1983; 1998) for birds, and Wilson and Cole (2000) for mammals.

- Vegetation along the eastern edge of the Back Channel, observed from Pier D Avenue under the bridge, was limited to isolated plantings used for landscaping (*Crassula* spp. and oleander). Exotic weedy species and annual grasses are growing through cracks in asphalt, concrete, and riprap sidewalks on the west side of the Back Channel north of the bridge.

### **Marine Communities and Plants (Algae)**

Marine communities in the BSA are limited to open water on the surface, benthic (the harbor floor), and pelagic<sup>11</sup> (between the surface and the harbor floor), as well as human-created habitats such as riprap. Kelp and macroalgae are anchored in the benthic community, but they extend into the pelagic and open water community. Kelp and macroalgae are narrowly distributed within the BSA because they are restricted principally to shallow hard-bottom environments associated with riprap shorelines, breakwaters, pier structures, and other harbor debris. Riprap supports giant kelp communities in the Outer Harbor; and riprap habitat occupies much of the shoreline under the bridge and the remainder of the BSA. Some kelp habitat is present in the BSA, particularly in the Back Channel near the bridge.

### **2.3.3.3 Environmental Consequences**

#### **Evaluation Criteria**

The following criterion is the basis for evaluating whether there are substantial adverse effects to plant species resulting from project development. Would the project:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in any federal plans, policies, or regulations, or by USFWS.

#### **No Action Alternative**

Under the No Action Alternative, the existing bridge would continue to be in service and no construction activities would occur. The No Action Alternative would not affect any terrestrial or marine plant communities.

### **Construction and Demolition Impacts**

#### North-side Alignment Alternative

**Terrestrial Plant Communities and Habitat.** Construction of the proposed project would not

<sup>11</sup> Occurring in or over the open ocean.

result in direct effects on any natural terrestrial communities. The proposed widening of Ocean Boulevard on Terminal Island and on Pier D would occur entirely within developed areas that are devoid of natural habitats. Installation of new transmission towers would include placement of towers alongside the existing towers on Pier A in a developed area devoid of natural habitat. No loss of habitat would be expected because of construction, operation, or demolition activities.

***Marine Plant Communities and Habitat.*** All construction would occur outside of the channel. No substantial effects on marine plant communities or habitat is anticipated.

#### South-side Alignment Alternative

Construction and demolition effects associated with the South-side Alignment Alternative would also occur in areas devoid of natural habitats and outside of the channel. Construction and demolition effects would be the same as those described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

Work required to rehabilitate the existing bridge would occur within the current bridge footprint and outside of the channel. Bridge rehabilitation activities would not affect terrestrial or marine plant communities or habitats.

### **Operational Impacts**

#### North- and South-side Alignment Alternatives

Neither the North- nor South-side Alignment Alternative would result in operational effects to terrestrial or marine plant communities.

#### Rehabilitation Alternative

The Rehabilitation Alternative would not result in any operational effects to terrestrial or marine plant communities.

#### **2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures**

No measures are required.

### **2.3.4 Animal Species**

#### **2.3.4.1 Regulatory Setting**

Many state and federal laws regulate effects to wildlife. USFWS, the National Oceanic and Atmospheric Administration (NOAA) Fisheries and CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under CESA or ESA.

Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5 (Threatened and Endangered Species). All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- NEPA
- MBTA
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- CEQA
- Sections 1600 through 1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

#### **2.3.4.2 Affected Environment**

##### **Terrestrial Animals**

As described above, the BSA is dominated by a ruderal/disturbed plant community<sup>12</sup>; therefore, terrestrial wildlife species in the BSA are limited to species well-adapted to this type of human-modified community. Such species include house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), feral cat (*Felis domesticus*), rock dove (*Columba livia*), mourning dove (*Zenaidura macroura*), American crow (*Corvus corax*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*) (U.S. Navy/City of Long Beach, 1998).

Despite the lack of native plant communities, 18 bird species are known to nest within the harbor area, including the California least tern (*Sterna antillarum browni*), great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), and black oystercatcher (*Haematopus bachmani*) (MEC, 2002). From 1997 through 2005, Caspian terns (*Sterna caspia*), elegant terns (*Sterna elegans*), and, during some years,

<sup>12</sup> Assemblages of plant species living in an area under the same or similar biological and environmental factors. Plant community categories discussed in this report are based on Holland (1986), although Zeiner *et al.* (1988; 1990a; 1990b), and Sawyer and Keeler-Wolf (1995) were also used.

black skimmer (*Rhynchops niger*) also nested within the harbor area (MEC, 2002; Keane Biological Consulting, 2007); however, aside from nesting by these species on barges in the outer Long Beach Harbor during 2006 and 2007, no terns other than California least terns have nested in the harbor area since 2005 (Keane Biological Consulting, 2007). These species are further discussed under Special-Status Species<sup>13</sup>.

Within the BSA, nesting bird species are limited to great blue heron and black-crowned night heron in Gull Park at the end of the Navy Mole. Nesting by double-crested cormorants (*Phalacrocorax auritus*) has also been documented during previous years on the transmission towers of Piers S and A north of the Gerald Desmond Bridge (U.S. Navy/City of Long Beach, 1998). The BSA also provides nesting opportunities for house sparrows on light poles and in eaves, American crows in trees and tall buildings, and American kestrels (*Falco sparverius*), which commonly use cavities in structures and under dead palm tree leaves. Habitat for several species of marine birds is also present in the BSA, although some of these, such as gulls, commonly roost or forage on land. These are discussed under Marine Animals and Plankton, following this section.

A pair of peregrine falcons has nested within the supporting structure below the Gerald Desmond Bridge off and on for the past several years, and they have successfully fledged young each year (Sipple, 2006). Peregrine falcons have also nested on the Schuyler Heim Bridge, which separates the Ports inner harbors (MEC, 2002). Peregrine falcons and other special-status species of the harbor area are further discussed in Section 2.3.5 (Threatened and Endangered Species).

Terrestrial wildlife observed during the October 25, 2002, survey and July 31 through August 2, 2003, survey included grebes (*Podiceps* spp.), gulls (*Larus* spp.), northern mockingbird (*Mimus polyglottos*), European starling, and house sparrow. Other terrestrial birds expected to occur in the BSA include American kestrel, mourning dove, Anna's hummingbird (*Calypte anna*), barn swallow (*Hirundo rustica*), American crow, and house finch. Several birds associated with marine habitats were also observed during surveys; these

are discussed under Marine Animals and Plankton, following this section.

The MEC (2002) surveys recorded foraging by 8 percent of all birds observed in the Inner Harbor that includes the BSA, compared to 13 percent in the outer Long Beach Harbor (MEC, 2002), suggesting that the abundance and/or diversity of prey for birds is lower in the Inner Harbor and BSA than the Outer Harbor. Bats were observed during the July 31 through August 2, 2003, surveys, and although they could not be identified to species, bat specialist Stephanie Remington determined that they were most likely *Myotis*. Because they were observed only in singles or pairs and the understructure of the bridge is not conducive to support large numbers of bats, roosting bat colonies are unlikely (see Section 2.3.5 [Threatened and Endangered Species]).

No other terrestrial mammals, amphibians, or mammals were observed during the field surveys; however, Norway rat, house mouse, opossum (*Didelphis virginiana*), and feral cat are expected to be present in the BSA, and several species of bats may roost on the bridge and/or forage in the BSA.

### **Marine Animals and Plankton**

Although the Port is a highly industrialized setting, the Long Beach, and adjacent Los Angeles, harbor (harbor area) supports marine habitats encompassing a range of species. More than 130 fish species have been collected in the harbor area, and several of them use the harbor area as a nursery (MEC, 2002). The open water and other habitats of the Outer Harbor support important nesting, foraging, and resting habitat for numerous avian species. More than 100 species of birds forage and roost in the various habitats within the Ports. Some of these species are year-round residents of the area; others may winter inside the Ports (MEC, 2002). Some of these are special-status species, which are further discussed under Special-Status Species. Within the BSA, habitat for marine animals is limited, as described below.

Riprap habitat, which is present under the bridge, provides substrate for a variety of sessile invertebrates (MEC, 2002). Other marine organisms that potentially occur in the harbor area include marine mammals, marine birds, sea turtles, fish, benthic and epibenthic invertebrates, and plankton (MEC, 2002), which are further discussed below.

<sup>13</sup> Species that have been afforded special recognition by state and federal resource agencies and resource conservation organizations due to declining or limited population sizes.

**Marine Mammals.** Whales have been observed in the outer waters beyond the breakwaters and very rarely in the Outer Harbor. The California sea lion (*Zalophus californianus*) and harbor seal (*Phoca vitulina*) are commonly observed within the harbor. The bottle-nosed dolphin (*Tursiops truncatus*) has also been observed in the outer harbor (MEC, 2002); however, due to marine vessel traffic, observance of marine mammals is less common in the BSA than in the outer harbor.

**Marine Birds.** The open water and other habitats in the harbor area support nesting, foraging, and resting habitat for numerous bird species. Some bird species are present year-round, while others are seasonal (i.e., winter or summer breeders) or seasonal migrants, remaining only for a few days each year. More than 100 bird species have been documented foraging and roosting in the harbor (MEC, 2002). Of these, 69 are considered saltwater-obligates and dependent on the waters of the harbor for food and cover. During MEC's 2000-2001 surveys (MEC, 2002), 99 species were observed. Gulls were the most abundant birds, followed by terns and pelicans, waterfowl, and upland birds (dominated by rock doves). Shorebirds and marshbirds were the least numerous birds in the harbor area.

**Sea Turtles.** Sea turtles are infrequently seen in the harbor. Most sightings have been of the green sea turtle (*Chelonia mydas*), but loggerhead (*Caretta caretta*) and leatherback (*Dermochelys coriacea*) turtles have occasionally been seen (MEC, 2002). Sea turtles are further discussed under Special-Status Species.

**Fish.** The five most-abundant species of fishes occurring in the Los Angeles-Long Beach Harbor are northern anchovy (*Engraulis mordax*), white croaker (*Genyonemus lineatus*), queenfish (*Seriphus politus*), Pacific sardine (*Sardinops sagax*), and topsmelt (*Atherinops affinis*) (MEC, 2002). These five species account for nearly 92 percent of the total fish population in the harbor. Other abundant species include specklefin midshipman (*Porichthys notatus*), arrow goby (*Clevelandia ios*), yellowfin goby (*Acanthogobius flavimanus*), California halibut (*Paralichthys californicus*), shiner surfperch (*Cymatogaster aggregata*), diamond turbot (*Hypsopsetta guttulata*), speckled sandab (*Citharichthys stigmaeus*), salema (*Xenistius californiensis*), barred sand bass (*Paralabrax nebulifer*), and bat rays (*Myliodatis californica*). Seventy-six (76) taxa, representing 74 species, were collected during the baseline study (MEC, 2002).

**Benthic and Epibenthic Invertebrates.** The MEC 2000-2001 surveys documented 400 taxa, representing 361 species, of infauna in the Los Angeles-Long Beach Harbor (MEC, 2002). Infauna are marine invertebrates that live in soft sediments – a community is dominated by polychaetes (i.e., sand, tube, and clamworms), which comprise approximately 65 percent of the infaunal population in the harbor. Crustaceans (i.e., crabs and shrimp) comprise 23 percent, mollusks (i.e., clams, mussels, and snails) comprise 9 percent, echinoderms (i.e., starfish, sea urchins, sand dollars, and sea cucumbers) comprise less than 1 percent, and other minor phyla make up 2 percent of the infaunal community. Benthic organisms found in the harbor include polychaete worms, bay mussels, barnacles, limpets, and algae. Dominant species of macroinvertebrates include the black spotted shrimp (*Crangon nigromaculata*), tuberculate pear crab (*Pyromaia tuberculata*), Xantus' swimming crab (*Portunus xantusii*), and invasive species including the introduced New Zealand bubble snail (*Potamopyrgus antipodarum*) and Spotwrist hermit crab (*Pagurus spilocarpus*) (MEC, 2002).

**Plankton.** Plankton is most abundant in mid-spring and early autumn. Diatoms and dinoflagellates are the dominant phytoplankton. Zooplankton is characterized by high concentrations of copepods. The Los Angeles-Long Beach Harbor area is considered a nursery for fish and ichthyoplankton (i.e., planktonic fish eggs and larvae) in comparison to open coastal waters (MEC, 2002).

### 2.3.4.3 Environmental Consequences

#### Evaluation Criteria

The criteria shown below are the basis for evaluating whether there are substantial adverse effects to animal species resulting from project development. Would the project:

- Conflict with any federal policies or ordinances protecting biological resources, such as the migratory bird protection regulations.
- Interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural

community identified in any federal plans, policies, or regulations, or by USFWS.

### **No Action Alternative**

Under the No Action Alternative, the existing bridge would continue to be in service, and no construction activities would occur. The No Action Alternative would not affect any terrestrial or marine animal species or habitats.

### **Construction and Demolition Impacts**

#### North-side Alignment Alternative

#### **Terrestrial and Marine Habitats and Species**

- **Terrestrial Wildlife.** As discussed in Section 2.3.4.2, common terrestrial wildlife species in the BSA are generally well adapted to construction and other human activities. They are expected to avoid construction vehicles; however, some mortality of terrestrial wildlife species, including primarily non-native species (e.g., rock doves and opossums) and some native species (e.g., American crows and house finches) may result due to project construction activities (e.g., effects with construction vehicles or due to removal of ruderal-disturbed vegetation adjacent to the existing bridge or related structures). The potential for increased mortality of common terrestrial wildlife would not be considered a substantial effect because the likelihood of occurrence is low and species are considered generally abundant within the project vicinity. Additionally, because the terrestrial species in the BSA are primarily well adapted to human-modified habitat and disturbances, noise and vibration generated by construction activities are not expected to result in any substantial effects on terrestrial wildlife of the BSA.
- **Marine Wildlife.** The proposed project would be constructed without dredging or other intrusion in the Back Channel of the Inner Harbor. No pilings or piers would be placed into Back Channel waters. New bridge piers and footings would be constructed on land on either side of the bridge along Ocean Boulevard. Towers for new transmission lines would be placed on land; no work would be conducted within the Cerritos Channel. No construction in the marine environment would be required, and no direct effects on marine wildlife during construction are anticipated. Additionally, marine animal species in the waterways of the BSA are not expected to be affected by the noise and vibration generated by project construction activities due to the

prevalence of noise and vibration from existing container shipping and other human activities in those waterways. Similarly, marine birds (i.e., gulls, terns, skimmers, marine waterfowl) would likely avoid the BSA during construction due to higher levels of construction disturbance. It is possible that some mortality of marine wildlife species may occur during construction; however, this would not be considered a substantial effect because gulls (even California gulls, a California Species of Special Concern [CSSC]) are numerous in the BSA and its vicinity. Construction and demolition effects on marine animals resulting from the proposed project are not expected to be substantial.

- **Marine.** BMPs that are part of the Port's construction protocol would be implemented to prevent construction debris, litter, and sediment from entering the channel. No indirect effects to marine biological resources are anticipated to result from construction of the project.

#### South-side Alignment Alternative

Construction and demolition impacts to terrestrial and marine habitats and species would be the same under the South-side Alignment Alternative as described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

All work required for the Rehabilitation Alternative would occur within the existing footprint of the Gerald Desmond Bridge. As previously discussed, terrestrial wildlife species in the BSA are primarily species well adapted to human-modified habitat and disturbances; therefore, construction disturbance (e.g., vibration, noise, construction equipment) resulting from bridge rehabilitation activities are not expected to result in substantial construction effects on terrestrial or marine habitats or species.

### **Operational Impacts**

#### North-side Alignment Alternative

#### **Direct Impacts of Project Operation on Terrestrial and Marine Habitats and Species**

Project operation includes use of the bridge by traffic and bridge maintenance (i.e., painting, repairs). No direct effects on marine communities (i.e., loss of marine habitat, mortality of marine animals due to collisions with vessel traffic) are expected to occur during project operation. No direct effects on existing terrestrial and marine

habitats or species due to project operation and maintenance are anticipated.

### **Indirect Impacts of Project Operation on Terrestrial and Marine Habitats and Species**

Several wildlife and marine species use the BSA and its vicinity. Use of the BSA and its vicinity by terrestrial and marine species is expected to continue similar to its current level. The new bridge would support higher levels of traffic, which could result in higher levels of noise, air, and water pollutants. Because of project mitigation measures that would reduce air and water pollutants, and the fact that wildlife and marine species of the BSA and its vicinity are tolerant of operational effects due to traffic, indirect effects of project operation on terrestrial and marine habitats and species due to possible increased noise and pollutants are not expected to be substantial (see also Section 2.3.6 [Invasive Species]).

#### South Side-Alignment Alternative

Operational impacts to terrestrial and marine habitats and species would be the same under the South-side Alignment Alternative as described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

The Rehabilitation Alternative would result in seismic improvements to the Gerald Desmond Bridge. No operational impacts to terrestrial and marine habitats and species are anticipated.

### **2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures**

No measures are required for common terrestrial and marine habitats and species; see Section 2.3.5.4 for mitigation/minimization measures regarding Threatened and Endangered Species.

### **2.3.5 Threatened and Endangered Species**

#### **2.3.5.1 Regulatory Setting**

The primary federal law protecting threatened and endangered species is the ESA: 16 U.S.C., 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 FHWA, are required to consult with USFWS and NOAA Fisheries 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 ESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the CESA, California Fish and Game Code, Section 2050, *et seq.* The CESA emphasizes early consultation to avoid potential effects to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. 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 ESA, CDFG may also authorize effects to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

A plant or wildlife species is defined as having "special status" when it has been afforded recognition by federal, state, or local resources conservation agencies (e.g., USFWS, CDFG), and/or resource conservation organizations (e.g., CNPS or National Audubon Society). Special-status species include:

- Species officially listed as threatened or endangered species (TES) or proposed for such listing under ESA or CESA.
- Species considered a candidate for possible listing under CESA or ESA.
- Species listed as CSSC, which are animal species with declining or limited populations, or with restricted nesting requirements. Separate lists for birds, amphibians and reptiles, and mammals were developed by CDFG with input, respectively, from Remsen (1978), Jennings and Hayes (1994), and Williams (1986). These documents provide information



on the distribution<sup>14</sup> and habitat preferences for special-status species.

- Species considered rare or in danger of extinction by non-governmental agencies, including CNPS or National Audubon Society.
- Species considered a Bird of Conservation Concern by USFWS (USFWS, 2002a).

Several other lists of special-status species are maintained by other governmental agencies (i.e., United States Forest Service, United States Bureau of Land Management, and California Department of Forestry), but they were not considered in this report because these agencies have no jurisdiction in the BSA.

### **2.3.5.2 Affected Environment**

#### **Study Methodology and Special-Status Species Search Results**

The study methodology included consultation with state and federal resource agencies and review of available literature. CDFG, USFWS, POLA, and POLB were contacted to obtain pertinent information, including direct contact or indirect contact through Internet databases. A listing of threatened, endangered, and candidate species has been acquired from the USFWS Carlsbad and Ventura Field Offices, which share joint jurisdiction over Los Angeles County. CDFG has been contacted regarding the occurrence of special-status species within the project area. As recommended by CDFG, a search for the California Natural Diversity Database (CNDDDB) and the CDFG home page provided identification of state threatened, endangered, and special-status species. Additionally, the database for rare plants was reviewed.

Several special-status species are reported by the CNDDDB for the United States Geological Survey (USGS) Long Beach quadrangle; however, as noted previously, the BSA's terrestrial habitats are degraded to such a degree that they provide little value for native plants or wildlife. Most special-status species identified by the CNDDDB within the USGS Long Beach quadrangle, which includes the BSA, are not likely to be present because (1) species-specific habitat requirements are not present; (2) species are transitory and occur in the area rarely during migration; and (3) species are not tolerant of disturbance or proximity to human activities that are currently present in the BSA. Tables 2.3.5-1 and 2.3.5-2 summarize only special-status species

known or expected to occur in the BSA or its vicinity (i.e., in the City of Long Beach or in the harbor area) based on the results of the literature reviews and field reconnaissance surveys. No special-status terrestrial natural communities are listed for the USGS Long Beach quadrangle.

In summary, special-status species of the BSA are limited to the state-listed peregrine falcon, CSSC double-crested cormorant, and several CSSC bat species that may be considered routine residents of the BSA (Exhibit 2.3.1-1). Other special-status species that may use the BSA occasionally for foraging include the federally and state-listed California brown pelican and California least tern; however, even these species generally forage at locations distant from the BSA.

### **2.3.5.3 Environmental Consequences**

#### **Evaluation Criteria**

The following criterion is the basis for evaluating whether there are substantial adverse effects to plant species resulting from project development:

- An adverse impact to natural resources would involve the loss of the TES plant or wildlife species, or degradation of their habitat.

#### **No Action Alternative**

The No Action Alternative would not result in any effects on TES in the project area.

#### **Construction and Demolition Impacts**

##### North-side Alignment Alternative

*Peregrine Falcon:* During construction of the North-side Alignment Alternative, no work would occur on the existing bridge until the final demolition stage of construction. During most of this project (approximately 48 months of the 60-month schedule), existing peregrine nesting ledges would be available for use. Use of the existing perches may be affected by construction disturbances (i.e., noise and vibration or visual disturbances) and, although not anticipated, could result in nest abandonment. Major construction associated with the main span, including pile driving and bridge deck construction, would occur within the vicinity of the existing ledge locations. Bridge deck and pile driving construction activities would occur within approximately 50 ft (15 m) and 300 ft (91 m), respectively. Due to the existing nesting ledge location (i.e., beneath Gerald Desmond Bridge in substructure [see Exhibit 2.3.5-1]), construction activities would be mostly screened from view by the existing bridge because the new bridge deck would be

<sup>14</sup> The geographic limits that define the total area occupied by a given species.

Table 2.3.5-1 Special-Status Plant Species Potentially Present in the Gerald Desmond Bridge Biological Study Area				
Scientific Name and Common Name	Status		General Habitat Requirements and Known Occurrence	Potential for Occurrence in the BSA
	USFWS	CDFG CNPS		
southern tarplant ( <i>Centromadia parryi ssp. australis</i> )	--	1B	Occurs in coastal salt and freshwater estuary edges; seasonally and in disturbed soils near saltwater; known to occur in the City of Long Beach near the Marine Stadium (Keane Biological Consulting, 2007; flowers May- November (CNPS, 2002; CDFG, 2002a).	No suitable habitat <sup>15</sup> in the BSA.

1B: rare, threatened, or endangered in California or elsewhere (CNPS, 2001).

Table 2.3.5-2 Special-Status Wildlife Species Potentially Present in the Gerald Desmond Bridge Biological Study Area				
Common Name and Scientific Name	Status		General Habitat Requirements and Known Occurrence	Potential for Occurrence in the BSA
	Federal USFWS	State CDFG		
<b>Reptiles</b>				
Leatherneck turtle ( <i>Demochelys coriacea</i> )	FE	--	Occasionally observed off the southern California coast.	May occur rarely in the Outer Harbor and very rarely in the Inner Harbor.
Loggerhead turtle ( <i>Caretta caretta</i> )	FT	--	Most abundant turtle observed off the coast of southern California.	May occur rarely in the Outer Harbor and very rarely in the Inner Harbor.
Green turtle ( <i>Chelonia mydas</i> )	FE for Florida & Mexico breeding sites; FT other areas	--	Nests on Pacific coast beaches of Baja California, Mexico, occasionally observed off southern California coast.	Observed in Long Beach Alamitos Bay. Observed occasionally in the Outer Harbor and expected rarely in the Inner Harbor.
Olive ridley turtle ( <i>Lepidochelys olivacea</i> )	FE for Mexico breeding sites; FT other areas	--	Nests on Pacific coast beaches of Baja California, Mexico, occasionally observed off southern California coast.	May occur rarely in the Outer Harbor and very rarely in the Inner Harbor.

<sup>15</sup> A place exhibiting optimal environmental conditions for support of a given species. Availability of suitable habitat is critically important to species that are sedentary, especially invertebrates. The presence of species with high mobility, such as flying insects and birds, may not necessarily infer presence of suitable habitat. For example, gulls are often observed in vehicle parking lots, but this does not imply that parking lots are suitable habitat. The same is true for raptors and other predators, which may forage over a variety of areas to exploit hunting opportunities, or big game, which require large areas to support a range of seasonal diets.

**Table 2.3.5-2  
Special-Status Wildlife Species Potentially Present  
in the Gerald Desmond Bridge Biological Study Area**

Common Name and Scientific Name	Status		General Habitat Requirements and Known Occurrence	Potential for Occurrence in the BSA
	Federal USFWS	State CDFG		
<b>Birds</b>				
Common loon ( <i>Gavia immer</i> )	--	CSC	Winters along the California coast, including harbors and estuaries; nests in Canada and Alaska; no nesting in southern California.	Occasionally observed swimming and foraging in the Outer Harbor (MEC, 2002)
California brown pelican ( <i>Pelecanus occidentalis californicus</i> )	FE BCC	SE CFP	Forage in West Basin; colonial ground-nester in isolated, undisturbed coast beaches, offshore islands, and interior lake margins; forages for fish in fresh, brackish, or marine waters (U.S. Navy/City of Long Beach, 1998; MEC, 2002; Shields, 2002).	Foraging and day-resting habitat present; individuals may be observed in project area.
double-crested cormorant ( <i>Phalacrocorax auritus</i> )	---	CSC	Prefers coasts, inland lakes, and estuaries for foraging; nests on offshore islands and on tall mainland trees and structures. Nests on transmission towers at Piers S and A in the BSA (Exhibit 2.3.1-2); also forages throughout the harbor area waters. A total of 78 (and a maximum of 13) individuals was observed in the Back Channel of the BSA during 2000-2001 surveys (MEC, 2002).	Suitable nesting habitat present; Back Channel and Cerritos Channel also provides foraging habitat, but better foraging habitat present in Outer Harbor.
great blue heron ( <i>Ardea herodias</i> )	--	--	Colonial nester; nests in tall trees, including palm trees; forages on fish and other marine animals, as well as small terrestrial mammals; observed nesting at Gull Park in the Navy Mole (Exhibit 2.3.1-2) (U.S. Navy/City of Long Beach, 1998). 8 nests at Gull Park in 2006 and 2007 (MBC, 2007).	No nesting habitat present in BSA; some foraging and roosting habitat present; individuals may be observed occasionally foraging in BSA.
black-crowned night heron ( <i>Nycticorax nycticorax</i> )	--	--	Former nesting colony at Gull Park in the Navy Mole (Exhibit 2.3.1-2) (U.S. Navy/City of Long Beach, 1998; MEC, 2002). 423 nests in 2000, 81 nests in 2001 during Navy soil remediation activities; no nesting at Gull Park since 2002 due to Navy disturbance (MBC, 2007). Nesting was also observed in ficus trees adjacent to the Vincent Thomas Bridge during 2008 surveys for POLA.	No nesting habitat present in BSA; only foraging and roosting habitat present, may occasionally forage in Back Channel and Cerritos Channel.
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	BCC	SE <sup>16</sup>	Resident; documented as using the Gerald Desmond and Schuyler Heim bridges for nesting (Exhibit 2.3.1-2) since 1993; assumed to have occupied project area since the 1980s (U.S. Navy/City of Long Beach, 1998; MEC, 2002).	Known nesting habitat present in BSA; also expected to forage on rock doves in BSA and occasionally on marine birds in Back Channel.

<sup>16</sup> On August 6, 2009, the California Fish and Game Commission voted to remove the peregrine falcon from the State's list of endangered species. Currently, the ruling is under review by the State Office of Administrative Law. Pending approval of the ruling, the peregrine falcon would be removed from the endangered species list, but it would remain a "fully protected" species. The final ruling on the matter may or may not result in a change in either the impact findings and/or proposed mitigation pertaining to the species. This information is expected to be available in time for inclusion in the final environmental document.

**Table 2.3.5-2  
Special-Status Wildlife Species Potentially Present  
in the Gerald Desmond Bridge Biological Study Area**

Common Name and Scientific Name	Status		General Habitat Requirements and Known Occurrence	Potential for Occurrence in the BSA
	Federal USFWS	State CDFG		
western snowy plover ( <i>Charadrius alexandrinus nivosus</i> )	FT BCC	CSC	Prefers undisturbed sandy marine or estuary beaches, shores of large alkali lakes; may use road shoulders or salt pond levees; nests on fine gravel (Page <i>et al.</i> , 1995; U.S. Navy/City of Long Beach, 1998; MEC, 2002). Occasionally observed as a migrant at Pier 400 (Keane Biological Consulting, 2007).	No suitable nesting or foraging habitat in BSA.
black oystercatcher ( <i>Haematopus bachmani</i> )	BCC	--	Nests on rocky offshore islands, including a nesting colony on the Outer Harbor breakwater (U.S. Navy/City of Long Beach, 1998; MEC, 2002). Observed foraging on riprap in several areas of the harbor (MEC, 2002).	No nesting habitat present in BSA; some foraging habitat along riprap of BSA.
Long-billed curlew ( <i>Numerius americanus</i> )	--	CSC (nesting habitat)	Winters along the California coast. Nests in northeastern California and north; no nesting in southern California. Forages in fields, mudflats, and sometimes on riprap (MEC, 2002).	Occasionally observed foraging on riprap at the Seaplane Lagoon west of the Navy Mole (MEC, 2002).
California gull ( <i>Larus californicus</i> )	--	CSC (nesting habitat)	Small numbers present year-round on the California coast. Forages in open ocean, harbors, and estuaries. Nests at Mono Lake, northeastern California, and further north; no nesting in southern California.	Observed in the Outer and Inner Harbors, including more than 50 individuals in the Inner Harbor including the BSA (MEC, 2002).
Caspian tern (nesting colony) ( <i>Sterna caspia</i> )	BCC	--	Colonial nesting species; formerly nested (1997-2005) near the least tern nesting site on Pier 400 in the Los Angeles Harbor (Keane Biological Consulting, 2007); forages in harbor waters. 27 individuals observed in Back Channel over 20 surveys (MEC, 2002). 53 Caspian terns successfully nested on "Arctic Challenger" barge in Long Beach Harbor in 2007 (Ross, 2007).	Aside from occasional use of harbor barges for nesting, no nesting habitat is present in BSA; some foraging and roosting habitat present; individuals may occasionally forage in Back Channel and Cerritos Channel.
elegant tern ( <i>Sterna elegans</i> )	BCC	CSC	Colonial nesting species with relatively restricted distribution; 90 percent of total population breeds in 5 southern California sites (U.S. Navy/City of Long Beach, 1998; Burgess <i>et al.</i> , 1999; MEC, 2002). Formerly nested (1998-2005) near the least tern nesting site on Pier 400 in the Los Angeles Harbor; occasionally forages the harbor, but primarily outside harbor; 2 individuals observed in Back Channel over 20 surveys (MEC, 2002). High numbers use breakwater and adjacent harbor waters for foraging with newly fledged young late June to early August.	Aside from unsuccessful nesting on harbor barges in 2006, no nesting habitat is present in BSA; some foraging and roosting habitat present in Back Channel and Cerritos Channel.

**Table 2.3.5-2  
Special-Status Wildlife Species Potentially Present  
in the Gerald Desmond Bridge Biological Study Area**

Common Name and Scientific Name	Status		General Habitat Requirements and Known Occurrence	Potential for Occurrence in the BSA
	Federal USFWS	State CDFG		
California least tern ( <i>Sternula antillarum browni</i> )	FE BCC	SE	Breeds on Pacific coast from San Francisco Bay to southern Baja California, Mexico, and forages offshore and in harbors, bays, and estuaries. Preferred nesting habitat is sandy beaches and mudflats bordering shallow water in estuaries (Thompson <i>et al.</i> , 1997; CDFG, 2002a). Nests in a protected nesting site on Pier 4000 in the Los Angeles Harbor (Exhibit 2.3.1-2) and forages throughout the harbor area waters, including the Inner Harbor, as well as outside the harbor (Keane Biological Consulting, 2004).	No nesting habitat exists in BSA. Designated shallow-water habitat for least tern foraging present west of Pier T Mole and in a 26-acre (10-ha) area of shallow water adjacent to Pier 400, but forages in many areas of the harbor, including the East Basin, Cerritos Channel, and Back Channel (MEC, 2002) near the BSA.
black skimmer ( <i>Rynchops niger</i> )	BCC	CSC	Nested 1998-2000 on Pier 400 in the Los Angeles Harbor; forages in harbor area waters of the Outer Harbor (U.S. Navy/City of Long Beach, 1998; MEC, 2002). Not observed in the Inner Harbor during 20 surveys in 2000-2001 (MEC, 2002).	No nesting habitat present in BSA; only foraging and roosting habitat present; individuals may be observed rarely foraging in Back Channel and Cerritos Channel.
western burrowing owl ( <i>Athene cunicularia hypugea</i> )	BCC	CSC	Open, dry grasslands, deserts, scrublands, and open fields with low-growing, often non-native vegetation; dependent upon burrowing mammals, most notably of California ground squirrel ( <i>Spermophilus beechyi</i> ), for burrow nests; forages on small mammals and insects (Haug <i>et al.</i> , 1993; U.S. Navy/City of Long Beach, 1998; MEC, 2002). 5 individuals observed and live-trapped from the California least tern nesting area on Pier 400 in 2007 (Keane Biological Consulting, 2007).	No nesting or foraging habitat in BSA.
loggerhead shrike ( <i>Lanius ludovicianus</i> )	FSC BCC	CSC	Prefers open habitats such as grasslands and deserts; also known to use golf courses, pastures, and suburban parks. Observed on riprap and dockpiling habitat of Inner Harbor during surveys for this report. Not observed nesting during the 2000-2001 surveys, but reported to nest in previous years within harbor area (USACE, 1984). This species' numbers in coastal southern California and throughout the United States have declined in recent years.	Little nesting habitat and some foraging habitat present in BSA; individuals may be occasionally observed perching and foraging in BSA.
<b>Mammals</b>				
Gray whale ( <i>Eschrichtius robustus</i> )	Delisted as FE June 1994	--	Migrates off the coast of southern California November through February to and from wintering/birthing grounds in Baja California, Mexico.	Observed in Outer Harbor off Pier 400 July 2004 (Keane, 2007); expected rarely in the Outer Harbor and not at all in the narrow channels of the BSA.

**Table 2.3.5-2  
Special-Status Wildlife Species Potentially Present  
in the Gerald Desmond Bridge Biological Study Area**

Common Name and Scientific Name	Status		General Habitat Requirements and Known Occurrence	Potential for Occurrence in the BSA
	Federal USFWS	State CDFG		
Blue Whale ( <i>Balaenoptera musculus</i> )	FE	--	Migrates off the coast of southern California. Spends summers in Alaska and wintering/birthing grounds in southern California/ Baja California, Mexico.	Recently observed off the coast of Long Beach.
Townsend's big-eared bat ( <i>Corynorhinus townsendii</i> )	--	CSC	Primarily occurs in humid coastal regions of California; occupies wide variety of habitats; roosts in caves, buildings, bridges; highly sensitive to human disturbance at roosting and maternity sites (Kunz and Martin, 1982).	Individuals may occasionally occur in BSA, roosting under the Gerald Desmond Bridge.
long-legged bat ( <i>Myotis volans</i> )	--	WBWG	Commonly associated with forest communities above 4,000 ft (1,220 m); also forages from sea level to higher elevations in chaparral, coastal scrub habitats; roosts in rock crevices, buildings, under tree bark, in snags, mines, and caves (Warner and Czaplewski, 1984).	Individuals or small colonies may occasionally occur in BSA roosting under the Gerald Desmond Bridge.
Yuma bat ( <i>Myotis yumanensis</i> )	--	WBWG	Optimal environments include open forests in proximity to bodies of water used for foraging; maternity colonies occur in caves, mines, crevices, buildings, and bridges. One of the most numerous bat species roosting under bridges in southern California.	Individuals or small colonies expected to occur in BSA, roosting under the Gerald Desmond Bridge; some foraging habitat also present in BSA.
Mexican free-tailed bat ( <i>Tadarida brasiliensis</i> )	--	WBWG	One of the most widely distributed mammalian species in the Western Hemisphere. Uses caves and rock crevices on cliff faces for roosting. One of the most numerous bat species roosting under bridges in southern California.	Small to large colonies expected to roost under the Gerald Desmond Bridge; foraging habitat also present in BSA.

Federal Status:

FE: Listed as endangered under ESA  
FT: Listed as threatened under ESA  
BCC: Bird of Conservation Concern (USFWS, 2002a)

State Status:

SE: Listed as endangered under CESA  
CFP: California Fully Protected Species  
CSC: Species of concern as identified by CDFG  
WBWG: A species of concern for the Western Bat Working Group, a conservation group comprised of organizations, agencies, and private individuals





**Exhibit 2.3.5-1  
Peregrine Falcon Nesting Ledge on the Existing Gerald Desmond Bridge**

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approximately 50 ft (15 m) higher than the existing bridge deck. Construction disturbances would include the presence of equipment, noise, and humans in close proximity (i.e., less than 250 ft [76 m] [Parsons, 2008b]) to perches and/or nesting ledges frequented by peregrine falcons). Construction activity during the 1 to 2 months prior to initiating nesting (approximately January through February) could create sufficient disturbances for peregrines to seek alternate nesting sites within their territory. Other known nesting sites in the project environs include Schuyler Heim Bridge, Vincent Thomas Bridge, Koch Carbon, and Long Beach City Hall. Only the Long Beach City Hall location has been unused for the last several years, and the new bridge proposed to replace the Schuyler Heim Bridge will not have nesting ledges.

Peregrine falcons have demonstrated a high tolerance to human activities, including construction, and the falcons nest in urban settings throughout North America, and in particular on bridges (Bell *et al.*, 1996; Cade *et al.*, 1996). Early in the 1997 breeding season, biologists documented a move of resident peregrines from a nesting site on the Gerald Desmond Bridge to a new nesting site on the Schuyler Heim Bridge in response to construction activities on the Gerald Desmond Bridge (BioResource Consultants, 1998); however, it is rare for a peregrine falcon to abandon a nest due to construction disturbance (Sipple, 2006). It is unlikely that the effects of construction would substantially affect nesting productivity or overall behavior. Peregrine nesting and behavior would be monitored throughout construction of the project, and visual barriers or similar devices acceptable to CDFG would be installed, as necessary, to minimize construction disturbances to nesting peregrine falcons. If monitoring indicated that nesting attempts were being initiated but construction disturbance was discouraging nesting at the current ledges, then the Port, in coordination with CDFG, would install temporary ledges on the Gerald Desmond Bridge at locations that would minimize potential construction disturbance. Successful use of artificial nest boxes was documented in 1997, when a nesting pair of peregrine falcons was disrupted by construction on the Gerald Desmond Bridge. The pair almost immediately reinitiated nesting at a gravel-filled, artificial nesting box placed on an existing ledge of the Schuyler Heim Bridge (BioResource Consultants, 1998).

Construction disturbance could also result in shifts in perch preferences and increased aggressive territorial behaviors to neighboring peregrines or

other species, including increased predation (Sipple, 2006).

New nesting ledges would be incorporated into the design of the new bridge. They would be installed last or their use would be excluded prior to completion of the new bridge. Once the new ledges and boxes are available for occupancy, and prior to demolition activities, CDFG exclusion devices would be used on existing nest sites. If upon completion of the new bridge no peregrines are nesting on the Gerald Desmond Bridge, then exclusion devices would be immediately installed under the supervision of a CDFG-approved raptor biologist prior to initiation of demolition of the old bridge. Otherwise, exclusion devices would be installed subsequent to the nesting and prior to the nest site selection seasons.

With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse construction or demolition effects associated with the North-side Alignment Alternative on the peregrine falcons.

*Bats:* As previously discussed, no work would occur on the existing bridge until the final demolition stage of construction. During most of this project (approximately 48 months of the 60-month schedule), existing roosts or other areas would remain available for use by bats. Additionally, it is anticipated that this alternative would be constructed mainly during daytime hours and would have little impact on night feeding or behaviors. It is possible that construction disturbance would result in abandonment of the Gerald Desmond Bridge. If this roost abandonment did occur, there are other suitable bridges and buildings within the Port area for the bats to utilize during construction.

All monitoring would be completed by a CDFG-approved bat biologist. Preconstruction surveys would be initiated approximately 1-year prior to construction. Surveys would focus on species identification, roosting areas, and roost characteristics. Surveys would include at least one breeding season. Information obtained during the surveys would provide necessary information for monitoring during construction, determining roost characteristics for re-creation on the new bridge and species information to determine if additional coordination with CDFG is necessary. If CDFG sensitive bat species are present on the bridge, then the Port would coordinate with CDFG regarding species observations and incorporate additional measures to minimize effects on the species, as applicable.

Monitoring during construction would be completed to document construction effects on bats. If CDFG sensitive species are present, then monitoring would focus on those species, and depending on the bat response, additional coordination with CDFG or measures to minimize construction disturbance on sensitive species may be required.

Bat boxes and/or bat friendly engineering features would be installed/incorporated into the new bridge and would be available for bat occupancy prior to excluding bats from the existing bridge before demolition. Roost information obtained during monitoring would be utilized in recreating roosts on the new bridge. Once the new boxes are installed, bat exclusion could begin at all areas, except at maternity roosts. If feasible, all exclusion would occur before or after the bat breeding season. If maternity roosts are present, then bat exclusion would not occur at these locations until after the bats have been weaned. All exclusion activities would be completed under the supervision of a CDFG-approved bat biologist. During bridge demolition, the new bridge would be monitored to document use of the bat boxes. The Gerald Desmond Bridge would be monitored to determine if additional areas require exclusion. The exclusion devices would also be monitored to ensure that they are properly installed and not resulting in injury to the bats. Subsequent to demolition, the use of the new bridge would be monitored.

With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse construction or demolition effects associated with the North-side Alignment Alternative on bat species.

*Double-crested Cormorants:* Cormorants have been observed nesting on the SCE transmission towers on both sides of the Cerritos Channel, north of the LBGS, and they could be affected during construction of new transmission towers/lines. The new towers would be constructed adjacent to the existing towers and potentially could result in abandonment of nests on the towers during construction activities; however, construction of the new towers would be initiated outside of the cormorant nesting season. Subsequent to construction of the new towers, the old towers would remain in place, and cormorants could nest on both the new and old towers.

Cormorant nesting may also be indirectly affected by visual and auditory disturbance associated with construction and demolition

activities on the new and old bridge. However, the towers are approximately 1,837 ft (560 m) from the bridge; therefore, the potential for nest abandonment as a result of construction disturbances associated with bridge construction and demolition activities is low, and potential indirect effects on nesting double-crested cormorants would not be substantial. Construction of the proposed project would not affect cormorant feeding or roosting in the BSA because these birds are known to feed and roost in areas of the Inner Harbor subject to high human activity and disturbance (Table 2.3.5-2).

With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse construction or demolition effects on cormorants associated with the North-side Alignment Alternative.

*Other sensitive Species:* The California least tern and California brown pelican use the BSA rarely compared to other areas of the harbor, and they will likely avoid the construction zone during periods of high noise and high human activity; however, these species have been observed roosting and foraging in areas adjacent to construction areas and are apparently little disturbed by construction effects. Indirect effects of project construction on adjacent user areas are not anticipated to be substantial.

The only other special-status wildlife species expected to be present in the BSA during construction, albeit occasionally, are elegant tern, Caspian tern, and black skimmer. The BSA is not considered to be important foraging habitat for these species (see Table 2.3.5-2). With the exception of during pile driving activities, these species would likely continue to utilize the BSA during construction at similar levels as prior to and following construction.

Construction night lighting could result in indirect effects on special-status species, as well as on migratory birds and other birds using the BSA. Artificial lighting may disrupt resident bird behavior (International Dark-Sky Association, 2002; Longcore and Rich, 2004). Birds are known to occasionally become disoriented in bright lights and collide with power lines and towers, including coastal lighthouses (Martin, 1990). These collisions have been documented extensively (Trapp, 1998), but they do not include bird collisions with bridges. This could be due to a variety of factors, but generally, bird kills in these areas have factors (e.g., high-wattage lighting pointing upward, invisible power lines, or

tall towers that are difficult to detect) that would likely not be associated with the North-side Alignment Alternative. Given these considerations, including the extent and brilliance of ambient night time lighting of the harbor areas adjacent to the bridge, lighting on the existing bridge, and the industrialized nature of the BSA, the potential for bird collisions with the new bridge and related structures due to night lighting during construction would not represent a substantial effect on bird migration or bird use within the bridge vicinity; however, measures outlined in Section 2.3.5.4 include BMPs for bridge lighting during project construction.

#### South-side Alignment Alternative

Construction and demolition effects to sensitive species would be the same under the South-side Alignment Alternative as described under the North-side Alignment Alternative. With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse construction and demolition effects associated with the North-side Alignment Alternative.

#### Rehabilitation Alternative

**Peregrine Falcon:** During construction of the Rehabilitation Alternative, most of the project (approximately 40 months) would require major construction activities at night above the existing nest ledges during replacement of the bridge deck, and during the day directly on and adjacent to the ledges at the time of adjacent structure seismic upgrades and painting operations. To ensure no mortality of peregrines due to construction-related mishaps, CDFG-approved exclusion methods would be installed at existing nest sites under the supervision of a CDFG-approved raptor biologist before initiating rehabilitation activities and prior to or following the nest site selection and nesting seasons. During the final design phase, the Port, in coordination with CDFG, would select locations for alternate nesting ledge sites that would minimize the amount of activity within 250 ft (76 m) of new perch locations. The project would be phased to complete seismic retrofit activities at the selected locations first. Subsequent to completion of the seismic retrofit activities at the alternate nesting ledge locations, new nesting ledges would be created. If feasible, the work would be completed prior to the nest site selection period. If the work adjacent to the alternate nest locations could not be completed prior to the following nest site selection period, then it could result in loss of nesting ledges for a maximum of two breeding

seasons (i.e., one during adjacent seismic work and one during adjacent painting work). As discussed under the North-side Alignment Alternative, the peregrine falcons do not always nest on the Gerald Desmond Bridge, and alternate nesting sites are believed to exist within the vicinity of the project for peregrines to utilize (e.g., hotels, silos, bridges, Long Beach City Hall) (Sipple, 2006). With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse construction effects associated with the Rehabilitation Alternative on falcons.

**Bats:** As previously discussed, construction of the Rehabilitation Alternative would require seismically upgrading the existing structure and would involve both day and night construction for most of the project (approximately 40 months). Night lighting would be focused onto the bridge surface to minimize lighting effects on night feeding. Construction would be staged to ensure that some roosting areas would be available at all times and/or would be completed first to minimize the potential effects on bats. If roost abandonment due to construction disturbance occurs, there are other suitable bridges and buildings within the Port area for the bats to utilize during rehabilitation activities.

All monitoring would be completed by a CDFG-approved bat biologist. Preconstruction surveys would be initiated approximately 1-year prior to construction. Surveys would focus on species identification and roosting areas. Surveys would include at least one breeding season. Information obtained during the surveys would provide necessary information for staged exclusion during construction. If preconstruction surveys identify that CDFG species of concern are utilizing the Gerald Desmond Bridge, then the Port would coordinate with CDFG regarding species observations and incorporate additional measures to minimize effects on the species, as applicable.

All exclusion activities would be completed under the supervision of a CDFG-approved bat biologist. The approved bat biologist would monitor all of the exclusion devices to ensure that they are properly installed and not resulting in injury to the bats. The monitor would also look for new areas that the bats might use and ensure exclusion from those areas, as applicable.

Subsequent to completion of the rehabilitation activities, all exclusion devices would be removed, and these areas on the bridge would again be made available for bat use.

With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse construction effects associated with the Rehabilitation Alternative on bats.

**Double-crested Cormorants:** The Rehabilitation Alternative does not include construction of replacement transmission towers/lines. Conceivably, nesting could be indirectly affected by visual, auditory and night lighting construction disturbance associated with bridge rehabilitation activities. However, the towers are approximately 1,837 ft (560 m) from the bridge; therefore, the potential for nest abandonment as a result of construction disturbances or potential indirect effects on nesting Double-crested Cormorants as a result of rehabilitation activities would be low. Construction of the Rehabilitation Alternative would not affect cormorant feeding or roosting in the BSA because these birds are known to feed and roost in areas of the Inner Harbor subject to high human activity and disturbance (Table 2.3.5-2).

**Other sensitive Species:** The California least tern and California brown pelican use the BSA rarely compared to other areas of the harbor, and they will likely avoid the construction zone during periods of high noise and high human activity; however, these species have been observed roosting and foraging in the project vicinity and are apparently little disturbed by construction effects. Indirect effects of project construction on nearby areas utilized by these species are not anticipated to be substantial.

The only other special-status wildlife species expected to be present in the BSA during construction, albeit occasionally, are elegant tern, Caspian tern, and black skimmer. Because the BSA does not represent important foraging habitat for these species (see Table 2.3.5-2), disturbances generated by construction activity would not substantially effect foraging. These species would likely continue to forage in the BSA during construction at similar levels as prior to and following construction.

Night lighting during bridge rehabilitation activities may result in indirect effects on special-status species, as well as on migratory birds and other birds using the BSA. Artificial lighting may disrupt resident bird behavior (International Dark-Sky Association, 2002; Longcore and Rich, 2004). Birds are known to occasionally become disoriented in bright lights and collide with power lines and towers, including coastal lighthouses (Martin, 1990). These collisions have been

documented extensively (Trapp, 1998), but they do not include bird collisions with bridges. This could be due to a variety of factors, (e.g., high-wattage lighting pointing upward, invisible power lines, or tall towers that are difficult to detect) that would likely not be associated with the bridge Rehabilitation Alternative. Given these considerations, including the extent and brilliance of ambient nighttime lighting of the harbor areas adjacent to the bridge, lighting on the existing bridge, and the industrialized nature of the BSA, the potential for bird collisions with the bridge and related structures due to night lighting during construction would not represent a substantial effect on bird migration or bird use within the bridge vicinity; however, measures outlined in Section 2.3.5.4 include BMPs for bridge lighting during project construction.

### **Operational Impacts**

#### North-side Alignment Alternative

Operation of this alternative would result in a permanent change to nighttime lighting on and adjacent to the new bridge. Lighting of the project during operation may affect special-status species and resident/migratory birds. Artificial lighting may potentially disrupt behavior, resulting in disorientation and collisions with the bridge structures (International Dark-Sky Association, 2002; Longcore and Rich, 2004); however, as previously discussed, it is not anticipated that disorientation or bird collision with the new structures would increase due to the new bridge lighting and would not represent a substantial effect on birds or special-status species migration or use within the vicinity of the bridge. The North-side Alignment Alternative would incorporate types of lighting known to minimize potential effects (i.e., low-pressure sodium lights, high-pressure sodium lights, or LED lights) and would avoid lighting types known to be disruptive to migrating wildlife (mercury vapor lamps [Jones, 2000]). Additionally, lighting would be shielded to ensure that light is focused inward, and the amount of lighting would be reduced where possible. During bridge lighting design, special attention would be given to those areas where nesting ledges or bat boxes are proposed. Lighting would be designed to focus away from these areas to minimize the effects on falcons and bats.

With implementation of the avoidance and minimization measures in Section 2.3.5.4, there would be no adverse operational effects associated with the Rehabilitation Alternative.



Use of the BSA and its vicinity by all special-status species is expected to continue similar to its current level. The special-status species of the BSA are adapted to traffic near roosting, nesting, and foraging areas; therefore, no substantial indirect effects on special-status species due to project operation are anticipated.

#### South-side Alignment Alternative

Operational effects to special-status species would be the same under the South-side Alignment Alternative as described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

Operation of the Rehabilitation Alternative would not result in changes to bridge lighting, and bat and falcons could again occupy their familiar roosting and nesting areas after completion of construction. No operational effects to any species are anticipated under the Rehabilitation Alternative. Subsequent to completion of the bridge rehabilitation activities, operational impacts would be the same as the No Action Alternative.

### **2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures**

#### **Temporary Measures**

##### North- and South-side Alignment Alternatives

#### **Peregrine Falcons**

**BR-2 *Precluding Nesting on the Existing Bridge:*** Once the nest boxes are in place on the new bridge, and a minimum of 2 months prior to initiation of demolition activities within 500 ft (152 m) of the existing nesting locations, measures and/or structures approved by CDFG to discourage nesting at the previously used nest sites would be implemented under the supervision of a CDFG-approved raptor biologist. If existing nest sites are occupied, then exclusion activities could not occur until 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first (see No Work Zone under BR-3 Monitoring Program).

**BR-3 *Monitoring Program:*** The proposed monitoring program is based on measures from the Peregrine Falcon Monitoring and Mitigation Program (PFMMP) for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP, as proposed for the North- and South-side

Alignment Alternatives, are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of construction activities.

- *Timing of Monitoring:* A raptor biologist will initiate monitoring at least 1-year prior to the beginning of construction and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing and new bridge and begin prior to the placement of artificial nest boxes on the new bridge and prior to attempts to preclude nesting at the existing bridge. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first.

Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the new bridge.

- *Biological Monitor:* A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring.
- *Monitoring Effort:* All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the existing and new bridge. Monitoring during construction will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting on the old bridge, or if they have relocated to an alternate nesting site.

If peregrines attempt to nest on the existing bridge while construction activities are occurring, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to

determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods, as approved by CDFG, would be implemented at the nesting locations. If nest abandonment occurs, then the Port, in coordination with CDFG, will determine the feasibility of creating temporary nesting ledges at alternate locations in areas with less intense construction activities.

Nesting on the new structures shall be discouraged until construction of the new bridge is completed. The Port, in coordination with CDFG, will develop measures to be implemented by a raptor biologist, where feasible, or under the direction of a raptor biologist, where precluded by construction site safety concerns, to discourage nesting. Such measures may include continued removal of nesting materials or installation of CDFG-approved exclusion devices.

- *No Work Zone*: During construction of the new bridge and prior to exclusion efforts for bridge demolition activities, the existing nest ledges and boxes would be available for nesting. If a nesting attempt is made on the new bridge while under construction, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting on the areas under construction.

Prior to exclusion activities on the existing bridge, nesting ledges on the new bridge will be available for use. During demolition, if falcons attempt to nest on the existing bridge, despite efforts to deter nesting, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved

methods to further exclude nesting on the Gerald Desmond Bridge during demolition activities.

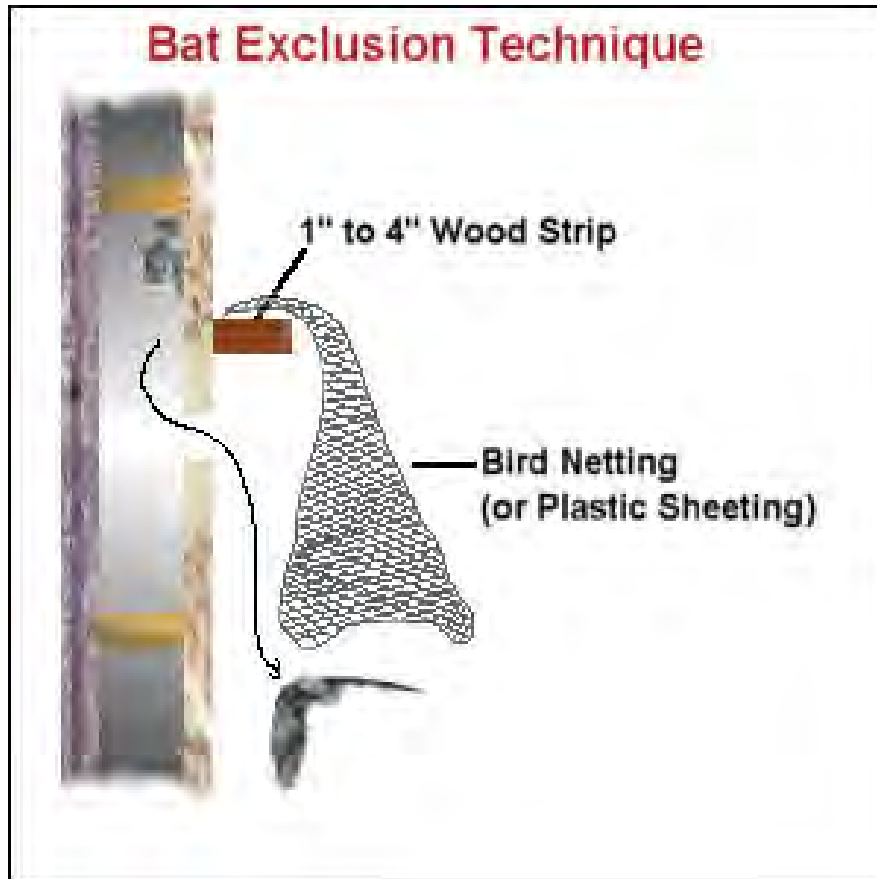
Should a nest be successfully established within the construction area during construction of the new bridge or demolition of the Gerald Desmond Bridge, the Port will instruct construction crews to adhere to a "No Work Zone" around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the MBTA. This "No Work Zone" will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized – 30 days after the last young leaves the nest or until nest abandonment, whichever occurs first. Demolition activities can continue at other locations outside of the "No Work Area."

- *Reporting*: Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during construction of the new bridge. During demolition, post-construction monitoring reports will be prepared to provide details on placement of artificial nest boxes and exclusion activities and the use of nesting ledges on the new bridge. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG

## **Bats**

### **BR-5**

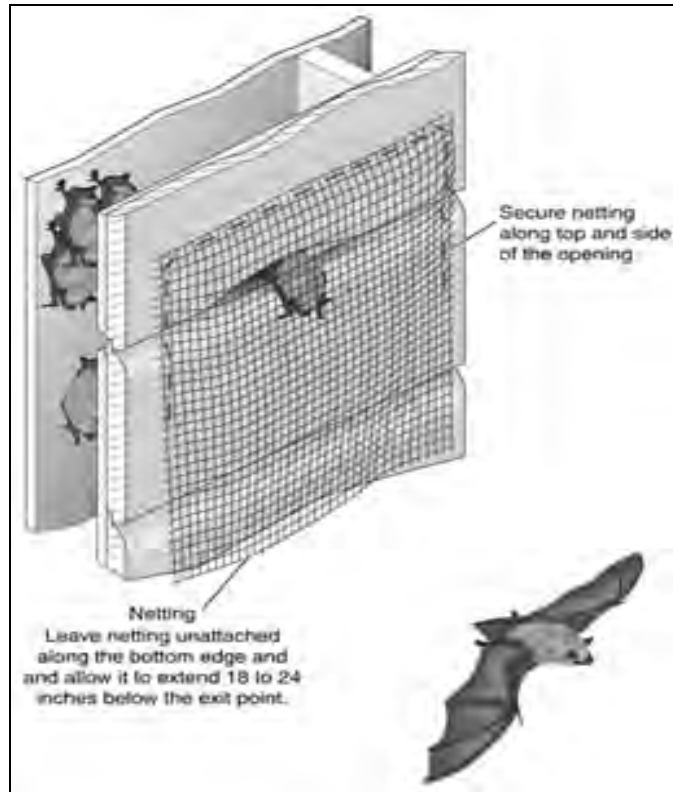
***Precluding Roosting on the Existing Bridge***: Prior to demolition, bats must be excluded from the existing bridge. Methods for excluding bats include use of a chemical repellent (i.e., naphthalene), use of floodlights, high-frequency noise, and placement of physical barriers such as nets to prevent bats from using roost sites (Greenhall, 1982). The exclusion method will be approved by the Port, Caltrans, and CDFG. The mechanical exclusion device is considered the safest and the most reliable (Exhibits 2.3.5-2 through 2.3.5-4). These barriers are commonly screens of mesh, hardware cloth, or wire, with mesh openings no greater than 0.25-in. (0.64-cm). The best



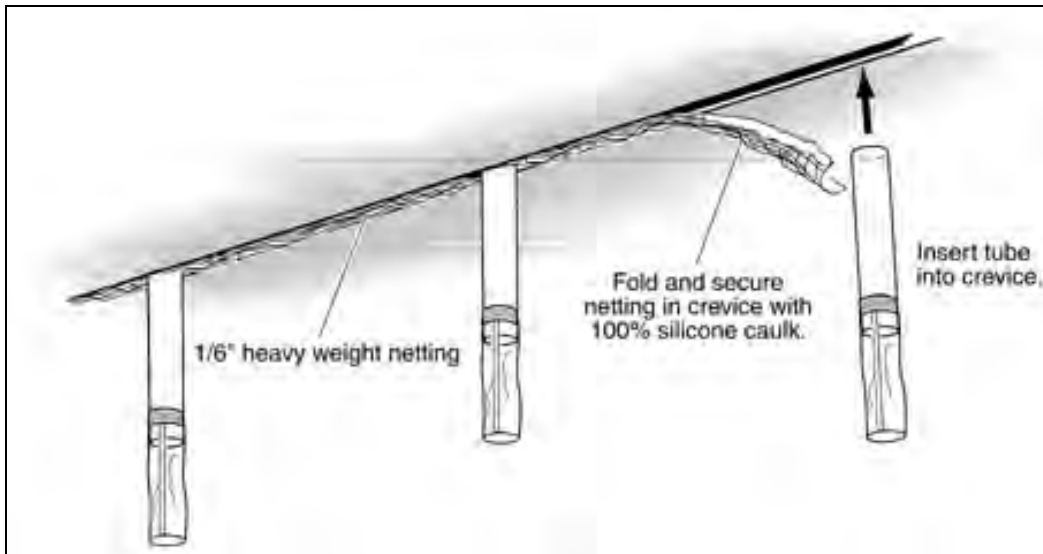
**Exhibit 2.3.5-2  
Mesh Exclusion for Small Openings<sup>17</sup>**

<sup>17</sup> Exhibit by: <http://www.batcon.org/discover/unguest.html>.

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**Exhibit 2.3.5-3  
Mesh Bat Exclusion Method**



**Exhibit 2.3.5-4  
Collapsible One-Way Tubes<sup>18</sup>**

<sup>18</sup> Exhibit by: <http://batcon.org/discover/unguest.html>

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time for bat proofing is November through March, after juvenile bats have learned to fly (Bat Conservation and Management, Inc., 2005). Exclusion work will be performed by contractors approved by Caltrans as experienced with excluding bats on bridges. This exclusion process may require 1 to 2 weeks, or potentially longer, given the size of the existing bridge.

Bat exclusion via netting is accomplished by first affixing mesh netting over known entry points using I-bolts, which allows bats to exit the bridge but not return. Bats returning to the bridge would first return to their normal point of entry, and then they would seek new roosts once they have determined that it is not possible to return to their old roosting site. This process will be monitored by a CDFG-approved bat biologist each night for at least 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that bats do not discover and use new roosts on the existing bridge and to that no bats become entangled in netting. If any new roosts are discovered on the existing bridge, they will be covered with mesh according to the above procedure. Very small crevices or fissures in the bridge may be sealed using caulk or a similar filling agent. Should numerous bats still be observed exiting the bridge at night after installation of exclusion cloth, it may be necessary to add another exclusion method, such as floodlights illuminating access points or crevices used by attract bats (bats will not roost in a well-lit area).

**BR-6 *Bat Monitoring Program:*** A monitoring program will be implemented throughout the construction phases of the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification, locations of bat roosts, and documentation of roost characteristics based on Fenton (2003) and O'Shea *et al.* (2003). If CDFG

species of special concern are identified, then the Port will coordinate with CDFG and incorporate additional monitoring/protection measures as applicable.

- *Timing of Monitoring:* Bat preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of construction. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season). Each survey will include daytime and nighttime surveys (see Monitoring Effort) focused on identifying specific locations of bat roosts and roost access points.

One month prior to the initiation of demolition of the existing bridge, the frequency of preconstruction surveys at the existing bridge and new bridge will increase to once weekly. This will coincide with placement of bat roosts on the new bridge. Quarterly construction monitoring will be completed. If CDFG sensitive bat species are identified during the preconstruction surveys or during quarterly surveys, then monthly monitoring during the bat breeding season will be completed and will focus on construction effects on bats. If it is determined that construction disturbance is affecting CDFG sensitive species, then the Port will coordinate with CDFG to incorporate additional protection measures, as applicable.

Monitoring during the demolition phase will focus on ensuring that all bats have been excluded after installing the bat boxes on the new bridge and prior to initiating demolition activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, then

exclusion netting will be installed and the monitoring process will continue until bats have been excluded from the bridge.

Post-construction monitoring will be conducted quarterly for 3 years and will document the use of new bat roosts.

- *Biological Monitor:* A qualified bat biologist thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port will conduct all bat monitoring and supervise the design and placement of new bat roosts and bat exclusion methods and devices.
- *Monitoring Effort:* The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices on the existing bridge.

During the quarterly preconstruction surveys, once the specific locations of bat roosts are determined, temperatures of existing roosting sites will be recorded so that selection of the location and type of artificial roosts on the new bridge can ensure duplication to the extent feasible of the thermal regime at existing bat roosts.

Monitoring during construction and demolition will focus on whether construction activities are disturbing bats at the existing and new bridge. If disturbances to bats are documented, and monitoring has identified the presence of maternity roosts or CDFG sensitive species, then the Port will coordinate with CDFG to identify measures to minimize effects on the maternity roosts and sensitive species.

- *Reporting:* Quarterly reports summarizing the monitoring efforts and observations at the new and existing bridge will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, the type of artificial bat roosts used at the new bridge, and exclusion devices at the existing bridge. The final report will also include photos and detailed observations, and a conclusions and recommendations section for agency use in future projects.

### **Cormorants**

- BR-7** Initial construction activities for the new transmission towers/lines shall not begin during the nesting season (April through August) if double-crested cormorants have active nests on the transmission towers. Construction activities associated with the transmission tower/lines will be initiated prior to or after the breeding season or after the young have fledged.

### **Migratory Birds**

- BR-8** Construction and operational bridge lighting during and following construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting types known to minimize adverse effects (i.e., low-pressure sodium lights, high-pressure sodium lights, or light-emitting diode [LED] lights) will be used, and lighting types known to be disruptive to migrating wildlife, such as mercury vapor lamps (Jones, 2000), will be avoided. Additionally, lighting will be shielded to ensure that light is focused where it is needed, focusing lighting inward and minimizing the amount of lighting used to the maximum extent possible.

### Rehabilitation Alternative

- BR-1b Artificial Nest Boxes:** Prior to the final design phase, the Port, in coordination with CDFG, will select temporary locations for alternate nesting sites on the Gerald Desmond Bridge that would minimize the amount of disturbance within 250 ft [76 m]) of new perch locations. Construction will be phased to complete adjacent seismic retrofit activities and

painting operations at the new nesting locations outside of the nest site selection and breeding periods. Subsequent to completing the adjacent seismic retrofit activities, the temporary nesting ledges will be installed and be continually available for use.

**BR-2b *Precluding Nesting on the Existing Bridge:*** To ensure no mortality of peregrines due to construction-related mishaps associated with bridge deck replacement, CDFG-approved exclusion methods will be installed at existing nest sites under the supervision of a CDFG-approved raptor biologist before initiating rehabilitation activities. Exclusion will occur prior to the nest site selection or after the breeding season. Due to the proximity of the bridge deck replacement activities to the existing nest sites, exclusion devices will remain until completion of the rehabilitation activities.

**BR-3b *Monitoring Program:*** The proposed monitoring program is based on measures from the PFMMP for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP, as proposed for the Rehabilitation Alternative, are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of rehabilitation activities.

- *Timing of Monitoring:* A raptor biologist will initiate monitoring at least 1-year prior to the beginning of rehabilitation and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing nesting locations and at the alternate nesting locations after placement of artificial nest boxes. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first.

Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to

document peregrine falcon nesting at the existing sites.

- *Biological Monitor:* A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring.
- *Monitoring Effort:* All monitoring will be conducted with the use of binoculars and/or spotting scope and will document peregrine falcon activity in the vicinity of the bridge. Monitoring during bridge rehabilitation will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting at the temporary locations, or if they have relocated to an alternate nesting site.

If peregrines attempt to nest at the temporary nesting locations during rehabilitation activities, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods, as approved by CDFG, would be implemented at the nesting locations.

Nesting on the Gerald Desmond Bridge in locations other than the temporary nesting locations shall be discouraged until rehabilitation activities are complete. The Port, in coordination with CDFG, will develop measures to be implemented by a raptor biologist, where feasible, or under the direction of a raptor biologist where precluded by construction site safety concerns to discourage nesting within areas under

construction. Such measures may include continued removal of nesting materials or installation of additional CDFG-approved exclusion devices.

- *No Work Zone:* During bridge rehabilitation activities, alternate nest ledges and boxes will be available for nesting. If a nesting attempt is made at a new location that would be under construction during the nesting season, a “No Work Zone” of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting at the new location.

Should a nest be successfully established within the construction area during bridge rehabilitation, then the Port will instruct construction crews to adhere to a “No Work Zone” around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the MBTA. This “No Work Zone” will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized or 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first. Rehabilitation activities can continue at other locations outside of the “No Work Area.”

*Reporting:* Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during bridge rehabilitation activities. During post-construction monitoring, quarterly reports will provide details on nesting attempts and breeding behavior and reproductive success. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.

## **Bats**

**BR-5b Precluding Roosting on the Existing Bridge:** Prior to beginning construction activities on each section of the bridge, bats will need to be excluded from that

section. Bat proofing will occur outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly. Bat exclusion will be staged to ensure that roosting sites in areas not currently under construction will be available at all times during the project to minimize the potential effects on bats. Exclusion methods for the Rehabilitation Alternative will be the same as discussed under BR-5.

**BR-6b *Bat Monitoring Program:*** A monitoring program will be implemented throughout the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification and locations of bat roosts and access points. If CDFG species of special concern are identified during preconstruction surveys, then the Port will coordinate with CDFG and incorporate additional monitoring and protection measures as applicable. During exclusion activities, monitoring of the exclusion devices will occur to ensure that entanglement of bats is not occurring. Monitoring will continue as long as bats are observed exiting the existing bridge. Subsequent to exclusion, monitoring during bridge rehabilitation activities will continue, focusing on locations where additional exclusion may be required. Post-construction monitoring will document recolonization of the bridge and former roost areas.

- *Timing of Monitoring:* Preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of bridge rehabilitation activities. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season). One month prior to rehabilitation activities, surveys will increase to weekly and consist of daytime and nighttime surveys (see Monitoring Effort) focused on species identification, identifying specific locations of bat roosts, access points, and roost characteristics.

Monitoring during the bat exclusion phase will focus on ensuring that all bats have been excluded prior to initiating bridge rehabilitation activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for seven consecutive nights or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, then exclusion netting will be installed and the monitoring process will continue until bats have been excluded from the bridge.

Post-construction monitoring will be conducted quarterly for 3 years to document the post-construction bat recolonization of the bridge.

- *Biological Monitor:* A qualified bat biologist, thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port, will conduct all bat monitoring and supervise the design and placement of bat exclusion methods and devices.

*Monitoring Effort:* The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices for the bridge. Monitoring during construction will focus on the presence of bats in the bridge area and to identify areas that would require further exclusion.

*Reporting:* Quarterly reports summarizing the monitoring efforts and observations will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, and exclusion devices used. The final report will also include photos and detailed observations, and conclusions and recommendations for agency use in future projects.

### **Migratory Birds**

- BR-8b** Bridge lighting during construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting will be shielded to ensure that light is focused inward on the construction area and minimize spillover that could affect migratory birds.

### **Permanent Measures**

#### North- and South-side Alignment Alternatives

#### **Peregrine Falcons**

- BR-1** *Artificial Nest Boxes:* A minimum of two nesting ledges with artificial nest boxes will be installed on the new bridge in different locations prior to demolition of the existing bridge. The boxes will be available prior to the nesting season. The new nest locations will be approved by CDFG and will be selected to minimize disturbance to the extent feasible. Should the peregrine falcons not use the new bridge for nesting despite the nest boxes, alternate suitable nesting sites are available in the project vicinity (e.g., hotels, silos, bridges, Long Beach City Hall).

#### **Bats**

- BR-4** *Placement of Bat Boxes:* Bat roosting boxes on the new bridge will be made available a minimum of 2 months prior to demolition activities within 500 ft (152 m) of active roosts at the existing bridge. Bat roosting boxes will be designed and built during construction of the new bridge, which is scheduled to occur before demolition of the existing bridge, to be ready for placement once the under-bridge structures are complete. The location and design of artificial roosts will also consider the temperature measured at roosts on the existing bridge during the

preconstruction period. A variety of designs and recommendations are available (Langenstein *et al.*, 1998; Keeley and Tuttle, 1999).

In addition to, or in lieu of, bat roosting boxes, the new bridge may be designed to incorporate potential roosts as part of the structure (Exhibit 2.3.5-5), or such structures may be designed and added to the new bridge post-construction (Exhibit 2.3.5-6). Bats prefer roosting sites with crevices 0.5- to 1.25 in. (1.27 to 3.175 cm) wide (Keeley and Tuttle, 2000). Bats also use soffits if they are left open; therefore, bridge design could also include soffits that could be left open without damaging the bridge or hindering access for maintenance or other ongoing bridge work. One such type of artificial roost is the Texas bat-abode, which has an external panel on either side and 1- by 2-in. (2.5- by 5.1-cm) wooden spacers sandwiched between 0.5- to 0.75-in. (1.2- to 1.9-cm) plywood partitions (Exhibit 2.3.5-6). The internal partitions will be designed to provide crevices 0.75-in. (1.9 cm) wide and at least 12 in. (31 cm) deep. Smooth roost surfaces need to be textured to provide footholds for bats on one or both sides of each plywood partition, creating irregularities at least every 0.125-in. (0.3-cm). Footholds for bats are constructed of rough-sided paneling, or panels coated with polyurethane or epoxy paint sprinkled with rough grit, or attaching plastic mesh with silicone caulk or rust-resistant staples.

## **2.3.6 Invasive Species**

### **2.3.6.1 Regulatory Setting**

On February 3, 1999, President Clinton signed EO 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.

### **2.3.6.2 Affected Environment**

Invasive species in the BSA include two invasive algae (*Sargassum muticum*, and *Undaria pinnatifida*), the New Zealand bubble (mud) snail, the spotwrist hermit crab, and feral cat. Some of the weedy terrestrial plant species, such as fan palm, can also be invasive; however, given the lack of native terrestrial habitat in the BSA, the invasive nature of fan palms is not a concern.

### **2.3.6.3 Environmental Consequences**

#### **Evaluation Criteria**

The following criterion is the basis for evaluating whether there are substantial adverse effects to plant species resulting from project development. Would the project:

- Result in the introduction or promote the establishment of any noxious weed or invasive plant or animal.

#### **No Action Alternative**

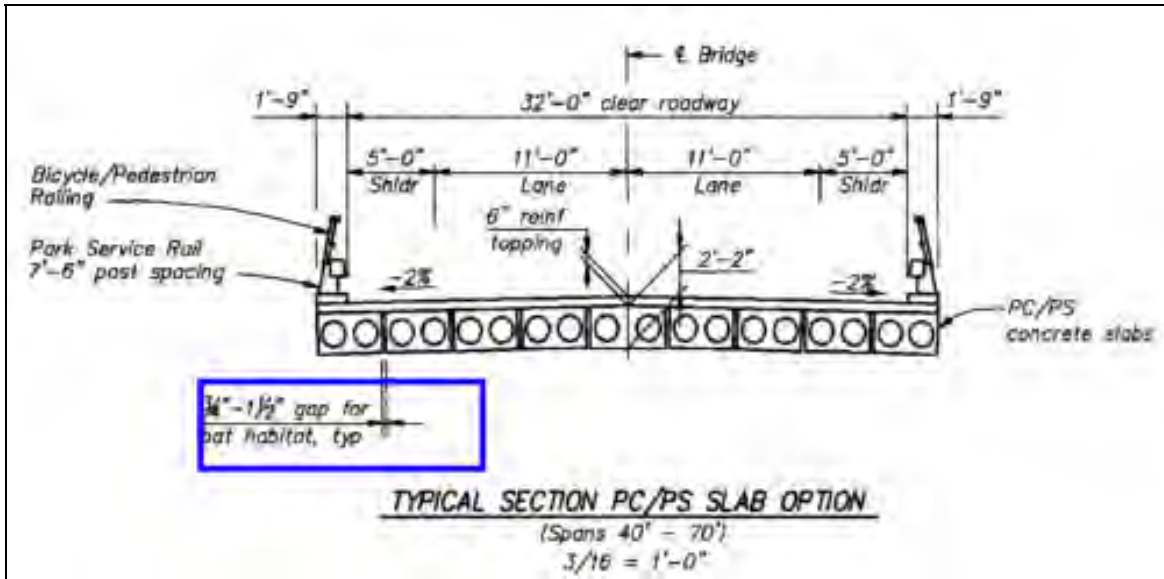
The No Action Alternative would not result in any construction activities or new operational effects, and it would not increase the likelihood of occurrence or spread of invasive species within the BSA.

#### **Construction and Demolition Impacts**

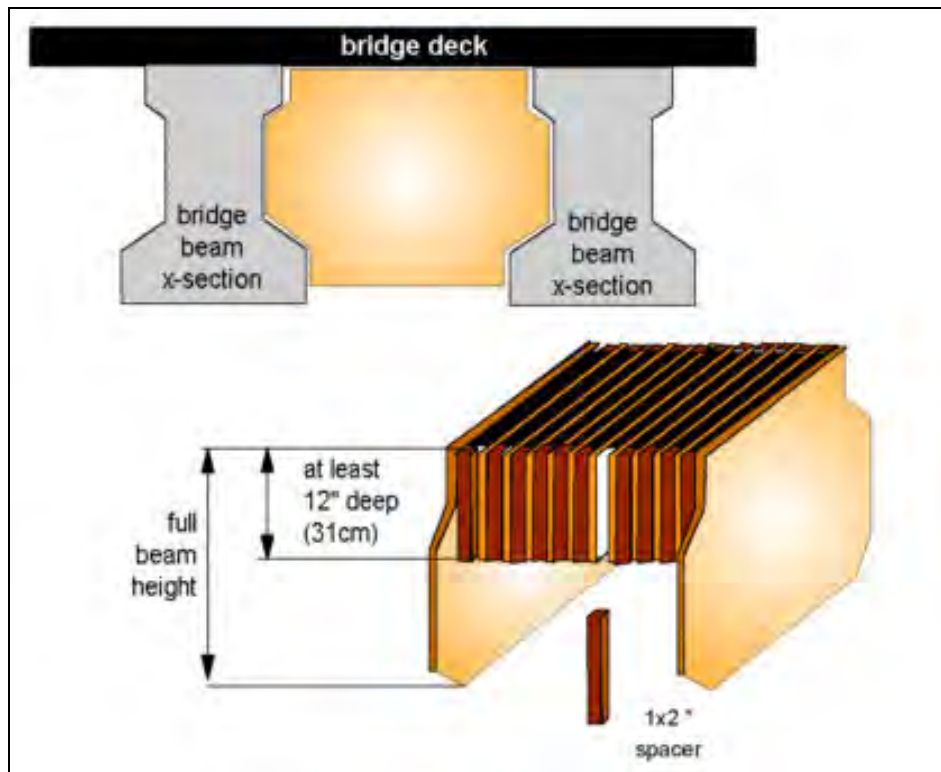
##### North- and South-side Alignment Alternatives

Construction activities could result in the disturbance and spread of invasive species to adjacent areas; however, in accordance with EO 13112 and subsequent guidance from FHWA, the potential to spread or introduce invasive terrestrial species during construction would be minimized with implementation of avoidance and minimization measures.

The POLB currently receives calls from ships originating around the world. When marine vessels call on a port, they can introduce invasive species during discharge of ballast water. Invasive marine species can degrade habitat quality through competition for habitat (e.g., on docks, pilings) or cause blooms of invasive non-native algae that can degrade habitat quality for many marine species. Additional Port calls may be required by ships transporting construction materials; however, it is unlikely that Port calls associated with transporting construction materials would originate from a port that has not previously made a call at the Port. Thus, the vessels shipping construction materials entering the Inner Harbor would be similar to the vessels that



**Exhibit 2.3.5-5**  
**Bat-Friendly Bridge Specifications<sup>19</sup>**



**Exhibit 2.3.5-6**  
**Postconstruction Bridge Retrofit<sup>20</sup>**

<sup>19</sup> Exhibit by: <http://batcon.org/discover/unguest.html>

<sup>20</sup> Exhibit by: <http://www.batcon.org/bridge/ambatsbridges/index.html>



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currently call on the Port and would not increase the potential for introduction or spread of existing or new invasive species into the Inner Harbor from ballast water discharge and would not require additional measures to minimize potential effects on marine resources.

#### Rehabilitation Alternative

As discussed under the North- and South-side Alignment Alternatives, implementation of avoidance and minimization measures would minimize the potential for the spread or introduction of invasive species during construction.

### **Operational Impacts**

#### North-side Alignment Alternative

Landscape maintenance after construction could result in an increase in invasive species if project landscaping installed during project construction spreads into native habitats. Given the lack of native habitats in the BSA and with incorporation of the measures in Section 2.3.6.4, no adverse effects resulting from project operation to terrestrial plant or wildlife species are anticipated. Operation of the project would not result in a change in the type or number of vessels required to meet the operational requirements of the Port. Project operation would not increase the potential for spread or introduction of invasive marine species.

#### South-side Alignment Alternative

Operational effects on invasive species of the South-side Alignment Alternative would be the same as described under the North-side Alignment Alternative.

#### Rehabilitation Alternative

Construction required for the Rehabilitation Alternative would occur within the footprint of the Gerald Desmond Bridge and paved approaching roadways. Operational effects on invasive species associated with the Rehabilitation Alternative would be the same as described under the North-side Alignment Alternative.

### **2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures**

#### **Temporary Measures**

**BR-9** Project landscaping will be limited to slopes near the bridge ramps and will follow the provisions set forth in EO 13112, which mandates preventing the introduction of and controlling the spread of invasive plant species on highway ROWs. No invasive species listed in the National Invasive Species Management Plan or the State of California Noxious Weed List shall be used in the landscaping plans for the proposed project, and all weedy vegetation removed during construction will be properly disposed of to prevent spread into areas outside of the construction area.

#### **Permanent Measures**

No measures are required.

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*Section 2.4*  
*Cumulative Impacts*



## **2.4 CUMULATIVE IMPACTS**

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land-use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place over a period of time.

Cumulative impacts to resources in the study area may result from residential, commercial, industrial, and highway development. These land-use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, and disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 CFR 1508.7, of the CEQ Regulations.

To reduce redundancy within this section, the alternatives are again grouped within the following discussion, as applicable. The build alternatives refer to all build alternatives as discussed in Chapter 1 (North- and South-side Alignment Alternatives and Rehabilitation Alternative). References to the Bridge Replacement Alternatives, refers to the North- and South-side Alignment Alternatives. Only the Build Alternatives have the potential to result in cumulative impacts. The No Action Alternative would not result in any changes to the existing environment and would not contribute to cumulative impacts on any resource.

### **2.4.1 Related Development Projects**

#### **2.4.1.1 Methodology**

Both the FHWA methodology and CEQA Guidelines list two methods of identifying related development projects. One method is based on adopted projections within a given geographic

area included in an adopted general plan or certified environmental document. The other method is based on a list of past, present, and reasonably foreseeable future projects that could result in cumulative impacts in combination with the project analyzed in the environmental document.

For this Draft EIR/EA, the primary method of analyzing cumulative impacts is based on the second method. The related projects considered for this analysis have been proposed by public agencies, the Ports and adjacent cities. The projects 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. Exhibit 2.4-1 shows the project study area and the approximate locations of the projects considered within this cumulative impacts analysis. The related projects were selected for analysis because they are located within close proximity of the proposed project and/or have the potential to impact similar resources. The potential impacts of the related projects, when considered in conjunction with the proposed project, could result in cumulative adverse impacts to resources within the study area. Related projects include, but are not limited to, other transportation projects, container terminals, schools, hotels, commercial and residential developments, and manufacturing and warehouse facilities.

Fifty-eight (58) related projects and their associated potential impacts are considered within this cumulative impact analysis. These projects may potentially result in impacts when considered cumulatively with the effects of the Build Alternatives. Table 2.4.1-1 provides a project description, the project status and associated relevant environmental factors. Identification of relevant environmental factors was based on the review of available environmental documentation, conceptual plans or applications and consultation with project applicants and government agencies. For projects with no environmental documentation or where resources were not analyzed, general assumptions were made where possible to assess if the project would have the potential to contribute to a cumulative impact.

#### **2.4.2 Potential Cumulative Impacts**

The CEQ regulations governing implementation of NEPA (40 CFR 1508.7) define a cumulative impact as:

*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 action taking place over a period of time.*

The analysis of the cumulative effects of the proposed project also follows the guidelines in the CEQ handbook entitled "Considering Cumulative Effects under the National Environmental Policy Act" (January 1970).

Based on the CEQ discussion of cumulative effects, the following principles can be applied to the assessment of cumulative effects of the proposed project:

- Cumulative effects typically are caused by the aggregate effects of past, present, and reasonably foreseeable future actions. These are the effects (i.e., past, present, and future) of the proposed action on a given resource and the effects (i.e., 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 (i.e., public or private entity) has taken the related action(s).
- The scope of cumulative effects analyses can usually be limited to reasonable geographic boundaries and time periods. These boundaries should extend only as 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 (i.e., 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 (i.e., past, present, and future) on a given resource caused by different types of actions (e.g., air emissions and traffic from several different development projects).

The analysis that follows considers the potential cumulative effects, if any, which would result from construction and operation of the proposed project, combined with construction and operation

of the related projects, listed in Table 2.4.1-1. Additional discussion of cumulative impacts pursuant to CEQA is provided in Chapter 3.

### **2.4.3 Environmental Resources for which No Adverse Cumulative Impacts would Result**

When considering the effects of past, present, and reasonably foreseeable future projects in combination with the anticipated effects associated with the Gerald Desmond Bridge Replacement Project, cumulatively considerable impacts on resource areas that are not considered adverse are discussed below.

#### **2.4.3.1 Land Use, Recreation, Coastal Zone**

##### **Land Use**

###### Build Alternatives

The Long Beach General Plan states that the responsibilities for planning within legal boundaries of the harbor lie with the Board of Harbor Commissioners. Uses of land and water within the Port, including cargo handling, recreation, and other coastal zone uses, have been outlined in the PMP (POLB, 1999). Land use changes within the project area will continue to be driven by global economic demand and port-related industrial needs. The Build Alternatives would not have a direct effect on land use patterns within the port outside of the areas required for construction and operation of the build alternatives but would rather respond to the travel patterns and volumes emanating from existing and forecasted travel demands within the Port. The Build Alternatives would not require or support any additional improvements that would imply the need for land use changes outside of the Port's planning area. The pattern and rate of land development within the project area are driven more directly by the modification and expansion of port facilities and are only partially affected by ancillary transportation improvements. To the extent that transportation projects, including the Build Alternatives and other transportation improvements planned for the area, facilitate some of the Port improvements, they may be regarded as contributing, in part, to overall land development trends because they would enhance overall efficiency of transportation movements within and to/from the Port area. However, the global market forces that create the underlying demand for Port facilities far outweigh the local contribution associated with any improvements in transportation facilities. Port





- |    |  |    |  |    |  |    |   |
|----|--|----|--|----|--|----|---|
| 1  | Middle Harbor Terminal Redevelopment, Port of Long Beach                                 | 18 | Berths 136-149 Marine Terminal, West Basin, Port of Los Angeles  | 33 | Berth 302-305 (APL) Container Terminal Improvements Project, Port of Los Angeles       | 49 | Cerritos Channel Rail Bridge, ACTA  |
| 2  | Piers G & J Terminal Redevelopment Project, Port of Long Beach                           | 19 | Berths 226-236 (Evergreen) Container Terminal Improvements Project and Cannery's Steam Demolition, Port of Los Angeles | 34 | South Wilmington Grade Separation, Port of Los Angeles                                 | 50 | Intermodal Container Transfer Facility Modernization and Expansion, ICTF                                      |
| 3  | Pier S Marine Terminal, Port of Long Beach   | 20 | Berths 97-109 China Shipping Terminal Development Project, Port of Los Angeles   | 35 | "C" Street/Figueroa Street Interchange, Port of Los Angeles                            | 51 | Tesoro Reliability Improvement and Regulatory Compliance Project, Wilmington                                  |
| 4  | Pier A East, Port of Long Beach  | 21 | Channel Deepening Project/Additional Disposal Capacity, Port of Los Angeles  | 36 | I-110/SR 47 Connector Improvement Program, Port of Los Angeles                         | 52 | BP Carson Refinery Safety, Compliance and Optimization Project, City of Carson                                |
| 5  | Chemoil Marine Terminal, Tank Installation, Port of Long Beach                           | 22 | Berths 171-181, Pasha Marine Terminal, Port of Los Angeles   | 37 | Port Transportation Master Plan, Port of Los Angeles                                   | 53 | Crude Logistics Optimization Project, City of Carson  |
| 6  | Gerald Desmond Bridge Replacement Project, Port of Long Beach and Caltrans/FHWA          | 23 | Plains All American (formerly Pacific Energy) Oil Marine Terminal, Pier 400, Port of Los Angeles                       | 38 | Berths 212-224 YTI Terminal Improvements, Port of Los Angeles                          | 54 | ConocoPhillips Los Angeles Refinery PM10 and Nox Reduction Projects, City of Carson                           |
| 7  | Administration Building and Maintenance Facility Replacement Project, Port of Long Beach | 24 | Berth 206-209 Interim Container Terminal Reuse Project, Port of Los Angeles  | 39 | Berths 121-131 (Yang Ming) Container Terminal, Port of Los Angeles                     | 55 | Chevron Products Company El Segundo Refinery Product Reliability and Optimization Project, City of El Segundo |
| 8  | Pier A West Interim/Source Removal Project, Port of Long Beach/DTSC                      | 25 | Ultramar Lease Renewal Project, Port of Los Angeles  | 40 | San Pedro Waterfront Project, Port of Los Angeles                                      | 56 | Chevron Products Company - El Segundo Refinery Heavy Crude Project, City of El Segundo                        |
| 9  | Pier B Rail Yard Expansion, Port of Long Beach   | 26 | SSA Outer Harbor Fruit Facility Relocation, Port of Los Angeles  | 41 | Westway Decommissioning, Port of Los Angeles   | 57 | ExxonMobil Rule 1105.1 Compliance Project, City of Torrance   |
| 10 | Terminal Island Rail Projects, Port of Long Beach  | 27 | Port of Los Angeles Charter School and Port Police Headquarters, San Pedro, Port of Los Angeles                        | 42 | Consolidated Slip Restoration Project, Port of Los Angeles                             | 58 | Paramount Refinery Clean Fuels Project, City of Paramount   |
| 11 | Mitsubishi Cement Corporation Facility Modifications, Port of Long Beach                 | 28 | San Pedro Waterfront Enhancements Project, Port of Los Angeles   | 43 | Wilmington Waterfront Master Plan (Avalon Blvd. Corridor Project), Port of Los Angeles |    |   |
| 12 | Comera Long Beach Aggregate Terminal, Port of Long Beach                                 | 29 | Southern California International Gateway Project, Port of Los Angeles   | 44 | Southwest Marine Demolition Project, Port of Los Angeles                               |    |   |
| 13 | Shoreline Gateway Project, City of Long Beach  | 30 | Cabrillo Way Marina, Phase II, Port of Los Angeles   | 45 | Inner Cabrillo Beach Water Quality Improvement Program, Port of Los Angeles            |    |   |
| 14 | West Gateway Redevelopment Project, City of Long Beach                                   | 31 | Artificial Reef, San Pedro Breakwater, Port of Los Angeles   | 46 | Pacific Corridors Redevelopment Project, San Pedro                                     |    |   |
| 15 | Golden Shore Master Plan, City of Long Beach   | 32 | Pan-Pacific Cannery Complex Demolition Project, Port of Los Angeles  | 47 | Schuyler Heim Bridge Replacement and SR 47/ Expressway, Caltrans/ACTA                  |    |   |
| 16 | Press-Telegram Mixed Use Development, City of Long Beach                                 |    |  | 48 | I-710 (Long Beach Freeway) Corridor Project, Caltrans                                  |    |   |
| 17 | Sierra Hotel Project, City of Long Beach   |    |  |    |  |    |   |

**EXHIBIT 2.4-1**

Related Projects in the Vicinity of the Proposed Gerald Desmond Bridge Site - Port Area

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<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Port of Long Beach</b>				
1	Middle Harbor Terminal Redevelopment	Expansion of an existing marine container terminal. The Piers D, E, and F development project is located in the Middle Harbor area of the POLB. The project consolidates two existing container terminals into one 345-acre (140-ha) terminal. Construction includes approximately 54.6 acres (21.6 ha) of landfill, dredging, and wharf construction; construction of an intermodal rail yard; and reconstruction of terminal operations buildings.	Draft EIS/EIR released May 2008.	Air Quality Transportation Biological Resources Water Quality & Hydrology
2	Piers G & J Terminal Redevelopment Project	Redevelopment of two existing marine container terminals into one terminal in the Southeast Harbor Planning District area. The project will develop a marine terminal of up to 315 acres (127 ha) by consolidating portions of two existing terminals on Piers G and J.	Approved project. Construction underway (2005-2015).	Geology Groundwater and Soils Air Quality Biological Resources
3	Pier S Marine Terminal	Development of a 150-acre (61-ha) container terminal on Pier S and construction of navigational safety improvements to the Back Channel.	EIS/EIR to be prepared (2007-2012).	Transportation Air Quality
4	Pier A East	Conversion of 32 acres (13 ha) of existing auto storage area into container terminal uses.	EIR to be prepared.	Transportation Air Quality
5	Chemoil Marine Terminal, Tank Installation	Construction of two petroleum storage tanks and associated relocation of utilities, and reconfiguration of adjoining marine terminal uses between Berths F210 and F211 on Pier F.	EIR to be prepared (2008-2009).	Transportation Air Quality Hazards
6	Gerald Desmond Bridge Replacement Project, POLB/Caltrans/FHWA	Replacement or rehabilitation of the existing Gerald Desmond Bridge and adjacent roadway improvements.	Analyzed in this document.	Transportation Air Quality Biological Resources
7	Administration Building and Maintenance Facility Replacement Project	Replacement of the existing Port Administration Building and Maintenance Facility with a new facility on an adjacent site on Pier G.	Approved project (2009-2012).	Transportation Air Quality
8	Pier A West Interim/Source Removal Project, POLB/DTSC	Remediation of approximately 90 acres (36 ha) of oil production land, including remediation of soil and groundwater contamination, relocation of oil wells, filling, and paving.	Cleanup and Abatement Order (2008-2009).	Geology Hazards

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Port of Long Beach (continued)</b>				
9	Pier B Rail Yard Expansion	Expansion of the existing Pier B Rail Yard in two phases, including realignment of the adjacent Pier B Street and utility relocation.	EIR being prepared (2009-2015).	Transportation Air Quality
10	Terminal Island Rail Projects	Construct rail improvements on Terminal Island, including a grade separation at Reeves Avenue and additional storage tracks.	EIR being prepared (2009-2015).	Transportation
11	Mitsubishi Cement Corporation Facility Modifications	Facility modification, including the addition of a catalytic control system, construction of four additional cement storage silos, and upgrading existing cement unloading equipment on Pier F.	EIR being prepared (2009-2013).	Air Quality
12	Cemera Long Beach Aggregate Terminal	Construction and operation of a sand, gravel, and aggregate receiving, storage, and distribution terminal, and ready-mix concrete plant on Pier B.	EIR being prepared (2009-2012).	Transportation Air Quality
<b>City of Long Beach</b>				
13	Shoreline Gateway Project	Mixed-use development of a 22-story residential tower with retail, commercial, and office uses located north of Ocean Boulevard, between Atlantic Avenue and Alamitos Avenue.	EIR certified in 2006.	Transportation Air Quality
14	West Gateway Redevelopment Project	Redevelop nine existing parcels, including apartments, condominiums, and retail, on Broadway between Chestnut and Maine.	Under construction.	Air Quality
15	Golden Shore Master Plan	The proposed project would provide new residential, office, retail, and potential hotel uses, along with associated parking and open space.	NOP issued November 2008.	Aesthetic/Visual Air Quality Noise Transportation Water Quality Growth Inducing Cumulative Effects

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>City of Long Beach (continued)</b>				
16	Press-Telegram Mixed Use Development	Construction of two high-rise buildings on the 2.5-acre (1-ha) Press-Telegram site. Each building would be 22 stories and 250 ft (76 m) in height. The project would be a mixed-use development with 542 residential units, and 32,300 square feet (3,000 square meters) of office and institutional space.	Draft EIR prepared August 2006.	Air Quality Cumulative Effects Growth Inducing Minerals Noise Hazard Transportation Water Quality
17	Sierra Hotel Project	Development of a 91,304-square-foot (8,482-square-meter), 7-story hotel structure with 140 rooms. Parking will be provided in the multi-level parking structure located across the street at the southwest corner of Cedar Avenue and Seaside Way.	EIR certified December 2005.	Air Quality Hazard Transportation
<b>Port of Los Angeles</b>				
18	Berths 136-149 Marine Terminal, West Basin	Element of the West Basin Transportation Improvement Projects. Reconfiguration of wharves and backland. Expansion and redevelopment of the TraPac Terminal.	Project approved December 2007 (2008-2015).	Transportation Air Quality
19	Berths 226-236 (Evergreen) Container Terminal Improvements Project and Cannery Steam Demolition	Proposed redevelopment of existing container terminal, including improvements to wharves, adjacent backland, crane rails, lighting, utilities, new gate complex, grade crossings, and modification of adjacent roadways and railroad tracks. Project also includes demolition of two unused buildings and other small accessory structures at the former Cannery Steam Plant in the Fish Harbor area of the Port.	EIS/EIR to be prepared. NOP/NOI anticipated 2008.	Transportation
20	Berths 97-109 China Shipping Terminal Development Project	Development of the China Shipping Terminal Phase I, II, and III, including wharf construction, landfill and terminal construction, and backland development.	Project approved December 2008 (2009-2015).	Transportation Air Quality

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Port of Los Angeles (Continued)</b>				
21	Channel Deepening Project/Additional Disposal Capacity	Dredging and sediment disposal. This project would deepen the POLA Main Channel to a maximum depth of -53 ft (-16 m) MLLW (lesser depths are considered as project alternatives) by removing between 3.9 million and 8.5 million cu yd of sediments. The sediments would be disposed at several sites. The EIR/EIS certified for the project identified significant air and noise impacts. The Supplemental EIR/EIS is being prepared to evaluate dredging 4 million cu yd of material and creating 151 acres (61 ha) of new lands from the sediments.	SEIS/SEIR released July 2008. Construction expected 2009-2011.	Biological Resources Hydrology & Water Quality Transportation Air Quality
22	Berths 171-181, Pasha Marine Terminal	Redevelopment of existing facilities at Berths 171-181 as an Omni (multi-use) facility.	Project EIR on hold.	Transportation Air Quality
23	Plains All American (formerly Pacific Energy) Oil Marine Terminal, Pier 400	Proposal to construct a Crude Oil Receiving Facility on Pier 400 with tanks on Terminal Island and pipelines between berth, tanks, and pipeline system.	SEIS/SEIR certified November 2008. Construction expected 2009-2011.	Transportation Air Quality Biological Resources
24	Berths 206-209 Interim Container Terminal Reuse Project	Proposal to allow interim reuse of former Matson Terminal.	Final EIR certified. Construction on hold.	Hydrology & Water Quality
25	Ultramar Lease Renewal Project	Lease renewal for liquid bulk (petroleum) terminal.	Final EIR anticipated in 2009.	Air Quality Hazards
26	SSA Outer Harbor Fruit Facility Relocation	Proposal to relocate the existing fruit import facility at 22 <sup>nd</sup> and Miner to Berth 153.	Project on hold (2008-2010).	Transportation Air Quality
27	POLA Charter School and Port Police Headquarters, San Pedro	Proposal to develop a POLA Charter School and Port Police Headquarters.	EIR certified August 2005. Construction anticipated 2007-2008.	Transportation Air Quality
28	San Pedro Waterfront Enhancements Project	Project includes improving existing and development of new pedestrian corridors along the waterfront (4 acres [1.62 ha]), landscaping, parking, increased waterfront access from upland areas, and creating 16 acres (6.47 ha) of public open space.	MND approved in April 2006. Construction to begin in early 2008 and will be completed in 2009.	Transportation Air Quality

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Port of Los Angeles (Continued)</b>				
29	Southern California International Gateway Project	Construction and operation of an intermodal container transfer facility and various associated components, including relocation of an existing rail operation.	DEIR expected in 2009.	Transportation Air Quality
30	Cabrillo Way Marina, Phase II	Redevelopment of the old marinas in the Watchorn Basin and development of the backland areas for a variety of commercial and recreational uses.	Construction anticipated (2008-2009).	Transportation Air Quality
31	Artificial 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 sportfishing.	Negative Declaration issued and certified. Project proceeding (2006-2010).	Biological Resources Hydrology & Water Quality
32	Pan-Pacific Cannery Complex Demolition Project	Demolition of two unused buildings and other small accessory structures at the former Pan-Pacific Cannery in the Fish Harbor area of the POLA.	FEIR being prepared.	Transportation Air Quality
33	Berth 302-305 (APL) Container Terminal Improvements Project	Construction and operation of a new container terminal expansion area on the east side of Pier 300. 40 acres (16 ha) of fill have been added to Pier 300. An additional 40 acres (16 ha) of fill will be evaluated in the Channel Deepening Supplemental EIS/EIR.	EIR/EIS to be prepared	Transportation Air Quality Biological Resources
34	South Wilmington Grade Separation	An elevated grade separation would be constructed along a portion of Fries Avenue over the existing rail line tracks to eliminate vehicular traffic delays that would otherwise be caused by trains using the existing rail line and the new ICTF rail yard. The elevated grade would include a connection onto Water Street. There would be a minimum 24.5-ft (7.5-m) clearance for rail cars traveling under the grade separation.	Conceptual planning stage.	Transportation Air Quality



<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Port of Los Angeles (Continued)</b>				
35	"C" Street/ Figueroa Street Interchange	The "C" Street/Figueroa Street interchange would be redesigned to include an elevated ramp from Harry Bridges Boulevard to I-110, over John S. Gibson Boulevard. There would be a minimum 15-ft (4.5-m) clearance for vehicles traveling on John S. Gibson Boulevard. An additional extension would connect from Figueroa Street to the new elevated ramp over Harry Bridges Boulevard.	Conceptual planning stage.	Transportation Air Quality
36	I-110/SR 47 Connector Improvement Program	Program may include "C" Street/ I-110 access ramp intersection improvements, I-110 NB Ramp/John S. Gibson Boulevard intersection improvements, and SR 47 on- and off-ramp at Front Street.	IS/EA	Air Quality Noise Visual Recreation
37	Port Transportation Master Plan	Port-wide transportation master plan for roadways in and around POLA facilities. Present and future traffic improvement needs are being determined based on existing and projected traffic volumes. Some improvements under consideration include I-110/SR 47/Harbor Boulevard interchange; south Wilmington grade separations; and additional traffic capacity analysis for the Vincent Thomas Bridge.	Conceptual planning stage.	Transportation Air Quality
38	Berths 212-224 YTI Terminal Improvements	Wharf modifications at the YTI Marine Terminal Project involve wharf upgrades and backland reconfiguration, including new buildings.	NOP/NOI anticipated in 2008.	Transportation Air Quality
39	Berths 121-131 (Yang Ming) Container Terminal	Reconfiguration of wharves and backlands. Expansion and redevelopment of the APL Terminal.	NOP/NOI anticipated in 2008.	Transportation Air Quality

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Port of Los Angeles (Continued)</b>				
40	San Pedro Waterfront Project	Project includes construction of North Harbor and Downtown Harbor promenades, and Downtown Water Feature; enhancements to the existing John S. Gibson Park; construction of a Town Square at the foot of 6 <sup>th</sup> Street, a 7 <sup>th</sup> Street Pier, and a Ports O' Call Promenade; development of California Coastal Trail along the waterfront; construction of additional cruise terminal facilities; a Ralph J. Scott Historic Fireboat display; relocation of the Catalina Cruises Terminal and the SS Lane Victory; extension of the Red Car Line; and related parking improvements.	Draft EIR/EIS being prepared. Construction expected 2010-2015.	Transportation Air Quality
41	Westway Decommissioning	Decommissioning of the Westway Terminal along the Main Channel (Berths 70-71). Work includes decommissioning and removing 136 storage tanks with total capacity of 593,000 barrels.	Remedial planning underway. Decommissioning anticipated in 2009.	Air Quality Hazardous Materials
42	Consolidated Slip Restoration Project	Remediation of contaminated sediment at Consolidated Slip, including capping sediments or removal/disposal to an appropriate facility. Work includes capping and/or treatment of approximately 30,000 cubic yards of contaminated sediments.	Remedial actions being evaluated.	Air Quality Hazardous Materials
43	Wilmington Waterfront Master Plan (Avalon Blvd. Corridor Project)	Planned development intended to provide waterfront access and promote development along Avalon Boulevard.	EIR being prepared.	Transportation Air Quality
44	Southwest Marine Demolition Project	Demolition of buildings and other small accessory structures.	EIR being prepared.	Air Quality
45	Inner Cabrillo Beach Water Quality Improvement Program	Phased improvements, including sewer and storm drain work, sand replacement, bird excluders, and circulation improvements.	Construction underway.	Water Quality

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>Community of San Pedro</b>				
46	Pacific Corridors Redevelopment Project, San Pedro	Development of commercial/retail, manufacturing, and residential components.	Construction underway. Expected completion in 2032 according to Community Redevelopment Agency of Los Angeles.	Transportation Air Quality
<b>California Department of Transportation (Caltrans)</b>				
47	Schuyler Heim Bridge Replacement and SR 47 Expressway, Caltrans/ACTA	Replace the Schuyler Heim Bridge with a fixed structure and improve the SR 47/ Henry Ford Avenue/Alameda Street transportation corridor by constructing an elevated expressway from the Schuyler Heim Bridge to SR 1 (PCH).	FEIR/EIS anticipated 2009	Transportation Air Quality
48	I-710 (Long Beach Freeway) Corridor Project	The study proposes to develop transportation solutions to traffic congestion and other mobility problems along approximately 18 mi (29 km) of SR 710 between the San Pedro Bay ports and SR 60.	NOP/NOI released August 2008.	Transportation Air Quality
<b>Alameda Corridor Transportation Authority (ACTA)</b>				
49	Cerritos Channel Rail Bridge	Construct a new rail lift-bridge with two tracks, adjacent to the existing Badge Avenue Bridge.	Conceptual project.	Air Quality Noise
<b>ICTF Joint Powers Authority</b>				
50	Intermodal Container Transfer Facility (ICTF) Modernization and Expansion	Modernize and expand the existing ICTF to increase capacity, and modernize existing equipment, rail yard operation methods.	NOP/IS released January 2009 (2010-2014).	Transportation Air Quality Noise
<b>Community of Wilmington</b>				
51	Tesoro Reliability Improvement and Regulatory Compliance Project	Tesoro projects at its Los Angeles Refinery and at its Sulfur Recovery Plant to improve the reliability of refinery operations and to comply with regulatory requirements.	FEIR certified April 2009.	Air Quality Hazards Transportation
<b>City of Carson</b>				
52	BP Carson Refinery Safety, Compliance and Optimization Project	Physical changes and additions to multiple process units and operations, as well as operational and functional improvements within the confines of the existing refinery.	Addendum to FEIR January 2008. FEIR certified September 2006.	Air Quality Cumulative Effects Hazards Transportation

<b>Table 2.4.1-1 Related Projects</b>				
<b>Number in Exhibit 2.4-1</b>	<b>Project Title</b>	<b>Project Description</b>	<b>Status (Project Timeframe)</b>	<b>Relevant Potential Cumulative Environmental Factors</b>
<b>City of Carson (continued)</b>				
53	Crude Logistics Optimization Project	Construction and operation of two 260-ft-diameter (79-m) covered external floating roof tanks to store crude oil at the BP Carson Crude Terminal (CCT).	EIR certified March 2008.	Cumulative Effects Noise Hazards Transportation
54	ConocoPhillips Los Angeles Refinery PM <sub>10</sub> and NO <sub>x</sub> Reduction Projects	Proposed project will reduce PM <sub>10</sub> and NO <sub>x</sub> emissions at its existing Wilmington (55A) and Carson plants (55B) through modifications to refinery units at both plants.	FEIR certified June 2007.	Aesthetics Air Quality Hydrology & Water Quality Transportation
<b>City of El Segundo</b>				
55	Chevron Products Company El Segundo Refinery Product Reliability and Optimization Project	Modifications and additions at the existing El Segundo Refinery to increase the reliability, energy efficiency, and capacity of specific existing refinery processing equipment; allow the processing of a wider range of crude oils; and voluntarily reduce potential atmospheric emissions from existing pressure relief devices.	FEIR certified May 2009.	Air Quality Energy Hazards Hydrology & Water Quality Noise Solid/Hazardous Waste Transportation
56	Chevron Products Company – El Segundo Refinery Heavy Crude Project	Modifications to the Chevron Products Company (Chevron) El Segundo Refinery to enable the refinery to maintain or slightly increase its current production levels of saleable products and processing more heavy crude oil.	FEIR certified August 2006. Addendum certified May 2007.	Air Quality
<b>City of Torrance</b>				
57	ExxonMobil Rule 1105.1 Compliance Project	Proposes modifications to the fluidized catalytic cracking unit at its Torrance Refinery to comply with new PM <sub>10</sub> and ammonia emission limits set by SCAQMD Rule 1105.1.	FEIR certified March 2007.	Air Quality
<b>City of Paramount</b>				
58	Paramount Refinery Clean Fuels Project	Project proposes improvements to produce reformulated gasoline and ultra low sulfur diesel for California markets.	Addendum to FEIR September 2007. FEIR certified April 2004.	Air Quality Hazards Transportation

development is expected to continue with or without the Build Alternatives; therefore, when considered with other related projects, the proposed project would not result in significant or adverse cumulative land use effects.

## **Recreation and Coastal Zone**

### Build Alternatives

The Build Alternatives would have no effect on recreational land use. The Build Alternatives would not result in cumulatively considerable significant or adverse recreation impacts.

All of the proposed Build Alternatives would be consistent with the California Coastal Act and PMP, which states that all port-related developments shall be located, designed, and constructed so as to minimize substantial adverse environmental impacts; minimize potential traffic conflicts between vessels; give highest priority to the use of existing land space within harbors for port purposes, and provide for other beneficial uses consistent with the public trust.

All of the Build Alternatives and other related projects within the coastal zone would require coastal permits or CCC review. All projects would be conditioned, as appropriate, by the CCC, Ports, and Cities; therefore, they would not result in cumulatively considerable significant or adverse effects on coastal zone resources.

### **2.4.3.2 Growth Inducement**

#### Bridge Replacement Alternatives

**Direct Growth-Inducement Potential:** Areas within the vicinity of the Port are largely built-out and consist of dense development typical of established urban areas. The Bridge Replacement Alternatives would not result in changes to zoning or land use designations that would have the potential to directly influence growth. None of the related projects are contingent upon the completion of the proposed project. Future development within the abandoned bridge footprint or within the surrounding areas would consist largely of redevelopment and would be approved in accordance with the applicable state and local planning processes. The Bridge Replacement Alternatives would not result in a greater amount of land available for redevelopment within or outside of the POLB than exists today; therefore, the Bridge Replacement Alternatives would not result in cumulatively considerable significant or adverse effects related to direct growth or development within the related projects area.

**Indirect Growth-Inducement Potential:** When considered in the context of future development that is likely to occur within the POLB/POLA and surrounding communities, the traffic congestion relief benefits associated with the Bridge Replacement Alternatives would have the potential to indirectly influence growth as a result of more efficient or improved access to and from areas within the POLB and surrounding communities. In other words, the proposed bridge replacement project would not cause indirect growth in and of itself; however, additional growth associated with future land development in the project area could be influenced by the traffic congestion-relief benefits provided by the new bridge. The Bridge Replacement Alternatives would not result in new accessibility to and from areas that are currently inaccessible and would not cause associated indirect growth via creation of new access. In other words, the proposed bridge replacement project would not cause indirect growth in and of itself; however, additional cumulative growth associated with future land development in the project area, which would be influenced by the traffic congestion-relief benefits provided by the new bridge, may occur as approved in the PMP and local and regional planning documents. Therefore, the Bridge Replacement Alternatives would not result in cumulatively considerable significant or adverse impacts related to indirect growth of development in the Port area.

**Container Terminal Throughput Capacity:** The POLB/POLA container storage throughput capacity must also be considered in cumulative growth of the Port area. The throughput capacity of the POLB/POLA container terminals is a function of several variables, as discussed in Section 2.1.2.

While the new bridge would provide more efficient access for trucks to and from the Port terminals, the throughput capacity constraints dictate the overall capacity of the terminals. Improved truck access to the Ports is not the driving influence on terminal throughput. The reduction of traffic congestion resulting from the Bridge Replacement Alternatives and the relatively small savings in overall cargo transit time attributable to the new bridge would not be an incentive for shippers to divert their cargo from other ports to the POLB/POLA. Additionally, increasing the bridge elevation would provide safe passage of larger vessels, but it would not increase potential throughput of the Ports because the project would not increase terminal capacity; therefore, the

Bridge Replacement Alternatives would not result in cumulatively considerable significant or adverse effects related to indirect growth of terminal capacity associated with the improved access to the Port.

#### Rehabilitation Alternative

Under the Rehabilitation Alternative, the Gerald Desmond Bridge would continue to operate in its existing configuration. There would be no changes in land use or zoning, and there would be no changes to the existing surface transportation system or access within the vicinity of the existing bridge. As such, there would be no potential for the Rehabilitation Alternative to result either directly or indirectly in cumulatively considerable significant or adverse growth effects.

### **2.4.3.3 Community Impacts**

#### **Community Character and Cohesion**

##### Build Alternatives

The project area is zoned for Port-related industrial activities and consists mainly of heavy industrial uses associated with the Port's various terminals. No residential areas are within the Port planning areas, and the proposed project would not affect population or housing or result in any land use changes that either directly or indirectly affects local or regional population growth projections.

The project is confined to the immediate vicinity of the port and consists of the replacement or rehabilitation of an existing transportation facility; therefore, it would not contribute to the creation of a barrier between communities, nor would it encroach into adjacent communities, either of itself, or in the context of other related projects.

The Build Alternatives would not permanently affect any community facilities or services or access to any community facilities or services; therefore, the Build Alternatives would not result in any cumulatively considerable significant or adverse impacts, when considered in relation to other related projects on community character or cohesion.

#### **Relocations**

##### Bridge Replacement Alternatives

No residential areas would be affected by the Build Alternatives. Some property acquisition and/or employee displacement is expected under these alternatives. When considered along with the effects of other related projects taking place in the port area, the proposed project would

contribute to a general trend of land conversion from smaller, less intense, land uses, to larger and more consolidated port-related land uses. In that sense, a cumulative contribution to relocations (primarily affecting commercial properties) can be attributed to the bridge improvement project; however, it is reasonable to believe that the proposed project and related projects would result in an overall increase in business opportunities, including commercial space and jobs, to meet the relocation needs of any displaced business or employee within the vicinity of the Ports. It is expected that all projects would comply with relocation and acquisition guidelines of the regulating agency; therefore, the relocation effects of the Build Alternatives, when considered with other related projects, would not result in any cumulatively considerable significant or adverse relocation impacts as a result of property acquisition and/or employee displacement.

##### Rehabilitation Alternative

No permanent acquisition or employee displacement is anticipated under this alternative. The Rehabilitation Alternative would not contribute to cumulatively considerable relocation impacts.

#### **Environmental Justice**

##### Build Alternatives

Because the proposed Build Alternatives would not affect residences, nor would it have permanent adjacency effects on residences, the proposed project would not result in disproportionately high and adverse effects on minority and/or low-income population groups; therefore, when considered with other related projects, the proposed project would not result in cumulatively considerable significant or adverse impacts on minority and/or low-income population groups.

### **2.4.3.4 Public Services**

##### Build Alternatives

The need for public services (e.g., schools, health care facilities, parks, libraries) is governed by growth in population and, to a certain extent, by growth in permanent employment, which can also translate into additional population. Population growth itself is largely a regional phenomenon that is measured by the imbalance of immigration versus emigration plus net births. The former factor is influenced by the strength of the regional economy, which has exhibited (and continues to do so) sound strength over the long term. The latter factor is independent of public policy. The San Pedro Bay Ports constitute a substantial

component of the region's economy. The San Pedro Bay Ports handle more than 40 percent of the nation's total containerized cargo import traffic and 24 percent of the nation's total exports. This trade volume equates to \$256 billion in total national trade in 2005, with \$62.5 billion of that trade in California. In addition, the study conservatively estimates that more than 886,000 jobs in California are directly and indirectly related to international trade activities conducted through the San Pedro Bay Ports (ACTA, 2008). To the extent that the Ports continue to grow in response to global market forces, they will continue to be a substantial component of the regional economy; therefore, they would also contribute to growth in the employment-driven component of population growth over time.

Expected increases in regional population and employment are accounted for in the regional projections provided by SCAG. In an indirect sense, the contribution of the Ports to population and employment growth has already been taken into account. As the POLB adds and improves the productivity of its terminal facilities, the employment growth projections attributable to the Port, which are included in the SCAG projections, come "on line." So long as the additions of terminal capacity are in line with adopted regional employment growth forecasts, the potential cumulative effects on the need for public services of various kinds are being planned for at the regional and local level through the general plans and capital improvement programs of the many local jurisdictions in the region. In this scenario, when considered with other related projects, significant and adverse cumulative impacts associated with Port growth would not occur.

The Bridge Replacement Alternatives respond to the traffic demand generated by local and regional population and employment growth, and they accommodate vehicular movements related to cargo handling in the Port. These vehicular movements are the outcome of population and employment activity, not the cause; therefore, the Build Alternatives do not contribute to adverse or significant cumulative impacts on public services.

The Build Alternatives would also generate large volumes of construction and the Bridge Replacement Alternatives would generate demolition debris. This would result in disposal requirements and a reduction in municipal solid waste landfill capacity; however, 50 percent of the debris would be diverted in accordance with AB 75, and recyclable materials would be hauled to local recycling facilities or inert landfills. This would reduce use of

Los Angeles County landfills and minimize project-related cumulative impacts on landfill capacity. It is assumed that all other related projects would also dispose of construction and demolition debris in accordance with state and local requirements. Landfill capacity would not be adversely impacted by disposal needs of these alternatives when considered in conjunction with the disposal needs of related projects. No cumulatively considerable significant or adverse impacts on landfill capacity are anticipated.

#### **2.4.3.5 Maritime Navigation**

##### Build Alternatives

Some construction activities over the Back Channel could potentially result in occasional shipping delays. These delays would be minimized through close coordination between the terminal operators, the Port, and the contractor. The Build Alternatives would not substantially interfere with the accessibility of the Port's berths to calling vessels; therefore, no cumulatively considerable significant or adverse impacts on maritime navigation are anticipated.

#### **2.4.3.6 Visual/Aesthetics**

##### Bridge Replacement Alternatives

The Bridge Replacement Alternatives and all related projects planned within the Port would comply with PMP requirements for maintenance of visual quality and enhancement of visual quality of Harbor land at or along major vehicular approaches (POLB, 1999). These projects, in conjunction with the Bridge Replacement Alternatives, would not contribute to cumulatively considerable significant or adverse impacts on visual quality. Additionally, the new landmark bridge design proposed for the Bridge Replacement Alternatives would enhance the visual landscape and visual quality within and outside of the Port.

##### Rehabilitation Alternative

The visual quality and character of the project area would be the same under the Rehabilitation Alternative as the No Action Alternative. This alternative would not affect the visual/aesthetic environment, and it would not contribute to cumulatively considerable significant or adverse visual quality effects.

#### **2.4.3.7 Cultural Resources**

##### Build Alternatives

The former Edison Power Plant No. 3 and SCE transmission towers were determined eligible for



listing on the NRHP. The Build Alternatives would not require demolition or alteration of the facilities or towers. New towers would be constructed adjacent to the existing towers. No known archaeological or paleontological resources were identified within the APE. The formation of Terminal Island and the surrounding areas make it unlikely that any archaeological or paleontological resources are present within the project area. The Build Alternatives would not adversely affect historic resources and, when considered with other related projects, would not result in cumulatively considerable significant or adverse impacts on cultural resources.

### **2.4.3.8 Water Resources**

#### **Water Quality**

##### Build Alternatives

The Port's commitment to greening operations and increasing population density, along with increasingly stringent regulatory requirements and community involvement, have made the protection of water resources a priority in the Port. Soil disturbance associated with Build Alternative construction activities could result in temporary sedimentation and siltation effects on surface waters and could be cumulatively considerable when considered in relation to sedimentation and siltation effects of other related projects that could be under construction at the same time. However, potential cumulative effects on surface water due to the Build Alternatives are not anticipated because a site-specific SWPPP would be implemented, and the selection of appropriate construction site BMPs would ensure that no water quality standards or WDRs would be violated. It is reasonable to assume that all other related projects would also implement similar water quality protection measures. With implementation of these measures, the Build Alternatives would not contribute significantly or adversely to cumulative surface water quality impacts. Additionally, excavation activities are anticipated to encounter groundwater, and dewatering would be necessary. Dewatering groundwater in the project area is a concern because this can cause the contaminated groundwater plume to migrate to uncontaminated areas. All dewatering activities would be in compliance with Los Angeles RWQCB regulatory requirements, including an individual dewatering permit or waste discharge permit, if applicable. Prior to commencement of dewatering activities, RWQCB would be contacted immediately to provide a recommendation on how to handle the

disposal of dewatering flows. Any dewatering activities, including those that may contact contaminated groundwater, shall be treated to remove pollutants to meet Los Angeles RWQCB discharge requirements, or hauled offsite and properly disposed of. No dewatering would be required during operation of the project. Additionally, the project would incorporate treatment BMPs into all of the alternatives that would capture and treat storm water runoff. Once operational, the completed project would result in beneficial effects on surface water and would have no effect on groundwater. The beneficial effects to surface water would be attained through the implementation of proposed treatment BMPs, where there currently is no treatment. Due to beneficial effects of the Build Alternatives, there is no potential to contribute to cumulatively considerable significant or adverse impacts on surface or groundwater.

#### **Storm Water Runoff**

##### Bridge Replacement Alternatives

The Bridge Replacement Alternatives would result in an increase in impervious surfaces and associated storm water runoff; however, all runoff would be captured and treated in eight treatment BMPs (i.e., six media filters and two biofiltration swales) prior to discharge to the existing storm drain. Storm water discharge would not exceed existing velocities and would not require construction of additional storm water drainage capacity. Implementation of the Bridge Replacement Alternatives would result in a beneficial effect on surface water quality due to treatment of storm water runoff prior to discharge into the harbor. No cumulatively considerable significant or adverse impacts related to storm water runoff are anticipated.

##### Rehabilitation Alternative

The Rehabilitation Alternative would result in seismic improvements to the Gerald Desmond Bridge and would not result in new impervious surfaces or increased storm water runoff; however, treatment BMPs have been incorporated into this alternative, and all runoff would be captured and treated in five treatment BMPs (i.e., three media filters and two biofiltration swales). Implementation of the Rehabilitation Alternative would result in a beneficial effect on surface water quality due to treatment of storm water runoff prior to discharge into the harbor. No cumulatively considerable significant or adverse impacts related to storm water runoff are anticipated.

## **Hydrology and Floodplains**

### Build Alternatives

Although the North-side Alignment Alternative would place structures within the 100-year flood hazard area, it would not be considered a “significant encroachment.” The Build Alternatives would not impede or redirect flows. When considered with other related projects, and due to the location of the Build Alternatives adjacent to the harbor and ocean, no cumulatively considerable significant or adverse impacts related to hydrology and floodplains are anticipated.

### **2.4.3.9 Geologic Resources**

#### Bridge Replacement Alternatives

The Bridge Replacement Alternatives would be designed to meet all federal and state seismic design criteria, with return to service within days of a major seismic event. Soil loss associated with grading and other construction activities is expected to be minimal. It is anticipated that other related projects would be implemented in a similar manner; therefore, collectively, no conditions would be created that would result in a cumulative adverse impact either from or on geologic conditions when considered with other related projects. Additionally, implementation of the Build Alternatives would decrease the current risk of loss, injury, or death as a result of ground shaking or other seismically induced effects. The proposed project would also reduce the current risk associated with exposing people or structures to adverse effects because of seismic activities and seismic-related ground failure. No cumulatively considerable significant or adverse impacts related to geologic resources are anticipated.

#### Rehabilitation Alternative

Under this alternative, cumulative impacts to geologic resources would be comparable to those described under the Bridge Replacement Alternatives; however, it is likely that after a major seismic event, the Gerald Desmond Bridge would likely require demolition and reconstruction. No cumulatively considerable significant or adverse impacts related to geologic resources are anticipated.

### **2.4.3.10 Hazardous Wastes/Materials**

#### Build Alternatives

Construction activities associated with the Build Alternatives and other related projects, either severally or collectively, could result in hazardous materials being used or encountered in the field. Hazardous waste/materials are potentially located

in areas adjacent to the proposed alignments. This project (as would the related projects) would be required to employ BMPs in the transportation, storage, and handling of any hazardous materials encountered or used in their respective construction processes. The project would also be required to follow appropriate procedures for handling and disposal of such materials if they are encountered in the field in accordance with the project’s hazardous waste management plan. Primarily, hazardous material-related impacts attributable to the Build Alternatives, in conjunction with construction of related projects, could potentially occur from the handling of contaminated soil and groundwater and potential presences of asbestos and LBP. All related projects in the area would be evaluated on a project-by-project basis and would incorporate measures into the hazardous waste management plan to reduce potential impacts. These measures would be expected to be consistent with applicable standards, regulations, and requirements to reduce potential impacts from hazardous materials/wastes. It is anticipated that other related projects would be implemented in a similar manner; therefore, with implementation of the protection measures, no cumulatively considerable significant or adverse impacts related to hazardous waters and materials are anticipated.

### **2.4.3.11 Noise**

#### Build Alternatives

Construction noise effects are anticipated; however, noise generated during construction would be intermittent with varying levels of intensity. There are several other projects within a 0.5-mi (0.8-km) radius of this proposed project that may be under construction concurrently. Depending on phasing of the various projects and distance from other concurrent related projects, temporary, cumulative noise effects may occur. Potential cumulative noise effects related to construction activities would cease at the end of the construction period. Although not considered sensitive receptors (see Section 2.2.6 [Noise]) Port/harbor workers are located within 1,000 ft (305 m) of the construction site. Pile driving and bridge demolition activities could temporarily affect outdoor work areas for Port/harbor workers adjacent to the construction site (within 450 ft [137 m] of pile driving activities and within 500 ft [152 m] of bridge demolition activities). Port/harbor workers may be intermittently exposed to noise levels exceeding the City of Long Beach construction noise threshold. Due to the temporary and intermittent nature of construction noise, OSHA occupational noise protection

measures, natural attenuation and distance to other related projects, construction-related noise would not be considered an adverse cumulative noise effect. As applicable, construction noise reduction practices would be incorporated into the project. As previously stated, intermittent and temporary increases in noise levels associated with construction and demolition would be temporary, and no cumulatively considerable significant or adverse impacts related to construction noise are anticipated.

Additionally, most of the ambient noise within the project area is already attributable to surface traffic and adjacent industrial operations. Operational noise effects of the Build Alternatives would not substantially contribute to permanent cumulative increases in ambient noise levels at sensitive receptors or in the project vicinity. The expected project-related maximum increase in ambient noise levels at the nearest sensitive receptor associated with the Build Alternatives, compared to the overall future ambient noise levels without the project, would be no more than 1 dBA. A change in ambient noise level of 3 dBA or less is generally considered imperceptible to human hearing. When combined with the industrial nature of the land uses within the project area, forecasted Port-related operational growth, the distance to the nearest sensitive receptors (1,300 ft [396 m]) and other related projects, the Build Alternatives would not contribute to cumulatively considerable significant or adverse increases in ambient noise.

#### **2.4.3.12 Energy**

##### Bridge Replacement Alternatives

Upon completion, the proposed project would conserve energy by relieving congestion and contributing towards other transportation efficiencies. Increases in energy use would be limited to those during construction of the project, and they would then return to normal levels subsequent to completion of the project. There is a potential for other related projects to be under construction concurrently with the proposed project; however, this project would not have substantial energy impacts contributing towards cumulative energy consumption. Overall energy saved by relieving congestion, reducing VMT, and other transportation efficiencies from the project over its design life would be greater than the energy consumed to construct the project. No cumulatively considerable significant or adverse impacts related to energy are anticipated.

##### Rehabilitation Alternative

The Rehabilitation Alternative would not result in cumulative energy impacts. With the exception of energy consumed during construction of the seismic retrofit improvements, energy impacts would be the same as the No Action Alternative. No cumulatively considerable significant or adverse impacts related to energy are anticipated.

#### **2.4.3.13 Biological Environment**

##### **Natural Communities**

##### Build Alternatives

No natural communities occur within the project area; therefore, when considered with other related projects, there is no potential for cumulatively considerable impacts on natural communities.

##### **Wetlands and Other Waters**

##### Build Alternatives

No wetlands are within the project footprint, and all construction activities would occur outside of the Back Channel. The Build Alternatives do not affect wetlands or other waters; therefore, when considered with other related projects, there is no potential for cumulatively considerable impacts on wetlands or other waters.

##### **Plant Species**

##### Build Alternatives

Construction and operation of the Build Alternatives would not result in any effects on any marine or terrestrial plant communities. All construction activities would occur entirely within developed areas that are devoid of natural plant communities and outside of the Back Channel. No loss of sensitive terrestrial or marine plant species would occur during the construction and operation of the Build Alternatives, and when considered with other related projects, no cumulatively considerable impacts on plant species are anticipated.

##### **Animal Species**

##### Build Alternatives

The project footprint associated with the Build Alternatives would occur entirely within developed areas and outside of the Back Channel. Potentially affected species are generally well adapted to construction and other human activities, and they would likely avoid the project area during construction; however, some mortality of common terrestrial wildlife species may result due to project construction activities. These

common wildlife species are generally abundant in the project vicinity. No construction in the marine environment would be required, and no direct effects on marine species or habitat are anticipated. When considered with other related projects, the Build Alternatives would not have cumulatively considerable significant or adverse impacts related on marine or common terrestrial species.

### **Threatened and Endangered Species**

#### Bridge Replacement Alternatives

The peregrine falcon and several species of bats frequently nest/roost on or around the Gerald Desmond Bridge. During construction of either bridge alignment, existing nesting ledges and roost areas on the Gerald Desmond Bridge would be available for continued use. As discussed in Section 2.3 (Biological Resources), if adjacent construction disturbance results in nest/roost abandonment by falcons and/or bats during construction of the new bridge, there are other suitable areas for these species to reside until construction is complete. New nesting ledges and bat boxes would be available for occupancy prior to exclusion activities associated with demolition of the existing bridge. Additionally, if feasible, falcon and bat exclusion for demolition of the Schuyler Heim Bridge and Gerald Desmond Bridge Replacement would be timed to avoid exclusion during the same breeding season. This would ensure that at least one familiar nesting/roost area within the project vicinity is available throughout construction. These impacts were considered at the project level, resulting in measures to avoid and minimize the potential effects on falcons and bats. Also, as discussed in Section 2.3 (Biological Resources), artificial nesting and roosting sites for peregrine falcons and bat species would be incorporated into the Gerald Desmond Bridge Replacement Alternatives. When considered with other related projects and with implementation of the protection measures discussed in Section 2.3, no cumulatively considerable significant or adverse impacts on peregrine falcons or bat species are anticipated.

Lighting of the project during construction and operation may affect special-status species and resident/migratory birds. Artificial lighting could potentially disrupt behavior, resulting in disorientation and collisions with the bridge structures (International Dark-Sky Association, 2002; Longcore and Rich, 2004). Although the potential for collisions would not represent a

substantial effect on special-status species or bird migration or use at the project level, it may result in cumulative impacts to birds when considered with construction and operational lighting required for other related projects. The Bridge Replacement Alternatives would incorporate permanent bridge lighting types known to minimize potential effects (i.e., low-pressure sodium lights, high-pressure sodium lights, or LED lights) and avoid lighting types known to be disruptive to migrating wildlife (mercury vapor lamps [Jones, 2000]). Additionally, lighting would be shielded to ensure that light is focused inward, and the amount of lighting would be reduced where possible during both construction and operation. With implementation of the protection measures discussed in Section 2.3, and considering the extent and brilliance of ambient nighttime lighting of the harbor areas adjacent to the bridge, lighting on the existing bridge, and the industrialized nature of the BSA, no cumulatively considerable significant or adverse impacts associated with artificial lighting on special-status species or resident/migratory birds are anticipated.

#### Rehabilitation Alternative

This alternative would require temporary relocation of nesting ledges and staged construction that would modify nest/roost access during construction. If the Rehabilitation Alternative and the Schuyler Heim project are under construction at the same time, there is potential for temporary cumulative impacts on the falcon because all familiar perches could be unavailable for use; however, as discussed in Section 2.3 (Biological Resources), temporary nest sites would be created and available on the Gerald Desmond Bridge during construction. If nest/roost abandonment does occur, there are other suitable areas for these species to reside until construction is completed. Subsequent to construction of this alternative, existing nesting and roost areas would again be available for reoccupation. When considered with other related projects and with implementation of the protection measures discussed in Section 2.3, no cumulatively considerable significant or adverse impacts on peregrine falcons or bat species are anticipated.

Upon completion of the retrofit activities, bridge lighting would be the same as the existing bridge lighting. Construction night lighting would be focused and directed on the work area. Given the extent and brilliance of ambient nighttime lighting of the harbor areas adjacent to the bridge, lighting on the existing bridge, and the industrialized

nature of the BSA, no cumulatively considerable significant or adverse impacts associated with artificial lighting on special-status species or resident/migratory birds are anticipated

## **Invasive Species**

### Build Alternatives

Construction vehicles can easily transport seeds of invasive species from other construction sites into the project area; however, because of the industrial and highly developed nature of the project area, invasive species establishment is unlikely. Standard measures to prevent the spread of invasive species would be implemented. Project landscaping would be limited to slopes near the bridge ramps and would follow the provisions set forth in EO 13112, which mandates preventing the introduction of and controlling the spread of invasive plant species on highway ROWs. No invasive species listed in the National Invasive Species Management Plan or the State of California Noxious Weed List would be used in the landscaping for the proposed project. It is anticipated that similar measures would be incorporated at other related project sites. With incorporation of these measures, no cumulatively considerable significant or adverse impacts related to the spread or establishment of invasive species are anticipated.

### **2.4.4 Environmental Resources for which Potentially Adverse Cumulative Impacts would Result**

When considering the effects of past, present, and reasonably foreseeable future projects in combination with the anticipated effects associated with the Gerald Desmond Bridge Replacement Project, cumulatively considerable impacts on resource areas that are considered potentially adverse are discussed below.

#### **2.4.4.1 Utilities/Emergency Service**

##### **Utilities**

###### Bridge Replacement Alternatives

These alternatives and, more than likely, most related projects would require relocation of various utilities during construction (i.e., electric, telephone lines, natural gas, water and sewer pipelines, storm drains, and oil lines and wells). The relocation process could temporarily interrupt utilities while a changeover from the existing to relocated facilities occurs. It is also possible that construction activities associated with other related projects could interrupt utilities serving the

immediate vicinity. Utility relocation for the proposed project would be conducted in a manner designed to minimize any potential for interruption. It is reasonable to believe that other related projects would also minimize the potential for service interruption. Interruption of associated utility service in the project area is unlikely to occur. If a service interruption associated with a utility relocation of a related project were to occur simultaneously with an interruption related to the Bridge Replacement Alternatives, this may result in a potentially adverse cumulative impact. The likelihood of such a simultaneous occurrence would be minimal and temporary in duration, perhaps extending for a period of hours. Because utility relocation is common within the Port and related projects area, service disruptions and associated potential cumulatively considerable impacts would be temporary, and minimal, cumulatively considerable adverse or significant impacts are not anticipated. Once operational, the proposed project would not have an effect on utility use or operation, either of itself or in the context of other related projects. .

###### Rehabilitation Alternative

Potential cumulative impacts associated with utility relocations for the Rehabilitation Alternative would be similar to those described for the Bridge Replacement Alternatives; however, the Rehabilitation Alternative would require much less utility relocation and would not involve the relocation of the SCE lines. Once operational, the proposed project would not have an effect on utility use or operation, either of itself or in the context of other related projects. Because utility relocation is common within the Port and related projects area, service disruptions and associated potential cumulatively considerable impacts would be temporary, and minimal, cumulatively considerable adverse or significant impacts are not anticipated..

##### **Emergency Services**

###### Bridge Replacement Alternatives

Some traffic delays can be expected during construction. Delays may potentially result in increased response times for emergency service providers. The Bridge Replacement Alternatives would utilize a staged construction method, and vehicle travel across the existing bridge would be maintained throughout the construction phases. Only minor effects on emergency services are anticipated during the construction phase and would mainly consist of reduced travel speeds through the project area. A TMP would be designed to identify ways to reduce emergency

service impacts during the construction phase. Cumulative impacts to emergency services could potentially occur if construction of related projects is concurrent with the proposed project. Careful coordination between the proposed and related projects and emergency service providers should minimize these consequences. The TMP for this project would address issues of emergency circulation in conjunction with TMPs for other related projects, and cumulatively considerable adverse or significant impacts are not anticipated.

#### Rehabilitation Alternative

Potential cumulative impacts associated with emergency services for the Rehabilitation Alternative would be similar to those described for the Bridge Replacement Alternatives; however, most of the construction activities with potential to impact emergency response times would occur during off peak hours, from 7:00 p.m. to 7:00 a.m. A TMP designed to reduce emergency service impacts during the construction phase would be completed. Cumulative impacts to emergency services could potentially occur if construction of related projects is concurrent with the proposed project. Careful coordination between the proposed project and related projects and emergency service providers should minimize these consequences. The TMP for this project would also address emergency circulation in conjunction with TMPs for other related projects. Potential and cumulatively considerable adverse or significant impacts are not anticipated.

### **2.4.4.2 Air Quality**

#### **Construction Impacts**

##### Bridge Replacement Alternatives

The Bridge Replacement Alternatives would result in construction-related cumulative impacts within the SCAB. The SCAB experiences chronic exceedance of state and federal ambient air quality standards; therefore, exceedances of established thresholds must be considered an adverse consequence. As discussed in Section 2.1.5, the Replacement Alternatives would exceed the SCAQMD construction threshold for NO<sub>x</sub> during the 9<sup>th</sup> month of construction years 1 and 2, and the 3<sup>rd</sup> month of construction Year 3. Although the impact would be temporary, NO<sub>x</sub> is a precursor for O<sub>3</sub> and, when considered with other related projects, could contribute cumulatively to the SCAB's O<sub>3</sub> nonattainment status. This exceedance would be considered a cumulative temporary adverse impact. All feasible mitigation measures would be implemented, as discussed in

Section 2.1.5. Most of the air quality impacts from related projects would result from mobile sources, such as motor vehicles, construction equipment, and terminal operating vehicles. Ongoing EPA, CARB, SCAQMD, and Port programs are aimed at reducing overall emissions by encouraging or mandating measures to implement the use of alternative fuels, introduction of cleaner running engines, and increased use of ride sharing. In November 2006, the Ports approved the San Pedro Bay Ports CAAP. This plan links the emission reduction efforts and visions of the Ports with the similar efforts and goals of the regulatory agencies (e.g., SCAQMD and CARB) in charge of ensuring compliance with air quality standards. This 5-year CAAP highlights goals, emissions reduction, and budgetary needs for FY 2006/2007 through 2010/2011. The Ports will regularly evaluate the progress towards meeting the CAAP's goals, review the status of existing control measures, evaluate new measures, and develop a revised Action Plan each year (POLB, 2006b); however, construction emissions represent additions to the mobile source emissions burden of the SCAB; therefore, they are unavoidable during the most intense construction activities.

Additionally, construction activities could result in offsite ambient NO<sub>x</sub> concentrations that would exceed SCAQMD thresholds of significance during construction year 2 and 3 at a distance of up to 1,640 ft (500 m) from the construction area. Exceedance of the threshold, when considered with the potential for exceedance of offsite ambient construction emission thresholds for other related projects, construction NO<sub>x</sub> emissions could contribute to cumulatively adverse temporary air quality effects on sensitive receptors within 1,640 ft (500 m) of the construction area. Sensitive receptors potentially affected within 1,640 ft (500 m) include primarily Cesar Chavez Park and Elementary School, the Golden Shore Marine Reserve, and a few residences. Temporary adverse ambient offsite exceedances would be intermittent over the 12-month period, occur only during the most intense construction activities, and be highly dependent upon construction vehicle mix, proximity of construction activities to the sensitive receptors, and prevailing climactic conditions. .

To the extent feasible, the construction schedule of this project would be coordinated so that concurrent major construction activities are avoided or minimized to reduce adverse air quality impacts. Coordination of the SR 47/Schuyler Heim Bridge replacement project and Gerald Desmond

Bridge replacement project by their respective development teams, as well as PDTs of other related projects in the vicinity, is ongoing. Construction of the proposed project would result in temporary adverse effects to air quality, even after impacts have been minimized to the maximum extent practicable; therefore, impacts of the proposed project, when considered in conjunction with other related concurrent projects under construction, would be expected to be adverse. During construction of either Bridge Replacement Alternative, construction emissions would temporarily contribute to cumulative adverse effects to air quality.

#### Rehabilitation Alternative

The Rehabilitation Alternative would not exceed SCAQMD local or regional construction emission thresholds and would not contribute to cumulative adverse air quality effects during construction.

### **Operational Impacts**

#### Bridge Replacement Alternatives

Under the Bridge Replacement Alternatives, regional daily operational emissions for all criteria pollutants would be substantially less than the operational emissions associated with the 2005 base year in both the opening (2015) and horizon years (2030); however, the SCAQMD operational thresholds for  $\text{NO}_x$  would be exceeded during the opening year. Although the impact would be temporary,  $\text{NO}_x$  is a precursor for  $\text{O}_3$  and, when considered with other related projects, could temporarily contribute cumulatively to the SCAB's  $\text{O}_3$  nonattainment status. The overall emissions reduction is due to compliance with adopted regulations for mobile source control measures and include the use of alternative or reformulated fuels, retrofit control on engines, and installing or encouraging the use of new engines and cleaner heavy-duty vehicles. However, when considered with other related projects, exceedance of SCAQMD daily operational threshold criteria would contribute to cumulative considerable temporary adverse effects to air quality during operations. By the horizon year (2030), daily operational Bridge Replacement Alternative emissions would be in compliance with all SCAQMD operational thresholds.

Additionally, localized CO effects associated with operation were assessed by estimating the maximum ambient CO concentrations near the intersections with the greatest potential for hot-spot generation. The Build Alternatives did not result in any exceedance of NAAQS or CAAQS

and would not contribute to cumulatively adverse localized CO effects during operations.

### **2.4.4.3 Traffic and Circulation**

#### **Traffic Effects Associated with Three Other Related Projects**

This subsection focuses on three roadway improvements from the listing of cumulative projects:

- Improvements to SR 47, excluding the direct "flyover" connector ramp serving traffic from EB Ocean Boulevard to NB SR 47;
- Widening of SR 710 north of the Ports; and
- The direct "flyover" connector ramp serving traffic from EB Ocean Boulevard to NB SR 47 (SR 47 Flyover).

All other cumulative transportation projects and the analysis of their potential traffic effects under both the Rehabilitation and Bridge Replacement Alternatives are included in the analysis of traffic effects presented in Section 2.1.5. Thus, the Rehabilitation Alternative would not result in any adverse cumulative effects on traffic and circulation.

The remainder of this section addresses cumulative effects of the Bridge Replacement Alternatives. The traffic forecasts used in the analysis presented in Section 2.1.5 include traffic from cumulative development projects and circulation on cumulative transportation projects, except for the three transportation projects listed above. These three transportation projects were added to the list of cumulative projects after the traffic forecasting was complete. The potential effects of the three projects listed below were examined using additional runs of the traffic forecasting model testing the sensitivity of the traffic network to these three projects. The flyover was analyzed separately because it was added to the SR 47 project late in the development of that project.

#### SR 47 and SR 710 Improvements

Improvements to the SR 47 Expressway and SR 710 freeway north of the Ports were not included in the roadway network used to forecast traffic for the future years because those improvements were not planned or programmed at the time that the travel demand forecasting model network was developed; however, a sensitivity analysis was conducted that included these two projects as additional improvements to the year 2030 Bridge Replacement Alternatives condition.



The traffic assignment model for the 2030 Bridge Replacement Alternatives condition was run with improvements to SR 710 and SR 47 (excluding the SR 47 Flyover) added to the network. Because of the additional capacity on SR 710 and SR 47, there are some changes in forecast traffic volumes.

Table 2.4.4-1 shows the changes in traffic with the proposed Bridge Replacement Alternatives, including and excluding the additional improvements to SR 710 and SR 47. The results show that the addition of those two projects could increase PCE traffic on the bridge between 2 and 8 percent during a given peak hour. Because the bridge is expected to operate at LOS C or better in the year 2030 with the Bridge Replacement Alternatives, the additional traffic can be easily accommodated in the proposed designs of the Bridge Replacement Alternatives.

SR 47 Flyover at Terminal Island Freeway Interchange

The proposed SR 47 Flyover would provide a direct connection for traffic from EB Ocean Boulevard to NB SR 47. The SR 47 Flyover is included in the

preferred alternative in the May 2009 *Schuyler Heim Bridge Replacement and SR-47 Expressway Project Final Environmental Impact Statement/ Environmental Impact Report* (Caltrans, 2007a). The SR 47 Flyover could also influence some of the same roadway segments that would be affected by the proposed Bridge Replacement Alternatives for the Gerald Desmond Bridge. The SR 47 Flyover is expected to be operational sometime between 2015 and 2030.

Operational analysis of the influence of the SR 47 Flyover on the roadway study segments was conducted using CORSIM software and HCM methods. The peak-hour traffic volumes used in the analysis are the same as those used for analysis of the Bridge Replacement Alternatives. The SR 47 Flyover was evaluated with and without the proposed Bridge Replacement Alternatives in years 2015 and 2030.

Table 2.4.4-2 summarizes the results of the analysis of the influence of the SR 47 Flyover on

<b>Table 2.4.4-1 Year 2030 Traffic Volumes for the Bridge Replacement Alternatives with SR 710 and SR 47 Improvements Except SR 47 Flyover</b>						
	AM Peak		MD Peak		PM Peak	
	EB	WB	EB	WB	EB	WB
<b>Year 2030 with Bridge Replacement Plus SR 710 and SR 47 Improvements</b>						
Autos	1,636	1,312	1,117	1,065	1,756	2,189
Trucks (Non-PCE)	1,059	1,164	1,249	1,192	1,148	866
Total Vehicles (Non-PCE)	2,695	2,476	2,366	2,257	2,904	3,055
Total Vehicles (PCE)	3,754	3,640	3,615	3,449	4,052	3,921
<b>Year 2030 with Bridge Replacement</b>						
Autos	1,445	1,311	1,131	1,010	1,900	2,066
Trucks (Non-PCE)	1,022	1,118	1,176	1,182	1,028	803
Total Vehicles (Non-PCE)	2,467	2,429	2,307	2,192	2,928	2,869
Total Vehicles (PCE)	3,489	3,547	3,483	3,374	3,956	3,672
<b>Difference</b>						
Autos	191	1	-14	55	-144	123
Trucks (Non-PCE)	37	46	73	10	120	63
Total Vehicles (Non-PCE)	228	47	59	65	-24	186
Total Vehicles (PCE)	265	93	132	75	96	249
Total Vehicles (PCE) – Percent Increase	8%	3%	4%	2%	2%	7%

Note: PCE – passenger car equivalents

Source: Iteris, 2009.

Table 2.4.4-2 Comparison of Study Segment LOS for the No Action/Rehabilitation Alternatives and Bridge Replacement Alternatives with and without the Ocean Boulevard to SR 47 Flyover

Segment	From	To	Year 2005	Without EB Ocean Boulevard to NB SR 47 Flyover				With EB Ocean Boulevard to NB SR 47 Flyover				
				Existing/ Baseline	Year 2015		Year 2030		Year 2015		Year 2030	
					No Action/ Rehab Alt	Bridge Replace Alts	No Action/ Rehab Alt	Bridge Replace Alts	No Action/ Rehab Alt	Bridge Replace Alts	No Action/ Rehab Alt	Bridge Replace Alts
<b>AM Peak Hour</b>												
1	EB Ocean Blvd WB Ocean Blvd	Navy Way Pier S Avenue	Pier S Avenue Navy Way	* *	C C	C C	F C	C C	B C	B C	B C	B C
2	EB Ocean Blvd WB Ocean Blvd	Pier S Avenue Terminal Island Freeway	Terminal Island Freeway Pier S Avenue	* *	B B	C C	C C	C C	B B	C B	C C	C C
3	EB Ocean Blvd WB Ocean Blvd	Terminal Island Freeway Horseshoe Ramps	Horseshoe Ramps Terminal Island Freeway	* *	B B	C E	C B	C D	C B	C B	C B	C B
4	EB Gerald Desmond Bridge EB Gerald Desmond Bridge	Upgrade Crest	Crest Downgrade	B C	C D	C C	C D	D C	C D	C C	D D	D C
5	WB Gerald Desmond Bridge WB Gerald Desmond Bridge	Upgrade Crest	Crest Downgrade	C C	F D	C C	F D	C C	F D	C C	F D	C C
6	NB Connector SB Connector	EB Ocean Blvd SB I-710	NB I-710 WB Ocean Blvd	B B	B C	A B	B D	A C	B D	A B	B D	B C
7	I-710 NB I-710 SB	NB Connector SB I-710 Mainline	NB I-710 Mainline SB Connector	B A	B B	A B	B B	A C	B B	A B	B C	B C
8	EB Ocean Blvd WB Ocean Blvd	NB Connector Downtown	Downtown SB Connector	A A	A A	B B	A A	B B	A A	B B	A A	B B
<b>MD Peak Hour</b>												
1	EB Ocean Blvd WB Ocean Blvd	Navy Way Pier S Avenue	Pier S Avenue Navy Way	* *	C C	C C	F C	F C	B B	B C	F B	B C
2	EB Ocean Blvd WB Ocean Blvd	Pier S Avenue Terminal Island Freeway	Terminal Island Freeway Pier S Avenue	* *	B B	C B	B B	C C	B B	C B	C C	C C
3	EB Ocean Blvd WB Ocean Blvd	Terminal Island Freeway Horseshoe Ramps	Horseshoe Ramps Terminal Island Freeway	* *	B B	C F	B F	B F	B B	C B	B F	C B
4	EB Gerald Desmond Bridge EB Gerald Desmond Bridge	Upgrade Crest	Crest Downgrade	C C	D D	D C	C C	C B	D D	D C	D D	D C
5	WB Gerald Desmond Bridge WB Gerald Desmond Bridge	Upgrade Crest	Crest Downgrade	C C	F C	C C	F D	C C	F C	C C	F F	C C
6	NB Connector SB Connector	EB Ocean Blvd SB I-710	NB I-710 WB Ocean Blvd	B A	B D	B B	B D	A C	B C	B B	B F	B C
7	I-710 NB I-710 SB	NB Connector SB I-710 Mainline	NB I-710 Mainline SB Connector	B A	C B	B B	B B	A C	C B	B B	B C	B C
8	EB Ocean Blvd WB Ocean Blvd	NB Connector Downtown	Downtown SB Connector	A A	A A	A B	A A	A B	A A	A B	A A	A B
<b>PM Peak Hour</b>												
1	EB Ocean Blvd WB Ocean Blvd	Navy Way Pier S Avenue	Pier S Avenue Navy Way	* *	C C	C C	F D	F D	B C	B C	C D	C D
2	EB Ocean Blvd WB Ocean Blvd	Pier S Avenue Terminal Island Freeway	Terminal Island Freeway Pier S Avenue	* *	C C	C C	C C	D D	C C	C C	D C	D D
3	EB Ocean Blvd WB Ocean Blvd	Terminal Island Freeway Horseshoe Ramps	Horseshoe Ramps Terminal Island Freeway	* *	C C	C B	B C	C C	C C	C B	C C	D C
4	EB Gerald Desmond Bridge EB Gerald Desmond Bridge	Upgrade Crest	Crest Downgrade	C C	D D	D C	C D	D C	C D	D C	E E	D D
5	WB Gerald Desmond Bridge WB Gerald Desmond Bridge	Upgrade Crest	Crest Downgrade	C C	F D	C C	F D	C C	E D	C C	F D	D C
6	NB Connector SB Connector	EB Ocean Blvd SB I-710	NB I-710 WB Ocean Blvd	B B	B C	B B	A C	A B	B C	B B	B C	B B
7	I-710 NB I-710 SB	NB Connector SB I-710 Mainline	NB I-710 Mainline SB Connector	B A	B A	B B	A B	A B	B A	B B	B B	B B
8	EB Ocean Blvd WB Ocean Blvd	NB Connector Downtown	Downtown SB Connector	A A	A A	B C	A A	B C	A A	B C	B A	B C

Notes:  
 \* - Analysis is for multi-lane highway sections. Sections that were not or will not be grade-separated highway sections are not presented in this analysis comparison.  
 a - Sections where the existing 2005 condition was not a multi-lane highway, but the future condition will be. Therefore, no direct comparison is appropriate.  
 LOS - Level of Service ; NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound; Alt - Alternative, Rehab - Rehabilitation  
 Source: Iteris, 2009.

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the Bridge Replacement Alternatives. Assuming that the SR 47 Flyover is in place and a bridge replacement is not, the analysis reveals that in the year 2030, LOS F occurs on the bridge in the WB direction (Segment 5) in all three peak hours. In the EB direction (Segment 4), LOS E occurs on the bridge in the PM peak hour. With both a bridge replacement and the SR 47 Flyover in place, the above conditions improve to LOS D or better in all three peak periods.

For the roadway segments not on the bridge (Segments 1 through 3 and 6 through 8), Table 2.4.4-2 reveals that in the year 2030, assuming the SR 47 Flyover is in place and a bridge replacement is not, LOS F occurs on EB Ocean Boulevard from Navy Way to Pier S Avenue during the MD peak hour. Under the same conditions, LOS F occurs on the connector from SR 710 to Ocean Boulevard during the MD peak hour. If both a Bridge Replacement Alternative and the SR 47 Flyover are implemented, the LOS on those two segments (EB Ocean Boulevard from Navy Way to Pier S Avenue and the connector from SR 710 to Ocean Boulevard) improves to LOS C or better.

With both a proposed Bridge Replacement Alternative and the SR 47 Flyover, no LOS F operations are forecast on the study segments in either year 2015 or 2030. These results indicate that neither a proposed Bridge Replacement Alternative nor the SR 47 Flyover is individually capable of resolving LOS F operations on all roadway segments, but that a proposed Bridge Replacement Alternative and the SR 47 Flyover acting together can.

The SR 47 Flyover, in conjunction with either proposed Bridge Replacement Alternative, would result in cumulative combined LOS benefits exceeding what either improvement could individually provide. Based on the analysis presented above, the SR 710 widening and SR 47 Expressway projects would provide an additional increment of traffic to the Bridge Replacement Alternatives. There is sufficient capacity on those alternatives to accommodate the additional traffic. The LOS E condition on the EB bridge segment during the PM peak hour with both the SR 47 Flyover and a Bridge Replacement Alternative implemented would remain LOS E, with an additional 2 to 8 percent increment of traffic

associated with the SR 710 and SR 47 improvements. The density on that segment is 36.0 vehicles per lane per mile with the SR 47 Flyover and a Bridge Replacement Alternative implemented. An increase of 8 percent would result in a density of 38.9, which is still within the LOS E range.

In summary, it is concluded that all adverse cumulative traffic effects resulting from reasonably foreseeable roadway improvements in conjunction with the proposed Bridge Replacement Alternatives are identified in Section 2.1.5. There are traffic benefits to the proposed Gerald Desmond Bridge Replacement Alternatives from one of the three cumulative projects presented in this section. The flyover connector ramp from EB Ocean Boulevard to NB SR 47 would provide a benefit to the proposed Bridge Replacement Alternatives. The SR 47 Flyover, in conjunction with a proposed Bridge Replacement Alternative, is expected to address the adverse effect of the Bridge Replacement Alternatives on WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange by improving operations to LOS C or better. Additional traffic from widening SR 710 north of the Ports could be accommodated by the proposed Bridge Replacement Alternatives.

### **Pedestrian and Bicycle Facilities**

Terminal Island is an industrial area within the Harbor District where there is currently no residential, retail, or public recreational facilities and future nonmotorized demand (e.g., pedestrians or bicycles) on Ocean Boulevard over the Gerald Desmond Bridge is anticipated to be low. In addition, Terminal Island does not include any designated bicycle route. The Los Angeles County MTA has not included bikeways or walkways on the Gerald Desmond Bridge (or its replacement) or Terminal Island in its regional bikeway master plan.

The current Gerald Desmond Bridge has a pedestrian walkway, but it is not considered a "major nonmotorized route" and discussions with the MTA bikeway program staff concluded that a designated bike route or pedestrian walkway is not required for this project; therefore, no cumulative adverse effects would result from the Rehabilitation or Bridge Replacement Alternatives during construction or operation.

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*Chapter 3*  
*California Environmental Quality*  
*Act (CEQA) Evaluation*





## **SECTION 3 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION**

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### **3.1 DETERMINING SIGNIFICANCE UNDER CEQA**

The Gerald Desmond Bridge Replacement Project is a POLB project. The POLB is the lead CEQA agency. Upon completion of the proposed project, if one of the Bridge Replacement Alternatives is constructed, the improvements between the existing SR 710 and SR 47, including the bridge, will be transferred to Caltrans by easement following route adoption and execution of a freeway agreement. It is estimated that the transfer would be completed within 2 years after construction. Additionally, the Port has obtained federal funding from FHWA for the project, and the project is subject to state and federal environmental review requirements. Project documentation has been prepared in compliance with CEQA and NEPA. 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.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS or some lower level of documentation would 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. In the case of this project, a decision was made by Caltrans that the proposed project, as a whole, would not have the potential to significantly affect the quality of the human environment; therefore, an EIS was not required. Instead of an EIS, an EA has been prepared to satisfy NEPA requirements.

Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important. NEPA does not require that a determination of significant impacts be stated in environmental documents.

CEQA, on the other hand, does require the lead agency 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, and the effect cannot be mitigated to a less-than-significant level, then an 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 many mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project in terms of CEQA significance.

### **3.2 DISCUSSION OF SIGNIFICANCE OF IMPACTS**

Impacts of the proposed project are discussed in detail in Chapter 2, below in Section 3.3 (Climate Change), and determination of the impact significance, pursuant to CEQA, is declared within Sections 3.2.1 through 3.2.15 (see bullets). However, some topical areas require additional CEQA-specific discussion. Supplemental CEQA discussion is provided within the sections below to support the CEQA significance determinations where required. All topics discussed in Chapter 2 for which no avoidance, minimization, and/or mitigation measures were proposed were determined to be less than significant project effects pursuant to CEQA. All other project effects are either discussed as significant project effects or unavoidable and significant effects, depending on if the project effect is less than significant after mitigation measures are implemented.

Additionally, where applicable, to reduce redundancy within the effect determinations, project alternatives have been grouped where appropriate. When the Build Alternatives are referenced, this refers to all proposed build alternatives as discussed in Chapter 1 (North-side and South-side Alignment Alternatives and the Rehabilitation Alternative). When the Bridge Replacement Alternatives are referenced, this refers to both the North and South-side Alignment Alternatives. The No Project/Rehabilitation Alternative is referenced when the effects associated with the Rehabilitation Alternative would result in the same project effects as the No Project Alternative.

### 3.2.1 Aesthetics

#### 3.2.1.1 Less than Significant Effects of the Proposed Project

- The Build Alternatives would have a less than significant effect on scenic vistas, scenic resources, and the visual character and quality of the site and its surroundings.
- The Build Alternatives would not substantially contrast with the surrounding industrialized setting of the Port and would not substantially degrade the visual quality or character of the site or surroundings. The Build Alternatives would have a less than significant effect on visual quality and character.
- The Build Alternatives would have a less than significant effect on the creation of new sources of light or glare that would adversely affect day or nighttime views in the area.
- The Bridge Replacement Alternatives would result in a beneficial change in aesthetics and visual resources, and the Rehabilitation Alternative would result in no change in aesthetics or visual resources. The proposed project contribution to cumulative impacts on aesthetics/visual resources is less than significant.

See Sections 2.1.7 (Visual and Aesthetics) and 2.4 (Cumulative Impacts) for more information.

#### 3.2.1.2 Significant Environmental Effects of the Proposed Project

There are no significant environmental effects related to aesthetics associated with construction or operation of the Build Alternatives.

#### 3.2.1.3 Unavoidable Significant Environmental Effects

There are no unavoidable significant environmental effects related to aesthetics associated with construction or operation of the Build Alternatives.

#### 3.2.1.4 Mitigation Measures

No mitigation is required.

### 3.2.2 Air Quality

Air quality construction and operational impact analysis is provided in Section 2.2.5 (Air Quality). Specific analysis as related to CEQA is provided below.

#### CEQA Air Quality Significance Criteria: Construction and Operation Thresholds

According to the CEQA Guidelines, the environmental conditions in the vicinity of a project that exist at the time of the revised NOP of the environmental document would be considered the baseline conditions against which the impacts are evaluated; therefore, the CEQA Baseline is established as the year 2005, when the project's NOP was published. The CEQA impact analysis is based on a comparison between the pollutant emissions level changes from the project and alternatives from 2005 through the horizon year 2030.

Project-related air contaminant emissions would have a significant impact under CEQA if they resulted in emissions that either creates a violation of an NAAQS or CAAQS (see Table 2.2.5-1) or exceeds SCAQMD construction or operation thresholds, as shown in Table 3-1.

#### 3.2.2.1 Less than Significant Effects of the Proposed Project

- The Build Alternatives are consistent with the 2008 RTP and have been included in the 2008 RTIP, which was developed in compliance with state and federal requirements. The proposed project implements all feasible measures from the SCAQMD 2007 AQMP; therefore, impacts on the implementation of the applicable air quality plans would be less than significant.
- Construction and operational emissions associated with the Rehabilitation Alternative would not create a violation of NAAQS or CAAQS or cause an exceedance of daily construction or operational emission thresholds set forth by the SCAQMD; thus, the Rehabilitation Alternative would not violate ambient air quality standards (CAAQS and NAAQS) or exceed SCAQMD daily construction or operational emission thresholds, and impacts would be less than significant.
- Construction and operation of the Build Alternative would not exceed CAAQS; therefore, they would not cause any hot-spot or localized impacts at sensitive receptor locations (see Section 2.2.5 and Tables 2.2.5-8, 2.2.5-11, 2.2.5-16, and 2.2.5-17).
- The Build Alternatives would not expose sensitive receptors to substantial pollutant concentration, and impacts would be less than significant as discussed below.

<b>Table 3-1 SCAQMD Air Quality Significance Thresholds</b>		
<b>Mass Daily Thresholds <sup>a</sup></b>		
<b>Pollutant</b>	<b>Maximum Emission (lbs/day)</b>	
	<b>Construction</b>	<b>Operation</b>
NO <sub>x</sub>	100	55
VOC	75	55
PM <sub>10</sub>	150	150
PM <sub>2.5</sub>	55	55
SO <sub>x</sub>	150	150
CO	550	550
Pb	3	3
<b>TACs and Odor Thresholds</b>		
TACs (including carcinogens and noncarcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
<b>Ambient Air Quality for Criteria Pollutants <sup>b</sup></b>		
<u>NO<sub>2</sub></u> 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (338 µg/m <sup>3</sup> ) – state 0.030 ppm (56 µg/m <sup>3</sup> ) – state	
<u>PM<sub>10</sub></u> 24-hour average annual geometric average annual arithmetic mean	10.4 µg/m <sup>3</sup> (construction) <sup>c</sup> & 2.5 µg/m <sup>3</sup> (operation) 1.0 µg/m <sup>3</sup> 20 µg/m <sup>3</sup>	
<u>PM<sub>2.5</sub></u> 24-hour average	10.4 µg/m <sup>3</sup> (construction) <sup>c</sup> & 2.5 µg/m <sup>3</sup> (operation)	
<u>Sulfate</u> 24-hour average	25 µg/m <sup>3</sup>	
<u>CO</u> 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

Keys: lbs/day – pounds per day; ppm – parts per million; µg/m<sup>3</sup> – microgram per cubic meter; ≥ greater than or equal to

<sup>a</sup> Based on SCAQMD CEQA Handbook (SCAQMD, 1993)

<sup>b</sup> Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

<sup>c</sup> Ambient air quality threshold based on SCAQMD Rule 403.

Source: SCAQMD, 2007.

The analysis of health risks associated with the proposed project is provided in Section 2.2.5. The HRA determined the incremental increase in health effects values associated with the proposed project by estimating the net change in impacts between the proposed project and CEQA baseline conditions. For the CEQA baseline scenario, activity levels in the baseline year of 2005 were held constant over the entire 70-year analysis period.

Table 2.2.5-22 shows that the CEQA increment for all of the analyzed health risk values are negative, which indicates that the risk from TACs is decreasing over time; therefore, this impact would be less than significant under CEQA.

None of the Build Alternatives would result in a hazard index or cancer burden that would exceed SCAQMD significance thresholds (see Section 2.2.5 and Table 2.2.5-22).

Additionally, none of the Build Alternatives would result in an exceedance of California CO standards at qualifying intersections and would not significantly impact sensitive receptors (see Section 2.2.5 and Tables 2.2.5-16 and 2.2.5-17).

- The Build Alternatives would have a less than significant impact resulting from the creation of objectionable odors within the project area.

See Section 2.2.5 for more information.

### **3.2.2.2 Significant Environmental Effects of the Proposed Project**

None of the significant impacts on air quality could be mitigated to below the level of significance and are considered unavoidable.

### **3.2.2.3 Unavoidable Significant Environmental Effects**

- Regional construction emissions associated with the Bridge Replacement Alternatives would result in a temporary short-term exceedance of the SCAQMD regional daily thresholds for NO<sub>x</sub> during construction Years 1, 2, and 3. All feasible mitigation measures, as discussed in Section 2.2.5, have been proposed to reduce construction NO<sub>x</sub> emissions, and impacts have been mitigated to the maximum extent practicable and would cease upon completing the construction and demolition activities. Regional construction NO<sub>x</sub> emission impacts would remain significant during 2 years of the 5-year construction period even after implementation of the mitigation measures discussed in Section 2.2.5. Table 3-2 shows that the

proposed mitigation measures would reduce regional NO<sub>x</sub> emissions by providing a further 5 percent reduction of exhaust emissions (15 percent for NO<sub>x</sub> for use of oxidation catalyst) from construction equipment when compared to the unmitigated emissions (see Table 2.2.5-6). Nonetheless, during construction, the project would still exceed the SCAQMD regional daily significance threshold for NO<sub>x</sub> during Construction Years 2 and 3 and are considered significant and unavoidable impacts. See Section 2.2.5 for more information.

- Operational emissions for the Bridge Replacement Alternatives would exceed SCAQMD daily operational emission threshold for NO<sub>x</sub> in the opening year 2015. As discussed in Section 2.2.5, there are no feasible mitigation measures to reduce operational emissions within the project area. Operational emissions are summarized in Table 2.2.5-10. As shown, operational emissions associated with the Bridge Replacement Alternatives would be substantially reduced from the 2005 CEQA baseline levels in both 2015 and 2030. The emissions reduction is due to future year modeling results that reflect a newer vehicle fleet composition more in compliance with adopted regulations in the AQMP that are aimed at controlling emissions from mobile sources. Table 2.2.5-10 also shows that the net increases of project operational emissions relative to the No Action Baseline emissions would be relatively small, with the exception of NO<sub>x</sub>. The net change in NO<sub>x</sub> emissions between the proposed project and no action baseline during 2015 is estimated to be approximately 154 pounds per day, which would exceed the SCAQMD threshold. During the horizon year 2030, the net change in daily emissions would be below the SCAQMD thresholds for all criteria pollutants, including NO<sub>x</sub>. As described in Section 2.2.5, the Port CTP and the State drayage truck plans would result in a substantial reduction of DPM and NO<sub>x</sub> emissions within the Port and the transportation facilities that serve Port area. However, these reductions cannot be quantified at this time; therefore, Bridge Replacement Alternative daily operational impacts for NO<sub>x</sub> during the opening year (2015) would be considered significant and unavoidable. See Section 2.2.5 for more information.

<b>Table 3-2 Estimated Mitigated Peak Daily Construction Emissions<sup>a</sup> (pounds/day)</b>					
<b>Construction Year – Stage</b>	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<b>Peak Daily Construction Emissions</b>					
<b>YEAR 1</b>					
Onsite	31	75	7.1	63	16
Offsite <sup>b</sup>	29	20	3.6	1	1
<b>Total</b>	<b>60</b>	<b>95</b>	<b>11</b>	<b>64</b>	<b>17</b>
Regional Daily Significance Threshold	550	100	75	150	55
Exceed Threshold?	No	No	No	No	No
<b>YEAR 2</b>					
Onsite	289	622	64	89	42
Offsite <sup>b</sup>	36	19	4	1	1
<b>Total</b>	<b>325</b>	<b>641</b>	<b>68</b>	<b>90</b>	<b>43</b>
Regional Daily Significance Threshold	550	100	75	150	55
Exceed Threshold?	No	Yes	No	No	No
<b>YEAR 3</b>					
Onsite	178	362	38	76	29
Offsite <sup>b</sup>	32	16	4	1	1
<b>Total</b>	<b>209</b>	<b>378</b>	<b>42</b>	<b>77</b>	<b>30</b>
Regional Daily Significance Threshold	550	100	75	150	55
Exceed Threshold?	No	Yes	No	No	No
<b>Peak Daily Onsite Construction Emissions</b>					
Localized Daily Significance Threshold at Nearest Sensitive Receptors <sup>c</sup>	10,198	— <sup>d</sup>	—	191	120
Year 1	29	— <sup>d</sup>	—	63	16
Year 2	273	— <sup>d</sup>	—	89	42
Year 3	178	— <sup>d</sup>	—	76	29

Note: Exceedances from thresholds are shown in bold type.

<sup>a</sup> Compiled using the CEQA Air Quality Handbook and the emissions inventory from OFFROAD model. The equipment mix and use assumption for each phase is provided by the construction engineer; a list of equipment and assumptions is included in the project Air Quality Technical Study Report and Appendix A.

<sup>b</sup> Offsite emissions include motor vehicle emissions associated with construction equipment transport to site, worker commutes, and debris hauling activities.

<sup>c</sup> The nearest sensitive receptors include Cesar Chavez Elementary School and the multi-family residences that are located approximately 0.3-mi (483 m) east of the construction site boundary. It was estimated that the project's maximum daily disturbed area during any construction phase would be 4 to 5 acres (1.5 to 2 ha) (see Appendix A). The localized significance thresholds (LST) in the table are from the lookup tables for a 5-acre (2-ha) site at a 0.3-mi (500-m) distance in the SRA No. 4, South Coastal LA County; Tables C-2, C-4, and C-5 of the 2005-2007 lookup tables were used for LSTs of CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, respectively.

<sup>d</sup> Localized impact of NO<sub>2</sub> emissions were estimated using dispersion modeling of the unmitigated NO<sub>x</sub> emissions. The results, which are presented in Section 2.2.5, Table 2.2.5-8, indicate that no significant local impacts from construction NO<sub>x</sub> emissions would occur.

Source: Parsons, 2007a.

- As discussed in Chapter 2.4 (Cumulative Impacts) NO<sub>x</sub> is a precursor for O<sub>3</sub>, and the SCAB is in nonattainment status for O<sub>3</sub>. When considered with other related projects, the Bridge Replacement Alternatives exceedance of the SCAQMD NO<sub>x</sub> construction and operational thresholds would be a cumulatively considerable significant and unavoidable impact. NO<sub>x</sub> impacts have been mitigated to the maximum extent practicable; however, they would be considered cumulatively significant during construction Years 2 and 3 and in the opening year (2015). To partially offset project-related localized cumulative air quality effects, the Port will require the project to contribute \$2 million to the Port's Cumulative Air Quality Impact Reduction Program (\$1 million each to the Schools and Related Sites and Healthcare and Seniors Facility Grant Programs). The methodology for CEQA (AQ)-1 for determining the funding amount associated with the project has been adjusted to better take into account many factors, including the Ports' progress in reducing emissions through implementation of the CAAP, as a measure of cumulative impacts, and project-specific impacts when compared to established significance thresholds. The net result of this revision is an increase in total funding for the programs, although the nature of the projects and activities that would be funded by the contributions to the programs is unchanged. Methodology for this calculation is provided below, as described in the refined Mitigation Measure CEQA (AQ)-1. The project contribution will be distributed consistent with the Schools and Related Sites Guidelines and Healthcare and Seniors Facility Program Guidelines for the Port of Long Beach Grant Programs. As previously discussed, all unavoidable air quality effects are considered cumulatively significant and unavoidable, even after mitigation. Implementation of CEQA (AQ)-1 below would help partially offset cumulative air quality effects on those most directly affected by construction and operation of the proposed project. See Section 2.4 for more information
- As discussed in Section 3.3, the Build Alternatives would result in significant unavoidable project-related increases of GHGs associated with construction and operational emissions. The increase is primarily due to increased traffic during operations within the project area (i.e., more cars/trucks within the project area results in more GHG emissions when compared to the CEQA baseline). Vehicle emissions are regulated at the federal and state levels, and outside of additional regulation or other improvements in fuel or engine technology, there are no feasible mitigation measures to reduce GHG emissions from vehicles. However, as discussed in Section 3.3 (Climate Change), new legislation was recently passed at the federal level that mandates increased fuel economy standards that will reduce future GHGs from all passenger vehicles and light-duty trucks. In addition to the Port's CTP, the Port is developing the Climate Change/Greenhouse Gas Strategic Plan (CC/GHG Plan) to reduce Port-wide GHG. The new federal regulation and CTP would reduce project operational GHG emissions. However, these reductions cannot be quantified at this time; therefore, GHG impacts would be considered significant and unavoidable. See Section 3.3 for more information.
- As discussed in Section 3.3, the Build Alternatives would result in a project-related increase in GHGs. This increase would contribute to a cumulative regional increase in GHG. The Port is addressing GHG through their GHG programs and the CC/GHG Plan at regional, Port, and terminal levels; however, as discussed in Section 3.3, there are no project-specific feasible mitigation measures to address GHG for transportation projects. GHG transportation emission reductions will come from three overarching strategies: more efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. The GHG emission reductions in the transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy; however, these reductions cannot be quantified at this time. To partially offset the project-related significant and unavoidable cumulative increase in GHG emissions within the project area, the Port will require the project to contribute \$400,000 to the Port's Greenhouse Gas Emissions Reduction Program. The project contribution will be distributed consistent with the Port's Greenhouse Gas Reduction Program Guidelines. Contributions to the GHG Emission Reduction Program will be used to fund projects or activities that could provide additional emission reductions in the communities surrounding the Port beyond what can be achieved through incorporation of all feasible mitigation measures. The types of

projects that will be funded through this program are described in detail in the guidelines for the GHG Emission Reduction Grant Program, which are available by request from the Director of Environmental Planning or on the Port's Web site at <http://www.polb.com/grants>. While the guidelines identify the projects that can be funded from contributions to the programs, the project takes no specific credit for any emission reductions that may result from any funded projects because it is not possible to quantify any emission reductions until such time as grants are awarded. It should be noted that there was a mathematical error in the Draft EIR/EA, which previously stated that the contribution would be \$647,000. While the methodology described was presented correctly, the mathematical error resulted in a misstatement of the proposed funding amount, which should have been presented as \$400,000. An explanation as to how the funding amounts for the project contribution to the GHG Emission Reduction Program were calculated utilizes the same methodology from the Draft EIR/EA as described below for CEQA (GHG)-1. Implementation of CEQA (GHG)-1 below would help partially offset the project-related increase in GHG; however, cumulative GHG impacts would be significant and unavoidable. See Section 3.3 for more information.

#### **3.2.2.4 Mitigation Measures**

In addition to the mitigation measures discussed in Section 2.2.5, the Port will also implement and fund mitigation measures CEQA (AQ)-1 and CEQA (GHG-1) below:

**CEQA (AQ)-1: Cumulative Air Quality Impact Reduction Program.** To help reduce air quality impacts associated with the project, the Port will require the project to make a contribution to the Schools and Related Sites Guidelines for the Port of Long Beach Grant Programs and to the Healthcare and Seniors Facility Program Guidelines for the Port of Long Beach Grant Programs. Although all feasible mitigation measures that would lessen significant environmental effects have been incorporated into the project, contributions to these grant programs are intended to fund projects or activities that could provide additional emission or exposure reductions in the communities surrounding the Port beyond what can be achieved through incorporation of all feasible mitigation measures. The types of projects that will be funded through these programs are described in detail in the

guidelines for the Schools and Related Sites Program and the guidelines for the Healthcare and Seniors Facility Program, which are available by request from the Director of Environmental Planning or on the Port's Web site at <http://www.polb.com/grants>. While the guidelines identify the projects that can be funded from contributions to the programs, the project takes no specific credit for any emission reductions that may result from any funded projects because it is not possible to quantify any emission reductions until such time as grants are awarded. Instead, the EIR/EA analyzes all environmental impacts, identifies all feasible mitigation measures, and reaches conclusions regarding unavoidable significant effects of the project without taking into account any specific benefits that may result from contributions to the programs.

Project Air Quality Impacts. As discussed in previous sections of this document, the project would contribute to local and regional air quality impacts in the following ways: First, it would produce emissions of criteria pollutants during the project's 5-year project construction period, which includes demolition of the existing bridge. Such emissions have been estimated to exceed the SCAQMD threshold of significance for only one pollutant – NO<sub>x</sub>. That exceedance has been estimated to occur on a peak daily basis during years 2 and 3 of the construction period.

Second, operation of the new bridge would result in daily operational emissions that would be expected to be below the SCAQMD significance threshold for all but one criteria pollutant – NO<sub>x</sub>. Based on the analysis presented in Section 2.2.5 of this document, operation of the project would yield an estimated daily exceedance of the SCAQMD significance threshold for NO<sub>x</sub> in the opening year (2015), but it would not show an exceedance of that threshold by the year 2030. Assuming that a straight line decline in emissions would occur over the intervening time, the SCAQMD significance threshold would be reached approximately 13 years after opening of the new bridge, or by 2028. When compared with CEQA Baseline (year 2005) conditions, years 2015 and 2030 show substantial declines in NO<sub>x</sub> emissions under both the No Project and Project scenarios. It is only when compared to the NEPA Baseline (i.e., against No Project) conditions that the project shows an estimated small increase in NO<sub>x</sub> emissions. Because the bridge carries a combination of Port-related and regional traffic, it is a conservative assumption to associate all of the increased NO<sub>x</sub> emissions with the proposed project.



Third, the project would have a very small contribution to MSAT production. Again, when comparing against the CEQA Baseline, both the 2015 and 2030 No Project and Project conditions show substantial estimated reductions; however, when compared with the NEPA Baseline/No Project conditions, the project would result in additional daily contributions of total MSATs on the order of 1.4 pounds per day and 0.9 pounds per day, in 2015 and 2030, respectively.  $PM_{2.5}$  production, compared to the NEPA Baseline/No Project Alternative, is estimated to be 11 pounds per day in 2015 and 6 pounds per day in 2030.

Fourth, while all CEQA estimates for cancer risk, chronic hazard indices, and acute hazard indices for residential, occupational, and sensitive receptor exposure show decreases when compared to the CEQA Baseline, there are small estimated increases, none of which rise above established thresholds of significance, when the project is compared to the NEPA Baseline/No Project conditions.

Grant Funding Level Methodology and Formulas:

This section describes the methodology and related formulas that will be used to establish the project's contribution to the two grant programs. There are three steps in calculating the grant funding level, each of which is explained in more detail below:

1. Using the Middle Harbor Redevelopment Project funding levels as a baseline, calculate a base funding level that reflects ports-wide air quality and health risk impacts at the start of project construction.
2. Using project-specific  $PM_{2.5}$  incremental emission impacts, adjust the amount from Step 1 to account for project-specific contributions to cumulative air quality impacts.
3. As appropriate and justified based on other factors that have not been captured in Steps 1 and 2, adjust grant funding levels.

Step 1: The baseline funding is the \$10 million contributed by the Middle Harbor Redevelopment Project for both the Schools Grant Program and the Healthcare and Seniors Grant Program. This baseline is appropriate because, as additional CAAP measures are implemented over time that result in emission reductions, it is anticipated that a project that begins construction in a future year will result in lower cumulative air emission impacts than the Middle Harbor project, which began construction in 2009. While cumulative air quality impacts are traditionally evaluated qualitatively as part of most CEQA/NEPA project evaluations, the

CAAP allows the ports to comprehensively look at current and future expected port-related projects and their expected air quality impacts. By forecasting emissions and taking into account pre-recession Ports' growth estimates, future terminal development, implementation of CAAP emission reduction strategies, and adopted regulations, the CAAP allows the Ports' to quantitatively assess risk from future port-related operations and establish long-term goals that reduce long-term cancer risk and "achieve an appropriate 'fair share' of necessary pollutant emission reductions" to achieve regional attainment of federal ambient air quality standards (CAAP Technical Report, page 11). While other non-port-related sources contribute to air pollution and the cumulative burden, Port-related sources contribute a significant portion of local air quality impacts; therefore, changes in Port-related emissions directly affect the cumulative burden experienced by communities surrounding the Ports.

This baseline funding amount is therefore adjusted to account for the forecasted reductions in DPM emissions at the anticipated construction start date for the project. Because DPM has been identified as a TAC by the State of California and is the primary driver of Port-related cancer risk, the Ports use changes in Port-related DPM inventories to assess changes in risk, as described in the draft 2010 CAAP update. The Ports have DPM emission inventories for 2005 through 2009 and have forecasted DPM emissions for 2020. Based on recent updates to the CAAP, the following cumulative emission reductions have been achieved as of 2009 compared to the 2005 baseline: 52 percent reduction in DPM, 35 percent reduction in  $NO_x$ , and 46 percent reduction in  $SO_x$  (CAAP, 2006; Draft 2010 CAAP Update; 2009 Emissions Inventory).

Table 3-3 summarizes the percent reduction in DPM emissions achieved as of 2009 compared to the 2005 baseline year. In addition, the forecasted reductions in DPM emissions from the 2005 baseline were estimated in the 2010 CAAP Update for 2009 through 2014 and for 2023, as summarized in Table 3-3.

This step of the grant contribution calculation is designed to address the amount of Port-related DPM emission reductions not yet achieved as of the project construction start date (i.e., 1-% CAAP DPM Reduction Achieved/100). When the DPM reduction factor is applied to the base funding amount, the calculation for Step 1 is \$10 million x (1-% CAAP DPM Reduction for Project Construction Year/100).

<b>Table 3-3 Anticipated CAAP Diesel Particulate Matter Emission Reductions</b>								
<b>Emission Reductions Compared to 2005 Baseline</b>	<b>Actual</b>	<b>CAAP Forecast</b>						
	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2023</b>
DPM	22%	25%	60%	60%	68%	68%	72%	75%

Using the construction start date for the Gerald Desmond Bridge Replacement Project, the following forecasted CAAP DPM emissions compared to the 2005 baseline are applicable.

<b>Project</b>	<b>Construction Start Date</b>	<b>CAAP DPM Reduction (%) Compared to 2005 at Construction Start Date</b>
Gerald Desmond Bridge	2011 (see Table 3-3)	60

Using these figures in the Step 1, the calculation is

$$\$10 \text{ million} \times (1 - 60/100) = \$4 \text{ million}$$

**Step 2:** To account for the varying contributions by different types of projects to cumulative impacts, the Step 1 funding amount determined above is adjusted for project-specific impacts. The project-specific adjustment is based on the project-specific impacts compared to the CEQA Baseline and the No Build/No Project Alternative. The purpose of this step is to require greater funding from projects with significant project emissions and to require less funding from projects that do not exceed SCAQMD significance thresholds. Consistent with Step 1 and the discussions above, PM<sub>2.5</sub> emissions, which are typically DPM for Port-related projects, are used as a surrogate. The project-specific adjustment is then determined by comparing the operational DPM emissions increase relative to the CEQA Baseline and the No-Build/No Project Alternative to the values included in Table 3-4. These factors account for projects in which the incremental PM<sub>2.5</sub> emissions (compared to the CEQA Baseline and/or the future No-Project Alternative) are below or significantly above SCAQMD's CEQA significance threshold (55 pounds per day). Under this scenario, the project-specific funding amount would be decreased by 50 percent for projects with PM<sub>2.5</sub> emissions relative to the NEPA No Project baseline that are less than the SCAQMD significance threshold.

<b>Table 3-4 Project-Specific Adjustment Factors Relative to DPM Emission Increases</b>	
<b>Project-Specific PM<sub>2.5</sub> Emissions Increase (pounds per day)*</b>	<b>Project-Specific Adjustment (A<sub>PS</sub>)</b>
< 55	50%
55 - 100	100%
101 – 150	150%
> 150	200%

\* As compared to the No-Build or No Project Alternative.

This adjustment is then applied to the Step 1 amount. Overall, the combined Schools Grant Program and the Healthcare and Seniors Grant Program funding contribution methodology entails the following calculation:

$$\text{Total (Schools and Healthcare/Seniors Programs) (\$)} = \text{Step 1 amount} \times \text{Step 2 percentage}$$

As discussed above, the project-specific PM<sub>2.5</sub> emissions increase relative to the No Project Alternative (NEPA baseline) for the Gerald Desmond Bridge Replacement Project is 11 pounds per day (2015) and 6 pounds per /day (2030); there is a net decrease compared to the CEQA Baseline. Comparing this number to Table 3-4 provides a project-specific adjustment factor of 50 percent. This adjustment is then applied to the Step 1 amount to give a final combined funding contribution amount for the Schools Grant Program and the Healthcare and Seniors Grant Program.

Gerald Desmond Bridge potential combined funding contribution

$$= \$4 \text{ million} \times 50\%$$

$$= \$2 \text{ million total (\$1 million each to the Schools and Healthcare/Seniors Programs)}$$

Step 3:

The Board may also want to consider other unique factors, which may cause the calculation above to not reflect project circumstances, in determining the final amount of the contribution to the grants programs; however, no adjustments to the calculated amounts appear to be needed for purposes of the project, so the \$2 million set forth at the end of Step 2 remains the appropriate recommendation.

Distribution of Funding Contributions

The distribution of the funds being contributed to the Schools and Related Sites and Healthcare and Seniors Facility Programs to potential applicants and projects will be determined in accordance with guidelines for the two programs. The process includes evaluation by an advisory committee established to make recommendations to Port staff and then approved by the BHC. The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Project Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication.

**CEQA (GHG)-1: Greenhouse Gas Emission Reduction Program Guidelines (GHG Program).** To address the cumulative GHG impacts of the Gerald Desmond Bridge Replacement Project, the Port will require the project to provide funding for the GHG Program. The Gerald Desmond Bridge Replacement Project is estimated to result in 47,169 metric tons per year of CO<sub>2e</sub> in 2015 and 55,999 tons per year of CO<sub>2e</sub> in 2030. When compared with the CEQA Baseline (year 2005) condition, these estimates show increases of 14,291 metric tons per year (2015) and 23,121 metric tons per year, respectively. When compared with the NEPA Baseline (i.e., No Project) condition, the estimated increases are smaller, namely 5,618 metric tons per year (2015) and 6,383 metric tons per year (2030), respectively. These increases are considered by the Port to be cumulatively considerable, although specific thresholds to establish significance have not been adopted for transportation projects. It should be noted that, similar to the discussion under Mitigation Measure AQ-1, the new bridge will carry both Port-related and regional trips, as are being carried on the existing bridge. Because the above figures include

Port-related and regional trips, they represent conservative estimates of potential impacts.

The calculation of the contribution to be made to the GHG Emission Reduction Program is based upon a consideration of the contribution to daily cumulative emissions occurring from the project, as compared with the CEQA Baseline condition. This is consistent with the approach used for the Middle Harbor Redevelopment EIS/EIR. Research has indicated that the cost of verified emission reductions from established mitigation measures ranges between \$5 and \$14 per ton of CO<sub>2e</sub> reduced. SCAQMD has taken this research and, in Rule 2702 (adopted February 6, 2009), has established a "fair upper range" fee of \$15 per ton of CO<sub>2e</sub> produced. This conservative rate has been applied to GHG emissions associated with the Gerald Desmond Bridge Replacement Project. Using the difference between year 2030 Project versus CEQA Baseline quantity calculations yields the following:

$$\begin{aligned} \text{GHG Mitigation Contribution} &= \text{Gerald Desmond total annual contribution (year 2030)} - \text{CEQA Baseline (2005) value } \$15 \text{ per metric ton} \\ &= (55,999 \text{ metric tons per year} - 32,878 \text{ metric tons per year}) \times \$15 \text{ per metric ton} \\ &= 23,121 \text{ metric tons per year} \times \\ &\quad \$15 \text{ metric tons per year} - \$346,816, \rightarrow \\ &\quad \$400,000 \end{aligned}$$

This contribution will be used to pay for measures pursuant to the GHG Emission Reduction Program Guidelines, which include, but are not limited to, generation of green power from renewable energy sources, ship electrification, goods movement efficiency measures, cool roofs to reduce building cooling loads and the urban heat island effect, building upgrades for operational efficiency, tree planting for biological sequestration of CO<sub>2</sub>, energy-saving lighting, and purchase of renewable energy certificates (RECs).

The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication. At the project level, there are common measures that have the potential to reduce GHG emissions. These measures include

using reclaimed water, landscaping, energy-efficient lighting, and idling restrictions.

### **3.2.3 Biological Resources**

#### **3.2.3.1 Less than Significant Effects of the Proposed Project**

- There are no riparian habitats or sensitive natural communities within the project footprint; therefore, the Build Alternatives would have no impact on riparian habitats or sensitive natural communities.
- There are no federally protected or other wetlands within the project area; therefore, the Build Alternatives would have no impact on wetland resources.
- The Build Alternatives would have no impact on local plans or policies protecting biological resources or on approved Habitat Conservation Plans, Natural Community Conservation Plans, or other approved conservation plans as there are none within the project impact area.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on biological resources are anticipated.

See Sections 2.3 (Biological Resources) and 2.4 (Cumulative Impacts) for more information.

#### **3.2.3.2 Significant Environmental Effects of the Proposed Project**

- Construction and operational lighting could affect migratory bird species. Impacts on migratory bird species would be less than significant with incorporated mitigation measures in Section 2.3.5. The peregrine falcon and several species of bats frequently nest/roost on or around the Gerald Desmond Bridge. Build Alternative construction impacts on falcons and bats would be less than significant with incorporated mitigation measures in Section 2.3.5.
- The potential for the spread or introduction of invasive species would be less than significant with incorporated mitigation measures in Section 2.3.6.

See Sections 2.3.5 and 2.3.6 for more information.

#### **3.2.3.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to biological resources associated

with the Build Alternatives. All impacts are less than significant with implementation of the mitigation measures discussed in Section 2.3.5.

#### **3.2.3.4 Mitigation Measures**

Mitigation measures for the Build Alternatives under CEQA would be the same as those discussed in Section 2.3.5.

### **3.2.4 Cultural Resources**

#### **3.2.4.1 Less than Significant Effects of the Proposed Project**

- The Build Alternatives do not have the potential to directly or indirectly impact a known unique paleontological resource or site or unique geologic feature. Impacts are considered less than significant.
- The proposed project area does not lie within an area where human remains are known to occur. Potential impacts from the disturbance of unanticipated human remains during construction of the Build Alternatives are considered less than significant.
- No archaeological resources within the project area were identified in record searches or during surveys completed for the project. Impacts from the disturbance of unanticipated archaeological resources during construction of the Build Alternatives are considered less than significant.
- The LBGS and the SCE transmission towers were the only historic resources identified within the APE for the project. The Build Alternatives would not result in a substantial adverse change in the significance of a historical resource. Impacts on historic resources are considered less than significant.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on cultural resources are anticipated.

See Section 2.1.8 (Cultural Resources) for more information.

#### **3.2.4.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to cultural resources associated with construction or operation of the Build Alternatives.

### **3.2.4.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to cultural resources associated with construction or operation of the Build Alternatives.

### **3.2.4.4 Mitigation Measures**

No mitigation is required.

## **3.2.5 Geology and Soils**

### **3.2.5.1 Less than Significant Effects of the Proposed Project**

- Construction or operation of the Build Alternatives would not expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides. This impact is considered less than significant.
- The project site could experience strong seismic ground shaking that could result in seismic-related ground failure, including liquefaction. However, the project area has been well studied, and engineering and design measures would account for onsite soil conditions and the Build Alternatives would withstand an MCE without collapse. Project engineering and design measures would minimize the potential for substantial adverse effects on people or structures, and impacts would be less than significant.
- Soil erosion and loss because of project grading and other construction activities are expected to be minimal. This impact is considered less than significant (see Section 2.2.1 [Water Resources and Hydrology]).
- None of the structures included in the Build Alternatives would increase the current risk of loss, injury, or death because of landslides, ground shaking, and other seismically induced effects. This impact is considered less than significant.
- The proposed project is located in an existing transportation corridor and is not located on an unstable geologic unit; however, due to the makeup of the project site (imported fill), soil would be considered unstable during seismic events but would not become unstable as a result of the project. Engineering and design measures would be incorporated into the Build Alternatives to ensure structure stability

during seismic events; therefore, the project would result in a less than significant impact as a result of unstable or expansive soils.

- As discussed in Section 2.4, no cumulatively considerable significant impacts on geology and soils are anticipated.

See Sections 2.2.2 (Geologic Resources) and 2.4 (Cumulative Impacts) for more information.

### **3.2.5.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to geology and soils associated with construction or operation of the Build Alternatives.

### **3.2.5.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to geology and soils associated with construction or operation of the Build Alternatives

### **3.2.5.4 Mitigation Measures**

No mitigation is required.

## **3.2.6 Hazards and Hazardous Materials**

### **3.2.6.1 Less than Significant Effects of the Proposed Project**

- Construction and operation of the Build Alternatives would have less than significant impacts relating to hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment or through routine transport, use, or disposal of hazardous materials.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on geology and soils are anticipated.

See Sections 2.2.4 (Public Health and Safety), 2.2.3 (Hazardous Materials/Waste), and 2.4 (Cumulative Impacts) for more information.

### **3.2.6.2 Significant Environmental Effects of the Proposed Project**

- Soil areas disturbed during construction may contain ADL. Impacts would be less than significant with incorporated mitigation measures.
- ACMs and LBP are present on the Gerald Desmond Bridge and could also be present in building structures that would be demolished.

The materials could be released to the environment due to construction disturbance. Impacts related to the potential release of asbestos and LBP would be less than significant with incorporated mitigation measures.

- The Gerald Desmond Bridge is used as an emergency access route; consequently, emergency response plans and emergency evacuation plans are likely to be impacted by project construction. This impact is considered less than significant with incorporated mitigation. Close coordination with Port and Long Beach officials and emergency service providers would occur prior to and regularly during construction.
- Disturbance of areas containing unknown contaminated soil and/or groundwater associated with Port oil development, military use, USTs, or sites or areas on or adjacent to sites listed pursuant to Government Code Section 65962.5 could result in potential hazards to the public, construction workers, or the environment. Impacts would be less than significant with incorporated mitigation measures.

See Section 2.2.3 (Hazardous Materials/Waste) for more information.

### **3.2.6.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects associated with construction or operation of the Build Alternatives related to hazards and hazardous materials assuming implementation of the mitigation measures discussed in Sections 2.1.5, 2.2.3, and 2.2.4.

### **3.2.6.4 Mitigation Measures**

Mitigation of impacts related to hazards and hazardous materials and wastes under CEQA would be the same as those discussed in Sections 2.1.5, 2.2.3 and 2.2.4.

## **3.2.7 Hydrology and Water Quality**

### **3.2.7.1 Less than Significant Effects of the Proposed Project**

- The proposed project would not substantially degrade water quality, or violate any water quality standards or waste discharge requirements, or otherwise degrade water quality. Impacts to water quality are considered less than significant.

The Build Alternatives would incorporate all standard BMPs that the Port and Caltrans adhere to, including SWPPP and NPDES requirements. Additionally, these alternatives would include treatment of all associated storm water runoff prior to discharge into the bay, potentially resulting in improved water quality during operations, and impacts would be less than significant.

- Project impacts due to the placement of structures within a 100-year flood hazard area would be less than significant.

Only the North-side Alignment Alternative would result in structures within the 100-year flood hazard area. This would not be considered a significant encroachment and would not impact flood flow.

- Impacts from construction and operation of the Build Alternatives on existing drainage patterns would be less than significant.

The Build Alternatives would utilize existing drainage patterns to transport runoff to treatment BMPs. All runoff would be captured and treated prior to discharge and would not result in substantial erosion, siltation or flooding on- or offsite.

- The Build Alternatives would have no impact on groundwater supplies or recharge.
- Project impacts on water drainage systems and or the potential to create new sources of polluted runoff would be less than significant.

The Bridge Replacement Alternatives would result in increased storm water runoff containing typical highway pollutants; however, all of the Build Alternatives would capture and treat runoff prior to discharging to existing storm water facilities at current discharge rates. No new drainage capacity would be required. Storm water would be treated prior to discharge, and no additional sources of polluted runoff are anticipated.

- Construction and operation of the Build Alternatives would not change the risk of loss, injury, or death resulting from flood, and impacts would be less than significant.
- The Build Alternatives would not increase risk to people or structures as a result of inundation by seiche, tsunami, or mudflow. Impacts would be less than significant.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on hydrology and water quality are anticipated.

See Sections 2.2.1 (Water Resources and Hydrology), 2.2.2 (Geologic Resources [tsunami

and seiche]), and 2.4 (Cumulative Impacts) for more information.

### **3.2.7.2 Significant Environmental Effects of the Proposed Project**

There are no significant effects related to hydrology and water quality associated with construction and operation of the Build Alternatives.

### **3.2.7.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to water quality and hydrology associated with construction and operation of the Build Alternatives.

### **3.2.7.4 Mitigation Measures**

No mitigation is required.

## **3.2.8 Land Use and Planning**

### **3.2.8.1 Less than Significant Effects of the Proposed Project**

- The proposed project is located within the Harbor District and would have no impact related to the physical division of an established community or the implementation of any applicable habitat conservation or natural community conservation plan.
- The proposed project would be constructed within or adjacent to an existing transportation corridor and would have a less than significant effect on applicable land use plans, policies, and regulations of agencies with jurisdiction over the project.

Construction and operation of the Build Alternatives would not divide any established communities or conflict with any land use plans or policies; however, the North-side Alignment Alternative would require conversion of 0.7 acres (0.3-ha) of privately held Port-related industrial to public transportation. Also, the South-side Alignment Alternative would reduce areas on Pier T for container terminal use and Port lease land by 2.4 acres (1-ha). This reduction in land and associated terminal reconfiguration on Piers T, D, and E would not be considered a significant land use conflict and is consistent with the PMP.

- As discussed in Section 2.4, no cumulatively considerable significant impacts on land use and planning are anticipated.

See Sections 2.1.1 (Land Use, Recreation, and Coastal Zone) and 2.4 (Cumulative Impacts) for more information.

### **3.2.8.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to land use associated with construction or operation of the Build Alternatives.

### **3.2.8.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to land use associated with construction or operation of the Build Alternatives.

### **3.2.8.4 Mitigation Measures**

No mitigation is required.

## **3.2.9 Mineral Resources**

### **3.2.9.1 Less than Significant Effects of the Proposed Project**

- The proposed project is located in the Wilmington Oil Field. The Build Alternatives would impact existing and abandoned oil wells within the project area; however, construction and operation of these alternatives would not result in the loss of mineral or oil deposits or the recovery area (Wilmington Oil Field). Relocation/reconfiguration of existing extraction sites and re-abandonment of former well sites would be completed in accordance with the guidelines set forth by the DOGGR, as required. Impacts to mineral resources associated with the Build Alternatives would be considered less than significant.
- The proposed project would not result in the loss of any mineral resources or recovery area. There is no potential for cumulatively considerable significant impacts on mineral resources.

See Section 2.1.4 (Utilities and Service Systems) for more information.

### **3.2.9.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to mineral resources associated with construction and operation of the Build Alternatives.

### **3.2.9.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to mineral resources associated with construction or operation of the proposed Build Alternatives.



### **3.2.9.4 Mitigation Measures**

Mitigation is not required.

### **3.2.10 Noise**

Noise impact analysis for CEQA is independent from NEPA analysis as defined in 23 CFR 772 and as discussed in Chapter 2. CEQA looks at the existing noise setting and how large or perceptible a noise increase would be within the context of the noise setting. NEPA looks at noise impacts in relation to the NAC.

#### **3.2.10.1 Less than Significant Effects of the Proposed Project**

- Build Alternative construction activities would not increase ambient noise levels at the location of sensitive receptors by more than 3 dBA, and construction noise impacts would be considered less than significant.

Measured ambient noise levels were 62 dBA at both of the nearest sensitive noise receptors located approximately 1,300 ft (396 m) (Cesar Chavez Park) and 1,500 ft (457 m) (Cesar Chavez Elementary School) from the construction areas for the Bridge Replacement Alternatives. Maximum construction noise levels associated with the Build Alternatives would occur during pile driving and bridge demolition activities associated with the Bridge Replacement Alternatives. Anticipated pile driving noise levels at 1,300 and 1,500 ft (396 and 457 m) would be 61 and 60 dBA, respectively. Anticipated maximum bridge demolition noise levels at 1,300 and 1,500 ft (396 and 457 m) would be 60 and 59 dBA, respectively. Maximum anticipated construction noise levels at the nearest sensitive receptors would both be less than the measured ambient noise levels.

Additionally, the Rehabilitation Alternative would require replacement of the bridge deck at night between the hours of 7:00 p.m. and 7:00 a.m., which would require a variance/permit from the noise control officer. Anticipated maximum noise levels would be 57 and 56 dBA at 1,300 and 1,500 ft (396 and 457 m) from bridge deck replacement activities. Bridge deck replacement activities would stop at the end of the bridge, approximately 0.4-mi (0.6-km) west of the Los Angeles River. The nearest potential noise sensitive receptor (i.e., Cesar Chavez Elementary School) is located 0.7-mi (1.1 km) from the nearest bridge deck replacement activities. All other retrofit activities would occur during normal construction hours and would have noise levels below the maximum noise levels associated with the Build Alternatives, as previously discussed.

- Build Alternative construction activities would not exceed City of Long Beach Municipal Code maximum noise levels, and construction noise impacts would be less than significant.

The nearest sensitive receptors, Cesar Chavez Park and Cesar Chavez Elementary School, are located in Land Use District 1. As discussed in Section 2.2.6, the maximum noise level allowed at these locations under the Long Beach Municipal Code is 65 dBA. The maximum anticipated project construction noise level would be 61 dBA at Cesar Chavez Park and 60 dBA at Cesar Chavez Elementary school.

- Build Alternative operational noise levels would not increase ambient noise levels by 3 dBA at the location of sensitive receptors and operational noise levels would be less than significant.

Operational noise levels associated with the Build Alternatives are directly related to forecasted traffic volumes. Forecasted traffic volumes will increase with or without the project from 2005 baseline levels; therefore, ambient operational noise will also increase with or without the project.

Traffic noise from SR 710 would be the dominant project-related noise source with the potential to increase ambient noise levels at the nearest sensitive receptor locations. As discussed in Section 2.2.6, the worst-case noise condition was modeled along SR 710. The worst-case scenario resulted in a predicted 2030 operational ambient noise level of 64 dBA at the nearest sensitive noise receptor across the river. As previously discussed, the measured ambient condition near the sensitive receptor locations was 62 dBA. Project-related increase in ambient noise at sensitive receptors would be 2 dBA in 2030. This represents a maximum worst-case increase because predicted noise levels are based on the worst-case noise conditions. A difference of 3 dBA or less is generally considered imperceptible to human hearing.

As discussed in Section 2.2.6, increases in operational ambient noise levels adjacent to Ocean Boulevard would also occur with or without the project. The portions of Ocean Boulevard within the project area are located within the Harbor District. The expected project-related maximum increase in ambient noise levels associated with the Build Alternatives, compared to the overall future ambient noise levels without the project, would be no more than 1 dBA. As previously discussed, a difference of 3 dBA or less is generally considered imperceptible to human hearing.

- Build Alternative operational noise levels would not exceed City of Long Beach Municipal Code maximum noise levels, and operational noise impacts would be less than significant.

The nearest sensitive receptors, Cesar Chavez Park and Elementary School and Edison Elementary School, are located in Land Use District 1. As discussed in Section 2.2.6, the maximum noise level allowed at these locations under the Long Beach Municipal Code is 65 dBA. The maximum anticipated project operational noise level, based on the 2030 worst-case noise conditions on SR 710, would be 64 dBA at the nearest sensitive receptor across the river.

- As discussed in Section 2.4, no cumulatively considerable significant impacts on sensitive receptors associated with construction or operation of the Build Alternatives are anticipated.

See Sections 2.2.6 (Noise) and 2.4 (Cumulative Impacts) for more information.

### **3.2.10.2 Significant Environmental Effects of the Proposed Project**

There are no significant effects related to noise associated with construction or operation of the build alternatives.

### **3.2.10.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to noise associated with construction or operation of the Build Alternatives.

### **3.2.10.4 Mitigation Measures**

No mitigation is required.

## **3.2.11 Population and Housing**

### **3.2.11.1 Less than Significant Effects of the Proposed Project**

- The proposed project is a transportation project. The temporary construction work force for this project would come from the existing labor pool in the southern California area, and construction of the project would not require any relocation or new housing for construction workers. The proposed project does not include construction of residential housing, commercial, office, industrial, institutional, or any other use other than transportation. No permanent employment or associated population growth would occur due

to the construction or operation of the project. No housing would be displaced, and construction of replacement housing would not be required. The proposed project would have less than significant impacts on population and housing.

- The proposed project would rehabilitate or replace the Gerald Desmond Bridge. The Build Alternatives would not result in additional traffic-generating land use or direct traffic growth, and impacts would be less than significant.

The Build Alternatives would provide access to and from the same areas that the existing Gerald Desmond Bridge serves today. The Bridge Replacement Alternatives would not result in new accessibility to and from areas that are currently inaccessible and would not cause associated indirect growth via creation of new access. The Bridge Replacement Alternatives would not be a direct cause of new vehicle trips generated; rather the congestion-relief benefits of the Bridge Replacement Alternatives would have the potential to attract traffic from other more-congested roadways in the project area. This potential future increase in traffic volume on the new bridge would be a redistribution of vehicle trips and would not actually cause a net increase in local or regional vehicle trips; therefore, the Bridge Replacement Alternatives would redistribute existing vehicle trips and would not result in new vehicle trips. Impacts on traffic growth would be considered less than significant.

- The Bridge Replacement Alternatives would require the relocation of several businesses within the project footprint. The business operations are associated with Port operations, and it is anticipated that the impacted business could be relocated to other areas within or adjacent to the Port. The proposed project would not require large numbers of people to relocate; therefore, it would not require replacement housing elsewhere, and impacts are considered less than significant.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on population or housing are anticipated.

See Sections 2.1.2 (Growth), 2.1.3 (Community Impacts), and 2.4 (Cumulative Impacts) for more information.

### **3.2.11.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to population and housing associated with construction or operation of the Build Alternatives.

### **3.2.11.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to population and housing associated with construction or operation of the Build Alternatives.

### **3.2.11.4 Mitigation Measures**

No mitigation is required.

## **3.2.12 Public Services & Safety**

### **3.2.12.1 Less than Significant Effects of the Proposed Project**

- Construction of the Bridge Replacement Alternatives would require temporary relocation of Fire Boat Station #20 operations to temporary facilities due to its location within the construction and demolition area. Temporary facilities would be located in an improved area approximately 100 ft (30.6 m) outside of the construction and demolition areas. The temporary facilities would be available for use prior to relocation. Subsequent to completion of the construction and demolition activities, Fire Boat Station #20 operations would be relocated back to its existing location. No loss of service or increase in response times is anticipated, and impacts are considered less than significant.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on public services and safety are anticipated.

See Sections 2.1.3.2 (Relocations) and 2.4 (Cumulative Impacts) for more information.

### **3.2.12.2 Significant Environmental Effects of the Proposed Project**

- The Bridge Replacement Alternatives would result in new bridge structures and associated modified access that have yet to be evaluated by the Port for vulnerability to terrorist attacks. Impacts on public services and safety would be less than significant with incorporated mitigation measures.

- Construction activities could result in temporary road and navigation hazards that may result in safety hazards to businesses, tenants, transportation companies, construction workers, and the public. Impacts on public services and safety would be less than significant with incorporated mitigation measures.

See Section 2.2.4 (Public Health and Safety) for more information.

### **3.2.12.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects associated with construction or operation of the Build Alternatives on public services, assuming implementation of the mitigation measures discussed in Section 2.2.4.

### **3.2.12.4 Mitigation Measures**

Mitigation measures under CEQA would be the same as those discussed in Section 2.2.4.

## **3.2.13 Recreation**

### **3.2.13.1 Less than Significant Effects of the Proposed Project**

- Construction and operation of the Build Alternatives would not affect recreation opportunities, facilities, or services, or access to recreational facilities or services. The Build Alternatives would have no impact on recreation.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on recreation are anticipated.

See Sections 2.1.1 (Land Use, Recreation, and Coastal Zone), 2.1.3 (Community Impacts), and 2.4 (Cumulative Impacts) for more information.

### **3.2.13.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to recreation associated with construction or operation of the Build Alternatives.

### **3.2.13.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to recreation associated with construction and operation of the Build Alternatives.

### **3.2.13.4 Mitigation Measures**

No mitigation is required.

### **3.2.14 Transportation/Traffic**

#### **3.2.14.1 Less than Significant Effects of the Proposed Project**

- The Rehabilitation Alternative would have less than significant impacts on traffic congestion during construction. This is because the existing Gerald Desmond Bridge would remain in place, the bridge deck rehabilitation would occur only during nighttime hours when traffic volumes are light, no traffic detour routes would be required, and all lanes of the bridge would be restored to full operation during daytime peak traffic hours. Construction impacts of the Bridge Rehabilitation Alternative would be less than significant.
- The Rehabilitation Alternative would have less than significant operational impacts because this alternative does not change traffic operations. This alternative results in the same operational conditions as the No Project Alternative. It should be noted that this alternative improves seismic performance only and does not address the other project objectives as discussed in Chapter 1, which include additional roadway capacity to handle current and forecasted traffic volumes and increased vertical clearance for safe navigation through the Back Channel into the Inner Harbor.
- As discussed in Section 2.4, no cumulatively considerable significant impacts on traffic and circulation due to construction or operation of the Bridge Rehabilitation Alternative are anticipated.
- The Bridge Replacement Alternatives would have a beneficial impact on harbor operations, commerce, and harbor congestion as a result of improved safety for ships passing under the new bridge and additional traffic capacity on the bridge (see below). The increased vertical clearance would have a beneficial impact to harbor safety and congestion, as it would allow ships to pass under the new bridge quicker due to improved safety conditions. Impacts on harbor congestion or the ability for maritime commerce to operate efficiently would be less than significant.

The Rehabilitation Alternative would maintain existing limited vertical clearance of the

Gerald Desmond Bridge. The limited vertical clearance provided by the existing bridge has the potential to cause increased harbor congestion due to time-consuming navigation safety procedures that must be followed when larger ships need to pass beneath the existing bridge. Due to the fact that this safety hazard is an existing condition in place with the current Gerald Desmond Bridge, the impact to harbor operations and congestion within the harbor attributable to the Rehabilitation Alternative is considered less than significant.

- The proposed Bridge Replacement Alternatives would increase the traffic-carrying capacity of the bridge, which would improve traffic flow, handle future projected increases in traffic volume (that would otherwise occur regardless of the project), and lead to an overall reduction in area traffic congestion. Although the Bridge Replacement Alternatives do not add any trips to the transportation system, the new bridge would cause a redistribution of area traffic due to congestion reduction on a new Replacement Bridge Alternative compared to the existing bridge. Overall, compared to the No Project/ Rehabilitation Alternatives, the proposed Bridge Replacement Alternatives would result in a benefit to traffic on the bridge.

See Section 2.1.5 (Traffic and Circulation) for more information.

#### **3.2.14.2 Significant Environmental Effects of the Proposed Project**

- A temporary significant traffic impact attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier B Street/9th Street intersection during construction Stage 2. Mitigation Measure TC-1 includes the following improvements to the intersection prior to the start of construction Stage 2: add dual NB right-turn lanes; restripe the EB through/right lane to a right-turn lane; provide one EB through lane; and continue to provide two SR 710 SB off-ramp lanes to Pico Avenue. This impact would be less than significant after mitigation.
- A temporary significant traffic impact attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier D Street intersection during construction Stages 2, 3, and 4. Mitigation Measure TC-3 includes the following improvements to the intersection prior to the

start of construction Stage 2: install a traffic signal at the intersection of Pico Avenue and Pier D Street. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative. After mitigation, impacts at this intersection would be less than significant during construction Stage 2, but they would be significant during construction Stages 3 and 4, as discussed in Section 3.2.14.3 below.

- A temporary significant traffic impact attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier E Street intersection during construction Stages 3 and 4. Mitigation Measure TC-4 includes the following improvements to the intersection prior to the start of construction Stages 3 and 4: install a traffic signal at the intersection of Pico Avenue and Pier E Street (the signal will be permanent and will not be removed after completion of construction); restripe the NB through lane to a NB right-turn lane, providing a single NB through lane; add dual free-flow WB right-turn lanes; and continue to provide two EB Ocean Boulevard off-ramp lanes to Pico Avenue. This impact would be less than significant after mitigation.
- A project-related significant impact is anticipated at the intersection of Ocean Boulevard/Magnolia Avenue. As discussed in Section 2.1.5, potential striping and signalization improvements have been identified that would mitigate this significant impact. Mitigation Measure TC-6 requires the Port to coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the impact of a Bridge Replacement Alternative at the intersection. This impact would be less than significant after mitigation.

See Section 2.1.5 (Traffic and Circulation) for more information.

### **3.2.14.3 Unavoidable Significant Environmental Effects**

#### **Bridge Replacement Alternatives**

- A temporary unavoidable significant traffic impact would occur during construction of the proposed Bridge Replacement Alternatives at the intersection of Pico Avenue and Pier B Street/9<sup>th</sup> Street. The significant impact would

occur for 22 months due to conditions during construction Stages 3 and 4 of the proposed Bridge Replacement Alternatives. Proposed Mitigation Measure TC-2 and implementation of the TMP would mitigate this impact to the maximum extent practicable and includes the following improvements to the intersection prior to the start of construction Stages 3 and 4: remove the NB-SB split-signal phasing; restripe the NB through lane to a NB left-turn lane; widen the SB approach and provide two left-turn lanes and one through lane; and continue to provide two on-ramp lanes to NB SR 710. Upon opening the new bridge, the significant traffic impact would no longer exist due to the new alignment and ramps.

- A temporary unavoidable significant traffic impact has been identified that would occur during construction of the proposed Bridge Replacement Alternatives at the intersection of Pico Avenue and Pier D Street. The significant impact would occur for 22 months due to conditions during construction Stages 3 and 4 of the proposed Bridge Replacement Alternatives. There is no feasible mitigation for this impact; however, the TMP would minimize impacts to the maximum extent practicable. Upon opening the new bridge, the significant traffic impact would no longer exist due to the new alignment and ramps.
- A temporary significant traffic impact has been identified that would result from construction of the proposed Bridge Replacement Alternatives at the Ocean Boulevard and Terminal Island Freeway interchange. As discussed in Section 2.1.5, there is no feasible mitigation for this impact, and the two intersections of the Ocean Boulevard ramps (north and south) and the Terminal Island Freeway would have temporary and unavoidable significant impacts for 3 years, which is the approximate combined duration of construction Stages 2, 3, and 4 of either of the proposed Bridge Replacement Alternatives.
- A project-related significant impact is anticipated at the intersection of Navy Way/Seaside Avenue under the Bridge Replacement Alternatives. This intersection and implementation of mitigation at this location is outside of the Port's jurisdiction; therefore, it must be considered a significant and unavoidable project impact pursuant to CEQA. However, it should be noted, as discussed in Section 2.1.5, proposed Measure TC-5 would mitigate this impact by adding a

third NB left-turn lane at this intersection. If TC-5 is implemented through NEPA or Measure TRANS-6 is implemented as identified in the approved POLA China Shipping EIR, or if POLA implements any of the projects at this location as discussed in Section 2.1.5 prior to opening the new bridge, then the significant traffic impact would be eliminated.

- A temporary significant project-related traffic impact attributable to the Bridge Replacement Alternatives would occur on WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange. This condition would occur in the opening year (2015) but would no longer occur in the horizon year (2030). As discussed in Section 2.1.5, there are no feasible measures to mitigate this impact, and it is considered a significant and unavoidable project impact; however, it should be noted that construction of the SR 47 Flyover, as approved in 2009 within the Schuyler Heim Bridge Replacement SR 47 Expressway Project FEIS/EIR, would eliminate this significant traffic impact. The estimated completion date for the SR 47 Flyover is 2019.
- All unavoidable traffic impacts are also considered cumulative unavoidable significant impacts on traffic and circulation. With incorporation of mitigation measures as discussed in Section 2.1.5 (Traffic and Circulation), all unavoidable traffic impacts, and thus cumulative traffic impacts, have been mitigated to the maximum extent practicable. As previously discussed, pursuant to CEQA, there is no feasible mitigation for impacts at Navy Way/Seaside Avenue and on Ocean Boulevard between the horseshoe ramps and Terminal Island freeway interchange. Improvements proposed at Navy Way/Seaside Avenue (TC-6) are outside the jurisdiction of the Port. If either Measure TC-6 or POLA's proposed improvements are completed at this location, then the cumulative impact would be eliminated. Similarly, subsequent to construction of the SR 47 Flyover, as discussed in Section 2.4 (Cumulative Impacts), the cumulative unavoidable significant impact would be eliminated and the new bridge, in combination with the SR 47 Flyover, would result in cumulatively beneficial effects on traffic and circulation that would otherwise not occur if only one of the projects were constructed. However, the anticipated construction

completion date for the SR 47 Flyover is 2019 (Caltrans 2009), and the cumulative unavoidable significant traffic impact between the horseshoe ramps and the Terminal Island Freeway interchange would remain until completion of the flyover or would no longer exist in 2030, as discussed in Section 2.1.5.

See Sections 2.1.5 (Traffic and Circulation) and 2.4 (Cumulative Impacts) for more information.

#### **3.2.14.4 Mitigation Measures**

Mitigation measures under CEQA would be the same as those discussed in Section 2.1.5.

#### **3.2.15 Utilities and Service Systems**

##### **3.2.15.1 Less than Significant Effects of the Proposed Project**

- The proposed project is a transportation project and would have no impact on wastewater treatment requirements or require expansion of plants or facilities.
- The proposed project would have less than significant effects on storm water drainage facilities and would not require construction of new facilities (see Section 2.2.1 [Water Resources]).
- The proposed project is a transportation project. The project would result in some water demand during construction; however, it would not result in any future demand. Effects on water supply due to construction and operation are considered less than significant impacts.
- The Build Alternatives would generate large amounts of construction and demolition debris. The project would comply with all federal, state, and local requirements regarding solid waste disposal and recycling. Impacts on local and regional landfill capacity would be less than significant.
- The project requires extensive utility relocation that could temporarily interrupt service during changeover from the existing to relocated facilities. Utility relocation would be conducted in a manner designed to minimize any potential for interruption. Interruption of associated utility service in the project area is unlikely to occur; however, if interruption does occur, the impact would be minor and temporary; therefore, this impact is considered less than significant.

- As discussed in Section 2.4, no cumulatively considerable significant impacts on utilities and service systems are anticipated.

See Sections 2.1.4 (Utilities and Service Systems) and 2.4 (Cumulative Impacts) for more information.

### **3.2.15.2 Significant Environmental Effects of the Proposed Project**

There are no significant environmental effects related to utilities and service systems associated with construction or operation of the Build Alternatives.

### **3.2.15.3 Unavoidable Significant Environmental Effects**

There are no unavoidable significant environmental effects related to utilities and service systems associated with construction and operation of the Build Alternatives.

### **3.2.15.4 Mitigation Measures**

No mitigation is required.

## **3.3 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), efforts devoted to GHG emissions reduction and climate change research and policy have increased dramatically in recent years.

Global climate change is expressed as changes in the average weather of the earth, as measured by changes in wind patterns, storms, precipitation, and temperature. Much scientific research has indicated that the human-related emissions of GHGs above natural levels are likely a significant contributor to global climate change.

### **3.3.1 Impacts of Greenhouse Effect**

Changes in the global climate are associated with substantial potential physical, economic, and social effects, such as inundation of settled areas near the coast from rises in sea level associated with melting of land-based glacial ice sheets, exposure to more frequent and powerful climate events, and changes in suitability of certain areas for agriculture, among others. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that stabilization of GHGs at 400 to 450 ppm carbon dioxide (CO<sub>2</sub>)-equivalent concentration is required

to keep global mean warming below 2 °C, which is assumed to be necessary to avoid dangerous climate change (IPCC, 2001).

GHGs are gases that trap heat in the atmosphere; GHGs are emitted by natural processes and human activities. Emissions from human activities, such as electricity production and internal combustion vehicle use, have elevated the concentration of these gases in the atmosphere.

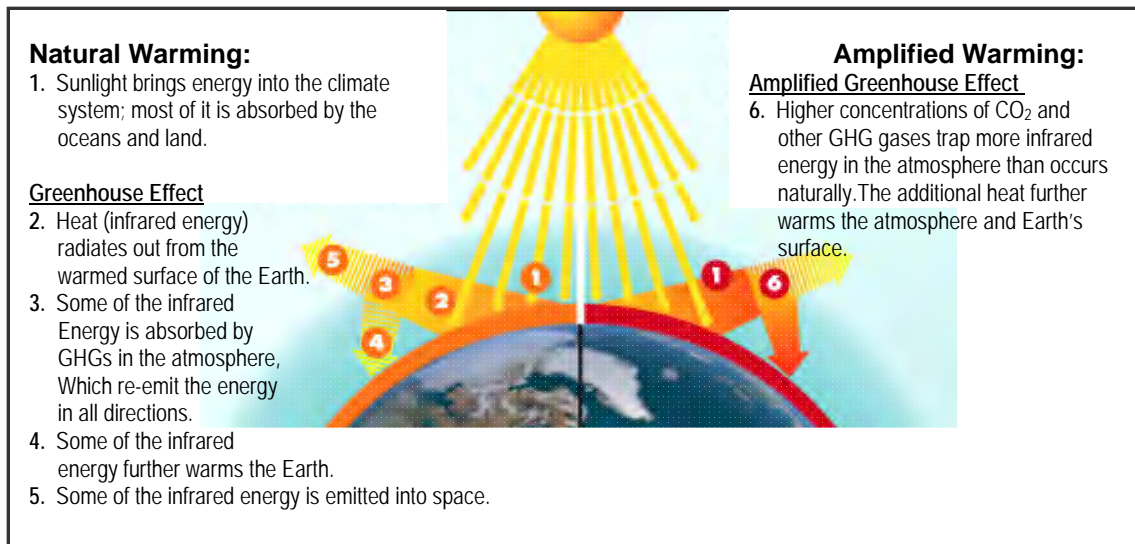
Worldwide, 11 of the 12 years between 1995 and 2006 ranked among the 12 warmest years in the record of global surface temperature since 1850 (IPCC, 2007). According to a recent CEC document, the American West is heating up faster than other regions of the U.S. (CEC, 2009). It is estimated that approximately 40 percent of GHGs in the State of California are produced by passenger vehicles and light-duty trucks (CEC, 2006).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be approximately 61°F cooler (AEP, 2007); however, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. According to the IPCC study (IPCC, 2007), the atmospheric concentration of CO<sub>2</sub> in 2005 was 379 ppm compared to the pre-industrial levels of 280 ppm. In addition, the Fourth U.S. Climate Action Report concluded, in assessing current trends, that carbon dioxide emissions increased by 20 percent from 1990 to 2004, while methane and nitrous oxide emissions decreased by 10 percent and 2 percent, respectively. Exhibit 3-1 shows a graphical presentation of the global heat balance.

There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures. For example, the California Climate Change Center reports that by the end of this century, average global surface temperatures could rise by 4.7 to 10.5 °F due to increased GHG emissions. Scientific evidence indicates a trend of increasing global temperatures near the earth's surface over the past century due to increased human-induced levels of GHGs.

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later





Source: NAS, 2009

### Exhibit 3-1 Natural and Amplified Warming

freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees (IPCC, 2001). Other, longer term environmental impacts of global warming may include sea-level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack. For example, estimates include a 30 to 90 percent reduction in snow pack in the Sierra Nevada mountain range. Current data suggest that in the next 25 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, the California Climate Change Center (2006) predicted that California could witness the following events:

- Temperature rises between three to 10.5 °F
- 6 to 20 inches or more rise in sea level
- 2 to 4 times as many heat-wave days in major urban centers
- 2 to 6 times as many heat-related deaths in major urban centers
- 1 to 1.5 times more critically dry years
- Losses to mountaintop snowpacks and water supply (e.g., according to the California Climate Change Center, Sierra snowpack

could be reduced by as much as 20 to 40 percent by 2100 [CEC, 2009])

- 25 to 85 percent increase in days conducive to ozone formation
- 3 to 20 percent increase in electricity demand
- 10 to 55 percent increase in the risk of wildfires

#### Direct Effects of Sea-Level Rise on the California Coast

According to studies by California Climate Change Center and the Pacific Institute (PI, 2009) under medium to medium-high GHG emissions scenarios, MSL along the California coast is projected to rise from 3 to 4.5 ft (1.0 to 1.4 m) by the year 2100. The direct effect of sea-level rise on transportation includes the following:

**Navigation.** Sea-level rise makes water deeper, which enables deeper draft vessels to navigate a particular channel. This effect, however, is fairly small compared with the draft of most vessels. Saltwater advancing upstream can alter the point at which flocculation leads to sedimentation and the creation of shoals. Conversely, the clearance under bridges decreases. In a few cases where clearances are extremely tight, this effect could limit the ability of boats to pass underneath a bridge, particularly in the case of very small boats slowly passing underneath very small bridges, where the clearance may be less than a foot. Larger vessels are less likely to be impeded, because most bridges over key shipping lanes are either drawbridges or have very high spans. The proposed bridge replacement project would be taller with more

clearance for the vessel passage compared to the existing condition. As such, it would provide better safety for vessel traffic in case of sea-level rise.

Roadways. Sea-level rise may also affect roadways. In many low-lying communities, roads are lower than the surrounding lands, so that land can drain into the streets. As a result, the streets are the first to flood. In some barrier island communities, the lowest bayside streets are already flooded during spring high tides. As the sea rises, this flooding will become more frequent. Most roads are not flooded by the tides and have some type of drainage system to convey water away during rainstorms. As the sea level rises, these drainage systems become less effective, causing more flooding—and increased rainfall intensity will further increase the severity and frequency of flooding there. The proposed project would improve safety by providing improved corridor conditions.

The World Resources Institute's GHG Protocol Initiative identifies six GHGs generated by human activity that are believed to be contributors to global warming (WRI/WBCSD, 2007):

- Carbon dioxide (CO<sub>2</sub>)
- Methane (CH<sub>4</sub>)
- Nitrous oxide (N<sub>2</sub>O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF<sub>6</sub>)

The different GHGs have varying global warming potential (GWP). The GWP is the potential of a gas to trap heat in the atmosphere. The reference gas for GWP is CO<sub>2</sub>, which has a GWP of one. Methane has a GWP of 21, which means that it has 21 times greater global warming effect than CO<sub>2</sub> on a mass basis. N<sub>2</sub>O has a GWP of 310. To assess the effect of GHG emissions, the combined emissions of various GHGs from a source are presented as a CO<sub>2</sub> equivalent (CO<sub>2</sub>e). The total CO<sub>2</sub>e is calculated by multiplying the amount of each GHG emitted from the project by its GWP and adding them up.

Black carbon has recently been implicated as a contributor to global warming due to its heat absorption while airborne in the atmosphere (House of Representatives 2007). It also may contribute to melting of snowpack, glaciers, and polar ice when it settles on these surfaces because its black color absorbs more solar radiation than ice. Recent research indicates that some fraction of black carbon observed in California mountains is likely due to trans-Pacific transport from Asia (Hadley, *et. al.* 2008). Black carbon is emitted from a range of naturally occurring events and human activities, including wildfires, diesel engines, and domestic

biofuel burning. Emission studies suggest that approximately one-third of black carbon emissions come from biomass burning sources such as waste combustion and wood-fired stoves, and the remainder come from fossil fuel burning sources such as diesel engines (House of Representatives 2007). At present, there are no standards, regulations, or protocols related to assessing or mitigating black carbon emissions.

Black carbon is a component of DPM; therefore, it is released into the atmosphere as a component of diesel engine emissions. Black carbon emissions are addressed in this EIR/EA through the detailed analysis of DPM emissions. DPM emissions are the focus of the project criteria pollutant and HRA. The health risk factors for DPM take into consideration all of its chemical constituents, including black carbon; therefore, black carbon emissions are addressed as part of DPM through the project HRA.

Recently, the U.S. Supreme Court ruled that potential harm associated with climate change is serious and well recognized, that EPA must regulate GHGs as pollutants, and it must promulgate regulations for GHG emissions from new motor vehicles (*Massachusetts et al. Environmental Protection Agency* [case No. 05-1120], 2007). Currently, control of GHGs is generally regulated at the state level and approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

To date, 12 states, including California, have set state GHG emission targets. EO S-3-05 and the passage of AB 32, the California Global Warming Solutions Act of 2006, promulgated the California target to achieve 1990 GHG levels by the year 2020. The target-setting approach allows progress to be made in addressing climate change and is a forerunner to the setting of emission limits. A companion bill, Senate Bill (SB) 1368, similarly addresses global warming, but from the perspective of electricity generators selling power into the state. The legislation requires that imported power meet the same GHG standards that power plants in California meet. SB 1368 also sets standards for CO<sub>2</sub> for any long-term power production of electricity at 1,000 pounds per megawatt hour.

### **3.3.2 Regulatory Background**

The approach to addressing the emission of GHGs is through environmental regulations enforced through air quality laws. The Supreme Court has determined that GHGs are pollutants that can be regulated under the CAA. In addition,

California has passed laws directing the CARB to develop actions to reduce GHG emissions.

### Federal Level

At the time of this writing, EPA had not promulgated any regulations under the CAA pertaining to GHG emissions; however, GHG emissions and related energy issues are in the process of consideration for legislation at the federal level. On May 19, 2009, President Obama announced a new national policy aimed at increasing fuel economy and reducing GHG emissions for all new cars and trucks sold in the United States. The new national policy, which will harmonize GHG emissions standards and fuel economy standards, is the result of an agreement among California, the United States, and the automobile industry. As part of the agreement, EPA and the federal DOT are jointly developing new federal standards for model years 2012-2016 that will ultimately require an average fuel economy standard of 35.5 mpg in 2016. This is roughly equivalent to Pavley's 2016 GHG emission standard and surpasses the standard set in the fuel economy law passed by Congress in 2007, which required an average fuel economy of 35 mpg in 2020. Furthermore, in June 2009, the House of Representatives passed the American Clean Energy and Security Act (HR 2454), which would establish an economy-wide GHG cap-and-trade system to help address climate change and build a clean energy economy (PEW Center, 2009).

### State Level

California has passed laws directing the CARB to develop actions to reduce GHG emissions. Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have also taken an active role in addressing GHG emission reduction and climate change.

**Western Regional Climate Action Initiative.** In 2007, the states of California, Arizona, New Mexico, Oregon, Washington, Utah, and Montana, and the Canadian provinces of British Columbia, Manitoba, and Quebec signed the Western Regional Climate Action Initiative (WCI). The goal of the Initiative is to collaborate to identify, evaluate, and implement ways to reduce GHG emissions, as well as to design a regional market-based multi-sector mechanism by the end of 2008. In addition, a multi-state registry will track, manage, and credit entities that reduce GHG emissions.

**AB 1493 – Vehicular Emissions of Greenhouse Gases.** In 2002, with the passage of AB 1493 (Pavley), California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. AB 1493 required CARB to develop and implement

regulations to reduce GHGs emitted by automobile passenger vehicles and light-duty trucks; these regulations will apply to automobiles and light trucks beginning with 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from the light-duty passenger vehicle fleet by 18 percent in 2020 and by 27 percent in 2030 (CARB, 2004). In 2008, EPA denied California's request for a waiver under the CAA needed to implement AB 1493. On January 21, 2009, CARB requested that EPA reconsider its previous waiver denial, and on June, 30, 2009, EPA granted the waiver request, which begins with motor vehicles in the 2009 model year (74 Fed. Reg. 32744). California is expected to enforce its standards for 2009 to 2011 and then harmonize efforts with the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

**AB 32 – California Global Warming Solution Act of 2006.** On June 1, 2005, Governor Arnold Schwarzenegger signed EO S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by the 2020 and (3) 80 percent below the 1990 levels by the year 2050.

In 2006, this goal was further reinforced with the passage of AB 32, the California Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of GHGs." By January 1, 2009, CARB must adopt a scoping plan for reducing California's GHG emissions. In December 2008, CARB adopted a final scoping plan for reducing the State's GHG emissions.

**Executive Order S-01-07.** EO S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. The order mandates the following: (1) establish a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) establish a Low Carbon Fuel Standard (LCFS) for transportation fuels for California.

**California Climate Action Registry.** Established by the California Legislature in 2000, the California Climate Action Registry (CCAR) (Registry) is a nonprofit public-private partnership that maintains a voluntary registry for GHG emissions. The purpose of the Registry is to help

companies, organizations, and local agencies establish GHG emissions baselines for purposes of complying with future GHG emission reduction requirements. It provides leadership on climate change by developing and promoting credible, accurate, and consistent GHG reporting standards and tools for organizations to measure, monitor, verify, and reduce their GHG emissions consistently across industry sectors and geographical borders.

**SB 97.** SB 97, enacted in 2007, directs the state Office of Planning and Research (OPR) to develop draft CEQA Guidelines “for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions” by July 1, 2009, and directs the Resources Agency (now the National Resources Agency) to certify and adopt the CEQA Guidelines by January 1, 2010. The National Resources Agency closed comments on the CEQA Guidelines amendments for GHG emissions on November 10, 2009.

AB 32 requires CARB to incorporate the standards and protocols developed by CCAR into the state’s future GHG emissions reporting program to the maximum extent feasible. The current GHG emission calculation methods used by CCAR are contained in *California Climate Action Registry – General Reporting Protocol* (CCAR Protocol – V2.2) (CCAR, 2007). This protocol categorizes GHG emission sources as: (1) direct (i.e., vehicles, onsite combustion, fugitive, and process emissions), and (2) indirect (i.e., from offsite electricity, steam, and co-generation). The City of Long Beach (and the Port, as the City Harbor Department), is a member of the CCAR. EO S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state’s Climate Action Team.

**POLB Climate Change/Greenhouse Gas Strategic Plan.** The Port’s commitment to protecting the environment, as stated in the Green Port Policy, necessitates the development of programs and projects to reduce GHG emissions. Although the state has yet to formalize GHG regulations for the goods movement sector, the Port has already begun work in this area. In September 2008, the Port’s Board of Harbor Commissioners adopted a formal resolution establishing a framework for reducing GHG emissions. The framework outlined efforts that are already underway at the Port toward addressing the issue of climate change. These efforts include:

1. The Port collaborated with other city departments to produce the city’s first voluntary GHG emissions inventory (calendar year 2007) which was submitted to the CCAR.

2. The Port joined other city departments in preparing a plan to increase energy efficiency in city-owned facilities, in turn reducing indirect GHG emissions from energy generation. This initiative is known as the Southern California Edison 2009- 2011 Local Government Partnership.
3. The Port participates in tree planting and urban forest renewal efforts through its support of the City of Long Beach’s Urban Forest Master Plan.
4. Port staff consulted with the Long Beach Gas and Oil Department (LBGO) and Tidelands Oil Production Company (Tidelands) to evaluate potential opportunities for capturing CO<sub>2</sub> produced by oil operations in the Harbor District and re-injecting (sequestration) it through wells at the Port back into the subsurface formations.
5. Beginning with the 2006 POLB air emissions inventory, GHG emissions from oceangoing vessels, heavy-duty trucks, cargo-handling equipment, harbor craft, and locomotives are quantified to enable the establishment of GHG reduction goals.
6. The Port’s Renewable Energy Working Group is developing strategies to expand renewable energy at the Port. Criteria for emerging technologies will be established so that the technologies can be evaluated in a manner similar to the existing CAAP Technology Advancement Program.
7. The Port’s Renewable Energy Working Group recently finalized a Solar Energy Technology and Siting Study (“Solar Siting Study”) that reviewed available solar technologies and the estimated solar energy generation potential for the entire Harbor District. The study determined that there are many sites within the Harbor District where solar energy-generating technologies could be developed on building rooftops and at ground-level.
8. Based on the Solar Siting Study, the Port is developing a program to provide incentive funding to Port tenants for the installation of solar panels on tenant-controlled facilities.

The Port is also developing a Climate Change/Greenhouse Gas Strategic Plan (CC/GHG Plan). This plan will examine GHG impacts for all activities within the Harbor District and will identify strategies for reducing the overall carbon footprint of those activities. Similar to the CAAP, the Port’s GHG/CC Plan will identify strategies for activities under direct Port control and also those that are controlled by third parties, such as tenants. This Plan will also be used to mitigate potential project-

specific and cumulative GHG impacts from future projects through modernization and/or upgrading of marine terminals and other facilities in the Long Beach Harbor District.

One element of the CC/GHG Plan is the Greenhouse Gas Emission Reduction Program Guidelines (GHG Guidelines). These Guidelines describe a procedure that the Port will use to select GHG emission reduction programs that meet the CC/GHG Plan reduction goals. The Guidelines were adopted by the Board of Commissioners on March 22, 2009.

The work on establishing thresholds is continuing, and regional action plans are being developed throughout California. These include Climate Change Action Plans adopted by: San Joaquin Valley APCD, August 2008; San Francisco Bay Area.

**Caltrans Climate Action Program.** The Climate Action Program (CAP) at Caltrans is an interdisciplinary effort intended to promote, facilitate, and coordinate implementation of climate change strategies and related activities within the Department and with partner agencies. The program focuses on GHG emission reduction and adaptation measures. The overall objective is to encourage innovative ways to balance progressive program delivery within the context of responsible environmental stewardship in a way that:

1. allows transportation strategies, plans, and projects as a whole to contribute to the state's GHG emission reduction plan;

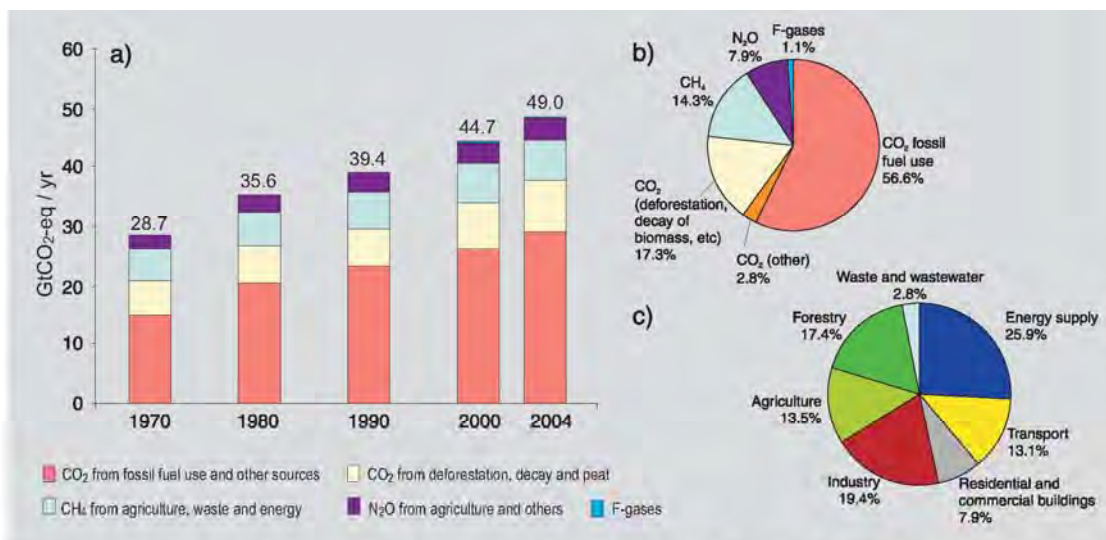
2. provides guidelines, procedures, performance measures, and a quantifiable set of reporting protocol to monitor GHG footprints;
3. considers potential impacts of climate variability on the transportation system and development of risk assessment for long-lasting transportation investments; and
4. advances applied research to support climate change knowledge base in transportation.

The CAP serves as a resource for technical assistance, training, information exchange, and partnership-building opportunities.

Caltrans has taken tangible steps and will continue to explore feasible, cost-effective measures for further reduction of GHG emissions from transportation. The Department will work closely with the CAT, Cal-EPA, CARB, CEC, and other stakeholders to ensure an effective cross-agency policy framework to maintain California as a leader in protecting the environment and in the fight against climate change.

### 3.3.3 Sources of GHGs

The GHG emissions are mostly related to fossil fuel combustion for energy use, as shown in Exhibits 3-2 and 3-4. Exhibit 3-2 shows historical GHG emissions from a global perspective, and Exhibit 3-4 presents California sources of anthropogenic GHGs. These sources are driven largely by economic growth and fuel used for power generation, transportation, heating, and cooling.

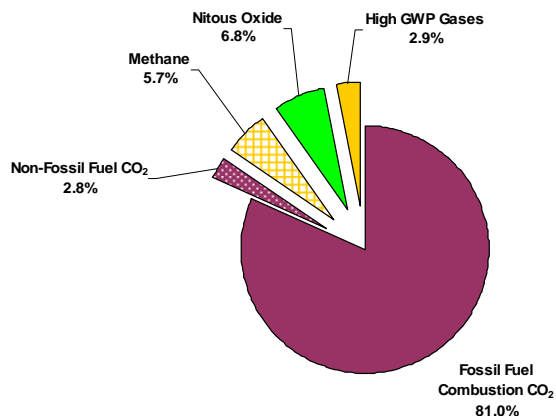


(a) Global annual emissions of anthropogenic GHGs from 1970 to 2004. (b) Share of different anthropogenic GHGs in total emissions in 2004 in terms of carbon dioxide equivalents (CO<sub>2</sub>-eq). (c) Share of different sectors in total anthropogenic GHG emissions in 2004 in terms of CO<sub>2</sub>-eq. (Forestry includes deforestation.)

Source: IPCC, 2007

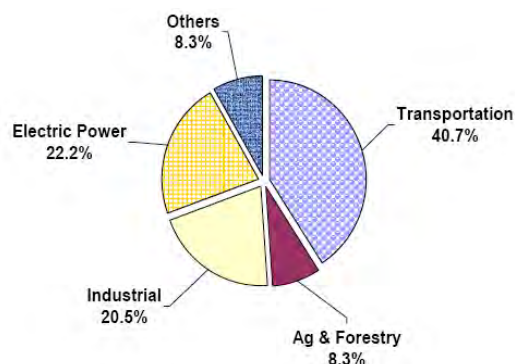
### Exhibit 3-2 Global Sources of Anthropogenic GHGs





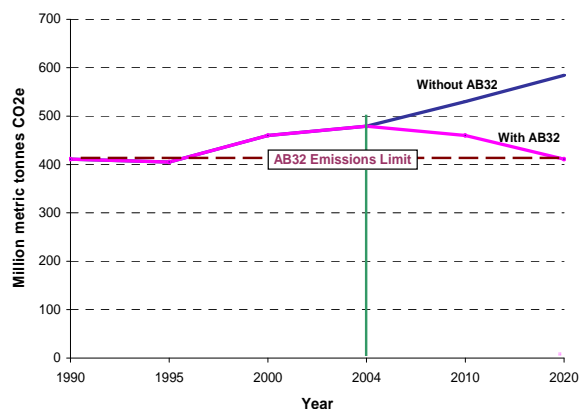
Source: CEC, 2006.

**Exhibit 3-3  
California GHG Composition  
by Type of Gas in 2004**



Source: CEC, 2006

**Exhibit 3-4  
Sources of California's GHG Emissions by  
End-Use Sector (2004)**



Source: CEC, 2006.

**Exhibit 3-5  
California GHG Inventory Forecast**

According to the CEC, energy-related CO<sub>2</sub> emissions resulting from fossil fuel combustion represents approximately 81 percent of California's total GHG emissions (Exhibit 3-3). Although the emissions of other GHG gases, such as CH<sub>4</sub> (methane) and N<sub>2</sub>O (nitrous oxide) are small, it should be noted that their GWP is very high in relation to that of CO<sub>2</sub>.

Primary sources of emissions of these GHGs are from:

- CH<sub>4</sub> – agricultural activities and landfills
- N<sub>2</sub>O – agricultural soil and mobile source fuel combustion
- High GWP gases – industrial processes, refrigerants, insulating material; these have a long lifetime in the atmosphere (varying from several decades to several centuries)

According to CEC, among the end-use sectors contributing to California's GHG emissions, the transportation sector represents the largest source and constitutes 41 percent of the state's GHG emissions. Exhibit 3-4 shows the emissions of GHGs by the end-use sector in 2004, and Exhibit 3-5 presents California GHG emissions trends and forecasts to 2020, with and without the AB 32 limit.

As Exhibit 3-4 shows, transportation sector activities are responsible for a substantial portion of the GHG emissions in California. Because of its size, it is critical that the transportation sector achieve significant emission reductions toward the State's 2020 goal. If the transportation sector does not provide significant GHG reductions, it would be difficult for another sector to make up the required reduction in emission reductions.

### 3.3.4 Project GHG Emissions

#### GHG Significance Threshold

As previously described, California laws, such as SB 97 (PRC §21083.05) and AB 32, provide that climate change is an environmental effect subject to CEQA. Lead agencies therefore are required to determine whether a project's climate change-related effects may be significant and to impose feasible mitigation to minimize any significant effects. Determining significance, however, can be a challenging task. Accordingly, the Governor's OPR in its June 2008 Technical Advisory, "CEQA and Climate Change," asked CARB to make recommendations for GHG-related thresholds of significance, identifiable benchmarks or standards that assist lead agencies in the significance determination. According to its *Climate Change Scoping Plan* (CARB, 2008c), CARB was

anticipating to make its final recommendations on thresholds in 2009 (by June 1) to harmonize with OPR's timeline for issuing draft CEQA guidelines addressing GHG emissions and to provide much needed guidance to lead agencies in the near term; such guidance is, as of writing, not yet available.

As stated in CARB's Proposed Scoping Plan, CARB has concluded that a zero threshold, which was previously considered, should not be mandated in light of the fact that (1) some level of emissions in the near term and at mid-century is still consistent with climate stabilization and (2) current and anticipated regulations and programs apart from CEQA (e.g., AB 32, the Pavley vehicle regulations) will increasingly reduce the GHG contributions of past, present, and future projects; however, any non-zero threshold must be sufficiently stringent to make substantial contributions to reducing the State's GHG emissions to meet its interim (2020) and long-term (2050) emissions reduction targets.

CARB has developed preliminary interim threshold concepts for two important sectors: industrial projects, and residential and commercial projects (CARB, 2008c). At the time of this writing, CARB is still working on a proposal for an interim approach for significance thresholds for transportation projects and other sectors; therefore, for the analysis presented here, the project GHG emissions are compared with two baselines, consistent with those used in the analysis of criteria pollutant operational emissions. The project GHG emissions in opening year 2015 and horizon year 2030 are compared with two baselines as follows:

- The changes in CO<sub>2</sub>e emissions along the project corridor, compared with the CEQA baseline (i.e., emissions during the NOP year 2005).
- The changes in CO<sub>2</sub>e emissions along the project corridor compared with the No Project scenario.

These comparisons provide disclosure of changes in project emissions of GHGs. The analysis will be updated when thresholds of significance for transportation projects become available, which is anticipated by early 2010, according to the CARB Scoping Plan update.

#### GHG Emissions Analysis

The proposed project is a transportation facility; therefore, the GHG emissions would only include the direct GHG emissions that would be generated by the construction and operational activities of the project. Sources of GHG

emissions are the same as those analyzed for criteria pollutant emissions and include (1) project-related construction sources, including off-road construction equipment exhaust emissions, and emissions from on-road haul trucks and workers commute vehicles; and (2) GHG emissions from vehicles traveling along the project corridor.

Project-related GHG emissions (No Project and Build Alternatives) were calculated using the emission factors for off-road and on-road mobile sources, annual VMTs along the project roadways, and guidelines of the CCAR Protocol and the *Technical Advisory*, prepared by the Governor Office of Planning and Research (OPR, 2008).

Climate change, as it relates to man-made GHG emissions, is by nature a global and cumulative phenomenon. According to the Association of Environmental Professionals (AEP), in its paper titled *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (AEP, 2007), "an individual project does not generate enough GHG emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs." The following GHG emissions estimate at the project level is presented following the POLB directive and for the purpose of disclosing all project-related emissions.

Table 3-5 summarizes the annual GHG emissions that would occur within the project region (i.e., California) associated with the construction and operation of the Bridge Replacement Alternatives during opening year 2015 and horizon year 2030. For the opening year, the total GHGs are presented as combined emissions from project operation and emissions from the simultaneous demolition of the old bridge. As Table 3-5 indicates, in each project construction phase, as well as future operation, CO<sub>2</sub> is the primary GHG of concern because vehicle operation (on-road or off-road) does not result in appreciable amounts of other GHGs.

#### Comparison with No Project (NEPA Baseline)

Table 3-5 shows that the project annual CO<sub>2</sub>e emissions would increase relative to the No Project scenario (defined as NEPA baseline in this EIR/EA). The estimated GHG emissions increases as compared with the No Project scenario are 5,618 metric tons CO<sub>2</sub>e per year (MTCO<sub>2</sub>e/yr) and 6,383 MTCO<sub>2</sub>e/yr in 2015 and 2030, respectively.



It should be noted that while the CO<sub>2</sub> emissions factor does assume certain reductions in vehicle emissions due to future vehicle models operating more efficiently, the factor does not take into account additional reductions in vehicle emissions that would take place in response to AB 1493, when mobile source emission reductions are ultimately implemented through legislation.

As previously mentioned, CARB and SCAQMD have developed preliminary interim threshold concepts for two important sectors – industrial projects, and residential and commercial projects – but not as yet for the transportation sector (CARB, 2008c). The proposed CARB interim significance threshold of GHG emissions for industrial projects is set at 7,000 MTCO<sub>2</sub>e/yr, and for residential/ commercial projects the interim significance threshold is approximately 6,500 MTCO<sub>2</sub>e/yr. SCAQMD recently recommended a revised threshold of 10,000 MTCO<sub>2</sub>e/yr for industrial-sector projects. This new threshold

includes construction emissions amortized over 30 years and added to operational GHG emissions (SCAQMD, 2008).

Although a significance threshold of GHG emissions for transportation-sector projects has not yet been proposed, it should be noted that the project contribution to GHG emissions, compared with the no-project scenario, is below the CARB and SCAQMD recommended interim significance thresholds for both industrial and residential/commercial projects. Similarly, compared with the SCAQMD recommended threshold of 10,000 MTCO<sub>2</sub>e/yr for industrial-sector projects; with total GHG emissions through the construction period of project, amortized over 30 years, the additional CO<sub>2</sub>e for the project would be 653 metric tons per year. Adding this value to the operational emissions of GHGs would result in project increment (the increase of GHG emissions compared to no-project scenario) of 5,964 MTCO<sub>2</sub>e/yr and 7,036 MTCO<sub>2</sub>e/yr in 2015 and

**Table 3-5  
Annual Operational GHG Emissions Associated with Project Proposed Alternative**

Project Scenario/Roadway Segments	Emissions (Metric Tons per Year)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>CEQA Base Year 2005</b>				
Ocean Boulevard Navy Way to Pier S Avenue	6,250	0.39	0.16	6,308
Pier S Avenue to Terminal Island Freeway	2,278	0.20	0.04	2,295
Terminal Island Freeway to Horseshoe Ramps	7,876	0.48	0.20	7,949
Gerald Desmond Bridge	10,511	0.63	0.27	10,608
NB SR 710 Connector Ramp	2,965	0.16	0.08	2,994
SB SR 710 Connector Ramp	1,136	0.06	0.03	1,148
Ocean Boulevard Connector Ramps to Downtown	1,567	0.14	0.02	1,577
<b>Total Year 2005</b>	<b>32,583</b>	<b>2.05</b>	<b>0.81</b>	<b>32,878</b>
<b>Year 2015 – No Project</b>				
Ocean Boulevard Navy Way to Pier S Avenue	6,471	0.14	0.18	6,529
Pier S Avenue to Terminal Island Freeway	6,229	0.14	0.16	6,282
Terminal Island Freeway to Horseshoe Ramps	3,775	0.11	0.09	3,805
Gerald Desmond Bridge	16,714	0.41	0.43	16,858
NB SR 710 Connector Ramp	4,192	0.08	0.12	4,232
SB SR 710 Connector Ramp	2,136	0.04	0.07	2,158
Ocean Boulevard Connector Ramps to Downtown	1,677	0.06	0.03	1,687
<b>Total Year 2015 – No Project</b>	<b>41,195</b>	<b>0.98</b>	<b>1.08</b>	<b>41,551</b>
<b>Net Change from 2005 CEQA Baseline</b>	<b>8,612</b>	<b>-1.07</b>	<b>0.27</b>	<b>8,673</b>

<b>Table 3-5 Annual Operational GHG Emissions Associated with Project Proposed Alternative</b>				
Project Scenario/Roadway Segments	Emissions (Metric Tons per Year)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Year 2015 – With Project (Opening Year)</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	6,536	0.14	0.18	6,594
Pier S Avenue to Terminal Island Freeway	7,338	0.17	0.19	7,401
Terminal Island Freeway to Horseshoe Ramps	3,420	0.10	0.08	3,447
New Bridge	18,151	0.38	0.51	18,318
NB SR 710 Connector Ramp	4,905	0.09	0.14	4,951
SB SR 710 Connector Ramp	3,672	0.06	0.11	3,708
Ocean Boulevard Connector Ramps to Downtown	2,427	0.08	0.04	2,442
Total Roadway Traffic Emissions	46,448	1.02	1.27	46,862
Demolition of Old Bridge – Construction Emissions	306	0.06	0.00	307
Total Year 2015 – Project Opening Year	46,754	1.08	1.27	47,169
Net Change from 2005 CEQA Baseline	14,171	-0.98	0.46	14,291
Net Change from No Project Scenario	5,559	0.1	0.19	5,618
<b>Horizon Year 2030 – No Project</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	8,467	0.07	0.24	8,544
Pier S Avenue to Terminal Island Freeway	7,317	0.06	0.20	7,381
Terminal Island Freeway to Horseshoe Ramps	4,514	0.05	0.11	4,549
Gerald Desmond Bridge	19,905	0.22	0.50	20,065
NB SR 710 Connector Ramp	4,669	0.03	0.14	4,714
SB SR 710 Connector Ramp	2,553	0.01	0.08	2,579
Ocean Boulevard Connector Ramps to Downtown	1,775	0.02	0.03	1,785
Total Year 2030 – No Project	49,201	0.47	1.31	49,616
Net Change from 2005 CEQA Baseline	16,618	-1.58	0.5	16,738
<b>Horizon Year 2030 – With Project</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	8,601	0.07	0.25	8,678
Pier S Avenue to Terminal Island Freeway	8,784	0.07	0.24	8,861
Terminal Island Freeway to Horseshoe Ramps	3,883	0.04	0.10	3,914
New Bridge	21,342	0.17	0.62	21,537
NB SR 710 Connector Ramp	5,781	0.04	0.18	5,837
SB SR 710 Connector Ramp	4,481	0.03	0.14	4,526
Ocean Boulevard Connector Ramps to Downtown	2,633	0.03	0.04	2,648
Total Year 2030 – With Project	55,504	0.45	1.57	55,999
Net Change from 2005 CEQA Baseline	22,921	-1.60	0.75	23,121
Net Change from No Project Scenario	6,303	-0.02	0.26	6,383

One metric ton equals 2,204.6 lbs

CO<sub>2</sub>e = carbon dioxide equivalent of combined emissions of all GHGs. The CO<sub>2</sub>-equivalent emission of each GHG is the emission rate multiplied by its corresponding global warming potential (GWP). The GWPs for CH<sub>4</sub> and N<sub>2</sub>O are 21 and 310, respectively.

2030, respectively, both of which are less than the SCAQMD recommended threshold for industrial projects. Furthermore, project GHG emissions compared to the CEQA baseline are above the aforementioned thresholds; however, determination of significance of project GHG emissions will be provided when CARB adopts or makes available such thresholds for transportation-sector projects.

As described above, both the Port and Caltrans have committed to reducing GHG emissions through the development of programs and plans to reduce GHG emissions. The Port has already begun programs to reduce GHG emissions from goods movement. The Port's 2008 formal resolution has established a framework for reducing GHG emissions. The framework outlined efforts (as listed above) that are already underway at the Port toward addressing the issue of climate change.

Comparison with CEQA Baseline

The data in Table 3-5 show that in each analyzed future year, annual operational CO<sub>2</sub>e emissions would increase relative to the CEQA baseline.

The estimated GHG emissions increase from 2005 emissions is 14,291 MTCO<sub>2</sub>e/yr and 23,121 MTCO<sub>2</sub>e/yr during 2015 and 2030, respectively. These increases would be considered significant based on the above discussion of thresholds for GHG emissions.

Cumulative and Regional Emissions

At the regional level, the proposed Build Alternatives do not generate additional new trips, but rather result in a redistribution of vehicle trips.

As shown in Table 3-6, the cumulative effect of the Bridge Replacement Alternatives would be a decrease in regional VMT and Vehicle Hours Traveled (VHT) when compared to the No Project/ Rehabilitation Alternative. The reduction in VMT and VHT would likely result in a decrease of the cumulative GHG emissions within the region; however, the anticipated decrease cannot be quantified and the project-related increase in GHG would still be considered a cumulatively considerable significant and unavoidable project impact.

Mitigation Measures

As described in Section 2.2.5.5 of this EIR/EA, the project would employ all applicable control measures included in the CAAP and will comply with applicable state plans and regulations.

As included in the CARB Scoping Plan, GHG emission reductions will come from three overarching strategies: more efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. The GHG emission reductions in the transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy.

At the project level, there are common measures that have the potential to reduce GHG emissions. These measures include using reclaimed water, landscaping, energy-efficient lighting, and idling restrictions. The following presents a brief discussion of GHG reduction potential of these measures.

	<b>No Project/ Rehabilitation Alternative</b>	<b>Bridge Replacement Alternatives</b>	<b>Increase/ (Decrease)</b>	<b>No Project/ Rehabilitation Alternative</b>	<b>Bridge Replacement Alternatives</b>	<b>Increase/ (Decrease)</b>
	<b>2015 VMT</b>			<b>2030 VMT</b>		
Total Autos	4,475,415	4,466,876	(8,539)	4,950,124	4,937,966	(12,157)
Total Trucks	850,846	847,881	(2,964)	1,144,522	1,138,963	(5,560)
Total All Vehicles	5,326,260	5,314,757	(11,503)	6,094,646	6,076,929	(17,717)
	<b>2030 VHT</b>			<b>2030 VHT</b>		
Total Autos	113,604	112,817	(787)	148,869	147,273	(1,596)
Total Trucks	17,685	17,404	(281)	31,687	30,909	(778)
Total All Vehicles	131,289	130,221	(1,068)	180,556	178,182	(2,374)

Source: Iteris, 2009.

- Reclaimed Water – It is estimated that 30 percent of the electricity used in California is used for the treatment and delivery of water. Using reclaimed water helps conserve energy and reduces GHG emissions from electricity production. Reclaimed water would be used, if available, during construction of the proposed project.
- Landscaping – Landscaping would reduce surface warming and would decrease CO<sub>2</sub> through photosynthesis. Implementation of this measure would also have the potential to reduce GHG emissions.
- Energy-Efficient Lighting – Energy-efficient streetlights and LED traffic signals would be incorporated, to the extent feasible, in the final design of the proposed project.
- Idling restrictions for trucks – Limiting truck idling time to 2 minutes during construction would also reduce GHG emissions during construction.

Use of these common GHG reduction measures would be considered, as applicable during the construction planning stage, for implementation during project construction. Implementation of these measures has the potential to reduce GHG emissions in addition to the reductions expected from operation of the proposed project.

Caltrans and the Business, Transportation, and Housing Agency have taken an active role in addressing GHG emissions reduction from transportation sources. Recognizing that more than 81 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 CAP (December 2006). One of the main strategies in the proposed CAP is to make California's transportation system more efficient. The highest levels of CO<sub>2</sub> from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph – traffic congestion) and speeds higher than 55 mph. Relieving congestion, by enhancing operations and improving travel times in high-congestion travel corridors, would lead to an overall reduction in GHG emissions. A stated project objective is to reduce congestion and improve traffic operations,

which is consistent with the objectives of the CAP. The Bridge Replacement Alternatives are expected to relieve congestion and improve travel times, which may result in an overall reduction of GHG emissions.

Caltrans continues to be actively involved on the Governor's Climate Action Team as CARB works to implement AB 1493 and AB 32. As part of its CAP, Caltrans is supporting efforts to reduce VMT by planning and implementing smart land use strategies (i.e., 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 EPA and CARB. Caltrans is also reducing the amount of cement used as binding material in concrete. Consistent with the CAP, binding materials for pavements and bridges, could be partially substituted by supplementary cementitious materials such as fly ash, slag, or silica fume, whose production generate less CO<sub>2</sub> emissions than traditional Portland cement. Lastly, the use of alternative fuels is also being considered. Caltrans is participating in funding for alternative fuel research at UC Davis.

### **3.4 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS UNDER CEQA**

Mitigation measures under CEQA would be the same as those discussed in Chapter 2 within each section under Avoidance, Minimization and/or Mitigation Measures and CEQA (AQ-1) and CEQA (GHG-1) described above. With the exception of construction and operational NO<sub>x</sub> emissions and the cumulative considerable effects on air quality, unavoidable traffic impacts, and unavoidable project-related and cumulatively considerable increase in GHG emissions, all other construction and operational impacts associated with the Build Alternatives would be fully mitigated.

*Chapter 4*  
*Comments and Coordination*



## CHAPTER 4 COMMENTS AND COORDINATION

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### 4.1 SCOPING PROCESS

An NOP/PEAR and Notice of Initiation of Studies (NOIS) to prepare an EIR/EA was issued on October 25, 2002, by the Port to notify affected parties and to solicit comments from responsible agencies and the public on the proposed project. Additionally, the NOP/NOIS advertised a Scoping Meeting/Open House, which was held November 12, 2002, at the Port Administration Building. The Scoping Meeting/ Open House was also advertised in several newspapers, including Long Beach Press Telegram, The Daily Breeze, The Philippine Times, Mundo L.A. (local Spanish newspaper), and La Opinion (local Spanish newspaper). The purpose of the Scoping Meeting/Open House was to introduce the project and preliminary design concepts to agencies and members of the public and to receive comments. The scoping meeting for public agencies was held in the afternoon, and the open house for the general public was held that evening. Several exhibits were displayed, including design concepts and computer-renderings of the project, as well as an exhibit depicting the environmental process. Project staff and consultants were present to answer questions. No written comments were received at the Open House.

Four comment letters were received during the NOP review period and scoping meetings. Issues of concern included utilities, water resources, and hazardous waste/materials. A Draft EIR/EA was released for public review on June 14, 2004, for a 60-day review period. Subsequent to the public comment period for the Draft EIR/EA, the Port elected to add a Toll-Operation Alternative and expanded the limits of the proposed project study area. As a result, the Port issued a revised NOP for this revised Draft EIR/EA on December 5, 2005. No comments were received during the revised NOP public comment period.

#### 4.1.1 Agency Consultation

As part of the coordination necessary for the environmental study process, the following federal, state, regional, and local agencies were consulted:

- USFWS
- USCG
- EPA
- State of California Office of Planning and Research

- CDFG
- SHPO
- SCAQMD
- SCAG
- AQMD
- RWQCB
- California Conservation Corps

Staff from some of these agencies provided information regarding the presence of environmental resources within the project area, regulations governing those resources, impact assessment methodologies, environmental impacts, and mitigation measures (see Appendix D for correspondence with the AQMD and CDFG). The SHPO determined that the proposed project would have no adverse effect on historic properties, therefore granting their concurrence on July 21, 2003 (Appendix C).

Prior to and during the preparation of this revised Draft EIR/EA, ongoing Project Development Team (PDT) meetings were held to discuss design options, factors to be considered during the environmental study process, and scheduling issues. Representatives and technical staff from the Port, Caltrans, FHWA, and the consultant team attended these meetings.

#### 4.1.1.1 Related Project Coordination

Subsequent to circulation of the June 2004 Draft EIR/EA, the Port's PDT for the Gerald Desmond Bridge Replacement Project initiated ongoing coordination meetings with the ACTA Schuyler Heim Bridge Replacement and SR 47 Expressway Project planning team. The coordination meetings were to communicate project information, study methodologies, and findings between the two planning teams for these closely related projects. This facilitated consistency in planning assumptions, specifically in the area of traffic forecasting and assessment of cumulative and secondary impacts. These meetings are planned to continue throughout the project development process and into construction, assuming both projects receive environmental approvals and are funded.

#### 4.1.2 Public Participation

A public hearing was held July 19, 2004, during the 60-day public review period of the Draft



EIR/EA. This meeting discussed the major components and environmental impacts of this project. Public comments and questions were taken at the close of the hearing.

Twelve (12) entities provided comments on the Draft EIR/EA. The commenter's consisted of:

- Long Beach Department of Oil and Gas
- Division of Oil, Gas, and Geothermal Resources
- California Department of Conservation
- San Pedro and Peninsula Homeowners' Coalition
- DTSC
- CDFG
- MTA
- Natural Resources Defense Council
- SCAQMD
- THUMS Long Beach Company
- EPA
- USCG

#### **4.2 PUBLIC COMMENTS AND RESPONDING TO COMMENTS**

The comments and concerns received from the 12 public entities (listed in Section 4.1.2) regarding the 2004 Draft EIR/EA were addressed in the revised Draft EIR/EA.

##### **4.2.1 Revised Draft EIR/EA: February 2010**

The Revised Draft EIR/EA was approved for circulation to the public by the Port and Caltrans on January 11 and 21, respectively. A .pdf version of the Draft EIR/EA and a transmittal letter indicating the availability of the document, the public comment period, public hearing locations and times, locations that the Draft EIR/EA and technical studies were available for public review, and the address to submit public comments were mailed on to all agencies/persons on the project mailing list (see Draft EIR/EA Chapter 6) on February 4, 2010. The Final EIR/EA will be mailed to all state and federal agencies listed in Chapter 6 and all persons/entities who commented on the Draft EIR/EA.

During the public comment period, hard copies of the Draft EIR/EA were available for public review at the following locations:

- Port of Long Beach Administration Building, 925 Harbor Plaza, Long Beach;
- Caltrans District 7 Office, 100 S. Main Street, Los Angeles;
- The City of Long Beach, City Hall, 333 W. Ocean Boulevard, Long Beach;
- Long Beach Main Library, 931 Gaffey Street, San Pedro; and
- Wilmington Branch Library, 1300 N. Avalon Boulevard, Wilmington.

In addition, the document was made available for download by the public through the Port and Caltrans Web sites. The revised Draft EIR/EA continues to be and the Final EIR/EA will be available for review at both:

- <http://www.polb.com/environment/docs.asp>
- <http://www.dot.ca.gov/dist07/resources/envdocs/>

Two public hearings for the project were held at the following locations:

- February 17, 2010, at 6:00 p.m. in the City Council Chambers, Long Beach City Hall, 333 West Ocean Boulevard, Long Beach, California; and
- February 24, 2010, 6:00 p.m. at Silverado Park, 1545 W. 31st Street, Long Beach, California.

Notices of the public hearings were published in the following newspapers:

- *The LA Watts Times* on February 4 and 11, 2010;
- *Latin Publication* on February 4 and 11, 2010;
- *The Long Beach Press Telegram* on February 5<sup>th</sup> and 16, 2010; and
- *The Long Beach Gazette* on February 11 and 15, 2010.

In addition, the project was featured and public hearing information was included in the re:Port community newsletter, which is mailed to every Long Beach mailing address (200,000+). Finally, the Port issued three press releases on February 4, 17, and 23, 2010. Coverage of the project and public hearings was included in various newspapers, trade publications, and by at least one television news station. A copy of the transmittal letter, public hearing notice, press releases, and the re:Port are provided in Appendix J of the Final EIR/EA.

**4.2.1.1 Summary of Public Comments Received during the Public Comment Period**

During the public comment period, public comments were received by both e-mail and letter. A total of 49 comments were received from a wide range of entities, including:

- 3 Elected Officials
- 1 State Government Agency
- 2 Regional State Government Agencies
- 2 Local Government Agencies
- 4 Community Groups
- 15 Industry and Business Groups; and
- 22 Individuals

All comments received on the Draft EIR/EA and responses to these comments are provided below. Table 4-1 provides a matrix of the commenters, letter ID number, and comment and response page numbers.

**February 17 Public Hearing Summary**

The public hearing was held at the Long Beach City Hall and started at 6:00 p.m. The public hearing format consisted of a 1-hour informal open house and included refreshments and

project informational boards for public review. During the open house, Port, Caltrans, and Port consultant staff were available to answer questions prior to the public hearing. The open house was followed by a formal public hearing that included a project overview presentation by the Port, followed by an open public comment period. The formal public hearing was recorded by a court reporter and translated through a sign language interpreter. The Port also provided Spanish-language translation at the meeting.

Seventy-two (72) people signed in at the public hearing, and 14 people made public comments. All public comments were in support of the project. The public hearing transcripts and responses to the 14 public comments are provided below.

**February 24 Public Hearing Summary**

The public hearing was held at Silverado Park and started at 6:00 p.m. The public hearing format was the same as described above for the February 17 public hearing.

One-hundred thirty-two (132) people signed in at the public hearing, and 21 people made public comments. All but two of the commenters were in support of the project. The public hearing transcripts and responses to the 21 public hearing comments are provided below.

<b>Table 4-1 Comment and Response Matrix</b>			
<b>Commenter</b>	<b>ID</b>	<b>Comment Page Number</b>	<b>Response Page Number</b>
<b>Elected Officials</b>		4-6	4-200
Laura Richardson, Congresswoman, 37th District	LR(A)	4-7 – 4-11	4-201
Warren Furutani, Assemblymember, 55th District	WF(A)	4-12	4-201
Robert Garcia, Long Beach City Council Member, 1st District	RG	4-13	4-201
<b>State Government</b>		4-14	4-202
California Department of Fish and Game	CDFG	4-15	4-203
<b>Regional Government</b>		4-16	4-204
Southern California Association of Governments	SCAG	4-17 – 4-21	4-205 – 4-209
South Coast Air Quality Management District	SCAQMD	4-22 – 4-26	4-209 – 4-213
<b>Local Government</b>		4-27	4-214
City of Long Beach Dept. of Development Services	LBDS	4-28 – 4-29	4-215 – 4-217
Long Beach Unified School District	LBUSD	4-30 – 4-48	4-218 – 4-224
<b>Community Groups</b>		4-49	4-225
Long Beach Coalition for a Safe Environment	CSE	4-50 – 4-62	4-226 – 4-242
Natural Resources Defense Council	NRDC	4-63 – 4-75	4-242 – 4-261
The Propeller Club of Los Angeles-Long Beach	PCLA	4-76	4-261
Southern California Environmental Health Sciences Center	SCEHSC	4-77 – 4-89	4-261 – 4-269

<b>Table 4-1 Comment and Response Matrix</b>			
Commenter	ID	Comment Page Number	Response Page Number
<b>Industry &amp; Business Groups</b>		4-90	4-270
American Council of Engineering Companies	ACEC	4-91	4-271
Future Ports	FP(B)	4-92 – 4-94	4-271 – 4-272
Harbor Association of Industry & Commerce	HAIC	4-95	4-272
Harbor Truckers for a Sustainable Future	HTFSF	4-96	4-272
Intermodal Association of North America	IANA	4-97	4-272
Long Beach Generation LLC	LBG	4-98 – 4-99	4-272 – 4-273
Los Angeles County Business Federation	LCBF	4-100	4-273
The Los Angeles Customs Brokers & Freight Forwarders Association, Inc.	LACB&FFA	4-101	4-273
Mobility 21	M21	4-102 – 4-103	4-273
National Retail Federation	NRF	4-104	4-273
Plains West Coast Terminals	PWCT	4-105 – 4-106	4-274 – 4-275
Port Petroleum	PP	4-107 – 4-109	4-275 – 4-276
Retail Industry Leaders Association	RILA	4-110 – 4-112	4-276
Southern California Edison	SCE	4-113 – 4-114	4-276
Waterfront Coalition	WC	4-115 – 4-116	4-276
<b>Individuals</b>		4-117	4-277
David J. Barboza	DB	4-118	4-278
Nicole Bissonnette	NB	4-119	4-278
Mercedes Broughton	MB	4-120	4-278
Sue Castillo	SC	4-121	4-278
Robert Curtis	RC	4-122	4-278
Gerard T. Desmond	GD	4-123 – 4-124	4-278
Alexis M. Dragony	AD	4-125	4-278
Drew	D	4-126 – 4-128	4-278 – 4-279
Ken Fredrickson	KF(A)	4-129	4-279
Jane Kelleher	JK	4-130	4-279 – 4-280
Michael J. Meichtry	MMei	4-131	4-280
Jessica Mickelson	JMi	4-132	4-280
Ted J. Olson	TO	4-133	4-280
Andrew Reed	AR	4-134 – 4-135	4-280
Tony Rivera	TR	4-136	4-280 – 4-281
Ron Smith	RS	4-137	4-281
Bruce D. Sutherland	BS	4-138	4-281
Amy Tingirides	AT	4-139	4-281
Marie Trotter	MT	4-140	4-281
Jack Volkov III	JV	4-141	4-281
Brian Wolfe	BW	4-142	4-281 – 4-282
Kumars Zandparsa	KZ	4-143	4-282
<b>Public Hearing Comments – February 17, 2010</b>		4-144	4-283
On behalf of Assembly Member Bonnie Lowenthal	BL	4-149	4-284

<b>Table 4-1 Comment and Response Matrix</b>			
<b>Commenter</b>	<b>ID</b>	<b>Comment Page Number</b>	<b>Response Page Number</b>
Geraldine Knatz	POLA	4-149 – 4-150	4-284
International Longshore and Warehouse Union Local 63	ILWUL63	4-150	4-284
LA, Orange County Building and Construction Trades Council	LA/OCBCTC	4-150 – 4-151	4-284
Michael Larison	ML	4-151	4-284
Foreign Trade Association of Southern California	FTASC	4-151	4-284
LA County Chapter - ACEC	LACACEC	4-151 – 4-152	4-284
Mark Jurisic	MJ	4-152	4-284
Painters and Allied Trades District Council 36	PATDC36(A)	4-152	4-284
International Brotherhood of Electrical Workers, Los Angeles	IBEWLA	4-152	4-284
Pacific Merchant Shipping Association	PMSA	4-152 – 4-153	4-284
Jane Templin	JTe	4-153	4-285
Butterfield Communications	BCOM	4-153	4-285
Propeller Club	PCLALB	4-153 – 4-154	4-285
<b>Public Hearing Comments – February 24, 2010</b>		4-155	4-286
Statement on behalf of Congresswoman Laura Richardson	LR(B)	4-168 – 4-173	4-287
Statement on behalf of Assemblyman Warren Furutani	WF(B)	4-174	4-287
Bartlett Patton	BP	4-174 – 4-175	4-287
Anthony Wayne Ford	AF	4-175	4-287
John Schafer	JSc	4-176 – 4-177	4-287
Painters and Allied Trades	PATDC36(B)	4-177 – 4-178	4-287
Jesse Marquez	JMa	4-179 – 4-180	4-287 – 4-288
Mark Mendonga	MMe	4-180 – 4-181	4-288
International Operating Engineers Local 12	IOE12	4-181	4-288
Future Ports	FP(B)	4-181 – 4-182	4-288
Simi McMoore	SM	4-182	4-288
International Brotherhood of Electrical Workers, Local 11	IBEW11	4-183 – 4-184	4-288
Tyrone Taaga	TT	4-184	4-288
Davis Teofilo	DT	4-185	4-288
Future Ports	FP(C)	4-185 – 4-188	4-288
Ken Fredrickson	KF(B)	4-188 – 4-189	4-288
John Sommers	JSo	4-189 – 4-191	4-288 – 4-289
John Taleifi	JTa	4-191 – 4-192	4-289
Thor Carlson	TC	4-192 – 4-193	4-289
Ms. Salera	S	4-193 – 4-195	4-289
Gary Anderson	GA	4-195	4-290

**4.3 COMMENTS ON DRAFT EIR/EA AND PUBLIC HEARING TRANSCRIPTS**

## Elected Officials

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INFRASTRUCTURE  
SUBCOMMITTEES ON  
AVIATION  
HIGHWAYS, TRANSIT  
AND PIPELINES  
COAST GUARD AND  
MARITIME TRANSPORTATION  
RAILROADS, PIPELINES AND  
HAZARDOUS MATERIALS  
COMMITTEE ON  
HOMELAND SECURITY  
SUBCOMMITTEES ON  
ENERGY THREATS, CYBERSECURITY  
AND SCIENCE AND TECHNOLOGY  
EMERGENCY COMMUNICATIONS,  
PREPAREDNESS, AND RESPONSE

February 24, 2010

Statements for the Record regarding  
Gerald Desmond Bridge

I want to express my appreciation and support for the continued focus the community has placed on the Gerald Desmond Bridge. As we all know, the Gerald Desmond Bridge is an essential part of port operations, and thus an essential part of our national infrastructure. The Interstate 710 and Gerald Desmond Bridge carry approximately 15% and 10% of all U.S. waterborne container volume, respectively.

While the recently opened Alameda Corridor can be thought of as the trade "railway" gateway to the nation, the I-710/Desmond Gateway is the de facto trade "highway" gateway to the nation. However the Desmond Bridge is presently experiencing serious performance problems due to a number of interrelated reasons, including traffic congestion and safety.

LR(A)



LR(A)

As you all know, the bridge contains a “diaper” to catch falling debris which is a telling sign that the time for a new bridge is now. I recently met with Long Beach Port officials and Transportation and Infrastructure Committee Chairman Oberstar in Washington DC to talk about this bridge. Chairman Oberstar already knew about the importance of this bridge, but explaining to him that this bridge has a sufficiency rating WORSE than the one that collapsed in his home state of Minnesota helped reinforce how urgent our situation is. The bridge currently has a level of service rating of an “F” during peak periods.

And while the current situation is serious, if we do not act now things are only going to get worse. While we currently see congestion on the bridge, these poor existing traffic conditions will be further exacerbated due to the forecasted robust growth in international trade and growth in the region. Standing pat is not an option, and the time to act is now while the port is experiencing a temporary reduction in freight traffic due to the economy and can thus better cope with a large scale construction project.

I have been working hard in Washington to get every dime I can to help fund this project. I know we need to start construction as soon as possible.



It is a sad fact with large scale construction projects that necessary funding can be a moving target as time goes on and construction costs escalate. It's disheartening to know that the projected costs have nearly doubled over the past five years as we have worked to raise money, but this only strengthens my resolve to find funding as soon as possible.

The bridge has already received funding from several federal government sources. These include \$100 million in the 2005 surface transportation reauthorization bill, SAFETEA-LU, and almost \$6 million in annual earmarks.

I am looking forward to the reauthorization of the surface transportation that Congress is currently considering to find the remaining funds for the bridge. For the current reauthorization I requested \$375M for the Gerald Desmond Bridge back in May which would go a long way towards fully funding the project.

Beyond specific dollar requests, I am excited that there seems to be Congressional resolve for this reauthorization bill to include programs and a large amount of money to be awarded through competitive

LR(A)

LR(A)

processes. I am VERY confident that the merits of this project will be understood in Washington and at the Department of Transportation and large sums of money would be awarded to this project and other important goods movement projects in this area through the Projects of National Significance and the Freight Improvement Program.

To leave as little as possible to chance, I have already worked with the committee to change no less than eight different sections of their draft reauthorization bill so when these competitive programs are established the particular needs of this area and this particular bridge are fully considered.

To ensure officials that will work to make funding decisions fully understand the needs of this area and the acute importance of this particular bridge, I have brought dozens of Washington officials to come visit the bridge to better understand what a key component it is for our nation's goods movement infrastructure. These visits include Deputy Transportation Secretary Porcari, Acting MARAD Administrator Matsuda, Chairman of the Federal Maritime Commission Richard Lidinski, and more than a dozen of my fellow Members of Congress over just the past year.

I also know that we must be careful in our planning of the bridge to ensure that the communities near the port and along the 710 freeway are not negatively impacted by the increased freight traffic that will likely come with this expansion. I work hard in congress to help the ports expand their business because they are such an important economic driver for our area, but at the same time I work to ensure that every time the port expands, efforts are made to mitigate the environmental impact of this expansion and ensure the quality of life and health of those in the area do not suffer.

LR(A)

I want to thank you all again for coming out to discuss this project and express my regrets that I was not able to be here in person today to give these remarks, but unfortunately my schedule and voting obligations did not allow me to be here. Please feel free to reach out to me or any of my staff to ask us any questions or if you have any requests that we may able to help with.

Thank You.

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(562) 988-2919  
FAX (562) 989-5494



WARREN T. FURUTANI  
ASSEMBLYMEMBER, FIFTY-FIFTH DISTRICT

March 19, 2010

Richard D. Cameron  
Port of Long Beach  
925 Harbor Plaza Drive  
Long Beach, CA 90802

**RE: GERALD DESMOND RDEIR PUBLIC COMMENT**

Dear Mr. Cameron:

I write this letter in strong support of the recently released Revised Draft Environmental Impact Report for the Gerald Desmond Bridge Replacement Project. After carefully reviewing the report, it is clear that this project is of the utmost importance.

WF(A)

The proposed project would provide a much needed boost to the local economy. At a time of record unemployment in the region—this project creates good paying jobs which are greatly needed. It provides an opportunity for local students enrolled in Trade Schools the opportunity to find a job where their labor skills are absolutely essential.

I look forward to working with the Port of Long Beach and the community stakeholders to ensure that this project moves forward.

Regards,

WARREN T. FURUTANI  
ASSEMBLYMEMBER, 55<sup>TH</sup> DISTRICT

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MAR 22 2010



*City of Long Beach*  
**ROBERT GARCIA**  
COUNCILMEMBER, FIRST DISTRICT

March 19, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Dear Mr Cameron:

The Desmond Bridge is not only a key component of our transportation and trade infrastructure, it is a dominant feature of the Long Beach/Port skyline; as well as, an unmistakable part of the image of our city for residents and visitors. It is important that this bridge present an attractive, and indeed iconic, image to everyone who sees it. It should be architecturally significant and aesthetically relevant.

The bridge and the region would also benefit from aesthetic lighting. Since such lighting will require an EIR, it is essential aesthetic lighting be included in the original EIR this year, otherwise a new EIR will be needed, at great expense, to add such lighting to the bridge.

I hope you will include these considerations in your EIR.

  
Robert Garcia

RG:db

RG

333 West Ocean Boulevard, 14th Floor • Long Beach • California 90802  
Office (562) 570-6919 • Fax: (562) 570-6590 • Email: District1@LongBeach.gov



**MAR 19 2010**

# State Government



State of California – The Natural Resources Agency  
DEPARTMENT OF FISH AND GAME  
South Coast Region  
4949 Viewridge Avenue  
San Diego, CA 92123  
(858) 467-4201  
[www.dfg.ca.gov](http://www.dfg.ca.gov)

ARNOLD SCHWARZENEGGER, Governor  
JOHN MCCAMMAN, Director



March 15, 2010

Richard D. Cameron  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Subject: CEQA Filing Fee Exemption Request

Dear Mr. Cameron:

Thank you for your submittal of the CEQA filing fee exemption request and revised draft Environmental Impact Report/Environmental Assessment for the Gerald Desmond Bridge Replacement Project.

The Department of Fish and Game (Department) has determined that the Gerald Desmond Bridge Replacement Project (Port of Long Beach acting as the CEQA lead agency) is not eligible for a no effect determination. Based on the documentation we have reviewed for the proposed project, the Department has determined that, for purposes of the assessment of CEQA filing fees [Fish and Game Code Section 711.4(c)], the project may affect fish and/or wildlife<sup>1</sup> (have the potential to result in harm, harassment or take of peregrine falcon and several species of bats; direct destruction of habitat that may support wildlife species; and operational lighting [14 CCR Section 753.5(d)(1), (2), and (4)]). Therefore, a CEQA filing fee of \$2,792.25 for a Environmental Impact Report must be paid for the project upon filing of the Notice of Determination to the County Clerk (check made payable to the appropriate county clerk).

CDFG

A copy of the applicable regulations is available on the Department web site ([http://www.dfg.ca.gov/habcon/ceqa/ceqa\\_changes.html](http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html)). Please contact me at (858) 467-4281 if you have any questions regarding this decision.

Sincerely,

Leslee Newton-Reed  
Environmental Scientist

<sup>1</sup> Fish and Game Code Section 711.2(a) For purposes of this code, unless the context otherwise requires, "wildlife" means and includes all wild animals, birds, plants, fish, amphibians, reptiles, and related ecological communities, including the habitat upon which the wildlife depends for its continued viability.

*Conserving California's Wildlife Since 1870*

MAR 18 2010



# Regional Government



**Main Office**  
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Los Angeles, California  
90017-3435

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Human Development  
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Energy & Environment  
Keith Hanks, Azusa  
Transportation  
Mike Ten, South Pasadena

March 10, 2010

Mr. Richard D. Cameron  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156

**RE: SCAG Comments on the Revised Draft Environmental Impact Report/  
Environmental Assessment for the Port of Long Beach Gerald Desmond Bridge  
Replacement Project – SCAG No. I20100051**

Dear Mr. Cameron,

Thank you for submitting the **Revised Draft Environmental Impact Report/ Environmental Assessment for the Port of Long Beach Gerald Desmond Bridge Replacement Project – SCAG No. I20100051** to the Southern California Association of Governments (SCAG) for review and comment. 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 12372 (replacing A-95 Review). Additionally, pursuant to Public Resources Code Section 21083(d) SCAG reviews Environmental Impacts Reports of projects of regional significance for consistency with regional plans per the California Environmental Quality Act Guidelines, Sections 15125(d) and 15206(a)(1). 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. As the clearinghouse for regionally significant projects per Executive Order 12372, 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.

SCAG staff has reviewed this project and determined that the proposed project is regionally significant per California Environmental Quality Act (CEQA) Guidelines, Sections 15125 and/or 15206. The proposed project is a bridge replacement/rehabilitation project for the Port of Long Beach.

We have evaluated this project based on the policies of SCAG's Regional Transportation Plan (RTP) and Compass Growth Vision (CGV) that may be applicable to your project. The RTP and CGV can be found on the SCAG web site at: <http://scag.ca.gov/igr>. The attached detailed comments are meant to provide guidance for considering the proposed project within the context of our regional goals and policies. We also encourage the use of the SCAG List of Mitigation Measures extracted from the RTP to aid with demonstrating consistency with regional plans and policies. Please provide a copy of the Final Environmental Impact Report (FEIR) for our review. If you have any questions regarding the attached comments, please contact Christine Fernandez at (213) 236-1923. Thank you.

Sincerely,

  
Jacob Lieb, Manager  
Environmental and Assessment Services

SCAG-1

The Regional Council is comprised of 83 elected officials representing 189 cities, six counties, six County Transportation Commissions and a Tribal Government representative within Southern California.

1.7.10

Mr. Cameron  
March 10, 2010

SCAG ID# I20100051

**COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT FOR THE PORT OF LONG BEACH GERALD DESMOND BRIDGE REPLACEMENT PROJECT – SCAG NO. I20100051**

**PROJECT DESCRIPTION**

The proposed project would construct a new bridge across the Back Channel and associated roadway connectors, demolish the existing Gerald Desmond Bridge, and relocate the SCE transmission lines crossing Cerritos Channel north of the bridge. The project would replace or rehabilitate the existing seismically deficient Gerald Desmond Bridge. The proposed project would construct a new bridge across the Back Channel and associated roadway connectors, demolish the existing Gerald Desmond Bridge, and relocate the SCE transmission lines crossing Cerritos Channel north of the bridge.

The objectives of the proposed project include providing a structurally sound bridge linking Terminal Island and Long Beach/SR 710 over the next hundred years, given that the existing bridge is seismically deficient and could be seriously damaged in a major earthquake. Another objective is to provide sufficient roadway capacity to handle current and projected vehicular traffic volume demand, which the existing bridge cannot provide with only two through lanes and no shoulders. Lastly, the proposed project would provide sufficient vertical clearance for safe navigation through the Back Channel to the Inner Harbor, which the existing bridge, at only 156 feet (ft) (47.5 meters [m]) above mean high water level (MHWL), does not provide.

The new bridge, excluding approach structures, would be 2,000 ft (610 m) long, and it would be elevated 200 ft (61 m) above the MHWL of the Back Channel (see Section 1.6 for a detailed description). Bridge replacement would also necessitate reconfiguration of adjacent freeway and arterial interchanges.

**PROJECT LOCATION**

The proposed project is located in the southwest portion of Long Beach at the southern end of State Route (SR) 710 in Los Angeles County. The proposed project is in the Back Channel/Cerritos Channel area of the Port. It is centered along Ocean Boulevard from the intersection of the Terminal Island Freeway (SR 47) at the western end to its eastern terminus at the westerly end of the bridge over the Los Angeles River. The southern limit of the project is located on Pico Avenue approximately 660 ft (201 m) south of the Ocean Boulevard interchange. The northern limit of the project is along SR 710, approximately 2,630 ft (801 m) north of Ocean Boulevard, and to the southernmost SCE tower on Pier A. Ocean Boulevard spans the Back Channel via the Gerald Desmond Bridge. The Ocean Boulevard/ Gerald Desmond Bridge portion of the project is located in the Middle Harbor and Terminal Island Harbor Planning Districts of the Port, and the SR 710 portion is located in the Northeast Harbor Planning District.

**CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN**

**Regional Growth Forecasts**

The DEIR should reflect the most current SCAG forecasts, which are the 2008 RTP (May 2008) Population, Household and Employment forecasts. The forecasts for your region, subregion, and cities are as follows:

SCAG-2

**Adopted SCAG Regionwide Forecasts<sup>1</sup>**

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Population	19,418,344	20,465,830	21,468,948	22,395,121	23,255,377	24,057,286
Households	6,086,986	6,474,074	6,840,328	7,156,645	7,449,484	7,710,722
Employment	8,349,453	8,811,406	9,183,029	9,546,773	9,913,376	10,287,125

Docs #155824v1

Mr. Cameron  
March 10, 2010

SCAG ID# I20100051

**Adopted Gateway Cities Council of Governments (GCCOG) Subregion Forecasts<sup>1</sup>**

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Population	2,143,979	2,190,471	2,236,253	2,280,588	2,323,438	2,364,199
Households	591,028	607,440	623,862	636,482	648,759	658,696
Employment	762,987	776,857	785,715	796,129	807,251	817,891

**Adopted Unincorporated GCCOG Subregion Forecasts<sup>1</sup>**

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Population	350,853	358,727	367,065	375,093	382,816	390,183
Households	85,356	89,168	93,186	96,323	99,353	101,847
Employment	86,142	88,293	89,666	91,281	93,006	94,656

**Adopted City of Long Beach Forecasts<sup>1</sup>**

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Population	503,251	517,226	531,854	545,980	559,598	572,614
Households	169,739	175,415	181,397	186,067	190,576	194,287
Employment	185,938	189,987	192,573	195,614	198,860	201,967

1. The 2008 RTP growth forecast at the regional, county and subregional level was adopted by the Regional Council in May 2008. City totals are the sum of small area data and should be used for advisory purposes only.

SCAG-2

**SCAG Staff Comments:**

As stated in the Draft EIR/EA, "The proposed project does not include construction of residential housing, commercial, office, industrial, institutional, or any other use other than transportation. No permanent employment or associated population growth would occur due to the construction or operation of the project. No housing would be displaced, and construction of replacement housing would not be required. The proposed project would have less than significant impacts on population and housing."

SCAG-3

The **2008 Regional Transportation Plan (RTP)** also has goals and policies that are 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. The RTP continues to support all applicable federal and state laws in implementing the proposed project. Among the relevant goals and policies of the RTP are the following:

**Regional Transportation Plan Goals:**

- RTP G1** Maximize mobility and accessibility for all people and goods in the region.
- RTP G2** Ensure travel safety and reliability for all people and goods in the region.
- RTP G3** Preserve and ensure a sustainable regional transportation system.
- RTP G4** Maximize the productivity of our transportation system.
- RTP G5** Protect the environment, improve air quality and promote energy efficiency.
- RTP G6** Encourage land use and growth patterns that complement our transportation investments.
- RTP G7** Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.

**SCAG Staff Comments:**

The proposed project would improve mobility, accessibility, reliability, sustainability, safety, and productivity. The project would replace an existing bridge that has been found to be both structurally and seismically

SCAG-4

Docs #155824v1

SCAG ID# I20100051

Mr. Cameron  
March 10, 2010

SCAG-4 { deficient. The replacement bridge would include shoulders to improve safety and prevent impedance of traffic in the event of broken-down vehicles. Regional traffic (both port- and non-port related) on the bridge is expected to increase, regardless of whether or not the bridge is rehabilitated/replaced. Therefore, SCAG staff concludes the project is consistent with RTP G1, RTP G2, RTP G3, RTP G4, and RTP G6.

SCAG-5 { The proposed project will contribute to unavoidable, significant air quality effects associated with exceedances of SCAQMD daily construction and operational thresholds for NOx and GHGs. Although the project will contribute to cumulative greenhouse gas emissions impacts, the proposed project will implement the Green Port Policy and Clean Air Action Plan to reduce air quality impacts. Therefore SCAG staff concludes the project is partially consistent with RTP G5.

SCAG-6 { RTP G7 is not applicable.

**GROWTH VISIONING**

The fundamental goal of the **Compass Growth Visioning** effort is to make the SCAG region a better place to live, work and play for all residents regardless of race, ethnicity or income class. Thus, decisions regarding growth, transportation, land use, and economic development should be made to promote and sustain for future generations the region's mobility, livability and prosperity. The following "Regional Growth Principles" are proposed to provide a framework for local and regional decision making that improves the quality of life for all SCAG residents. Each principle is followed by a specific set of strategies intended to achieve this goal.

**Principle 1: Improve mobility for all residents.**

- GV P1.1 *Encourage transportation investments and land use decisions that are mutually supportive.*
- GV P1.2 *Locate new housing near existing jobs and new jobs near existing housing.*
- GV P1.3 *Encourage transit-oriented development.*
- GV P1.4 *Promote a variety of travel choices*

**SCAG Staff Comments:**

SCAG-7 { The proposed project is a bridge replacement project located in an area zoned for industrial uses, therefore, GV P1.2, GV P1.3, and GV P1.4, are not applicable. The project is consistent with GV P1.1.

**Principle 2: Foster livability in all communities.**

- GV P2.1 *Promote infill development and redevelopment to revitalize existing communities.*
- GV P2.2 *Promote developments, which provide a mix of uses.*
- GV P2.3 *Promote "people scaled," walkable communities.*
- GV P2.4 *Support the preservation of stable, single-family neighborhoods.*

**SCAG Staff Comments:**

SCAG-8 { The proposed project is a bridge replacement project located in an area zoned for industrial uses, therefore, GV P2.1, GV P2.2, GV P2.3, and GV P2.4, are not applicable.

**Principle 3: Enable prosperity for all people.**

- GV P3.1 *Provide, in each community, a variety of housing types to meet the housing needs of all income levels.*
- GV P3.2 *Support educational opportunities that promote balanced growth.*
- GV P3.3 *Ensure environmental justice regardless of race, ethnicity or income class.*
- GV P3.4 *Support local and state fiscal policies that encourage balanced growth*
- GV P3.5 *Encourage civic engagement.*

Docs #155824v1

Mr. Cameron  
March 10, 2010

SCAG ID# I20100051

**SCAG Staff Comments:**

The proposed project is a bridge replacement project located in an area zoned for industrial uses, therefore, GV P3.1, GV P3.2, GV 3.3, GV P3.4, and GV P3.5 are not applicable.

} SCAG-9

**Principle 4: Promote sustainability for future generations.**

- GV P4.1** *Preserve rural, agricultural, recreational, and environmentally sensitive areas*
- GV P4.2** *Focus development in urban centers and existing cities.*
- GV P4.3** *Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.*
- GV P4.4** *Utilize "green" development techniques*

**SCAG Staff Comments:**

The proposed project is a bridge replacement project located in an area zoned for industrial uses. Construction and operational impacts to sensitive species will be mitigated as set forth in Section 2.3.5 of the Draft EIR/EA to less than significant effects. The proposed project is not sited in an area that contains agricultural, rural, recreational or environmentally sensitive areas, therefore, GV P4.1 is not applicable.

} SCAG-10

The proposed project will replace or rehabilitate an existing bridge located in an area zoned for industrial use, therefore it is consistent with GV P4.2.

} SCAG-11

The proposed project would increase the amount of impermeable surfaces and use biofiltration swales and media filters to treat run-off. The proposed project will recycle construction and demolition materials in accordance with the City of Long Beach Construction and Demolition Program. The proposed project will implement the Green Port Policy and Clean Air Action Plan to reduce air quality impacts. Therefore, SCAG staff concludes the proposed project is generally consistent with GV 4.3 and GV P4.4.

} SCAG-12

**CONCLUSION**

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. Refer to the SCAG List of Mitigation Measures for additional guidance.

The list can be found at: [http://www.scag.ca.gov/igr/documents/SCAG\\_IGRMMRP\\_2008.pdf](http://www.scag.ca.gov/igr/documents/SCAG_IGRMMRP_2008.pdf)

} SCAG-13

When a project is of statewide, regional, or areawide significance, transportation information generated by a required monitoring or reporting program shall be submitted to SCAG as such information becomes reasonably available, in accordance with CEQA, Public Resource Code Section 21018.7, and CEQA Guidelines Section 15097 (g).

Docs #155824v1





# South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4182  
(909) 396-2000 • www.aqmd.gov

E-MAILED: APRIL 2, 2010

April 2, 2010

Richard Cameron, Director  
Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

**Revised Draft Environmental Impact Report / Environmental Assessment and  
Application Summary Report (EIR/EA) for the Port of Long Beach  
Gerald Desmond Bridge Replacement Project**

SCAQMD-1

South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document, including with an extended review period. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final EIR/EA.

SCAQMD staff commends the Lead Agency for providing a quantitative air quality analysis of this transportation project. This quantification and comparison with established thresholds provides the public and decision makers with the relevant information needed to determine potentially significant impacts from the project.

SCAQMD-2

SCAQMD staff requests clarification regarding how air quality may be impacted by vessel traffic that is rerouted due to the new bridge height. If additional vessel emissions will occur beneath the bridge due to additional traffic or increased vessel size, these potential air quality impacts should be addressed in the Final EIR/EA. Also, if construction related traffic impacts (i.e., partial temporary closure of rail lines and roads) have the potential to increase or significantly reroute truck traffic, then quantification and analysis of these emissions may be required.

SCAQMD-3

As you are aware, it is important that the ports continue to maximize on-dock rail to minimize drayage of cargo to near and off-dock rail yards. The SCAQMD staff is concerned that the placement of footings immediately adjacent to existing rail lines may impact future on-dock rail expansion projects. The SCAQMD staff requests additional information to clarify that the design of the proposed project will not impede future on-dock rail projects. More detailed comments are included in the attachment.



Mr. Richard Cameron  
Director, Environmental Planning

April 2, 2010

Pursuant to Public Resources Code Section 21092.5, please provide the SCAQMD staff with written responses to all comments contained herein prior to the adoption of the Final EIR/EA. The SCAQMD staff would be happy to work with the Lead Agency to address these issues and any other questions that may arise. If you have any questions regarding these comments, please contact Ian MacMillan at (909) 396-3244.

} SCAQMD-4

Sincerely,



Ian MacMillan  
Program Supervisor, CEQA – Inter-Governmental Review  
Planning, Rule Development & Area Sources

Attachment

SN:IM  
LAC100205-01  
Control Number

Mr. Richard Cameron  
Director, Environmental Planning

April 2, 2010

**OPERATION**

Vessel emissions

SCAQMD-5 { Emissions associated with rerouted vessel movement facilitated by this project have not been quantified in the Draft EIR/EA. As stated in Section 1.1.2.2 of the Draft EIR/EA, the current bridge does not provide enough clearance for passage of some existing container ships. A new, higher bridge would allow the passage of larger ships with higher emissions. Although this project does not necessarily increase the capacity of port berths (as stated in Section 2.1.2.3 of the Draft EIR/EA), the proposed project enables ship traffic to be rerouted through the channel beneath the higher bridge. Potential emission impacts associated with this rerouted ship traffic should be quantified in the Final EIR/EA.

Design constraints

SCAQMD-6 { It appears that some footings and abutments will be placed in close proximity to existing rail lines. SCAQMD staff requests clarification regarding the placement of these structures and whether they will restrict or modify projects that plan to increase on-dock rail. Restriction of future on-dock rail could indirectly require an increase in truck traffic (and associated emissions) between the ports and off-dock areas, such as rail yards. If the proposed project limits future planned expansion of on-dock rail, air quality impacts associated with potential increased truck emissions should be addressed prior to certification of the Final EIR/EA.

Criteria pollutants

SCAQMD-7 { The trend analysis of particulate matter impacts is unclear. Port specific data may provide a more revealing and useful analysis of particulate matter trends near the project location. For example, Table 2.2.5-17 only presents data from the North Long Beach monitoring station, and neglects data from stations closer to the project such as the monitoring station on East Pacific Coast Highway (Station ID 70110) and port stations. These stations show significant variations in data, especially for PM10. Lastly, Table 2.2.5-17, Table 2.2.5-18, and Exhibit 2.2.5-3 do not present a comparison of ambient air quality levels with more stringent state air quality standards. These background data should be reviewed and updated in the Final EIR/EA.

Model parameters

SCAQMD-8 { SCAQMD staff noted the following discrepancies between the description of model parameters in the text of the Draft EIR/EA and the electronic model files. An explanation or a revised analysis should be presented in the Final EIR/EA.

- Release heights described on page 77 of the Revised Air Quality Technical Study (AQTS) do not appear to match the model inputs.
- As stated in Appendix D of the AQTS (pg. D-13), acute health effects from diesel exhaust were calculated using speciation factors from CARB. Calculations using these speciated emissions are not clear in the appendix, nor is it clear if these emissions were carried through into the modeling.
- Source names identified in Table D-2 of Appendix D of the AQTS do not match the source names in the model files. Hence it is difficult to track emission rates from the AQTS through the modeling.

Mr. Richard Cameron  
Director, Environmental Planning

April 2, 2010

**CONSTRUCTION**

Construction related traffic impacts

It appears that the Draft EIR/EA has not assessed potential localized increases in emissions during construction due to traffic impacts such as rerouting or delays. Given the large percentage of heavy duty diesel vehicles that travel within the project boundary, any potential disruption of traffic flow (e.g., detours, shut down of lanes) may shift this diesel traffic into adjacent areas. As an example, it is unclear if reconfiguration of the rail line north of Ocean Boulevard on Pier S (as indicated on pg. 1-24 of the Draft EIR/EA) will result in temporary increased truck traffic due to shut down of this rail line. Potential air quality impacts due to construction related traffic impacts should be discussed in the Final EIR/EA.

SCAQMD-9

NOx impacts

The screening level LST analysis presented in Table 2.2.5-7 indicates that a significant impact may occur during years 2 and 3 of construction. Given the irregular project boundary shape, and associated construction activity, more refined modeling may provide insights into why this impact is significant. This more refined analysis may reveal potential opportunities for additional mitigation measures that could reduce this impact to a less than significant level (such as reducing certain construction activity, like stationary diesel generators, close to sensitive receptors).

SCAQMD-10

Construction equipment emission rates

SCAQMD staff is concerned that several mitigation measures (MM) are not accounted for in the emission calculations. If mitigation is feasible, then the emission calculations should reflect their implementation. If implementation is unclear, then a comparison of the effects with and without mitigation should be presented. For example:

- In the construction equipment emission calculations, it appears that mitigation measures will only reduce exhaust emissions by 5%. However, mitigation measure (MM) AQ-C9 states that *"Where feasible, construction equipment shall meet the EPA Tier 4 non-road engine standards."* The reductions from using Tier 4 equipment would be much greater than 5%.
- MM AQ-C8 states that *"Trucks used for construction prior to 2015 shall use engines with the lowest certified NOx emission levels, but not greater than the 2007 NOx emission standards."* This reduction also does not appear to be accounted for in the emission calculations.

SCAQMD-11

! AQ-C4 states that *"To the extent feasible, use electricity from power poles er than temporary diesel or gasoline power generators."* The emission calculations do not reflect any reduced use of diesel generators.

Emission calculations in the Final EIR/EA should also include the effects of using Tier 4 non-road equipment and 2007 and newer trucks for construction activities.

Criteria pollutants

SCAQMD staff noted several discrepancies related to criteria pollutants. They include:

SCAQMD-12

Mr. Richard Cameron  
Director, Environmental Planning

April 2, 2010

SCAQMD-12

- The historical criteria pollutants reported in Tables 2.2.5-4 should be reviewed and updated as the data there may be underreported. In particular, PM2.5 levels may have typographical errors when compared to SCAQMD tables available here: <http://www.aqmd.gov/smog/historicaldata.htm>.
- Table 2.2.5-5 should be updated to include the highest values from the last three years of data, if available.
- The SCAQMD LST thresholds presented in Table 2.2.5-7 appear to be incorrectly reported for the cited 483 meter source-receptor distance. These values should be reviewed and updated as necessary.

# Local Government



# CITY OF LONG BEACH ENGINEERING BIDS

DEPARTMENT OF DEVELOPMENT SERVICES

333 W. Ocean Boulevard, 4<sup>th</sup> Floor Long Beach, CA 90802 (562) 570-6228 FAX (562) 370-9205

2010 MAR 22 11:25 45

March 19, 2010

Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

RE: Gerald Desmond Bridge Replacement Draft EIR

Dear Mr. Cameron:

LBDS-1 { Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the Gerald Desmond Bridge Replacement project (the new Bridge). The DEIR is both thorough and comprehensive. We concur with the overall goals of the project, which are clear and necessary, and we are supportive of the Bridge replacement as the preferred alternative.

LBDS-2 { The City has identified one major issue that is a prominent and undesirable omission from the concept for the new Bridge. We are requesting that the new Bridge be designed to accommodate non-motorized access (pedestrians and bicycles). The following comments are submitted in support of the City's position on this issue:

LBDS-3 { • The new Bridge and the section of Ocean Boulevard at the eastern end of the project should not be designated as part of SR 710. This designation will automatically prohibit non-motorized access to the Bridge per the California Vehicle Code, Section 21960.

LBDS-4 { • The California Department of Transportation (Caltrans) is a partner in the project and the new Bridge will be partly financed by state funds. Once the Bridge is finished, it will be turned over to Caltrans as a State facility. Caltrans has a Deputy Directive No. 64, entitled Complete Streets – Integrating the Transportation System, originally written in 2001 and revised in 2008. The policies set forth in this document should apply to the design of the new Bridge. Deputy Directive No. 64 is included as Attachment 1.

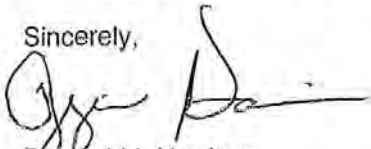
LBDS-5 { • The new Bridge will also be partly financed by federal funds. The United States Department of Transportation (DOT) just released a new policy statement entitled United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations. The policies set forth in this document should apply to the design of the new Bridge. The policy statement is included as Attachment 2.

Richard D. Cameron  
March 19, 2010  
Page 2

- The connections and access between Long Beach and the San Pedro/Palos Verdes peninsula/ South Bay portion of southern Los Angeles County should be encouraged and enhanced rather than discouraged. Designing the new Bridge to accommodate non-motorized access will support the future development of other segments of the route, such as the Vincent Thomas Bridge, to non-motorized travelers. While it is true that Terminal Island is an industrial area with no residential, retail or public recreational facilities and no designated bicycle routes, as stated in the DEIR, the new Bridge should not be viewed as just a connection to Terminal Island. } LBDS-6
  
- The concept for the new Bridge dates from 2004. In the last six years, the population has become more aware of the benefits of a healthy lifestyle and the number of people who walk and bicycle for exercise has increased. Recent state and federal policies reflect this shift in lifestyle and promote the concept of a healthy community. } LBDS-7
  
- Many large bridges in the United States are designed to accommodate non-motorized access. The George Washington Bridge and the Golden Gate Bridge are two well-known examples. The Bay Bridge, which connects Oakland and San Francisco, is scheduled to have "maintenance" pathways incorporated in the future that will, in fact, function as pedestrian and bicycle links between the two cities. A bridge can be designed to include non-motorized access and have rules in place that control when the non-motorized access is allowed. Sidewalk Access for Pedestrians and Bicyclists, the established guidelines for the Golden Gate Bridge, are included as Attachment 3 to illustrate how this concept can work. } LBDS-8

The City has appreciated having the opportunity to submit the comments included in this letter. We look forward to working with the Port and Caltrans to resolve the outstanding issues we have identified. If there are questions regarding the City's comments, I can be reached at 562-570-6428.

Sincerely,



Reginald I. Harrison  
Interim Director of Development Services

Attachments

1. California Department of Transportation Deputy Directive DD-64-R1 (October 2, 2008)
2. United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (March 11, 2010)
3. Sidewalk Access for Pedestrians and Bicyclists, from [www.goldengate.org](http://www.goldengate.org)

cc: Pat West, City Manager  
Suzanne Frick, Assistant City Manager  
Derek Burnham, Development Services  
Jill Griffiths, Development Services





**BUSINESS DEPARTMENT - Business Services**  
**Facilities Development & Planning Branch**  
 Donald K. Allen Building Services Facility  
 2425 Webster Ave., Long Beach, CA 90810  
 (562) 997-7550 Fax (562) 595-8644

March 22, 2010

*Via email: cameron@polb.org*  
*Via Facsimile: (562) 901-1728*

Mr. Richard D. Cameron  
 Director of Environmental Planning  
 Port of Long Beach  
 925 Harbor Plaza  
 P.O. Box 570  
 Long Beach, California 90802

Re: Comments on the Draft EIR/EA for the Gerald Desmond Bridge Replacement Project, Long Beach, California

Dear Mr. Cameron:

LBUSD-1

The Long Beach Unified School District (LBUSD) appreciates the opportunity to comment on the revised Draft Environmental Impact Report (EIR)/Environmental Assessment (EA) for the proposed Gerald Desmond Bridge Replacement Project (Project). We understand that the City of Long Beach, acting by and through its Board of Harbor Commissioners (Port of Long Beach [POLB]), is the state lead agency for California Environmental Quality Act (CEQA) compliance and the EIR for the Project, and the California Department of Transportation (Caltrans) is the lead federal agency for National Environmental Policy Act (NEPA) compliance and the required EA for the Project.

In addition to establishing high standards of academic excellence for its students, LBUSD is committed to providing a safe learning and work environment for both students and employees. Thus, the District's primary concern in its review of the DEIR/EA is to distinguish that all potential environmental impacts from the Project are properly addressed, analyzed, and mitigated to assure an environment conducive to learning.

**GENERAL COMMENT**

LBUSD-2

LBUSD owns and operates two schools approximately 0.3 miles from the project area boundary. The school names, addresses, distance, and direction from the project boundary are listed below:

Caesar Chavez Elementary: 730 W. 3rd St., Long Beach, CA; 1,500 feet East

Tomas Edison Elementary: 625 Maine Ave., Long Beach, CA; 1,600 feet East

Mary Stanton District 1 President	Felton Williams District 2 Vice President	John McGinnis District 3 Member	Jon Meyer District 4 Member	David Barton District 5 Member
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The DEIR/EA concludes that the Project will result in unavoidable significant air quality impacts to LBUSD schools, in particular from NO<sub>x</sub> emissions during the five year construction period and operation of the bridge after construction. The DEIR/EA also indicates that the Project will be required to provide additional funding for the POLB Mitigation Grant Program for schools and related sites to reduce cumulative air quality impacts associated with the Project. The District supports the decision by the POLB to provide additional mitigation funds. However, it is our opinion that the DEIR/EA does not adequately analyze impacts and appropriate mitigation measures related to Toxic Air Contaminants (TAC), health risks, and noise affecting Chavez ES and Edison MS during Project construction and operation. A brief summary of our concerns is presented in the Specific Comments section of this letter below.

LBUSD-2

### SPECIFIC COMMENTS

#### *Air Quality and Risk Assessment*

**Construction TAC Exposure Duration and Risk:** The DEIR/EA's health risk assessment approach precludes a comprehensive assessment of cancer risk from the Project. The DEIR/EA's conclusion regarding TAC risk is unsupported.

The DEIR/EA indicated that a calculation of health risk from emissions of TACs during the 5-year construction period was not performed *because the health risk posed by TACs is based on long term (70-year lifetime) exposure* (p. 2-262). Based on this rationale, the DEIR/EA concluded that *potential impacts related to TAC emissions during construction would be considered less than adverse*.

The DEIR/EA's rationale ignores a range of acceptable options for calculating cancer risk from exposure durations of less than 70 years. Moreover, the Office of Health Hazard Assessment (OEHHA) has indicated that *there is evidence that less-than-lifetime exposure of some carcinogens to children and infants may be more potent in inducing cancer than the same exposure later in life. Because exposures at school sites are changing from year to year, and because they may be for shorter time periods than residential or occupational exposures, OEHHA deems it beneficial to assess risks on a year-by-year basis.* (Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites Pursuant to Health and Safety Code §901(f): Final Report; OEHHA, February 2004; p. 29)

LBUSD-3

**Non-Cancer Health Risk for Children:** The DEIR/EA does not indicate the limitations inherent in estimating non-cancer chronic health impacts of diesel PM inhalation based on a health hazard index (HHI) calculated using the available Reference Exposure Level (REL) for diesel particulate matter.

The Health Risk Assessment (HRA) in the DEIR/EA uses a non-cancer REL of 5 ug/m<sup>3</sup> for inhalation of diesel exhaust particulate matter (DPM) in the calculation of non-cancer chronic HHI. This REL is essentially the USEPA reference dose first developed in the early 1990s based on histological changes in rats. According to OEHHA (2004).

LBUSD-4

LBUSD-4 { considerable uncertainty exists for RELs based on laboratory animal studies. The need for a reference dose reflecting the potentially greater sensitivity of children to toxic effects of diesel exhaust has been under evaluation by OEHHA for some time. Meanwhile, OEHHA continues to identify diesel particulate matter as a TAC that may disproportionately impact infants and children. Among the listed endpoints of concern for children are: enhancement of allergic response; exacerbation of asthma; developmental effects, genotoxicity and lung cancer.

**Cancer Health Risk for Children:** The cancer risk factor for diesel particulate matter used in the HRA for the DEIR/EA does not account for the greater sensitivity of children to TACs.

LBUSD-5 { The District acknowledges that the HRA methodology and risk factors used in the DEIR/EA are generally consistent with accepted historical protocol for such analyses. We also recognize the value of using consistent HRA methods for purposes of comparison of relative risks among different projects and alternatives. However, research data in humans and animals for a variety of carcinogens suggest that exposures to such carcinogens early in life may result in a greater lifetime risk of cancer compared to exposures later in life. As a result, guidance from OEHHA now recommends that cancer risk factors be weighted by a factor of three for exposure of children ages 2 to 15 (Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures; OEHHA, May 2009).

**Noise Impacts and Mitigation**

**Noise Impact Analysis** The LBUSD is concerned that the Project may result in noise levels that exceed significance thresholds for exterior noise at Cesar Chavez School and Edison Elementary School.

LBUSD-6 { The DEIR/EA (p. 2-298) reports that baseline (Year 2005) *noise measurements conducted by the POLB for the Middle Harbor Project within the noise-sensitive areas on the east side of the Los Angeles River -- ranged from 61 to 67 dBA.* However, the Middle Harbor DEIS/EIR indicates the minimum ambient noise level measured at "Site 3" (*representative of Cesar Chavez school*) was 57 dBA Leq (DEIS/EIR Table 3.9-5). The Site 3 noise monitoring station is located about 1500 feet from the Project boundary, on Golden Ave. between 4<sup>th</sup> Street and 5<sup>th</sup> Street and is representative of the two schools near the Project: Cesar Chavez ES (to the south) and Edison ES (to the north). The ambient noise level of 57 dBA measured at Site 3 should be included in the DEIR/EA noise analysis.

LBUSD-7 { The DEIR/EA (p.2-301) states *Noise levels during piling activities at the nearest sensitive receptors outside of the industrial land use district (i.e., Cesar Chavez Park [1,300 ft] and Cesar Chavez Elementary School [1,500 ft]) are predicted to be 61 and 60 dBA, respectively.* As a result, the DEIR/EA concludes no significant noise impacts to

Cesar Chavez School. However, compared to a baseline of 57 dBA Leq, the Project pile driving would be expected to raise the ambient noise level by 3 dBA at Chavez school. Given the general criterion that significant noise impacts occur when ambient noise levels are elevated by three (3) dBA, this analysis shows a significant noise impact at the school. We also note this analysis is based on the assumptions in the DEIR/EA regarding pile driving noise levels, which are more conservative with respect to noise impacts than those used for the Middle Harbor project DEIS/EIR (see Pile Driver Noise Impacts comment below).

LBUSD-7

The DEIR/EA only analyzes noise impacts to one school -- Cesar Chaves ES -- as a sensitive noise receptor. The analysis should also include Edison ES. Edison ES is located approximately the same distance from the project as Cesar Chavez ES.

LBUSD-8

**Pile Driver Noise Impacts:** Why are the estimated noise impacts from pile driving so much lower for the Bridge project than for the Middle Harbor project?

The DEIR/EA concludes pile driving will result in no significant noise impacts -- at a distance of **1,500 feet**. However, the Middle Harbor project DEIS/EIR on page 3.9-12 (fourth paragraph under *Construction Impacts*) indicates pile driving activities will result in noise levels of 64 - 66 dBA Leq -- and significant noise impacts -- at a distance of **2,500 feet**.

Table 2.2.6-2 of the DEIR/EA indicates an "Effective Usage Factor" of 0.15 applied to Pile Driving Operation noise levels. The usage factors listed for most other equipment types are higher. In addition, the DEIR/EA (p. 2-298) states: *In computing the Leq for equipment noise, it was assumed that during use most of the equipment would be operating at, or near, maximum sound levels 30 percent of the time and the pile driver would be operating at maximum sound levels 20 percent of the time.*

LBUSD-9

Can the POLB provide rationale for the assumed usage factors and percent maximum sound levels for pile driving equipment? How do changes in these assumptions affect the noise analysis? Are these assumptions the same as used for the Middle Harbor Project? If different, do the differences explain the discrepancy between the two projects with respect to estimated pile driving noise levels?

**Noise Mitigation:** The DEIR/EA should consider mitigation of project noise impacts at Cesar Chavez School and Edison School during school hours of operation and testing periods.

The DEIR/EA should identify and evaluate appropriate and feasible mitigation measures to reduce significant noise and vibration impacts from the construction phase of the Project on sensitive receptors, including the LBUSD schools. In addition, the District requests that the analysis and mitigation measures consider the school hours of operation which are Monday through Friday 7:00 am to 4:00 pm, and testing periods (specific dates)

LBUSD-10

LBUSD-10 { to be determined) during the school year, to avoid potentially significant no vibration impacts during these time periods.

LBUSD-11 { **Formal Notification:** The LBUSD requests formal notification of all CEQA doc for any POLB project. In addition, the LBUSD requests advance notifica construction schedules or public meetings regarding the Gerald Desmond Replacement Project.

The LBUSD has previously requested to be included on all project distribution l POLB project CEQA notices and documents. The LBUSD did not receive Ne Availability, or distribution of the DEIR/EA, for the Gerald Desmond Replacement Project.

**CONCLUSION**

LBUSD-12 { The POLB articulates a compelling case for the need to provide a structurally sou seismically resistant bridge, as well as to improve vehicular capacity and marine safety. In addition, we acknowledge that the environmental controls proposed Project, including the use of all applicable control measures included in the Cle Action Plan (CAAP) and relevant clean air technologies, would further the ultima of reducing the health risks and other impacts from the POLB operations and movement to acceptable levels. However, as summarized in our comments, it opinion that the DEIR/EA does not adequately address noise, air quality, and risk i to LBUSD schools during Project construction and operation.

We appreciate the opportunity to participate in the environmental review process for this project and look forward to working with the POLB with regard to the development and implementation of effective mitigation measures for impacts to LBUSD schools.

If you have any questions, please feel free to contact me at (562) 997-7550.

Sincerely,



Carri M. Matsumoto  
Executive Director  
Facilities Development & Planning Branch  
Long Beach Unified School District

cc: Chris Steinhauser – LBUSD Superintendent of Schools  
Kim Stallings – LBUSD Chief Business & Financial Officer  
Karl Rodenbaugh – The Planning Center

Attachment 1

California Department of Transportation

*Flex your power!  
Be energy efficient!*

## *Deputy Directive*

*Number:* DD-64-R1

*Refer to  
Director's Policy:* DP-22  
Context Sensitive  
Solutions  
DP-05  
Multimodal Alternatives  
DP-06  
Caltrans Partnerships  
DP-23-R1  
Energy Efficiency,  
Conservation and Climate  
Change

*Effective Date:* October 2008

*Supersedes:* DD-64 (03-26-01)

*TITLE* Complete Streets - Integrating the Transportation System

*POLICY*

The California Department of Transportation (Department) provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. The Department views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

The Department develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating “complete streets” beginning early in system planning and continuing through project delivery and maintenance and operations. Developing a network of “complete streets” requires collaboration among all Department functional units and stakeholders to establish effective partnerships.

*DEFINITIONS/BACKGROUND*

Complete Street – A transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit riders, and motorists appropriate to the function and context of the facility.

*"Caltrans improves mobility across California"*



Deputy Directive  
Number DD-64-R1  
Page 2

The intent of this directive is to ensure that travelers of all ages and abilities can move safely and efficiently along and across a network of “complete streets.”

State and federal laws require the Department and local agencies to promote and facilitate increased bicycling and walking. California Vehicle Code (CVC) (Sections 21200-21212), and Streets and Highways Code (Sections 890 – 894.2) identify the rights of bicyclists and pedestrians, and establish legislative intent that people of all ages using all types of mobility devices are able to travel on roads. Bicyclists, pedestrians, and nonmotorized traffic are permitted on all State facilities, unless prohibited (CVC, section 21960). Therefore, the Department and local agencies have the duty to provide for the safety and mobility needs of all who have legal access to the transportation system.

Department manuals and guidance outline statutory requirements, planning policy, and project delivery procedures to facilitate multimodal travel, which includes connectivity to public transit for bicyclists and pedestrians. In many instances, roads designed to Department standards provide basic access for bicycling and walking. This directive does not supersede existing laws. To ensure successful implementation of “complete streets,” manuals, guidance, and training will be updated and developed.

#### *RESPONSIBILITIES*

##### Chief Deputy Director:

- Establishes policy consistent with the Department’s objectives to develop a safe and efficient multimodal transportation system for all users.
- Ensures management staff is trained to provide for the needs of bicyclists, pedestrians, and transit users.

##### Deputy Directors, Planning and Modal Programs and Project Delivery:

- Include bicycle, pedestrian, and transit modes in statewide strategies for safety and mobility, and in system performance measures.
- Provide tools and establish processes to identify and address the needs of bicyclists, pedestrians, and transit users early and continuously throughout planning and project development activities.
- Ensure districts document decisions regarding bicycle, pedestrian, and transit modes in project initiation and scoping activities.
- Ensure Department manuals, guidance, standards, and procedures reflect this directive, and identify and explain the Department’s objectives for multimodal travel.
- Ensure an Implementation Plan for this directive is developed.

*"Caltrans improves mobility across California"*

Deputy Directive  
Number DD-64-R1  
Page 3

Deputy Director, Maintenance and Operations:

- Provides tools and establishes processes that ensure regular maintenance and operations activities meet the safety and mobility needs of bicyclists, pedestrians, and transit users in construction and maintenance work zones, encroachment permit work, and system operations.
- Ensures Department manuals, guidance, standards, and procedures reflect this directive and identifies and explains the Department's objectives for multimodal travel.

District Directors:

- Promote partnerships with local, regional, and State agencies to plan and fund facilities for integrated multimodal travel and to meet the needs of all travelers.
- Identify bicycle and pedestrian coordinator(s) to serve as advisor(s) and external liaison(s) on issues that involve the district, local agencies, and stakeholders.
- Ensure bicycle, pedestrian, and transit needs are identified in district system planning products; addressed during project initiation; and that projects are designed, constructed, operated, and maintained using current standards.
- Ensure bicycle, pedestrian, and transit interests are appropriately represented on interdisciplinary planning and project delivery development teams.
- Provide documentation to support decisions regarding bicycle, pedestrian, and transit modes in project initiation and scoping activities.

Deputy District Directors, Planning, Design, Construction, Maintenance, and Operations:

- Ensure bicycle, pedestrian, and transit user needs are addressed and deficiencies identified during system and corridor planning, project initiation, scoping, and programming.
- Collaborate with local and regional partners to plan, develop, and maintain effective bicycle, pedestrian, and transit networks.
- Consult locally adopted bicycle, pedestrian, and transit plans to ensure that State highway system plans are compatible.
- Ensure projects are planned, designed, constructed, operated, and maintained consistent with project type and funding program to provide for the safety and mobility needs of all users with legal access to a transportation facility.
- Implement current design standards that meet the needs of bicyclists, pedestrians, and transit users in design, construction and maintenance work zones, encroachment permit work, and in system operations.
- Provide information to staff, local agencies, and stakeholders on available funding programs addressing bicycle, pedestrian, and transit travel needs.

*"Caltrans improves mobility across California"*

Deputy Directive  
Number DD-64-R1  
Page 4

Chiefs, Divisions of Aeronautics, Local Assistance, Mass Transportation, Rail, Transportation Planning, Transportation System Information, Research and Innovation, and Transportation Programming:

- Ensure incorporation of bicycle, pedestrian, and transit travel elements in all Department transportation plans and studies.
- Support interdisciplinary participation within and between districts in the project development process to provide for the needs of all users.
- Encourage local agencies to include bicycle, pedestrian, and transit elements in regional and local planning documents, including general plans, transportation plans, and circulation elements.
- Promote land uses that encourage bicycle, pedestrian, and transit travel.
- Advocate, partner, and collaborate with stakeholders to address the needs of bicycle, pedestrian, and transit travelers in all program areas.
- Support the development of new technology to improve safety, mobility, and access for bicyclists, pedestrians, and transit users of all ages and abilities.
- Research, develop, and implement multimodal performance measures.
- Provide information to staff, local agencies, and stakeholders on available funding programs to address the needs of bicycle, pedestrian, and transit travelers.

Chiefs, Divisions of Traffic Operations, Maintenance, Environmental Analysis, Design, Construction, and Project Management:

- Provide guidance on project design, operation, and maintenance of work zones to safely accommodate bicyclists, pedestrians, and transit users.
- Ensure the transportation system and facilities are planned, constructed, operated, and maintained consistent with project type and funding program to maximize safety and mobility for all users with legal access.
- Promote and incorporate, on an ongoing basis, guidance, procedures, and product reviews that maximize bicycle, pedestrian, and transit safety and mobility.
- Support multidisciplinary district participation in the project development process to provide for the needs of all users.

Employees:

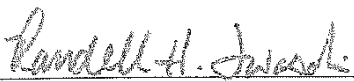
- Follow and recommend improvements to manuals, guidance, and procedures that maximize safety and mobility for all users in all transportation products and activities.
- Promote awareness of bicycle, pedestrian, and transit needs to develop an integrated, multimodal transportation system.
- Maximize bicycle, pedestrian, and transit safety and mobility through each project's life cycle.

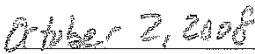
*APPLICABILITY*

All departmental employees.

*"Caltrans improves mobility across California"*

Deputy Directive  
Number DD-64-R1  
Page 5

  
\_\_\_\_\_  
RANDELL H. IWASAKI  
Chief Deputy Director

  
\_\_\_\_\_  
Date Signed

*"Caltrans improves mobility across California"*

**Attachment 2**



Environment

FHWA &gt; HEP &gt; Environment &gt; Human &gt; Bicycle &amp; Pedestrian

## United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations

Signed on March 11, 2010 and announced March 15, 2010

### Purpose

The United States Department of Transportation (DOT) is providing this Policy Statement to reflect the Department's support for the development of fully integrated active transportation networks. The establishment of well-connected walking and bicycling networks is an important component for livable communities, and their design should be a part of Federal-aid project developments. Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use. Legislation and regulations exist that require inclusion of bicycle and pedestrian policies and projects into transportation plans and project development. Accordingly, transportation agencies should plan, fund, and implement improvements to their walking and bicycling networks, including linkages to transit. In addition, DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.

### Policy Statement

The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.

### Authority

This policy is based on various sections in the United States Code (U.S.C.) and the Code of Federal Regulations (CFR) in Title 23—Highways, Title 49—Transportation, and Title 42—The Public Health and Welfare. These sections, provided in the Appendix, describe how bicyclists and pedestrians of all abilities should be involved throughout the planning process, should not be adversely affected by other transportation projects, and should be able to track annual obligations and expenditures on nonmotorized transportation facilities.

### Recommended Actions

The DOT encourages States, local governments, professional associations, community organizations, public transportation agencies, and other government agencies, to adopt similar policy statements on bicycle and pedestrian accommodation as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system. In support of this commitment, transportation agencies and local communities should go beyond minimum design standards and requirements to create safe, attractive, sustainable, accessible, and convenient bicycling and walking networks. Such actions should include:

- Considering walking and bicycling as equals with other transportation modes: The primary goal of a transportation system is to safely and efficiently move people and goods. Walking and bicycling are efficient transportation modes for most short trips and, where convenient intermodal systems exist, these nonmotorized trips can easily be linked with transit to significantly increase trip distance. Because of the benefits they provide, transportation agencies should give the same priority to walking and bicycling as is given to other transportation modes. Walking and bicycling should not be an afterthought in roadway design.

United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodat... Page 2 of 4

- Ensuring that there are transportation choices for people of all ages and abilities, especially children: Pedestrian and bicycle facilities should meet accessibility requirements and provide safe, convenient, and interconnected transportation networks. For example, children should have safe and convenient options for walking or bicycling to school and parks. People who cannot or prefer not to drive should have safe and efficient transportation choices.
- Going beyond minimum design standards: Transportation agencies are encouraged, when possible, to avoid designing walking and bicycling facilities to the minimum standards. For example, shared-use paths that have been designed to minimum width requirements will need retrofits as more people use them. It is more effective to plan for increased usage than to retrofit an older facility. Planning projects for the long-term should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.
- Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges: DOT encourages bicycle and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths.
- Collecting data on walking and biking trips: The best way to improve transportation networks for any mode is to collect and analyze trip data to optimize investments. Walking and bicycling trip data for many communities are lacking. This data gap can be overcome by establishing routine collection of nonmotorized trip information. Communities that routinely collect walking and bicycling data are able to track trends and prioritize investments to ensure the success of new facilities. These data are also valuable in linking walking and bicycling with transit.
- Setting mode share targets for walking and bicycling and tracking them over time: A byproduct of improved data collection is that communities can establish targets for increasing the percentage of trips made by walking and bicycling.
- Removing snow from sidewalks and shared-use paths: Current maintenance provisions require pedestrian facilities built with Federal funds to be maintained in the same manner as other roadway assets. State Agencies have generally established levels of service on various routes especially as related to snow and ice events.
- Improving nonmotorized facilities during maintenance projects: Many transportation agencies spend most of their transportation funding on maintenance rather than on constructing new facilities. Transportation agencies should find ways to make facility improvements for pedestrians and bicyclists during resurfacing and other maintenance projects.

## Conclusion

Increased commitment to and investment in bicycle facilities and walking networks can help meet goals for cleaner, healthier air, less congested roadways, and more livable, safe, cost-efficient communities. Walking and bicycling provide low-cost mobility options that place fewer demands on local roads and highways. DOT recognizes that safe and convenient walking and bicycling facilities may look different depending on the context — appropriate facilities in a rural community may be different from a dense, urban area. However, regardless of regional, climate, and population density differences, it is important that pedestrian and bicycle facilities be integrated into transportation systems. While DOT leads the effort to provide safe and convenient accommodations for pedestrians and bicyclists, success will ultimately depend on transportation agencies across the country embracing and implementing this policy.

Ray LaHood, United States Secretary of Transportation

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## APPENDIX

### Key Statutes and Regulations Regarding Walking and Bicycling

#### *Planning Requirements*

The State and Metropolitan Planning Organization (MPO) planning regulations describe how walking and bicycling are to be accommodated throughout the planning process (e.g., see 23 CFR 450.200, 23 CFR 450.300, 23 U.S.C. 134(h), and 135(d)). Nonmotorists must be allowed to participate in the planning process and transportation agencies are required to integrate walking and bicycling facilities and programs in their transportation plans to ensure the operability of an intermodal transportation system. Key sections from the U.S.C. and CFR include, with italics added for emphasis:

- The scope of the metropolitan planning process "will address the following factors... (2) Increase the safety for motorized and *non-motorized users*; (3) Increase the security of the transportation system for motorized and *non-motorized users*; (4) Protect and enhance the environment, promote energy conservation, improve the quality of life..." 23 CFR 450.306(a). See 23 CFR 450.206 for similar State requirements.
- Metropolitan transportation plans "... shall, at a minimum, include... existing and proposed transportation facilities (including major roadways, transit, multimodal and intermodal facilities, *pedestrian walkways and bicycle facilities*, and intermodal connectors that should function as an integrated metropolitan transportation system..." 23 CFR 450.322(f). See 23 CFR 450.216(g) for similar State requirements.
- The plans and transportation improvement programs (TIPs) of all metropolitan areas "shall provide for the development

[http://www.fhwa.dot.gov/environment/bikeped/policy\\_accom.htm](http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm)

3/19/2010



United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodat... Page 3 of 4

- and integrated management and operation of transportation systems and facilities (including *accessible pedestrian walkways and bicycle transportation facilities*)." 23 U.S.C. 134(c)(2) and 49 U.S.C. 5303(c)(2). 23 CFR 450.324(c) states that the TIP "shall include ... trails projects, pedestrian walkways; and bicycle facilities..."
- 23 CFR 450.316(a) states that "The MPOs shall develop and use a documented participation plan that defines a process for providing ... representatives of users of *pedestrian walkways and bicycle transportation facilities*, and *representatives of the disabled*, and other interested parties with reasonable opportunities to be involved in the metropolitan planning process." 23 CFR 450.210(a) contains similar language for States. See also 23 U.S.C. 134(i)(5), 135(f)(3), 49 U.S.C. 5303(i)(5), and 5304(f)(3) for additional information about participation by interested parties.

#### *Prohibition of Route Severance*

The Secretary has the authority to withhold approval for projects that would negatively impact pedestrians and bicyclists under certain circumstances. Key references in the CFR and U.S.C. include:

- "The Secretary shall not approve any project or take any regulatory action under this title that will result in the severance of an existing major route or have significant adverse impact on the safety for nonmotorized transportation traffic and light motorcycles, unless such project or regulatory action provides for a reasonable alternate route or such a route exists." 23 U.S.C. 109(m).
- "In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations." 23 U.S.C. 217(e). Although this statutory requirement only mentions bicycles, DOT encourages States and local governments to apply this same policy to pedestrian facilities as well.
- 23 CFR 652 provides "procedures relating to the provision of pedestrian and bicycle accommodations on Federal-aid projects, and Federal participation in the cost of these accommodations and projects."

#### *Project Documentation*

- "In metropolitan planning areas, on an annual basis, no later than 90 calendar days following the end of the program year, the State, public transportation operator(s), and the MPO shall cooperatively develop a listing of projects (including investments in *pedestrian walkways and bicycle transportation facilities*) for which funds under 23 U.S.C. or 49 U.S.C. Chapter 53 were obligated in the preceding program year." 23 CFR 332(a).

#### *Accessibility for All Pedestrians*

- Public rights-of-way and facilities are required to be accessible to persons with disabilities through the following statutes: Section 504 of the Rehabilitation Act of 1973 (Section 504) (29 U.S.C. §794) and Title II of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. §§ 12131-12164).
- The DOT Section 504 regulation requires the Federal Highway Administration (FHWA) to monitor the compliance of the self-evaluation and transition plans of Federal-aid recipients (49 CFR §27.11). The FHWA Division offices review pedestrian access compliance with the ADA and Section 504 as part of their routine oversight activities as defined in their stewardship plans.
- FHWA posted its [Clarification of FHWA's Oversight Role in Accessibility](#) to explain how to accommodate accessibility in policy, planning, and projects.

#### **Additional Resources**

For more information about:

##### FHWA Bicycle and Pedestrian Program Resources

- [FHWA's Bicycle and Pedestrian Program](#)
- [FHWA guidance documents on walking and bicycling](#)
- [Publications related to walking and bicycling](#)
- [Information about State and local resources](#)
- [Equestrian and Other Nonmotorized Use on Bicycle and Pedestrian Facilities](#)
- [Framework for Considering Motorized Use on Nonmotorized Trails and Pedestrian Walkways](#)
- [Manuals and Guides for Trail Design, Construction, Maintenance, and Operation](#)
- [Recreational Trails](#)
- [Shared-Use Paths Along or Near Freeways and Bicycles on Freeways](#)
- [Snow Removal on Sidewalks Constructed with Federal Funding](#)
- [Federal Aid funding resources for walking and bicycling facilities](#)

[http://www.fhwa.dot.gov/environment/bikeped/policy\\_accom.htm](http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm)

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- [Federal funding spent on walking and bicycling facilities](#)

#### Accessibility

- [FHWA American with Disabilities Act \(ADA\) resources](#)
- [U.S. Access Board information about ADA for public rights of way](#)
- [Accessibility Guidance for Bicycle and Pedestrian Facilities, Recreational Trails, and Transportation Enhancement Activities](#)

#### Pedestrian and Bicycle Safety

- [FHWA Pedestrian and Bicycle Safety Program](#)
- [FHWA Pedestrian and Bicycle Safety Research](#)
- [The National Highway Traffic Safety Administration's Pedestrian and Bicycle Safety Programs](#)

#### Context Sensitive Solutions

- [FHWA and Context Sensitive Solutions](#)

#### State Bicycle and Pedestrian Contacts

- [State Bicycle and Pedestrian Coordinators](#)

To provide Feedback, Suggestions, or Comments for this page contact Gabe Rousseau at [gabe.rousseau@dot.gov](mailto:gabe.rousseau@dot.gov).

This page last modified on March 19, 2010

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United States Department of Transportation - Federal Highway Administration

**Attachment 3**

Golden Gate Bridge, Highway & Transportation District

## Sidewalk Access for Pedestrians and Bicyclists

### Pedestrian Access

The east sidewalk is open 365 days-a-year. Pedestrians are allowed only on the east sidewalk (side facing San Francisco). Roller blades, skateboards, and roller skates are not permitted on the east sidewalk. Wheelchairs are permitted on the east sidewalk. Dogs that are on a leash at all times are permitted on the sidewalk.



*Photograph from the archives of the Golden Gate Bridge, Highway and Transportation District, San Francisco, CA. Permission is required for use*

During Pacific Standard Time, pedestrians are allowed on the east sidewalk from 5 am to 6 pm. Automatically-controlled gates close at 6 pm and reopen at 5 am.

During Daylight Savings Time, pedestrians are allowed only on the east sidewalk during daylight hours from 5 am to 9 pm. Automatically-controlled gates close at 9 pm and reopen at 5 am.

### Bicycle Access and Safety Guidelines for Bridge Sidewalks

Current Bicycle Access Alerts

[Stay Safe on the Golden Gate!](#) before heading out to the sidewalk

Cyclists have toll-free access to the Bridge's sidewalks 24-hours a day. **Cyclists MUST yield to pedestrians and remember to use caution in the areas of the towers as there is limited space to maneuver and sight distances are constrained.** Electric bicycles may be

[http://goldengate.org/\\_print.php?\\_url=http%3A%2F%2Fgoldengatebridge.org%2Fbikesbridge%2Fbik...](http://goldengate.org/_print.php?_url=http%3A%2F%2Fgoldengatebridge.org%2Fbikesbridge%2Fbik...) 3/19/2010

ridden on the sidewalks; however they may not be used under power while on the sidewalk and must be pedaled.

March 14, 2010 - November 6, 2010 (Pacific Daylight Time):

**Weekdays**

EAST sidewalk 5 am to 3:30 pm

WEST sidewalk 3:30 pm to 9 pm

EAST sidewalk 9 pm to 5 am via remotely controlled security gates located at both ends of the EAST sidewalk. Cyclists press the "buzzer" located near the closed security gate. After security staff locates the cyclist on a security camera, the gate is opened remotely. Cyclists repeat this procedure to get through the security gate at the other end.

**Weekends and Holidays**

WEST sidewalk 5 am to 9 pm

EAST sidewalk 9 pm to 5 am, using remotely controlled security gate system described above.

November 7, 2010 - March 12, 2011 (Pacific Standard Time):

**Weekdays**

EAST sidewalk 5 am to 3:30 pm

WEST sidewalk 3:30 pm to 6 pm

EAST sidewalk 6 pm to 5 am via remotely controlled security gates located at both ends of the EAST sidewalk. Cyclists press the "buzzer" located near the closed security gate. After security staff locates the cyclist on a security camera, the gate is opened remotely. Cyclists repeat this procedure to get through the security gate at the other end.

**Weekends and Holidays**

WEST sidewalk 5 am to 6 pm

EAST sidewalk 6 pm to 5 am via remotely controlled security gate system described above.

[http://goldengate.org/\\_print.php?\\_url=http%3A%2F%2Fgoldengatebridge.org%2Fbikesbridge%2Fbik...](http://goldengate.org/_print.php?_url=http%3A%2F%2Fgoldengatebridge.org%2Fbikesbridge%2Fbik...) 3/19/2010

# Community Groups

## Coalition For A Safe Environment

P.O. Box 1918, Wilmington, California 90748  
wilmingtoncoalition @ prodigy.net 310-834-1128

March 22, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
cameron@polb.com  
562-590-4160

State of California  
Department of Transportation (DOT)  
Ronald Kosinski  
Deputy District Director  
Caltrans District 7  
100 S. Main Street  
Los Angeles, CA 90012  
213-897-1835

Re: Gerald Desmond Bridge Replacement Project  
Draft Environmental Impact Report (DEIR)/Environmental Assessment (EA)  
SCH No. 200210141  
07-LA-710

Su: Request To Revise the DEIR to Address Deficiencies

The Coalition For A Safe Environment (CFASE) wishes to request the Port of Long Beach Board of Harbor Commissioners (POLB BOHC), City of Long Beach (COLB) and State of California Department of Transportation (DOT) revise the proposed DEIR to address deficiencies of the Draft EIR.

CSE-1

The Draft Environmental Impact Report (DEIR)/ Environmental Assessment (EA) for non-compliance and in violation of California Department of Transportation (Caltrans) in accordance with Section 6005 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (23 United States Code [U.S.C.] 327[a][2][A]), the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality (CEQ) *Guidance for Environmental Justice Under NEPA* (CEQ, 1997) Regulations implementing NEPA (40 *Code of Federal Regulations* [CFR] 1500-1508); Federal Highway Administration (FHWA) Environmental Regulations (23 CFR 771); and the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code [PRC] 21000 *et seq.* as amended) , implementing guidelines (California Code of Regulations [CCR], Title 14, Section



15000 *at seq.*), the Federal Clean Air Act, Clean Water Act, Executive Order 12898, AB 32 Global Warming Act, Resource, Conservation & Recovery Act (RCRA), U.S. Civil Rights Act Title VI, the California Health and Safety Code. } CSE-1

The Coalition For A Safe Environment is an Environmental Justice Community based non-profit organization with members in Long Beach, Wilmington, Carson, San Pedro and over 20 cities in California.

We find the proposed Gerald Desmond Bridge Replacement Project Draft Environmental Impact Report (DEIR)/Environmental Assessment (EA) to be unacceptable because it fails to support evaluation factors approval criteria, fails to adequately justify all of its purposes and objectives, fails to eliminate where feasible all negative impacts, fails to mitigate negative impacts where feasible to less than significant, fails to include all reasonable, feasible, cost effective and available project alternatives and mitigation measures. } CSE-2

The following information and outlined points, concerns, references, examples, issues, recommendations and requests describe the inadequacies of the DEIR/EA:

The DEIR/EA intentionally mischaracterizes information such as in the following paragraph:

**\*ES 1.2 INTENDED USES AND AUTHORIZING ACTIONS**

The Port and Caltrans are acting as the lead agencies for the proposed project in accordance with CEQA and NEPA, respectively. The Port and Caltrans have prepared a joint EIR/EA for the proposed project.”

The truth and correct information is that the Port of Los Angeles (POLA) will also use the bridge:

- a. Port of Los Angeles should have been included as a co-lead agency.
- b. It is a fact that the Port of Los Angeles also uses the bridge.
- c. It is possible that POLA usage may exceed Port of Long Beach usage.
- d. The POLA is not being required to mitigate its usage if the bridge and its increased capacity.

Caltrans and the ports are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. The Port of Los Angeles be included as a co-lead agency.
- b. An analysis of POLA current usage of the bridge.
- c. POLA mitigation of its negative impacts and cumulative impact increases.

The DEIR/EA intentionally mischaracterizes information such as in the following paragraph: } CSE-5

CSE-5 { "The bridge is forecast to carry a substantial amount (39 percent) of non-port, regional through traffic in 2030 (Iteris, 2009). Regional traffic will increase due to several major development projects that have been constructed in downtown Long Beach, such as the Pike at Rainbow Harbor and the proposed San Pedro Waterfront Development in the Port of Los Angeles (POLA)."

The truth and correct information is that the bridge was primarily built for two purposes:

- a. Facilitate local resident workers driving to and from work at the port.
- b. Non-port through traffic to Long Beach, San Pedro and Wilmington.

The bridge was never built to be a primary or major truck route for the ports, their tenants, the goods movement, importers and big box retailers. The ports, their tenants, the goods movement industry, importers and big box retailers are primarily responsible for the significant bridge infrastructure damage, premature degradation, deterioration and decrease in life time usage.

The DEIR/DEIS fails to state that the building of the bridge was paid for primarily by the public and not the ports, their tenants or goods movement industry or importers.

CSE-6 { Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. A correct description not the port interpretation of the bridges original purpose.
- b. Clearly state that the public paid for the original bridge.
- c. Clearly state that the public will pay for the bridge and not the ports tenants, goods movement industry or importers. ie. WalMarts, K-Marts, Home Depot's etc.

CSE-7 { The DEIR/EA intentionally mischaracterizes information such as in the following paragraph:

"Deficiencies

The primary roadway deficiencies are the lack of outside shoulders and the steep approach grades.

**Shoulders.** The lack of shoulders often results in broken-down trucks or passenger vehicles being stuck in the outside lane, effectively blocking or severely restricting the entire traffic flow in that direction of travel until the incident is cleared. The lack of shoulders also makes it more difficult for emergency vehicles and tow vehicles to gain access to the incidents."

The truth and correct information is that:

- a. Caltrans and the port failed to restrict or eliminate significant port truck usage of the public bridge.
- b. Caltrans and the port have allowed old trucks to service the ports a public agency knowing that they present significant traffic problems and safety concerns.
- c. Caltrans and the port failed to state that trucks are overwhelmingly the cause of breakdowns on the public bridge.

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. An acknowledgement and discussion that Caltrans and the ports failed to restrict or eliminate significant port truck usage of the public bridge.
- b. An acknowledgement and discussion that Caltrans and the ports have allowed old trucks to service the ports a public agency knowing that they present significant traffic problems and safety concerns.
- c. An acknowledgement and discussion that Caltrans and the ports failed to state that trucks are overwhelmingly the cause of breakdowns on the public bridge.

CSE-8

The DEIR/EA intentionally fails to disclose information to the public such as in the following paragraph:

**“ES 1.7.3 SCE Transmission Line Relocation**

Because the new bridge would be 200 ft (61 m) above the MHWL, in contrast to the existing bridge at 156 ft (47.4 m) above MHWL, the project also requires that the SCE high-voltage transmission towers and lines that cross the Cerritos Channel north of the bridge be raised.”

The truth and correct information is that:

- a. Who is going to pay for the raising, replacement and/or extension of the SCE high-voltage transmission towers and lines.
- b. What is the cost of raising, replacement and/or extension of the SCE high-voltage transmission towers and lines.
- c. If SCE pays for these the costs, the costs will be passed on to the public via higher ratepayer rates which is a negative socio-economic impact.
- d. Clearly state that the port, their tenants, goods movement industry, importers and big box retailers. ie. WalMarts, K-Marts, Home Depot’s etc. will not pay for this negative socio-economic impact.

CSE-9

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. Caltrans and the port identify who will pay for the raising, replacement and/or extension of the SCE high-voltage transmission towers and lines.
- b. Caltrans and the port identify What is the cost of raising, replacement and/or extension of the SCE high-voltage transmission towers and lines.
- c. Caltrans and the port state that if SCE pays for these the costs, the costs will be passed on to the public via higher ratepayer rates which is a negative socio-economic impact.
- e. Caltrans and the port clearly state that the ports, their tenants, goods movement industry, importers and big box retailers. ie. WalMarts, K-Marts, Home Depot’s etc. will not pay for this negative socio-economic impact.

CSE-10

The DEIR/EA intentionally fails to disclose information to the public such as in the following paragraph:

**“ES 1.8.1 No Action Alternative**

CSE-11

CSE-11 { Under the No Action Alternative, the Gerald Desmond Bridge would not be replaced or rehabilitated. It would remain in its existing deteriorated condition until a retrofit schedule is established. It would remain with insufficient roadway capacity to handle projected car and truck traffic volumes, and inadequate channel clearance for safe passage of some existing and new-generation container ships.”

The truth and correct information is that:

- a. Caltrans and the port intentionally have failed to schedule the bridge for rehabilitation.
- b. Caltrans and the port intentionally have failed to secure funding such as stimulus funds for the bridge rehabilitation.
- c. Bridge deterioration would slow down if Caltrans and the port restricted and eliminated significant port truck usage of the public bridge.
- d. Number of breakdowns would slow down if Caltrans and the port restricted and eliminated significant port truck usage of the public bridge.
- e. The bridge height does not have to be raised if the port does not allow large ships to use the inner harbor.

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include the information stated in a. – e.

CSE-12 { The DEIR/EA intentionally fails to disclose information to the public such as in the following paragraph:

**“ES 1.8.4 Bridge Rehabilitation Alternative**

“...Lacking a detailed seismic performance study, it is assumed that the casings would be placed along the full height of the columns....”

The truth and correct information is that:

- a. Caltrans and the port have had since 2004 to conduct a detailed seismic performance study and failed to do so.
- b. Caltrans and the port have had since 2004 to seek expert professional engineering opinion.

CSE-13 { Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR include:

- a. Caltrans and the port contract to conduct a detailed seismic performance study.
- b. Caltrans and the port seek expert professional engineering opinion.
- c. Caltrans and the port delay the DEIR/EA and supplement the DEIR/EA until all necessary studies are included.

CSE-14 { The DEIR/EA intentionally mischaracterizes information such as in the following paragraph:

“Year 2030 forecasted traffic volumes without the project are approximately 124,670 total trips per day (including 54,360 trucks or 43.6 percent of the total traffic) on the Gerald Desmond Bridge (Iteris, 2009). Table 1-1 summarizes the daily traffic and truck percentages over the project planning years.”

The truth and correct information is that:

- a. Caltrans and the port failed to include comparison forecast data of other options such as prohibiting truck usage of the bridge which would significantly decrease bridge traffic.
- b. Caltrans and the port failed to include comparison data of other options such as limiting the number of trucks using of the bridge.
- c. Caltrans and the port failed to include comparison data of other options such as diverting containers being placed on trucks to containers being placed on rail and using the Alameda Corridor, which is currently at approximately 30% capacity.
- d. Caltrans and the port failed to include comparison data of other options such as the port building an alternative cargo and container transportation systems such as an Zero Emissions Electric MagLev Train System such as the American MagLev Technology, Inc. proposed system which would significantly decrease and/or eliminate the usage of the bridge.

CSE-14

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. Caltrans and the port include comparison forecast data of other options.
- b. Caltrans and the port disclose that American MagLev Technology, Inc. has proposed building a MagLev Train System at the Port of Long Beach that would eliminate a significant number of trucks.
- c. Caltrans and the port disclose that the Port of Long Beach has refused to grant a 20' right-of-way to build a demonstration MagLev project at no cost to the public.
- d. Caltrans and the port disclose that a Port of Long Beach terminal operator has volunteered to place 400 containers a day on the Maglev Train which would significantly reduce the number of trucks using the bridge.

CSE-15

The DEIR/EA intentionally fails to disclose information to the public such as in the following paragraph:

**"1.6 ALTERNATIVES**

The June 2004 Draft EIR/EA analyzed two alignment alternatives (Build Alternatives) and a No Action Alternative. Like the previous document, this revised Draft EIR/EA fully analyzes the North-side Alignment Alternative (identified as the preferred alternative [see Section 1.8.1.1]), the South-side Alignment Alternative, and the No Action Alternative; it adds a fourth alternative, Bridge Rehabilitation, which was not considered in the previous document.

CSE-16

The truth and correct information is that:

- a. Caltrans and the port did not consider or disclose all alternatives that are known to them such as building a new bridge that prohibits truck usage, therefore no environmental, public health and public safety impacts.
- b. Caltrans and the port did not consider or disclose building a MagLev Train System at the Port of Long Beach would eliminate or minimize truck usage of the new bridge.
- c. Caltrans and the port did not disclose American MagLev Technology, Inc. has proposed building a MagLev Train System at the Port of Long Beach that would eliminate all or a significant number of trucks from using the bridge.



- CSE-17 { Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:
- a. An assessment of all alternatives that are known to them such as building a new bridge that prohibits truck usage, therefore no environmental, public health and public safety impacts.
  - b. An assessment and demonstration a MagLev Train System at the Port of Long Beach that would eliminate or minimize truck usage of the new bridge.
  - c. An assessment of a MagLev Train System at the Port of Long Beach that would eliminate or minimize truck usage of the new bridge.
  - d. Caltrans and the port disclose that American MagLev Technology, Inc. has submitted a proposal to the Port of Long Beach for building a MagLev Train System at the Port of Long Beach that would eliminate all or a significant number of trucks from using the bridge.

The DEIR/EA intentionally fails to disclose information to the public such as in the following paragraph:

**"1.7.1 Toll-Operation Alternative**

A tolling alternative was considered because the Port is looking at various funding sources (including federal, state, and local sources) to help pay for the cost of the new bridge. This alternative was considered given that tolling is used on many northern California bridges as a primary revenue source; therefore, POLB and POLA jointly sponsored a Terminal Island Traffic and Toll Revenue Study to assess the following options:"

The truth and correct information is that:

- CSE-18 {
- a. Toll fees are regressive and will have a disproportionate impact on low income drivers and Environmental Justice Communities by requiring that they pay a higher percentage of monies towards the construction of the bridge.
  - b. Trucks are 5-10 times longer than passenger vehicles and therefore should pay 5-10 times the toll fee, yet they will pay the same toll as a passenger vehicle.
  - c. The public is being forced to pay and subsidize the majority of construction costs when the primary beneficiaries will be the ports, their tenants, goods movement industry, importers and big box retailers. ie. WalMarts, K-Marts, Home Depot's etc. who will not pay for this negative socio-economic impact.
  - d. The bridge was never built to be a primary or major truck route for the ports, their tenants, the goods movement industry, importers and big box retailers.
  - e. The ports, their tenants, goods movement industry, importers and big box retailers are primarily responsible for the significant bridge infrastructure damage, premature degradation, deterioration and decrease in life time usage.

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- CSE-19 {
- a. An analysis f the regressive nature and disproportionate impact of tool fees on the public.
  - b. A description of truck lengths and their impacts by not paying fair and equal toll fees as the public.

- c. A discussion and analysis that the ports, their tenants, goods movement industry, importers and big box retailers. ie. WalMarts, K-Marts, Home Depot's etc. will not pay for this negative socio-economic impact.
- d. A discussion as to the original intent and usage of the bridge and how Caltrans and the ports have illegally allowed the private profit making port tenants, goods movement industry, importers and big box retailers to commandeer and take over a public bridge over time.
- e. A discussion and analysis of the negative impacts to the bridge caused by port tenants, goods movement industry, importers and big box retailers

CSE-19

The DEIR/EA discloses significant information to the public such as in the following paragraph:

**"2.1.2.3 Environmental Consequences**

...The *Port and Model Elasticity Study* (Leachman & Associates, 2005), which was prepared for SCAG, and supplemental analyses conducted by SCAG indicate that a container fee of under \$200 per forty-foot equivalent unit (FEU), combined with transportation congestion relief projects, would not alter shipper supply chain logistics. Another study, *Cargo on the Move through California* (Energy and Environmental Research Associates, 2006) prepared for the Natural Resources Defense Council (NRDC) concluded that a \$30 container fee for capital improvements would not result in the diversion of cargo."

However it is buried in the middle of the document text, not highlighted nor the findings adopted as a course of action in the EIR/EA:

CSE-20

- a. The issue as to who will pay for the cost of the bridge is the most important and significant negative public socio-economic aspect of the project.
- f. A principal public governmental agency and an independent private third party non-profit organization conducted economic studies which concluded that the ports tenants, the goods movement industry, importers and big box retailers are fully capable of paying for the bridge construction via a container fee with less than significant impacts.
- b. Caltrans and the port failed to select and recommend a container fee as the best and primary method to pay for the bridge.
- c. Caltrans and the port have obfuscated their responsibility to represent the public's best interests and have in fact sold out the public to private business interests and lobbying to allow them to make higher profits at the public expense.

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. The recommendation that a container fee be the principle means of financing the bridge construction.
- b. An increased discussion and analysis of the principal public governmental agency and an independent private third party non-profit organization economic studies.
- d. An explanation why Caltrans and the port failed to recommend a container fee best and primary method to pay for the bridge.
- c. Caltrans and the port acknowledge that their primary responsibility as a public agency is to represent the public's best interests.

CSE-21



- CSE-22 { The DEIR/EA intentionally mischaracterizes information such as in the following paragraph:
- “2.1.2.3 Environmental Consequences**
- ...For this reason, while the potential for growth inducement in cargo movement is identified as a possible impact of the roadway improvements associated with the bridge replacement project, the effects are too speculative to reliably evaluate and essentially remain unknown.”
- The truth and correct information is that the bridge will be a growth inducement and will have a significant negative impact:
- a. The effects are not too speculative to reliably evaluate, there is an abundant of port data that will clearly disclose that there has always been increased growth when there have been transportation infrastructure improvements.
  - b. If Caltrans and the port were not capable of reliably evaluating this issue they could have easily hired a consultant firm to conduct an assessment as they have always done in the past when they want to justify items they or their tenants, goods movement industry, importers and big box retailers want.
- CSE-23 { Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:
- a. An assessment of the potential for growth inducement in cargo movement is identified as a possible impact of the roadway improvements associated with the bridge replacement project.
  - b. An assessment of additional negative environmental, public health, public safety and socio-economic impacts.
  - c. The inclusion of additional mitigation to address the additional negative environmental, public health, public safety and socio-economic impacts.
- CSE-24 { The DEIR/EA discloses significant information to the public such as in the following paragraph:
- “2.1.2.4 Avoidance, Minimization and/or Mitigation Measures**
- No measures are required.”
- The truth and correct information is that there are significant negative impacts that were not adequately disclosed, assessed, avoided, minimized or mitigated:
- a. This submitted public comment identifies numerous deficiencies in the DEIR/EA.
  - b. Caltrans and the port intentionally refused to recognize these deficiencies although known to them and/or referenced by them in the DEIR/EA.
- CSE-25 { Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:
- a. Include omitted deficiencies identified in public comments.
  - b. Include recommended and requested project alternatives and mitigation measures.

The DEIR/EA failed to disclose all of the significant information to the public such as in the following paragraph:

**“2.1.3.1.2 Affected Environment Study Area**

The EIR/EA was reviewed to identify potentially adverse effects of the project on the adjacent communities within the project area.”

The truth and correct information is that all potentially adverse effects of the project on the adjacent communities within the project area were not identified:

- a. Caltrans and the port arbitrarily determined what areas were impacted when in fact entire communities and cities will be impacted.
- b. Caltrans and the port failed to include Transportation Corridor Communities and Warehouse Distribution Center Communities who will be impacted by the increased truck traffic and increased ship emissions from larger ships.

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- 1. The EIR/EA include all of Wilmington, Carson, North San Pedro and all of the City of Long Beach Transportation Corridor Communities and Warehouse Distribution Center Communities
- 2. The EIR/EA include all Transportation Corridor Communities and Warehouse Distribution Center Communities within a fifty (50) mile radius Transportation Corridor Communities and Warehouse Distribution Center Communities.

CSE-26

CSE-27

The DEIR/EA failed to disclose all of the significant information to the public such as in the following paragraph:

**“2.1.3.3.4 Avoidance, Minimization and/or Mitigation Measures**

All measures summarized above and as discussed in Sections 2.1.5 (Traffic and Circulation) and Section 2.2.5 (Air Quality) would be implemented.”

The truth and correct information is that all potential project alternatives, mitigation measures to avoid, minimize or eliminate impacts to Environmental Justice Communities and protected classes were not identified:

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. Caltrans and the port do not have an Environmental Justice Advocate or department to advise them on Environmental Justice issues.
- b. Caltrans and the port never hired an Environmental Justice Consulting firm or Environmental Justice Organization to advise them on Environmental Justice issues.
- c. Caltrans and the port failed to include the cumulative impacts identified by EJ Communities in the past into the EIR/EA.
- d. Caltrans and the port failed to consider zero emitting and near zero emitting goods movement transportation technologies, pollution capture or control technologies.
- e. Caltrans and the port never hired a consulting firm to research Environmental Justice Community recommended alternative technologies to mitigate impacts.

CSE-28

- CSE-28
- f. Caltrans and the port did not consider banning or limiting trucks on the bridge.
  - g. Caltrans and the port did not consider allowing only Electric Trucks and Hydrogen Fuel Cell Battery Trucks on the bridge.
  - h. Caltrans and the port did not consider allowing only trucks which have fuel combustion efficiency equipment and high efficiency pollution control devices.
  - i. Caltrans and the port did not consider requiring the Advanced Maritime Emissions Control System (AMECS) to be used on the larger ships that would be entering the inner harbor terminals.

- CSE-29
- Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:
- a. Caltrans and the port hire an Environmental Justice Advocate and establish an EJ Department to advise them on Environmental Justice issues.
  - b. The Port of Long Beach establish a Port Community Advisory Committee equal to the Port of Los Angeles.
  - c. The DEIR/EA include EJ Community identified cumulative impacts that have in the past been presented to the port into the EIR/EA and in this public comment document.
  - d. The DEIR/EA include a recommendation to use the alternative transportation MagLev Train, AMECS System, Electric trucks, Hydrogen Fuel Cell Battery Trucks and fuel combustion efficiency equipment and high efficiency pollution control devices.

- CSE-30
- The DEIR/EA failed to disclose all of the significant public health impacts information to the public which would be identified in a Health Impact Assessment and not part of a Health Risk Assessment such as:
- The DEIR Health Risk Assessment is not complete and accurate because it did not include:
- A. A review of all public health impacts:
    - 1. Respiratory Health Diseases.
    - 2. Cardio-Pulmonary Diseases.
    - 3. Neurological Diseases.
    - 4. Child Learning Disabilities.
    - 5. Physiological Development Disorders.
    - 6. Blood Diseases (Leukemia, Lymphoma, Myeloma, Anemia).
    - 7. Diabetes.
    - 8. Autoimmune Diseases (Lupus, Fibromyalgia).
    - 9. Child Obesity.
    - 10. Endocrine Disruptors.
    - 11. Mental Health. (Stress, Anger, Fear, Depression)
    - 12. Temporary & Permanent Disabilities
    - 13. Death
  - B. A comprehensive door-to-door Public Health Survey to establish a Public Health Baseline.
  - C. An accurate Sensitive Receptor Impact Zone Study.
  - D. Wind Pattern Aerosol Dispersion Meteorological Study.

Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a. Caltrans and the port include a Health Impact Assessment in the EIR/EA.
- b. Caltrans and the port include a Public Health Survey in the EIR/EA
- c. Caltrans and the port include a Public Health Baseline in the EIR/EA.
- d. Caltrans and the port include a more comprehensive Sensitive Receptor Impact Zone Study.
- e. Caltrans and the port include a Wind Pattern Aerosol Dispersion Meteorological Study.

CSE-31

The DEIR/EA failed to include appropriate mitigation to address all the public health impacts described in # 15 above.

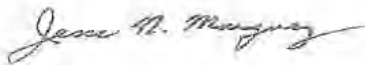
Caltrans and the port are required to include correct and complete information. CFASE requests that the Final EIR/EA include:

- a... Mitigation to reduce all public health impacts to less than significant.
- b... Caltrans and the ports establish a Public Health Mitigation Trust Fund to pay for all Public Health Impacts based on a container fee of \$ 10.00 per TEU that passes under the bridge into the inner harbor.

CSE-32

The Coalition For A Safe Environment Mission Statement is - To protect, promote, preserve and restore our Mother Earth's delicate ecology, environment, natural resources and wildlife. To attain Environmental Justice in international trade marine ports, goods movement transportation corridors, petroleum and energy industry communities.

Respectfully Submitted,



Jesse N. Marquez  
Executive Director

And As,

Jesse N. Marquez  
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Wilmington, CA 90744

City of Los Angeles Resident  
Member of the Coalition For A Safe Environment  
Member of the Sierra Club  
Resident & Member Of The Public Adversely Impacted By The Projects Environmental, Public Health, Public Safety and Socio-Economic Negative Impacts

and

Gabrielle Weeks  
Executive Director  
Long Beach Coalition For A Safe Environment

City of Long Beach Resident  
Member of the Long Beach Coalition For A Safe Environment  
Member of the Sierra Club  
Resident & Member Of The Public Adversely Impacted By The Projects Environmental, Public  
Health, Public Safety and Socio-Economic Negative Impacts



NATURAL RESOURCES DEFENSE COUNCIL

March 22, 2010

***Via Electronic Mail***

Rick Cameron  
Port of Long Beach  
Planning Division  
925 Harbor Plaza  
Long Beach, CA 90801

***Re: Gerald Desmond Bridge Replacement—Revised Draft EIR***

Dear Mr. Cameron:

On behalf of the Natural Resources Defense Council, I write to provide comments on the Revised Gerald Desmond Bridge Replacement Draft Environmental Impact Report (DEIR)/Draft Environmental Assessment (EA). NRDC appreciates the opportunity to provide comments on the DEIR/EA. After careful review, we have concluded that it fails in many respects to comply with the requirements of the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"). As described below, the DEIR/EA is inadequate because it fails to carry out CEQA and NEPA mandates. It does not accurately identify or analyze the significant environmental impacts that would result from the implementation of this proposed massive freight expansion project, and it fails to provide sufficient mitigation for such impacts as it does identify. Moreover, it fails to consider alternatives that effectively protect the environment while providing good, well-paying, sustainable jobs for the region's workforce.

NRDC-1

Given the inevitable regional and acute local impacts of the proposed project, it is especially important that the DEIR/EA contain the necessary analysis to enable both the decision makers and the public to understand the significant environmental repercussions of the Project. Moreover, because unlike other Port projects, this project will be funded by taxpayers to the tune of

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approximately \$1.125 billion dollars,<sup>1</sup> it is especially critical that decision makers ensure a careful and lawful analysis of the environmental impacts from the proposed project. Additionally, the DEIR/EA must compare the proposed project to other possible alternatives for redeveloping the Port. Instead, the DEIR/EA effectively disguises the true impacts of the project by omitting crucial information regarding what the project will actually do, underestimating many environmental impacts and ignoring others altogether.

As a result of the DEIR/EA inadequacies, there can be no meaningful public review of the project. CEQA and NEPA accordingly require the Port and California Department of Transportation ("CALTRANS") to prepare and circulate a revised DEIR and appropriate environmental review under NEPA to permit a complete understanding of the environmental issues at stake.

**I. The Environmental Review is Fundamentally Flawed Because of the Decision to Use an Environmental Assessment as Opposed to an Environmental Impact Statement Under NEPA.**

NRDC-2

NEPA requires federal agencies to prepare an Environmental Impact Statement ("EIS") for all major Federal actions that "may significantly affect the quality of the human environment." 42 U.S.C. § 4332(2)(C); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 336 (1989). As the Ninth Circuit has repeatedly held, "An agency must prepare an EIS if substantial questions are raised as to whether a project ... may cause significant degradation of some human environmental factor." *Center for Biological Diversity v. National Highway Traffic Safety*, 538 F.3d 1172, 1219 (9th Cir. 2008) (citing *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1149 (9th Cir.1998)). A party challenging an agency's failure to prepare an EIS, "need not show that significant effects will in fact occur, but only that there are 'substantial questions whether a project may have a significant effect.'" *Id.* (internal citations and quotation marks omitted).

An impact may be significant by virtue of either its context or its intensity. 40 C.F.R. § 1508.27. In assessing the intensity, or severity, of an impact, a responsible official should consider up to ten factors, including: the cumulative impacts of the exempted actions, whether the impacts of the actions to be exempted are "highly controversial," "the degree to which the possible effects on the environment are highly uncertain or involve unique or unknown risks," and the "[u]nique characteristics of the geographic area" where the action is to take place. 40 C.F.R. § 1508.27(b). The presence of any one of these factors may be sufficient to require preparation of an EIS. *Ocean Advocates v. U.S. Army Corps of Engineers*, 402 F.3d 846, 865 (9th Cir. 2005)(citing *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 731 (9th Cir.2001)). Furthermore, the preparation of an EIS is mandatory "where uncertainty may be resolved by further collection of data, or where the collection of such data may prevent

<sup>1</sup> SCAG, Draft 2008 RTP Amendment #3, (February 17, 2010), available at [http://www.scag.ca.gov/rtp2008/pdfs/amendrtip/amend03\\_2008RTP\\_PD.pdf](http://www.scag.ca.gov/rtp2008/pdfs/amendrtip/amend03_2008RTP_PD.pdf).



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"speculation on potential . . . effects." *National Parks Conser. Assn v. Babbitt*, 241 F.3d 722, 737 (9<sup>th</sup> Cir. 2001). See also 40 C.F.R. § 1508.27(b)(5) (mandating preparation of an EIS to resolve areas of uncertainty about environmental impacts).

We find it remarkable that the CALTRANS and the Port of Long Beach have decided that the impacts from a \$1.125 billion bridge replacement/expansion project in one of the most polluted parts of the most polluted air sheds in nation only requires an EA for compliance with NEPA. The current document is peppered with impacts that are deemed significant, so the use of EA is patently illegal.<sup>2</sup> Moreover, this project is highly controversial for many reasons. First, it provides more than a billion dollars to subsidize a project that is needed because of damage the freight industry has inflicted on this bridge.<sup>3</sup> Second, the project is controversial because there was a policy decision to remove tolling as an option for project despite prior commitments to truly analyze this type of strategy in the environmental document. Based on this and other considerations, prior to moving forward, CALTRANS must complete an EIS in compliance with the NEPA.

NRDC-2

**II. The Environmental Document Uses an Unduly Narrow Scope of Impacts for Its Analysis.**

Study after study shows that the Port of Long Beach is one of the major contributors to the egregious traffic congestion on the 710 freeway. Traffic is surely one of the issues that most concern the Port's local and regional neighbors, but there are other impacts, including air quality that suffer from the small study area. It is thus disappointing that the DEIR/EA has chosen to take a view of impacts so narrow as to make accurate analysis impossible. Even as other documents make clear that the Port has region-wide traffic and air quality impacts, the DEIR/EA limits its analysis to a relatively tiny area. At the same time, the only mitigation measures the DEIR/EA considers are road improvements, and it fails even to accurately describe, or even identify, those improvements. In short, the DEIR/EA's treatment of traffic and air quality issues is far less than its community and their decision makers deserve.<sup>4</sup>

NRDC-3

**i) The DEIR/EA Uses a Study Area That Inaccurately Minimizes the Project's Severe Traffic Impacts.**

<sup>2</sup> DEIR/EA, at ES-13-19.

<sup>3</sup> Agenda of the Special Meeting of the Los Angeles Board of Harbor Commissioners and the Long Beach Board of Harbor Commissioners. ("However, gas taxes do not capture the full nexus as heavy trucks have a much greater impact on pavement wear and capacity. Trucks utilize approximately three times as much capacity as automobiles.") (Jan. 14, 2008) [Attached as Exhibit A].

<sup>4</sup> *Laurel Heights Improvement Association, Inc. v. Regents of the University of California* (1988) 47 Cal. 3d 376, 494.

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The study area chosen for the DEIR/EA's traffic analysis is unaccountably small, considering the study area remains so close to the actual bridge and ignores the regional impacts this bridge has on the region. The DEIR/EA provides no explanation, let alone substantial evidence, supporting its apparently arbitrary exclusion of any part of the I-710 and many other highways in the project vicinity.

According to one recent important freeway study, "large numbers of trucks that use the I-710 to travel between the Ports and rail freight yards located near Interstate 5 (I-5), and to warehousing and distribution points scattered throughout the Southern California urban area"<sup>5</sup> (emphasis added). This study, which focused on the same Port-related congestion problems at issue here, considered a study area extending through Commerce to SR 60.

More specifically, the Port of Los Angeles Baseline Transportation Study prepared by Meyer, Mohaddes Associates, Inc. ("MMA") illustrates the projected and current volume of truck trips that is directly related to the combined operations of both Ports' (the Port of Los Angeles and Port of Long Beach). MMA found that the I-710 carries over 25,000 port truck trips per day for travel south of the 405. Truck travel further north on I-710 carries 20,000 port trucks north of I-405, 15,000 north of Route 91, and 11,600 north of I-105. MMA projects that in a worst-case scenario, by 2025 unmitigated "port-related truck volume (for both ports combined) is projected to reach 60,000 on I-710 just north of the Ports, compared to 25,300 currently." The Port's own documents demonstrate the Port of Long Beach's share of traffic on these segments, which are outside the DEIR/EA's arbitrary study area, is substantial in its own right.<sup>6</sup>

By excluding large portions of heavily-impacted freeways, the DEIR/EA severely understates the Project's traffic impacts. The California Supreme Court has emphasized that "an EIR may not ignore the regional impacts of a project approval, including those impacts that occur outside of its borders; on the contrary, a regional perspective is required."<sup>7</sup> An EIR must analyze environmental impacts over the entire area where one might reasonably expect these impacts to occur.<sup>8</sup> This principle stems directly from the requirement that

<sup>5</sup> Los Angeles County Metropolitan Transportation Authority, "I-710 Major Corridor Study" at S-9. [See "Attached Literature" Exhibit B].

<sup>6</sup> See Port of Long Beach, "2006 Emissions Inventory." Section 6 Heavy Duty Vehicles. (2008) [Attached as Exhibit C.]. The more recent emissions inventory for 2007 and 2008 do not indicate any diversion from these 2006 assumptions.

<sup>7</sup> *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 575.

<sup>8</sup> See *Kings County Farm Bureau*, 221 Cal. App. 3d at 721-23.

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an EIR analyze all significant or potentially significant environmental impacts.<sup>9</sup> An EIR cannot analyze all such environmental impacts if its study area does not include the geographical area over which these impacts will occur.

Traffic from the project, together with traffic from the cumulative development anticipated in the region, would inundate area freeways. It would also contribute to the project's air quality and noise impacts. Yet this DEIR/EA leaves the public and decision-makers in the dark as to the Project's actual traffic impacts because it arbitrarily omits critical freeway segments that are related to this freight expansion project. The DEIR/EA has clearly failed to meet CEQA's mandate, and must be revised and re-circulated if it is to support approval of this Project.

NRDC-3

**ii) The DEIR/EA Ignores Several Feasible Measures That Would Mitigate the Project's Traffic Impacts.**

Even with its truncated study area, the DEIR/EA still finds that Project-related traffic will contribute to significant impacts. Faced with these substantial traffic impacts, the DEIR/EA proceeds to shirk its duty to identify measures that would mitigate or avoid the Project's traffic impacts. The EIR's duty in this regard is straightforward: it "shall describe feasible measures which could minimize significant adverse impacts."<sup>10</sup> The DEIR/EA flatly declines to follow this mandate, and so fails at its most essential duty—minimizing the environmental impacts of the Project.<sup>11</sup>

NRDC-4

CEQA's core substantive component—with which every public agency must comply—requires that the Port "shall mitigate or avoid the significant effects . . . of projects that it carries out or approves *whenever* it is feasible to do so"<sup>12</sup> (emphasis added). Despite this clear mandate, the DEIR/EA ignores several feasible mitigation measures that could substantially reduce the Project's traffic impacts.

First, as a prior environmental review document admits, the Port is not well served by public transit.<sup>13</sup> Improving this situation by increasing transit service

<sup>9</sup> See Pub. Res. Code §§ 21061, 21068; see also *Citizens to Preserve the Ojai v. County of Ventura* (1986) 176 Cal. App. 3d 421, 432-33 (finding "an absolute failure to comply [with CEQA]" where information relevant to project's impacts was omitted).

<sup>10</sup> CEQA Guidelines § 15126.3(a)(1); see also *Woodward Park Homeowners Ass'n, Inc. v. City of Fresno* (2007) 150 Cal. App. 4th 683, 724 ("The EIR also must describe feasible measures that could minimize significant impacts.").

<sup>11</sup> See, e.g., *Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal. App. 4th 1437, 1446 ("The foremost principle under CEQA is . . . to afford the fullest possible protection to the environment . . .") (Internal quotation marks omitted).

<sup>12</sup> Pub. Res. Code § 21002.1(b).

<sup>13</sup> Middle Harbor Redevelopment Project, DEIR/EIS, at 3.5-1, available at <http://www.polb.com/environment/docs.asp>.

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to the Port would obviously reduce traffic impacts. The DEIR/EA contains nothing to suggest that such improvements would be infeasible. Given the large number of Port and freight-related employees, it is likely that efficient, effective transit routes and schedules could be devised. These transit improvements would, moreover, serve as effective mitigation measures for the Port's air quality and greenhouse gas impacts, and must be considered in those contexts as well. Implementing such transit improvements would likely require further study of where Port workers live; as discussed below, such a study is already necessary for accurate analysis of the Project's population and housing impacts.

Another potential traffic mitigation measure would focus on improving the efficiency of truck usage at the Port. Currently, the port drayage market is structured to maintain a truck to driver ratio of close to 1:1. A system, like the one currently in place at the Port, that relies on individual drivers to own and operate their own trucks, inevitably contributes excessive traffic to the roadway system, as drivers must bring their trucks to and from work. If, however, trucks are owned by the trucking companies according to an asset-based, then trucks could be slip-seated. That is, a trucking company could dispatch a single truck on multiple shifts to be driven by different drivers. This would reduce the number of trucks needed to move the same number of containers on any given day. Additionally, with trucking companies owning their trucks and providing parking while trucks are out of use, this system would ensure that trucks were used for their real purpose—moving goods—and would reduce the amount of time trucks spend on the region's freeways—and causing congestion—solely for the purpose of getting a driver to or from work. By limiting the number of commute-only truck trips, the asset-based model and slip-seating could substantially reduce the Project's traffic impacts. The Port could implement this system simply by creating a concession system that requires all trucks accessing the Port to be owned by an asset-based trucking company. This system would, moreover, diminish idling time, substantially improving trucks' emissions performance and reducing the Project's air quality and greenhouse gas impacts. We see no reason it is not feasible.

NRDC-5

**III. The Port Should Provide Funding to Provide Clinics and Other Sensitive Site Mitigation to Reduce the Impacts from Port Pollution.**

To avoid injury to public health, the project must mitigate its impacts through the reduction of emissions to as near zero as possible, and this comment letter offers numerous measures that should be used in pursuing that goal. Given that increases in pollution are likely even after these measures are implemented and given the lasting effects of baseline pollution, further mitigation is needed to address the extraordinary impact of port related emissions on the respiratory health of communities near the ports and port-related goods movement corridors. The impact of this pollution is perhaps most demonstrable in children

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in the harbor area. According to the 2003 National Health Interview Survey, an estimated 9 million (12.5%) children under the age of eighteen in the United States have been diagnosed with asthma at some time in their lives. Data from the 2005 LA County Health Survey shows that 13.7% (381,000) of children 0-17 years old in LA County have been diagnosed with asthma. Research conducted by the Long Beach Health District demonstrates that 19.8% (28,000) of Long Beach children have been diagnosed with asthma.

Many residents of goods movement communities and workers at the ports have already suffered irreparable long term damage to their lungs – as noted earlier, diminished lung function in children generates lifelong health effects. The ports should fund the establishment of one or several medical facilities in Long Beach dedicated to the respiratory and general health of the people most affected by port emissions – those living in the neighborhoods closest to the port and along the I-710 corridor, and workers at the port.

Many of the goods movement adjacent neighborhoods in Long Beach and along the I-710 and other routes are heavily populated with low and moderate income families unable to afford health insurance. Similarly, while some workers at the port earn relatively high wages with good benefits, thousands of others earn low wages with few or no benefits. For example, the most recent academic study of port truck drivers – a class of workers severely impacted by diesel emissions – concluded that the drivers earn on average \$29,000 per year, and that 90% of them lack health insurance.

Thus, funding for clinics should be sufficient not only to construct appropriate facilities, but also include adequate support for operations so that two classes of patients – residents of the identified goods movement adjacent communities and port workers can access the facility without out of pocket cost regardless of insurance status.

As the Revised DEIR/EA mentions, an appropriate way to provide this type of mitigation is to augment the community mitigation programs that were developed as part of the Middle Harbor Redevelopment Project. CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."<sup>14</sup> Since the Port demonstrated that this type of sensitive site mitigation is feasible within the contours of CEQA, it should be included as part of this project. Moreover, the exorbitant costs of this project (approximately \$1.125 billion) allows for substantial expenditures to improve the health and welfare of the communities impacts from port operations, which the DEIR/EA finds cumulatively significant. Given that the Middle Harbor Redevelopment Project cost approximately \$750 million, and this project is approximately 50% greater in costs, the Port should at a minimum increase the distributions to \$7.5 million for each of the two community mitigation funds.

NRDC-5

<sup>14</sup> Cal. Pub. Res. Code § 21061.1.



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This additional \$15 million (or approximately 1.3% of total project costs) will go a long way to remedy the impacts the Port is having on communities in the harbor area.

**IV. The Greenhouse Gas Analysis and Mitigation Measures Fail to Comply with CEQA and NEPA.**

As mentioned above, the artificially narrow scope of the study area also diminishes the analysis of greenhouse gasses that has been completed for this project. While NRDC agrees that regional and local planning are crucial to reductions in greenhouse gas emissions, we disagree that there are no project-specific mitigation measures that may be used to mitigate individual projects. Both the California Air Pollution Control Officers Association ("CAPCOA") and the California Attorney General have released sources that describe potential strategies to reduce impacts.<sup>15</sup> The Port and CALTRANS must analyze these project-specific mitigation measures for compliance with CEQA and NEPA.

NRDC-6

The DEIR/EA cannot rely on its yet-to-be developed greenhouse gas mitigation programs to deflect from its duties to mitigate the significant impacts from its operations. At a minimum, the Port needs to release its greenhouse gas plan for the public and decision-makers to have any confidence that it is effectively tackling greenhouse gas emissions in the harbor area.

Finally, hidden deep in the document, the DEIR/EA notes that it will in fact be providing some mitigation for greenhouse gas emissions, despite its assertion that mitigation of GHG emissions is infeasible. The DEIR/EA states the following—

*To partially offset the project-related significant and unavoidable cumulative increase in GHG emissions within the project area, the Port will require the project to contribute \$647,000 to the Port's Greenhouse Gas Emissions Reduction Program.<sup>16</sup>*

The DEIR/EA provides no rationale why \$647,000 is chosen, nor how much of the increase in greenhouse gas emissions this will serve to mitigate. If the Port intends to contribute to its greenhouse gas emissions mitigation fund, it needs to ensure that the mitigation is feasible within the constructs of CEQA and that it is rationally tied to the projects impacts. Here, simply choosing an arbitrarily low number fails to comply with CEQA and NEPA.

<sup>15</sup> CA AG's ghg mitigation measures for CEQA projects, available at [http://ag.ca.gov/globalwarming/pdf/GW\\_mitigation\\_measures.pdf](http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf); California Air Pollution Control Officer's Association White Paper on CEQA and Climate Change: <http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>.

<sup>16</sup> DEIR/EA, at 3-6.

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**V. The Revised DEIR/EA Does Not Adequately Discuss Alternatives to the Proposed Project.**

The analysis of alternatives to the proposed project lies at "[t]he core of an EIR."<sup>17</sup> In this analysis, the EIR must consider a reasonable range of alternatives that would avoid or substantially lessen this impact while feasibly attaining most of the Project's basic objectives.<sup>18</sup> If the EIR refuses to consider a reasonable range of alternatives or fails to support its analysis with substantial evidence, the purposes of CEQA are subverted and the EIR is legally inadequate.<sup>19</sup> If a feasible alternative exists that will meet the project's objectives while reducing or avoiding its significant environmental impacts, the project may not be approved.<sup>20</sup>

An adequate alternatives analysis is a crucial component of complying with CEQA/NEPA. The CEQ has labeled the alternatives requirement as the "heart" of the EIS.<sup>21</sup> Further, NEPA contains a clear mandate that the alternatives must be explored in depth and with the same level of detail as the proposed action.<sup>22</sup> The analysis of the alternatives throughout the document fails in this respect. As articulated in detail above, the incorrect project description inhibits an accurate assessment of the alternatives to this expansion project by artificially limiting the number of alternatives that could fulfill this flawed objective.

The proposed project would have significant and unavoidable air quality and traffic impacts. The Project fails to tackle the project's largest sources of greenhouse gases: the transport and movement of goods and people. CEQA requires the DEIR/EA to consider alternatives that directly address these impacts.<sup>23</sup>

NRDC-7

<sup>17</sup> *Citizens of Goleta Valley II*, 52 Cal. 3d at 564; see also Pub. Res. Code § 21002.1(a) ("The purpose of an environmental impact report is . . . to identify alternatives to the project . . .").

<sup>18</sup> See § 21100(b)(4); CEQA Guidelines § 15126.6(a).

<sup>19</sup> *San Joaquin Raptor*, 27 Cal. App. 4th at 735-38; *Kings County Farm Bureau*, 221 Cal. App. 3d at 736-37.

<sup>20</sup> Pub. Res. Code § 21002.

<sup>21</sup> 40 C.F.R. § 1502.14; see also *Monroe County Conservation Council, Inc. v. Volpe*, 472 F.2d 693, 697-98 (2d. Cir. 1972) ("The requirement for a thorough study and a detailed description of alternatives . . . is the linchpin of the entire impact statement."); Cal. Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15126.6.

<sup>22</sup> See 40 C.F.R. § 1502.14 (a) and (b); see also *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, 46 Fed. Reg. 18026 (Mar. 23, 1981) ("The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the "proposed action."").

<sup>23</sup> See CEQA Guidelines § 15126.6(b); *Laurel Heights*, 47 Cal. 3d at 401-04; *Kings County Farm Bureau*, 221 Cal. App. 3d at 732 ("[I]f there is evidence of one or more potentially significant impacts, the report must contain a meaningful analysis of alternatives . . . which would avoid or lessen such impacts.").



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As the Port and CALTRANS is well aware, California passed an ambitious law to tackle climate change, and it is discouraging that the DEIR/EA for a project with an increase greenhouse gas emissions includes neither adequate mitigation any alternative, other than required No Project alternative, that eliminates the proposed project significant and unavoidable greenhouse gas emissions.

Fortunately, many of the mitigation measures aimed at SCAQMD thresholds also increase efficiency or utilize technologies that decrease diesel fuel use and corresponding emissions of greenhouse gases; these measures can form the basis of an alternative project design aimed at improving the efficiency of ships, trucks, locomotives, and cargo-handling equipment, in order to reduce the Port expansion's carbon footprint.

The most important aspect of this alternative would be the reduction of the Port's dependence on diesel trucks, primarily through rail electrification and other technologies, none of which the DEIR/EA addresses. Electricity coming from power plants does create GHG emissions, however each kilowatt-hour that replaces diesel saves 2-4 pounds of carbon dioxide (depending upon the source of electricity replacing it is).<sup>24</sup> Several electric rail systems were reviewed under the *CAAP Joint Port Transportation Technology Review Program - Zero Emissions Container Mover System* which is partly funded by the Technology Advancement Program.<sup>25</sup> The following systems were deemed either "More Feasible" or "More Ready".<sup>26</sup>

**Maglev-** utilizing electromagnetic force, a Maglev system would create zero emissions at source and has been demonstrated in La Jolla, CA as a feasible cargo shipping technology, though not yet ready and market available. At 80 mph new, elevated guideways would move cargo, also requiring associated terminal infrastructure. A demonstration project would not be undertaken to prove technological capacity but economic feasibility, since the Maglev is admittedly expensive. Port of Los Angeles study cost estimates \$45.5 million/mile however annual fuel savings in 2007 were estimated to be \$2 million.<sup>27</sup>

**LIM-Rail-**Linear motors would be placed along railroad tracks and aluminum plates attached to the bottom of cars. A magnetic field moving along the motors

<sup>24</sup> Port Innovation Workshop Final Report, Rocky Mountain Institute, April 2007

<sup>25</sup> Lyte, William. *Building a Maritime Technology Cluster at the San Pedro Ports*. Kennedy/Jenks Consultants. Presented 12/4/07.

<http://www.mettrans.org/nufi/2007/documents/Lytepresentation.pdf>

<sup>26</sup> General Atomics. *MAGLEV and Linear Motors for Southern California Transportation Presentation to Southern California Association of Government MAGLEV Task Force*. February 8, 2007. pg. 28.

<sup>27</sup> Assumptions: 10-mile route, 1 million cargo cars and 50 tons/car or 500 million ton-miles per year. Ibid. pg. 42.

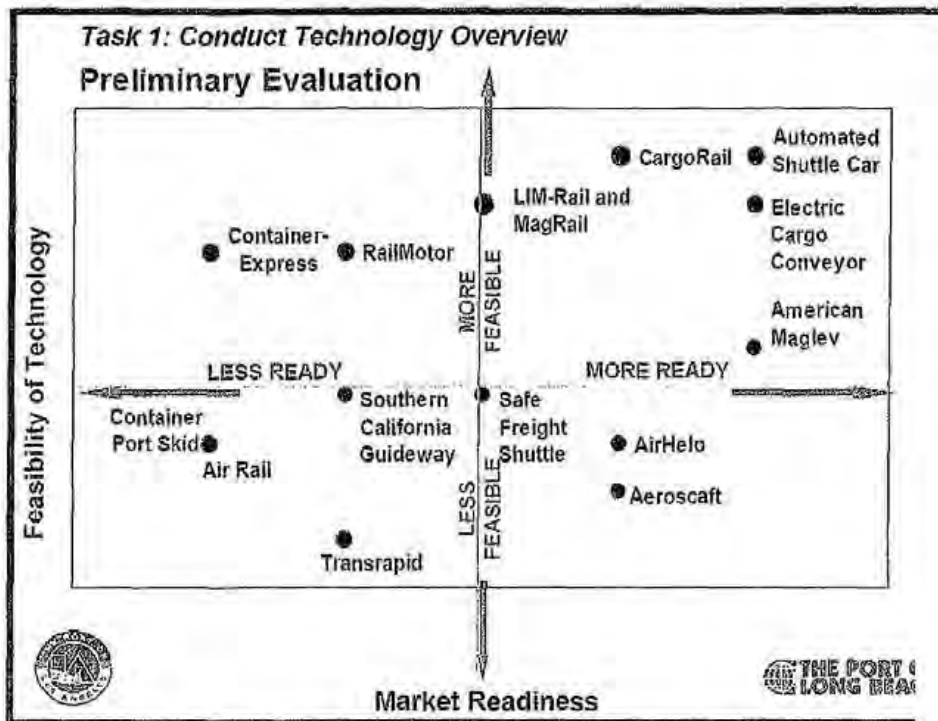
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in the track would induce a current in the plates and propel the vehicles. The LIM-Rail system uses existing infrastructure and current railroad operational practices, but can also be used in conjunction with the Maglev system. There is currently no test track for this concept, though the principles have been applied in other systems.

**Electric Dual-Mode Trams-** The CargoRail trams are rubber-wheeled vehicles that can carry marine cargo containers at 75 mph on an elevated guideway or on local streets. On the guideway, they would be propelled by electricity via permanent magnet hub motors in the wheels. On local streets they could be fueled by clean fuel, such as CNG, to generate the electricity for the motor.

Moreover, in conjunction with the POLA, the POLB commissioned a study of Zero Emission Container Mover Systems. As the chart from a presentation to the Board of Harbor Commissioners demonstrates, there are several technologies that have been quantified as "More Feasible" and "More Ready."<sup>28</sup>



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<sup>28</sup> Zero Emissions Container Mover System Evaluation Status Update, (September 6, 2007), available at [http://www.portoflosangeles.org/DOC/Zero\\_Emissions\\_Container\\_Mover\\_System\\_Pres\\_090607.pdf](http://www.portoflosangeles.org/DOC/Zero_Emissions_Container_Mover_System_Pres_090607.pdf).

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Finally, we are providing some rough calculations of the benefits and costs of various technologies that have been proposed as alternatives to traditional modes of diesel transport.

Table 1: Technology Comparison

	Commercial Applications?	Use w/ existing infrastructure?	Ton-mile/kWh <sup>29</sup>	Cost per Mile (single track estimates)
LIM on the vehicle	TRANSIT	NO <sup>30</sup>	N/A	\$100+ million (transit applications)
LIM on the Track	NO	YES	5-10	\$10-20 million <sup>31</sup>
EMS Maglev	TRANSIT	NO	5-10	\$70-170 million <sup>32</sup> (double track cost)
EDS Maglev	NO	NO	5-10	\$45.5 million <sup>33</sup>
Electric Rail	YES	YES	8-10	\$9-13 million <sup>34</sup>
CargoRail	NO	NO	N/A	\$40-54

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<sup>29</sup> The ton-mile/kWh figures are estimates since it is hard to determine efficiency without pilot tracks under weight. Direct use of electricity will likely have higher efficiency. Efficiency will differ based on loads and speeds. Electric applications also lose efficiency in creating and transferring electricity to the vehicle.

<sup>30</sup> Transit applications have been dedicated lines only. Likely lower grade steel rails not capable of withstanding heavy freight applications. All the concepts would require new guideway construction.

<sup>31</sup> Does not include costs to apply metal reactive plates to locomotives and railcars.

<sup>32</sup> Low cost figure based on the Transrapid dual guideway system built in Shanghai, China for high-speed transit. The high cost figure is based on the cost/mile for the low-speed Linimo transit line in Nagoya, Japan.

<sup>33</sup> Does not include cost of the vehicles estimated at \$800,000 each – General Atomics figures.

<sup>34</sup> Cost estimates are from early 1990's SCAG study of electrifying the Alameda Corridor. Costs include cost of implementing electric infrastructure and 12-14 electric locomotives. Cost figures were put in 2007 dollars with inflation calculator. Total costs were divided by 20 miles to derive cost per mile estimates.

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Concept				million <sup>35</sup>
Automated Shuttle Car Concept	YES <sup>36</sup>	NO	N/A	N/A
Container Pipelines	NO	NO	N/A	N/A

NRDC-7

A reasonable range of alternatives must include proposals that "offer substantial environmental advantages" over the proposed project.<sup>37</sup> The technologies discussed here offer such an advantage and are proven to be feasible. Thus, it is inexplicable why this DEIR/EA is devoid of any true analysis of alternatives that ease the Port into a more efficient and less polluting future.

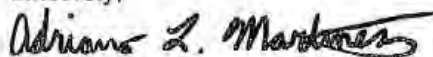
**VI. Removing the Tolling Option Violates CEQA and NEPA.**

The DEIR/EA provides a crabbed rationale for removal of the tolling option for the project. First, despite prior letters asking for more details on the tolling options for the DEIR/EA, the Port provides little to no description of the tolling options analyzed. Second, the Port makes several assumptions that are unfounded. For example, it concludes that since auto traffic might increase on some parts of there are great needs for additional road expansion projects. It does not explain why the purported diversion of traffic could not be accommodated by transit improvements. Third, the Port fails to articulate a rationale why the tolling option, which would actually improve some critical highway segments (e.g. reducing traffic on the I-710) outweighs the potential impacts to other road segments. Finally, the DEIR/EA does not explain whether it considered a tolling option solely for port-related vehicles (e.g. heavy-duty trucks) or for all vehicles. Since port activities are the major reasons why this bridge has deteriorated so fast, it is unclear why an alternative that examines ensuring the industry pays its fair share for the disproportionate impacts it has on this public infrastructure. According, the Port and CALTRANS must include an analysis of tolling options in the next iteration of the environmental review document.

NRDC-8

We appreciate your consideration of our comments. Please do not hesitate to contact me if you have any questions.

Sincerely,



Adriano L. Martinez  
Project Attorney

<sup>35</sup> Includes the cost of 180 to 285 vehicles needed per mile at \$120,000 per vehicle.

<sup>36</sup> The concept has been used in the Steel industry for heavy applications.

<sup>37</sup> See *Citizens of Goleta Valley*, 52 Cal. 3d at 565-66.

**THE COMMENTER SUBMITTED ADDITIONAL SUPPLEMENTAL MATERIAL WITH THEIR COMMENT. THIS MATERIAL IS AVAILABLE FOR REVIEW AT POLB.COM.**

### The Propeller Club of Los Angeles - Long Beach

To promote the interests of international commerce, shipping, transportation and supporting industries, including governments and communities.



To provide a forum for discussion and to promote public education regarding critical issues which concern these industries.

February 23, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Dear Mr. Cameron:

The Propeller Club of Los Angeles/Long Beach would like to express our support of the Port of Long Beach's EIR to construct a new Gerald Desmond Bridge. This bridge is a major artery for commuter traffic, commerce and emergency vehicles in the cities of Los Angeles and Long Beach.

The Gerald Desmond Bridge is now 40 years old. It is deteriorating, with pieces of concrete periodically falling from the span. Caltrans has rigged netting to protect people and vehicles below the bridge from this debris; however, a permanent fix must be made as soon as possible.

The Port of Long Beach has a plan that enlists funding from federal, state and local sources to construct a new bridge alongside the existing bridge. This will allow uninterrupted traffic flow during construction.

With approximately 18 million vehicle trips a year over the existing bridge, the Gerald Desmond has exceeded its capacity. The proposed bridge will have three lanes of traffic in each direction as well as an emergency lane for disabled vehicles. Having three lanes in each direction, as well as a breakdown lane, will decrease congestion and improve the flow of traffic.

Recently, Caltrans inspectors have given the existing Desmond Bridge low marks. The concrete decks and superstructure need significant improvements. It makes sense, rather than putting more money into repairs, to build a modern bridge that will last many decades. The new, proposed bridge would have a 200 foot vertical clearance. That would allow newer, cleaner, greener vessels to access the back channel of Long Beach Harbor.

The construction project would create approximately 4,000 jobs that would last for the length of the project, estimated at 5 years. The plan includes additional improvements to the Terminal Island and 710 interchanges. This should also assist with uninterrupted traffic flow.

Overall, the construction of a new, modern bridge through the Port of Long Beach would be good for the economy, good for the Port and good for the community. The larger bridge will keep traffic moving thus decreasing truck and auto emissions by reducing engine idling.

The Propeller Club of Los Angeles/Long Beach stands with the Port of Long Beach in support of the EIR for a new Gerald Desmond Bridge.

Sincerely,

  
Gary Gregory  
President

P.O. Box 4250 • Sunland, California 91041 • Telephone: (818) 951-2842 • Fax: (818) 353-5976  
E-Mail [propellerclub.lalb@verizon.net](mailto:propellerclub.lalb@verizon.net) • Website: [www.propellerclublalb.org](http://www.propellerclublalb.org)

MAR - 4 2010

PCLA-1

*Community Outreach and Education Program  
Southern California Environmental Health Sciences Center  
1540 Alcazar Street CHP 236  
Los Angeles, CA 90033*

March 22, 2010

**Via Electronic Mail**  
***cameron@polb.com***

Richard Cameron  
Port of Long Beach  
Planning Division  
925 Harbor Plaza  
Long Beach, CA 90801

**Re: *Gerald Desmond Bridge Replacement—Revised Draft EIR/EA***

Dear Mr. Cameron:

On behalf of the Community Outreach and Education Program of the Southern California Environmental Health Sciences Center based at Keck School of Medicine of the University of Southern California, I write to provide comments on the Revised Gerald Desmond Bridge Replacement Draft Environmental Impact Report (DEIR)/Draft Environmental Assessment (EA). I appreciate the opportunity to provide comments on the DEIR/EA.

After careful review, I have concluded that the DEIR/EA fails in many respects to comply with the requirements of CEQA and NEPA. For these comments, I am choosing to focus on only one issue – paint with lead and chromates (hereinafter called “lead-based paint” (its removal, dispersion, disposal, and whether or not it will be reapplied). My concerns include potential worker safety issues when removing the paint, potential water safety issues from particles of paint falling into the water below the bridge, potential community safety issues from lead-based paint particles blowing in the wind over the community, safe disposal practices, and an issue seemingly overlooked in the DEIR/EA – whether an alternative to lead-based paint and lead-based yellow thermoplastic road striping will be utilized in painting the new bridge and its pavement, in order to avoid all the above issues with use of lead-based paint. The DEIR/EA contains two mentions of lead-based paint and thermoplastic paint in the Executive Summary and one page about mitigation measures (2-232-4) to be included in a lead compliance plan.

SCEHSC-1

SCEHSC-2



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SCEHSC-2 { I do not deem this sufficient to ensure protection from potential exposure to lead, as described below. In fact, the lack of substantial attention to the issue of lead-based paint makes me worry about whether there are environmental experts at the Port of Long Beach (POLB) capable of overseeing this aspect of the bridge construction and formulation of the RFP for a contractor who understands the best practices. I would refer the POLB to significant literature on the American Association of State Health and Territorial Organization's (AASHTO) website.  
[http://environment.transportation.org/environmental\\_issues/construct\\_maint\\_prac/compendium/manual/7\\_1.aspx](http://environment.transportation.org/environmental_issues/construct_maint_prac/compendium/manual/7_1.aspx)

SCEHSC-3 { As evidence of the problem, I point to a series of lead poisoning cases in California about ten years ago in which contractors failed to properly protect workers: <http://www.sspc.org/regnews/regnews/other/PbinWorkers.html>  
In fact, bridge demolition and maintenance are leading causes of lead poisoning among workers in the United States. See, e.g., this case report of workers poisoned in Georgia by the Centers for Disease Control. A number of the workers were Mexican immigrants who did not speak English:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/00020710.htm>

SCEHSC-4 { Because of the significance of the lead-based paint issue in workers alone, I would argue that Caltrans must complete an Environmental Impact Statement ("EIS") in compliance with the National Environmental Policy Act ("NEPA"). I also argue that the EIR conducted by the Port is so lacking in information on protection from exposure to the constituents of lead-based paint, that the DEIR needs to be redone to correct this deficiency alone.

SCEHSC-5 { I would also argue that the Army Corps of Engineers must complete an assessment for issuing a 404 permit, since there is significant potential for lead to fall into the waterways.

SCEHSC-6 { Lead is one of the most "researched" metals in all of occupational medicine history and pediatric medicine, with numerous books and thousands of scientific publications. Yet the DEIR/EA fails to include mention of any of the hundreds of articles on lead poisoning in the literature that describe the health effects of exposure to this toxic material. The DEIR/EA fails to mention that the lead paint currently on the Desmond Bridge also likely contains chromates, another toxic material. The DEIR/EA must be redone to include descriptions of the toxicity of these materials so that there is a better understanding of why it is so important to prevent exposure during demolition, removal of lead paint, and repainting of the bridge. See examples of several articles about the toxicity of lead:  
<http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.med.55.091902.103653>



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Lead poisoning. Needleman H. Annu Rev Med. 2004;55:209-22. Review.

Lead poisoning in a historical perspective. Hernberg S. Am J Ind Med. 2000 Sep;38(3):244-54.

Protecting children from toxic exposure: three strategies. Guidotti TL, Ragain L. Pediatr Clin North Am. 2007 Apr;54(2):227-35, vii. Review. Erratum in: Pediatr Clin North Am. 2007 Jun;54(3):xv.

SCEHSC-6

**FEDERAL REGULATIONS RELATING TO LEAD-BASED PAINT ON BRIDGES**

Only a few of the following regulations relating to lead-based paint on bridges are even mentioned in passing in the DEIS/EA. This needs to be corrected in a redone DEIR/EA.

**Table 1 - Regulations Impacting the Bridge Painting Industry**

<i>Impacting Regulation</i>	<i>Effect on Coating Operations</i>
OSHA; CFR 29 1926.62, Lead in Construction	Establishes guidelines for protection and monitoring of workers removing lead paint from bridges. Requires lead training and monitoring for workers.
EPA; Resource Conservation and Recovery Act (RCRA)	Regulates the handling, storage, and disposal of lead (and other heavy metals) containing waste. Can increase the cost of disposal of waste from bridge paint removal by 10 times.
EPA; Comprehensive Environmental Response Compensation and Liability Act (CERCLA or Superfund)	Assigns ownership of and responsibility for hazardous waste to the generator "into perpetuity."
EPA; Clean Water Act	Regulates discharge of materials into waterways.
EPA; Clean Air Act Amendments	Mandates restrictions on allowable volatile-organic- compound (VOC) content of paints and coatings. Regulates discharge of dust into air from bridge painting

SCEHSC-7

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operations.

**WORKER HEALTH AND SAFETY PRECAUTIONS**

SCEHSC-8

Numerous local, state and federal agencies have identified bridge painting and bridge demolition as placing workers at great risk of lead exposure, leading to elevated blood levels, lead poisoning, or other symptoms and health problems. See articles cited above. As a result, both federal OSHA and CalOSHA have strict rules for construction workers exposed to lead. The DEIR/EA needs to provide very detailed specific information on how workers will be protected.

**DECONSTRUCTING THE BRIDGE AND MOVING ITS PARTS TO ANOTHER LOCATION TO REMOVE LEAD-BASED PAINT – BEST PRACTICES FOR REMOVAL**

SCEHSC-9

In one part of the EIR/EA, it states that “it is likely that lead-based paint (LBP) from the bridge would be chemically removed at a suitable offsite location.” Here is the exact language from the DEIR/EA, page 2-232-4.

REVISED DRAFT ENVIRONMENTAL IMPACT REPORT/  
ENVIRONMENTAL ASSESSMENT

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

To prevent potential introduction of LBP into receiving waters, the contractor would take appropriate measures to eliminate LBP from reaching receiving waters. It is likely that paint from the bridge would be chemically removed at a suitable offsite location. If LBP removal is necessary during the bridge demolition process, then the contractor will comply with all applicable laws and regulations relative to this process. LBP removed from the bridge would be handled and disposed of in accordance with all applicable laws and regulation. Adverse effects are not anticipated.

No description or details of the potential offsite location are offered. No details of “appropriate measures” are provided. Yet the next sentence in the DEIR/EA discusses other procedures “if LBP removal is necessary during the bridge demolition process.” Thus, the Port has no idea whether the plan is to remove the structures off-site, and if so, where. Or if the lead is removed onsite, what the measures will be, nor how such an important decision will be made.

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Removing lead-based paint during bridge demolition is an extremely hazardous occupation and hundreds of bridge workers around the world have developed lead poisoning from such operations. The last sentence of the discussion about LBP states that "adverse effects are not anticipated." Such a glib remark without substantial mitigation measures defined and documentation is irresponsible, when lead is so toxic. The DEIR/EA must be redone to specifically detail exactly what will be done with the lead painted structures, where they will be taken, who the workers will be and their training, and what the risks are to either do this operation onsite or offsite.

SCEHSC-10

These mitigations must be fully defined, with a carefully laid out mitigation plan and details on how the port will ensure that the workers doing this de-leading operation are protected, that residents far from the port are not subject to breathing the lead dust, and that groundwater and soil are not contaminated the location where the parts of this bridge are transported. Courts have emphasized that "an EIR may not ignore the regional impacts of a project approval, including those impacts that occur outside of its borders; on the contrary, a regional perspective is required."<sup>1</sup>

SCEHSC-11

I believe that the lack of public health personnel in the employment of the Port of Long Beach leads to a lack of understanding in this DEIR/EA of the significance of the lead exposure issue.

SCEHSC-12

I refer the POLB to the following FHWA document for research on alternatives for ways to remove lead-based paint safely.  
<http://www.tfhrc.gov/pubrds/july97/brdgct.htm>

SCEHSC-13

**POTENTIAL FOR COMMUNITY EXPOSURE**

Not only is there potential for residents near the bridge to be exposed to lead, but there is also the potential for bridge workers to bring dust home on their clothes if special precautions are not followed. The DEIR/EA must describe these measures.

SCEHSC-14

**DISPOSAL OF MATERIALS CONTAINING LEAD-BASED PAINT (INCLUDING THERMOPLASTIC ROAD STRIPING)**

The DEIR/EA mentions that lead-based paint and thermoplastic striping that contains lead will be disposed in accordance with regulations. A more detailed explanation of what will be required and the consequences of not complying needs to be included.

SCEHSC-15

**ALTERNATIVES TO LEAD-BASED PAINT FOR NEW BRIDGE PAINTING**

SCEHSC-16

<sup>1</sup> *Citizens of Goleta Valley*, 52 Cal. 3d at 575.

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SCEHSC-16

It is critical that the port put significant attention and research into choosing an alternative to lead paint for the new bridge, if such products exist. I refer the POLB to the following FHWA document describing such research underway. <http://www.tfhrc.gov/pubbrds/july97/brdgct.htm>

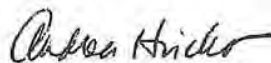
**CHROMATES AND ASBESTOS COMPOUNDS**

SCEHSC-17

If chromates and asbestos compounds are found to exist in the bridge structure, the same concerns raised for lead need to be considered for these two toxic materials. Detailed mitigation plans must be included in the DEIR/EA.

We appreciate your consideration of our comments.

Sincerely yours,



Andrea Hricko, MPH  
Associate Professor of Preventive Medicine  
Keck School of Medicine  
University of Southern California  
and  
Director of Community Outreach and Education  
Southern California Environmental Health Sciences Center

ahricko@usc.edu

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MMWR articles on lead poisoning in bridge workers:

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October 13, 1989 / 38(40);687-688,693-694

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#### **Lead Poisoning in Bridge Demolition Workers -- Massachusetts**

In March 1988, lead poisoning was diagnosed in five of nine workers employed by a contractor to demolish a bridge spanning a river in western Massachusetts. A subsequent investigation by the Occupational Safety and Health Administration (OSHA) determined that from November 1987 through early March 1988 four of the affected workers had used acetylene torches to cut apart large sections of the bridge; the fifth had cut these sections into smaller pieces on a barge moored below the bridge.

In March 1988, two of the five workers involved in the cutting process sought medical advice: one had headaches and myalgia, and the other had nausea and arthralgia. Blood-lead levels (BLL) (tested on the basis of occupational history) were 78 and 67 ug/dL\*, respectively (Table 1, page 693). The three other workers involved in the cutting process were then evaluated; their reported symptoms included joint stiffness, abdominal pain, irritability, and memory loss. BLLs in these workers were 58, 74, and 160 ug/dL. The highest BLL, 160 ug/dL, occurred in the worker assigned to the barge. Because the four remaining crew members had not worked in areas where they would have been exposed to lead fumes, they were not tested.

Four of the five affected workers were treated with chelation therapy (calcium ethylenediaminetetraacetic acid (EDTA)). Each worker excreted substantial amounts of lead and experienced a decline in symptoms. The fifth worker, who had a BLL of 58 ug/dL, demonstrated elevated lead excretion when given a test dose of EDTA. However, because he had become asymptomatic and had no evidence of organ damage, he was not treated with chelation therapy.

The OSHA investigation determined that paint covering the bridge contained 30% lead (by weight). Respirators available to the workers were not always equipped with cartridges that protected against lead fumes. The workers were not trained to OSHA standards in respirator use and wore the respirators infrequently. In addition, the employer had not provided clean work clothing or handwashing and eating facilities for the workers. OSHA cited the contractor for violating several regulations governing proper use of respirators. Reported by: J Himmelstein, MD, M Wolfson, MD, G Pransky, MD, Univ of Massachusetts Medical Center, Worcester; D Morse, MD, MassWEST Occupational Health Svcs, Holyoke; A Ross, MD, Farron Health Center, Turners Falls, Massachusetts. J Gill, Occupational Safety and Health Administration. Surveillance Br, Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for

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Occupational Safety and Health, CDC.

### Editorial Note

Editorial Note: Based on findings from the 1981-1983 National Occupational Exposure Survey, an estimated 827,650 U.S. workers have potential work-related exposure to lead (excluding leaded gasoline) (CDC, unpublished data). In the workplace, the respiratory tract is the major route of lead absorption. Clinical manifestations of occupational lead poisoning, which usually occur when BLLs exceed 40 ug/dL, can vary greatly in severity and include abdominal pain, anorexia, fatigue, arthralgia, headaches, irritability, depression, impotence, anemia, and hyperuricemia (2). Encephalopathy, peripheral neuropathies, and impaired renal function have been reported, but are infrequently associated with occupational exposure (2).

Lead poisoning may occur when workers and employers fail to recognize the presence of lead or fail to adhere to accepted safety guidelines. Recent reviews of workers' compensation data and laboratory-based lead registries indicate that workers at highest risk for lead toxicity include persons who work in lead smelters, storage battery-manufacturing plants, plastic-compounding factories, and nonferrous foundries (3,4; California Department of Health Services, unpublished data, 1987). Construction or demolition work that involves cutting through lead-coated metal structures, a process that generates high concentrations of lead fumes, can also present substantial risk for lead toxicity. Lead poisoning has been described in workers who repair and disassemble ships (5) and roofs (6,7), dismantle elevated subway lines (8,9), and demolish and strip paint from bridges (10-13).

Construction workers in the United States are excluded from regulation under the OSHA Lead Standard (1). However, other OSHA regulations governing the construction industry require respiratory protection for workers who use torches to cut through toxic preservative coatings, such as lead-containing paints (14), and mandate engineering controls or respiratory protection for workers exposed to airborne lead at concentrations greater than 200 ug/m<sup>3</sup> (15).

As bridges in the United States age, they will require demolition or rebuilding. Construction workers engaged in these processes are at risk for hazardous lead exposure. Proper preventive measures, including engineering controls and appropriate use of respirators, should be carefully implemented. Physicians caring for construction workers should take thorough occupational histories and be aware that workers engaged in bridge demolition work may be at increased risk for occupational lead poisoning.

### References

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1. Office of the Federal Register. Code of federal regulations:

occupational safety and health standards. Subpart Z: Toxic and hazardous substances--lead. Washington, DC: Office of the Federal Register, National Archives and Records Administration, 1988. (29 CFR Section 1910.1025).

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3. Seligman PJ, Halperin WE, Mullan RJ, Frazier TM. Occupational lead poisoning in Ohio: surveillance using workers' compensation data. *Am J Public Health* 1986;76:1299-1302.

4. Wenzl TB, Conrad F, Tarlau ES, Siwinski G. Heavy metal hazard surveillance. Presented at the American Industrial Hygiene Conference, San Francisco, California, May 16, 1988.

5. Zenz C. Occupational medicine: principles and practical applications. 2nd ed. Chicago: Year Book Medical Publishers, 1988:550. 6. Susbielle G, Guyotjeannin C. Risques particuliers a certains postes de couvreurs. *Arch Mal Professionnelles* 1970;31:246-7.

7. Campbell BC, Baird AW. Lead poisoning in a group of demolition workers. *Br J Ind Med* 1977;34:298-304.

8. Feldman RG, Lewis J, Cashins R. Subacute effects of lead-oxide fumes in demolition workers (Letter). *Lancet* 1977;1:89-90.

9. Fischbein A, Daum SM, Davidow B, et al. Lead hazard among ironworkers: dismantling lead-painted elevated subway line in New York City. *N Y State J Med* 1978;78:1250-9. 10. Zimmer FE. Lead poisoning in scrap-metal workers. *JAMA* 1961;175:238-40. References 11-15 may be obtained from the Surveillance Branch, Division of Surveillance, Hazard Evaluations, and Field Studies, NIOSH, CDC, 4676 Columbia Parkway, Mailstop R-10, Cincinnati, OH 45226. \*OSHA regulations state that an employee with confirmed BLL greater than 60 ug divided by L must be removed from lead exposure; similarly, an employee whose average BLL (measured on three occasions within 6 months) exceeds 50 ug divided by L must be removed from lead exposure (1).

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May 28, 1993 / 42(20);388-390

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#### **Lead Poisoning in Bridge Demolition Workers -- Georgia, 1992**

Bridge demolition and maintenance are leading causes of lead poisoning among workers in the United States (1-5). In June 1992, a local health department in Georgia detected elevated blood lead levels (BLLs) in four demolition workers. This report summarizes the investigation of these cases.

In February 1992, a temporary-service company was subcontracted by a steel corporation to cut apart steel beams that had been removed from a local bridge. Four men were hired; one worker, aged 54 years, began work in late February; two, aged 36 and 28 years, in March; and one, aged 24 years, in early April. All four were immigrants from Mexico; only two spoke English. The work was performed outdoors, without protective equipment or training, using oxy-acetylene flame-cutting torches.

In April, all four workers reported light-headedness and shortness of breath from the metal fumes, requiring frequent fresh-air breaks during the day. In early May, all four workers developed a variety of symptoms including headache, dizziness, fatigue, sleep disturbance, confusion, forgetfulness, arthralgia, and abdominal pain. Paper masks were provided to the workers in late May by the steel company; however, because these became blocked within hours by the accumulation of dust, the workers discarded them. The severity of symptoms intensified through June, with nausea, vomiting, constipation, weakness, shortness of breath, loss of balance, and nervousness. The 36-year-old worker left employment for 3 weeks (from mid-June through early July) because of his symptoms.

As part of an annual risk-management assessment by the steel company's insurance carrier, personal air sampling was conducted April 30 for one of the four workers; this specimen measured an airborne lead concentration of 525 ug/m<sup>3</sup>, more than 10 times the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) of 50 ug/m<sup>3</sup> for general industry \*. In early June, the steel company suggested BLL examinations of the workers; their BLLs, measured at the local health department, were 93, 90, 59, and 66 ug/dL for the 54-, 28-, 24-, and 36-year-old men, respectively. The workers' employment was terminated in late June on receipt of the test results by the company.

In follow-up to the BLL results, in mid-June the health department investigated each worker's household, using a standard protocol of visual inspection and portable radiographic fluorescence readings of window sills, walls, and trim; no environmental sources of lead exposure were identified. BLLs were obtained from three children who resided in the homes; all had levels less than 10 ug/dL, which is below the CDC BLL of concern for

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children (6).

The health department recommended that the workers promptly seek medical evaluation and care; however, because they had no medical insurance and both the subcontractor and the steel company declined to assume the costs of treatment, the workers initially delayed seeking medical treatment. They subsequently contacted an attorney, who initiated worker's compensation proceedings and arranged for a local hospital to admit them for treatment. Each worker received three 5-day chelation treatments with intravenous calcium disodium ethylenediamine tetraacetic acid approximately 15 days apart. All four reported improvement but continued to experience memory deficits, arthralgias, headaches, dizziness, and/or sleep disturbances.

The health department also recommended that the workers request an OSHA inspection of the worksite. Findings from the inspection of the steel company on July 15 resulted in citations for violations of the medical removal protection and worker training provisions of OSHA's lead standard \*. OSHA inspectors also investigated work conditions at the bridge from which the beams were removed; the demolition company was cited for excessive lead exposures (based on the construction industry PEL of 200 ug/m3 \*\*), failure to provide personal protective equipment, and failure to monitor workplace conditions.

On December 14, 1992, the workers were evaluated at a university-based occupational medicine clinic. Physical examinations of three workers were normal; the 54-year-old worker was markedly depressed with evidence of neurologic abnormalities, including a strongly positive Romberg test and marked dysnomia. BLL measurements were 27, 25, 13, and 16 ug/dL for the 54-, 28-, 24-, and 36-year-old workers, respectively. No further treatment was recommended, but follow-up BLL monitoring was planned.

Reported by: H Frumkin, MD, F Gerr, MD, F Castañeda, MD, A Leal, MD, Environmental and Occupational Medicine Program and School of Public Health, Emory Univ, Atlanta. S Brown, Chatham County Health Dept, Savannah, Georgia. LR Santiago, Savannah Area Office, Occupational Safety and Health Administration, US Department of Labor. Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, CDC.

#### **Editorial Note**

Editorial Note: An estimated 90,000 bridges in the United States are coated with lead-containing paints (7). Because of maintenance and reconstruction requirements, lead exposure is a continuing occupational health hazard for construction and demolition workers. Previous cases of lead poisoning

Gerald Desmond Bridge Replacement Revised Draft EIR/EA  
March 22, 2010  
Page 12

associated with similar work have been characterized by extremely high BLLs in affected workers, which developed after brief exposures and, in some instances, were unresponsive to chelation therapy.

The findings in this report are consistent with other studies that indicate that minority groups are disproportionately exposed to lead and other occupational hazards (8,9). In addition, the hazardous process described in this report (flame-cutting or burning of paint-coated steel beams) had been subcontracted to a smaller company by a larger, well-established firm. Such subcontracting is common in the construction industry but often concentrates hazards among workers with limited access to appropriate training, personal protective equipment, and other safety and health measures.

Construction workers are subject to highly variable exposures, and high worker-turnover rates in the construction workforce may pose special hazards for construction workers. Effective June 3, 1993, a new interim final OSHA standard on "Lead Exposure in Construction" extends to workers in the construction trades the basic health and safety provisions of the OSHA lead standard for general industry, such as requirements for medical monitoring and medical removal protection (10).

The response of the health department to the lead exposure in these workers was prompt and effective. However, the limitations of the interventions available and the persistence of the workers' symptoms underscore the need for primary prevention -- including portable local ventilation, personal protective equipment, personal hygiene measures, and worker training -- during bridge renovation and related demolition work.

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**\*\*Questions or messages regarding errors in formatting should be addressed to [mmwrq@cdc.gov](mailto:mmwrq@cdc.gov).**

# Industry & Business Groups



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February 18, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

RE: Gerald Desmond Bridge Replacement Project

Dear Mr. Cameron,

The Los Angeles County Chapter of the American Council of Engineering Companies (ACEC) supports replacement of the Gerald Desmond Bridge and supports the preferred Northside Alternative. ACEC is a national organization representing engineering companies throughout the United States. The Los Angeles Chapter consists of 85 member firms in Los Angeles County that employ nearly 2000 employees.

The American Society of Civil Engineers each year issues a report card for infrastructure throughout the United States. That report card for Los Angeles County notes our roads and highways rate a D+ and our bridges rate a C. Certainly the current condition of the Gerald Desmond Bridge is of great concern. Parts of the bridge are literally falling off and safety features must be added. Overall, it rates a very low inspection rating. It is not cost effective or a wise use of public money to simply patch the bridge. It must be replaced.

The bridge also is an important link for local transportation and trucks carrying goods in and out of the port. A new bridge will have a modern design, will be safer for trucks and cars, and will provide safe clearances for newer and cleaner fleets of cargo ships. Construction of the new bridge will bring jobs and economic impact to our region. More important, the new bridge will keep our San Pedro ports at the top in an increasingly competitive shipping climate. Strong ports mean good long-term jobs for our region.

Sincerely,

Shahram Vahdat, P.E.  
President

ACEC

FEB 22 2010

**PORTS**

*Elizabeth Warren*  
Executive Director  
Berth 77, P 7-A, Ports O' Call  
San Pedro, CA 90731  
www.FuturePorts.org

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March 22, 2010

Mr. Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach CA 90802

Re: Gerald Desmond Bridge Replacement Project  
Draft Environmental Impact Report/Statement Documents

Dear Mr. Cameron:

On behalf of FuturePorts and its members, we are pleased to support the Port of Long Beach's draft Environmental Impact Report and draft Environmental Impact Statement (DEIR/DEIS) for the Gerald Desmond Bridge Replacement Project (Project). FuturePorts is a membership-based advocacy group based in the harbor area and focused on balancing growth and environmental policies. We congratulate the Port of Long Beach (Port) on producing this document, and look forward to receiving the release of the document.

We acknowledge and recognize the importance of this bridge to the economic prosperity of the region, and the service it provides to the entire United States. Dubbed the "bridge to everywhere," the bridge, carrying about 15 percent of the nation's waterborne cargo, connects the cargo arriving at the San Pedro Bay Ports to virtually every Congressional District in America.

FuturePorts supports the three key objectives of the proposed project (1) To provide a structurally sound bridge linking Terminal Island and Long Beach/I-710 over the next hundred years; (2) To provide sufficient roadway capacity to handle current and projected vehicular traffic volume demand, which the existing bridge cannot provide with only two through lanes and no shoulders; and (3) To provide sufficient vertical clearance for safe navigation through the Back Channel to the inner Harbor, which the existing bridge, at only 156 feet (ft) (47.5 meters [m]) above mean high water level (MHWL), does not provide

FuturePorts also supports the Project purposes stated by the Port, namely to provide a bridge that will be structurally sound and seismically resistant; reduce approach grades; provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and provide vertical clearance that would afford safe passage of existing container ships and for new-generation larger vessels currently being constructed.

While FuturePorts believes that the environmental impacts have been adequately analyzed in accordance with CEQA, FuturePorts would like to offer the following suggestions to further enhance the

FP(B)-1



PORTS

environmental analysis provided. Specifically, our organization believes that the project may be supplemented:

- (1) Require the sources of building materials or the destination of demolition materials be as close to the project as possible, to minimize transportation distances and related emissions; } FP(B)-2
- (2) Recycle demolition materials for use in other nearby projects, thereby mitigating some of the transportation, air quality and hazardous materials handling impacts; } FP(B)-3
- (3) Utilize a recycler who will provide the maximum amount of wharfage fees to the Ports; } FP(B)-4
- (4) Expand Section 2.2.5.2 – Affected Environment Atmospheric Deposition (page 2-255), to clarify that in addition to combustion emissions, brake and tire wear produces significant deposition of copper and zinc, respectively, which are toxic in the aquatic environment; } FP(B)-5
- (5) Expand Section 2.2.5.2 – Affected Environment Atmospheric Deposition (page 2-255), to note the Ports’ Clean Truck Programs will reduce deposition from these sources by replacing older vehicles; } FP(B)-5
- (6) In Measure HS-1, require an Accident and Terrorist assessment of the Preferred Alternative, which would include an incident where increased bridge capacity and height for emergency evacuation purposes (by both ground vehicles and marine vessels) is needed because of a potential regional terrorist, extreme storm or seismic event; } FP(B)- 6
- (7) In the potential impacts section of Measure CEQA (GHG-1), note Port related truck traffic is expected to increase whether or not the capacity of the bridge increases and by evening out the truck traffic flow in a more efficient manner, the Preferred Alternative may actually decrease emissions in future years compared to the No Action Alternative; and } FP(B)-7
- (8) Address the need for Gerald Desmond Bridge to achieve emergency clearance to reopen as quickly as possible in the event of an earthquake, tsunami or other Act of God, or a terrorist attack, due to its critical role in facilitating emergency recovery assistance. } FP(B)-8

Of the alternatives evaluated in the Environmental Assessment under NEPA and the Environmental Impact Report under CEQA, FuturePorts supports the selection of the Preferred Alternative, the North-Side Alignment Alternative. FuturePorts will support the Port of Long Beach and the Port of Los Angeles in their efforts to obtain federal, state, regional and local funding as well as to assist in the exploration of public private partnerships to the extent required to supplement public funds. } FP(B)-9

Lastly, we would like to stress that the San Pedro Bay Ports of Long Beach and Los Angeles are major economic drivers to this region, providing approximately 500,000 jobs in the greater



FP(B)-9 { five county area and more than 1 million jobs nationally. The construction of this project will support about 4,000 construction jobs per year for five years.

In conclusion, FuturePorts believes neither the No Action Alternative nor the Rehabilitation Alternative meets the critical infrastructure needs of the region, the local communities, the Ports, the shipping lines, commuters or emergency relief planners. We, therefore, support the selection of the Preferred Alternative and the commencement of construction and demolition as expeditiously as possible.

Sincerely,

FuturePorts

A handwritten signature in cursive script that reads "Elizabeth Warren".

Elizabeth Warren  
Executive Director



**HARBOR ASSOCIATION OF INDUSTRY & COMMERCE**

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March 11, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Dear Mr. Cameron:

The Harbor Association of Industry & Commerce (HAIC) would like to go on record in support of the Port of Long Beach EIR to construct a new Gerald Desmond Bridge. This bridge is a major artery for commerce and commuter traffic in the cities of Los Angeles and Long Beach. We recognize that this 40 year old, deteriorating bridge exceeds its operational capacity, posing safety, congestion and maintenance challenges. With the new proposed three lanes of traffic in each direction, as well as an emergency lane for disabled vehicles the congestion will be greatly improved as will the flow of traffic.

We understand that Caltrans inspectors have given the existing Desmond Bridge low marks. The concrete decks and superstructure need significant improvements. It make economic sense that rather than putting more money into repairs, to build a modern bridge that will last many decades.

This major project, with a proposed investment of \$1.2 billion into the new bridge construction which would generate \$2.8 billion in economic growth for the Southern California economy and provide an average of 4,000 jobs per year for five years, will not only be an economic benefit to Long Beach and the region, but will benefit the area for decades from the improved traffic safety, increased efficiency and reduced congestion on the new bridge.

HAIC strongly urges the Long Beach Board of Harbor Commissioners and all other entities involved in the EIR process to proceed without delay to replace this bridge.

Sincerely,

Tabb Bubier  
President

HAIC

MAR 15 2010

February 24, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

SUPPORT for Gerald Desmond Bridge

Harbor Truckers for a Sustainable Future (HTFSF) supports the Gerald Desmond Bridge Replacement Project. The HTFSF sixty members are based in Long Beach and Los Angeles. This bridge is a critical access route for HTFSF members to and from the marine terminals in the Long Beach port.

This forty year old bridge is obsolete, deteriorating and of great concern to motor carriers who have to use this bridge several times a day to pick up or return containers to the piers. The obsolete bridge poses a risk to the trucking companies and drivers that must use it daily in their intermodal drayage operations.

The bridge was never designed to carry the large volumes of container traffic and cars. The California Department of Transportation has given the bridge a very low inspection rating. It is imperative to replace this rapidly deteriorating and crumbling bridge for public safety.

Besides being unsafe, the bridge is inefficient with narrow lanes, no emergency lane and steep grade. When there is an accident or mechanical break down of a truck it creates a back up of cars and trucks on the bridge therefore causing needless idling and pollution.

HTFSF supports the six-lane cable stayed bridge as it will increase the efficiency and safety for both cars and trucks. The bridge is a critical part of our local, regional and national infrastructure and carries 15% of the United States waterborne cargo.

HTFSF supports the project and has full confidence that the Port of Long Beach will meet the requirements in the California Environmental Quality Act for environmental mitigation.

Sincerely,



Patty Senecal  
HTFSF Government Affairs

HTFSF



INTERMODAL ASSOCIATION OF NORTH AMERICA

Chairman  
**Stephen G. Branscum**  
BNSF Railway

President and CEO  
**Joanne F. Casey**

April 16, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
The Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802-6400

Dear Mr. Cameron:

On behalf of the more than 900 members of the Intermodal Association of North America (IANA), I would like to express our support of The Port of Long Beach's Environmental Impact Report (EIR) to replace the existing Gerald Desmond Bridge with a new, more efficient structure to better carry current and future traffic volume.

The Gerald Desmond Bridge is a critical supply chain link whose efficiency is extremely important to the U.S. economy. Its importance directly correlates with the large amount of America's commerce that crosses this critical infrastructure daily because it provides the best way for freight transportation providers to move freight to/from The Port of Long Beach.

According to CalTrans, the Desmond Bridge is near the end of its lifespan. Due to nearly 18 million vehicle trips over the bridge annually, its capacity has been exceeded, rendering it inefficient and in a state of dangerous disrepair. CalTrans says the bridge is deteriorating so rapidly that it has employed measures to protect people and vehicles below it from falling debris.

It would not be prudent to repair a bridge whose capacity has already been exceeded, or wait to replace it after it becomes so structurally deficient that it must be closed before its replacement has been completed. This would cause commercial vehicles and commuters to seek alternate routes that could cause increased road congestion and reduced air quality for the region.

The efficient movement of freight ensures that transportation providers can deliver their customers' goods cost-effectively and on-time. Increased delays moving freight to/from The Port of Long Beach could compel shippers to use other West Coast ports. Such a diversion of freight could result in a significant loss of transportation, warehousing and other logistics jobs in the region.

The construction of a new, modern replacement bridge at The Port of Long Beach would be good for the Port and its customers, the citizens of Long Beach and Southern California, and the U.S. economy as a whole. IANA strongly endorses The Port of Long Beach's EIR for construction of a new Gerald Desmond Bridge.

Sincerely,

Joanne F. Casey  
President and CEO

Cc. Ken Uriu, Port of Long Beach  
Marketing Manager Trade Relations

11785 Beltsville Drive, Suite 1100 ■ Calverton, MD 20705-4048 ■ Phone: 301-982-3400 ■ Fax: 301-982-4815

E-mail: [IANA@intermodal.org](mailto:IANA@intermodal.org) ■ Web site: [www.intermodal.org](http://www.intermodal.org)

IANA

1817 Aston Avenue, Suite 104  
Carlsbad, CA 92008

Direct: (760) 710-2156  
Fax: (760) 710-2158

## Long Beach Generation LLC

March 22, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

### RE: GERALD DESMOND BRIDGE REPLACEMENT - REVISED DRAFT EIR COMMENTS

Dear Mr. Cameron:

Long Beach Generation LLC (LBG), a wholly owned subsidiary of NRG Energy Inc. and owner of the Long Beach Generating Station (LBGS) at 2665 West Seaside Boulevard, has reviewed the Gerald Desmond Bridge Replacement Revised Draft Environmental Impact Report. LBG's comments are provided herein.

LBG-1

As background, LBGS consists of four 65-megawatt natural gas supplied combustion turbines (i.e., Units 1 – 4) that provide on-demand generation to the electric grid, typically during peak energy demand which typically coincides with the daylight hours. Co-located at LBGS are existing utility easements for transmission, natural gas, water, and wastewater – vital utilities that must be maintained for grid reliability and continued operation of LBGS and the adjoining Plain West Coast Terminal (Plains) and Southern California Edison (SCE) electric transmission infrastructure.

In general, LBG is supportive of the goal that the Port proposes to achieve by the proposed replacement of the Gerald Desmond Bridge – improvements to vehicle access to and from Terminal Island to increase the economic benefits and to improve the flow of cargo to and from Long Beach/Los Angeles Ports. However, we have following concerns with the preferred North Alternative:

LBG-2

- The North Alternative will bring the Gerald Desmond replacement bridge 140 feet closer to Long Beach Generating Station, resulting in condemnation of a “sliver” of the LBGS, which will consequently require relocation of vital utilities necessary for ongoing safe and compliant operation of LBGS and require ongoing easements



(terrestrial and aerial easements) for bridge maintenance. We support and implore the Port to pursue an alternative that would not require the extremely costly acquisition/taking of LBG property and relocation of assets. } LBG-2

- The North Alternative will move mobile emissions sources (i.e., vehicles) closer to the plant and as a consequence, may effect the emissions of Units 1 – 4 which draw in ambient air through the respective Unit air inlet facilities. Effects of the full range of daily vehicular traffic through the life cycle of the power plant following implementation of either of the bridge alternatives should be modeled to assess ongoing compliance of Units 1 – 4 with LBG’s Title V air permit. Any project related impacts to Units 1 – 4 that would render the plant unable to meet applicable permit conditions and contractual energy sales requirements must be avoided or mitigated. } LBG-3

- The North Alternative would also move vehicles and their occupants closer to LBGS in general and more specifically to the emission stacks of Units 1 – 4. The proximity of vehicles to LBGS and neighboring Plains and SCE properties may pose potential health and safety concerns that the draft does not address. } LBG-4

We appreciate the opportunity to comment of the revised Draft EIR and look forward to future discussions with the Port of Long Beach regarding this significant development project. If you have any questions, please contact me at (760) 710-2156 (office) or (760) 707-6833 (mobile).

Sincerely,



George L. Piantka, PE  
Director, Environmental Business  
NRG Energy, West Region



Fm:MyFax - Judi Erickson To:BizFed Support for Desmond Bridge Replacement (15629011733)15:19 04/07/10GMT-04 Pg 02-02



Strengthening the Voice of Business

April 7, 2010

Robert Kanter  
Port of Long Beach  
925 Harbor Plaza  
Long Beach CA 90802

**Subject:** Gerald Desmond Bridge Replacement

Dear Dr. Kanter,

On behalf of the Los Angeles County Business Federation, we are writing to express our strong support for the Port of Long Beach's proposed \$1.1 billion replacement of the aging Gerald Desmond Bridge, one of the most vital transportation and goods-movement links for the region.

The need for replacement is readily apparent: About 15 percent of the nation's imports move across the bridge, but traffic has become increasingly clogged. Protective netting is needed to catch pieces of concrete that fall from the deteriorating bridge. There are no safety lanes for emergency vehicles. And improvements are urgently needed to ensure the Port remains competitive in an increasingly fierce, global trading market.

LCBF

The Port of Long Beach's plan to replace the Gerald Desmond Bridge will not only help ensure the safety of commuters and truck drivers, but also will help protect Southern California's important role as the nation's second-busiest seaport providing more than 315,000 high-quality regional jobs and moving more than \$100 billion in goods a year.

Your presentation to BizFed's Board of Directors at its monthly meeting in March was enthusiastically received, and highlighted the urgent need for replacement of the Gerald Desmond Bridge as well as the Port of Long Beach's successful track record and continuing commitment to responsible economic and environmental stewardship.

BizFed is formally committed to helping ensure the bridge replacement moves forward and is offering the Port of Long Beach all support necessary in the coming months through the final EIR process.

Sincerely,

Tom Flintoft  
BizFed Chair  
LAX Coastal Area Chamber

David Fleming  
BizFed Founding Chair  
Latham & Watkins

Tracy Rafter  
BizFed CEO  
Rafter Group, Inc.

Cc:  
Richard Steinke, Executive Director  
Richard Cameron, Director of Environmental Planning

1000 N. Alameda St. #240 Los Angeles, California 90012 T: 213.346.3282 F: 213.652.1802 www.bizfed.org



THE LOS ANGELES CUSTOMS BROKERS &  
FREIGHT FORWARDERS ASSOCIATION, INC.

March 11, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Dear Mr. Cameron:

The Los Angeles Customs Brokers & Freight Forwarders Association (LACBFFA) is pleased to see the release of the EIR to replace the Gerald Desmond Bridge and would like to go on record in support of this Port of Long Beach project.

Rather than spending additional funds on costly repairs it make much more sense to build a modern bridge that will last for decades. This bridge is a major artery for commerce and commuter traffic in the cities of Los Angeles and Long Beach and with the new proposed three lanes of traffic in each direction, as well as an emergency lane for disabled vehicles, the congestion will be greatly improved as will the flow of traffic.

The economic benefits to the Southern California economy would be immediate and long-lasting, with a proposed construction investment of \$1.2 billion generating \$2.8 billion in economic growth for the Southern California economy and providing an average of 4,000 jobs per year for five years. Jobs that are desperately needed in today's economy.

LACBFFA strongly urges the Long Beach Board of Harbor Commissioners and all other entities involved in the EIR process to proceed without delay to approve this EIR and replace this bridge.

Sincerely,

Daniel Meylor  
President

LACB&FFA

MAR 15 2010



March 17, 2010

Mr. Richard Cameron  
 Director of Environmental Planning  
 Port of Long Beach  
 925 Harbor Plaza  
 Long Beach, CA 90802

**Subject: Gerald Desmond Bridge**

- COALITION PARTNERS**
- Automobile Club of Southern California
  - Greater Riverside Chambers of Commerce
  - Inland Empire Economic Partnership
  - Los Angeles Area Chamber of Commerce
  - Los Angeles County Metropolitan Transportation Authority
  - Orange County Business Council
  - Orange County Transportation Authority
  - Southern California Association of Governments
  - Ventura County Federated Chambers of Commerce
  - Ventura County Transportation Commission

Dear Mr. Cameron:

Mobility 21, Southern California's nonprofit bipartisan transportation coalition comprised of business leaders and transportation providers, understands the need for maintaining and improving our region's freight movement infrastructure. The economic vitality of Southern California, and the vibrant quality of life we have all come to expect here are supported by the efficient flow of commerce through our region. We therefore appreciate the efforts of the Port of Long Beach to ensure the long-term health of the transportation infrastructure that supports the movement of goods in and around the Port.

M21-1

In 2008, the six counties of Southern California conducted a study and developed a roadmap called the Multi County Goods Movement Action Plan (MCGMAP), which focused on how goods can be moved from the Ports through our region and on to their final destinations in other states. Mobility 21 fully supports the MCGMAP plan, encompassing a set of projects that together will help Southern California maintain its preeminent place as the region of choice for cargo entry and distribution, while also protecting communities along the most-traveled freight routes from adverse impacts of commerce. The baseline need identified to implement this program of goods movement-related projects, which included the Gerald Desmond Bridge, was \$50 Billion.

The Gerald Desmond Bridge, one of the most heavily-traveled bridges in our region is a critical component of MCGMAP. Carrying 15% of the nation's imported goods, this bridge is truly a national asset. Its deteriorating conditions are a safety concern. The bridge's current configuration limits the access of modern, "greener" ships to the Port, thereby limiting the improvements in air quality that can be gained from servicing newer more efficient vessels.

M21-2

Mobility 21 encourages the Port to continue its efforts to reach out to both the surrounding communities and to communities along the region's trade

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corridors when implementing the final approved alignment of this important project. We appreciate the efforts made thus far to include all stakeholders in the environmental process, but acknowledge there is still much work to be done ahead to ensure that the ultimate project delivers overall benefit to the region while minimizing adverse impacts from completing the project.

M21-2

Our coalition continues to be concerned that a true regional perspective be applied for any and all goods movement projects including projects within the landmark, consensus-driven MCGMAP framework and other proposals. Projects do not happen in a vacuum, and their impacts can be felt beyond immediate areas in the form of increased congestion, deteriorating air quality, or greater safety impacts.

M21-3

Mobility 21 looks forward to working with the Port of Long Beach as the Gerald Desmond Bridge project moves forward into the next phase of planning, and also hopes to be a partner with the Port in the development of projects region-wide that can both increase efficiency and reliability of freight through-put but also improve the quality of life for our entire region.

Sincerely,  
Mobility 21

Marnie O. Primmer  
Executive Director

- COALITION PARTNERS
- Automobile Club of Southern California
  - Greater Riverside Chambers of Commerce
  - Inland Empire Economic Partnership
  - Los Angeles Area Chamber of Commerce
  - Los Angeles County Metropolitan Transportation Authority
  - Orange County Business Council
  - Orange County Transportation Authority
  - Southern California Association of Governments
  - Ventura County Federated Chambers of Commerce
  - Ventura County Transportation Commission



March 22, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Dear Mr. Cameron:

NRF

On behalf of the National Retail Federation (NRF), I am writing in strong support of the project to replace the Gerald Desmond Bridge. The bridge is a critical link in the supply chain that is vital to the national economy. For years the bridge has been deteriorating. Without a new structure in place, we fear that a closure of the bridge could prove quite costly for the region, our members and the millions of consumers that depend on the bridge to help deliver products to store shelves and the ultimate consumer.

The Gerald Desmond Bridge remains a significant piece of infrastructure to the region and the nation helping to move cargo and commuters every day. According to recent statistics compiled by CalTrans, the bridge is deteriorating rapidly. Area residents frequently see large pieces of concrete regularly falling off the structure. Closing the bridge due to its structural deficiency remains a real threat. Without a replacement, commuters and cargo would be forced to find less efficient alternative routes contributing to greater road congestion and a reduction in air quality for the region.

Many retailers have come to rely on the bridge as a means to connect to vital transportation arteries in order to fill orders and complete their supply chain. Closing the bridge without a replacement may result in cargo delays that would significantly increase transportation costs. Such delays could lead some cargo owners to consider less expensive faster blue water ports. This could result in lost business opportunities for many logistics based industries with adverse consequences for the transportation, warehousing and other affiliated jobs in the region.

By way of background, the National Retail Federation (NRF) is the world's largest retail trade association, with membership that comprises all retail formats and channels of distribution including department, specialty, discount, catalog, Internet, independent

Liberty Place  
325 7th Street NW, Suite 1100  
Washington, DC 20004  
800.NRF.HOW2 (800.673.4692)  
202.783.7971 fax 202.737.2849  
www.nrf.com



**PLAINS**  
West Coast Terminals, LLC

March 11, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza,  
Long Beach, CA 90802

**Subject: Comments to Revised Draft Environmental Impact Report / Environmental Assessment & Application Summary Report for the Gerald-Desmond Bridge Replacement Project.**

Dear Mr. Cameron:

Plains West Coast Terminals, LLC (PWCT) formerly Pacific Terminals, LLC (PT) has reviewed the Revised Draft Environmental Impact Report / Environmental Assessment & Application Summary Report (Revised DEIR) for the Gerald-Desmond Bridge Replacement Project. As a result of this review, PWCT hereby submits the following comments:

1. Please add PWCT to the project distribution list and submit all correspondence to my attention at the Cherry Avenue address. } PWCT-1
2. Please note that PWCT is the legal owner/operator of the oil storage tank farm (Site No. 2) identified in Section 2.1.3.2.3 (Environmental Consequences Evaluation Criteria) as belonging to Pacific Pipeline System, LLC (PPS). Please revise all references to PPS to reflect PWCT. The facility is our "Long Beach Station" and is located at 2685 Pier S Lane, Long Beach, CA 90805. } PWCT-2
3. BP/Shell was not identified as an affected business operating within the project footprint, yet they operate three pipelines that run northwards through the project area and into and around our facility. These pipelines are identified as Lines 82, 83, and 95. Any impact to these lines could have a ripple effect into our facility. Please include these lines in your assessments. } PWCT-3
4. There are two firewater lines that feed our facility that run through the project area. Please ensure that these lines have been identified and accounted for in the project scope:
  - a. One line runs north and down into our facility from a 30-inch city main running along the existing bridge alignment (on the north side).
  - b. The other runs west from the Generating Station cooling water intake structure on the Back Channel. This particular line is supplied by fire boats from Fire Boat Station #20 that would dock at the Back Channel at the Generating Station cooling water intake structure.} PWCT-4
5. The North-side Alignment Alternative has been identified as the preferred alternative. PWCT has several concerns with this preference:
  - a. Our facility has been identified as a Homeland Security High-Risk facility. The preferred alternative will make our facility considerably more vulnerable to projectile attacks of all kinds (including vehicles) from the preferred bridge location.} PWCT-5

PWCT-LB Gerald-Desmond Bridge Revised Draft EIR-EIS Comments March 11 2010.doc

5900 Cherry Avenue • Long Beach, CA 90805-4408 • (562) 728-2800 • FAX (562) 728-2860

MAR 15 2010

Mr. R. Cameron  
Port of Long Beach  
March 11, 2010

Page 2 of 2

- PWCT-5 {
  - b. This vulnerability would be shared by both the NRG Generating Station (operates on natural gas) and the Southern California Edison (SCE) high-voltage sub-station. Any impact to one of these three facilities would domino into the other two.
  - c. Between the three facilities there is a potentially potent mix of natural gas, high voltage power, and crude oil.
  - d. Increased seismic activity and in particular the magnitudes of these seismic events also makes these three facilities much more vulnerable in the event of catastrophic failure of the bridge.
  - e. The estimated cost differential between the North-side and South-side Alternatives is only 1.7% of the project cost. Given the North-side Alignment concerns mentioned, PWCT strongly recommends that the South-side Alignment be named the preferred Alternative.
- PWCT-6 {
  - 6. The SCE Transmissions Towers and Line Relocation Project would need to account for two 24-inch PWCT pipelines located in the vicinity of the project area. These run in a northeast direction from our facility across the Cerritos Channel in the vicinity of the tower alignment.

Thank you for the opportunity to comment, and we look forward to participating in this project approval process.

Sincerely,



Thomas J. McLane  
Director, Environmental & Regulatory Compliance  
Western Division  
Plains West Coast Terminals, LLC



Port Petroleum Inc.  
260 North Pico Ave.  
Long Beach CA 90802  
562 437-0122

Richard Cameron,  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

March 17, 2010

Re: Response to revised draft of E.I.R.  
of the Gerald Desmond Bridge Project

Dear Mr. Cameron,

Port Petroleum, Inc. is a multi-million dollar investment located in the area directly affected by the proposed design of the preferred "north side alignment alternative" of the Desmond Bridge Project. Port Petroleum's management team has reviewed the information contained on the DVD sent to us and we also attended the two public forums held at the City Hall Council Chambers and at Silverado Park. At those meetings we spoke with various members of the Program Management Division of the Preliminary Environmental Impact Report Committee who explained how the initial design concepts would affect our business and the lives of the company's 13 employees and their families, all of whom reside within the City of Long Beach. We were asked to respond to you in writing.

PP-1

Specifically affecting Port Petroleum, Inc. is the placement of two support pillars of the proposed south-bound ramp on Pico Avenue which are placed directly on the site of Port Petroleum. We suggest three options to mitigate the impact of the proposed design. One is to move the clover-leaf entrance of the ramp slightly to the north and position the pillars so that no existing facilities are affected. Another solution would be to extend the ramp up to the currently existing ramp leading off Pico Avenue west toward Terminal Island. Or thirdly having the south-bound ramp intersect with the 710 Freeway South somewhere else north along Pico Avenue where its placement impact is diminished. We remain open to additional suggestions.

PP-2


Thank you in advance for considering our concerns.

*Patricia Gorman* 562 437-0122  
Patricia Gorman  
Manager of Port Petroleum, Inc.



*Sample of 1<sup>st</sup> suggestion*



 <p>Port of <b>LONG BEACH</b> The Gateway to the West</p>	<p><b>GERALD DESMOND BRIDGE REPLACEMENT PROJECT</b> <b>NORTH-SIDE ALIGNMENT ALTERNATIVE</b></p>	<p>SCALE DATE DRAWN BY CHECKED BY</p>
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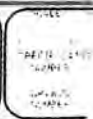
*suggestion #2*

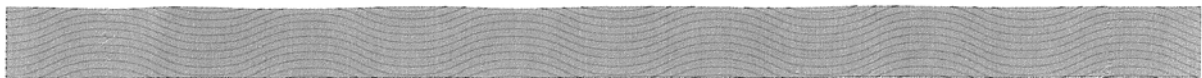
*(new ramp up)*  
*(existing ramp)*

W  
S  
1:8



GERALD DESMOND BRIDGE REPLACEMENT PROJECT  
NORTH-SIDE ALIGNMENT ALTERNATIVE





1700 NORTH MOORE STREET  
SUITE 2250  
ARLINGTON, VA 22209  
T (703) 841-2300 F (703) 841-1184  
WWW.RILA.ORG

March 22, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

**RE: Comments for the Record by the Retail Industry Leaders Association for Gerald Desmond Bridge Replacement Environmental Impact Report**

Dear Mr. Cameron:

On behalf of the Retail Industry Leaders Association (RILA), I am writing in regards to the environment impact reports on the replacement of the Gerald Desmond Bridge. RILA is supportive of replacing the bridge as the best measure to address the current structural and capacity related problems.

By way of background, RILA is a trade association of the largest and most successful companies in the retail industry. RILA promotes consumer choice and economic freedom through public policy and industry operational excellence. RILA members include more than 200 retailers, product manufacturers, and service suppliers, which together account for more than \$1.5 trillion in annual sales. RILA members operate more than 100,000 stores, manufacturing facilities and distribution centers, have facilities in all 50 states, and provide millions of jobs domestically and worldwide.

RILA

As some of the largest users of the nation's supply chain, RILA members recognize the importance of the Gerald Desmond Bridge as a key connector in the transportation system. As the Environmental Impact Report states, around 15 percent of all US port related container traffic crosses the Gerald Desmond Bridge. The retail industry heavily relies on the bridge as products are transported from the ports to our distribution centers and stores. It is no surprise that the retail supply chain depends on an efficient and effective transportation system of roads, railways, bridges, seaports, and other transportation infrastructure. For our transportation system to operate smoothly, it is critical that it is comprised of functioning and structurally sound components. The Gerald Desmond Bridge has serious capacity and structural problems that must be addressed and solved to keep a smooth flow of commerce.

March XX, 2010  
Mr. Richard Cameron  
Page 2

RILA members pride themselves on our commitment to safety in the transportation system. While the Gerald Desmond Bridge is currently operating safely, it is not difficult to picture a scenario where the bridge's serious structural problems create dangerous conditions. Concrete is falling off the bridge and must be caught by nets to protect people and property below the bridge. Furthermore, the bridge does not meet current seismic standards required by the American Association of State and Highway Transportation Officials (AASHTO). The structural condition of the bridge must be improved to ensure the safety of both those who use the bridge and those who work and live around it.

Also of concern to RILA members is the lack of capacity for the volume of traffic using the bridge. Traffic can often be heavy on the bridge, which is busy with local commuters and large trucks going in and out of the ports. Congestion delays the delivery of products, increases costs, and contributes negatively to greenhouse gas emissions as drivers burn fuel while they sit in traffic. The lack of emergency vehicle lanes exacerbates the congestion problem, as accidents or broken down vehicles severely slow traffic and at times even forcing traffic to be redirected to surrounding areas.

Finally, RILA is concerned with the height of the bridge. Currently, large container ships are barely clearing the bridge, sometimes with only a couple feet to spare. It is crucial that large container vessels are able to access the ports, and the next generation of vessels will undoubtedly be even larger. RILA believes that forward thinking is necessary to provide clearance for the large container ships of today and tomorrow.

RILA is encouraged by the actions of the Port of Long Beach to address concerns with the Gerald Desmond Bridge. We are supportive of the Port's plan to resolve the bridge's structural and capacity related problems. RILA encourages the Port and all other agencies and entities involved to put a special emphasis on progressive thinking. Any actions taking with the Gerald Desmond Bridge should consider not only our own needs, but the foreseeable needs of future generations.

Sincerely,



Kelly Kolb

RILA

March XX, 2010  
Mr. Richard Cameron  
Page 3

Vice President for Global Supply Chain Policy



Larry Labrado  
Region Manager  
Local Public Affairs

March 22, 2010

Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

RE: Notice of Availability of a Draft Environmental Impact Report/ Draft Environmental Assessment (Draft EIR/EA) for the Gerald Desmond Bridge Replacement Project

Dear Mr. Cameron:

Southern California Edison (SCE) appreciates the opportunity to review and provide comments on the Draft EIR/EA for the Gerald Desmond Bridge Replacement Project. The project under review is described as a proposal to construct a replacement bridge for the Gerald Desmond Bridge linking Terminal Island to Long Beach/State Route 710. The project description includes relocation, raising or removal (relocation) of SCE's high-voltage transmission towers and lines crossing the Cerritos Channel, north of the bridge. SCE comments are to address the four alternatives to relocate SCE high-voltage lines and request more information about relocation of 66 kV lines paralleling and crossing the existing Gerald Desmond Bridge.

SCE-1

SCE has been working to determine the most technically and economically feasible alternative to relocate the 220 kV lines, however the 45 day review period for the Draft EIR/EA does not provide SCE sufficient time to conduct the engineering and analysis necessary to determine a preferred alternative necessary to support the project. As the project moves forward, SCE looks forward to continuing to work closely with the Port of Long Beach (POLB) and its partners to determine the most feasible alternative for the proposed relocation.

SCE-2

With regards to the four alternatives to relocate the 220kV line SCE believes that options 1, 2 and 4 are technically infeasible or cost prohibitive. Option 3, which the EIR recommends as the most likely feasible option will require further study. SCE plans to evaluate this option based on the EIR recommendation and will look at other alternatives to meet project objectives that have not been evaluated in draft EIR. SCE's final determination on the feasibility of these options will be available only after studies are completed.

2800 East Willow St.  
Long Beach, CA 90806  
(562) 981-8215 PAX 31215  
Fax: (562) 981-8289  
Larry.Labrado@sce.com



SCE-3

At this time, SCE would also like to request more information about the need to relocate the existing 66kV line currently paralleling and crossing the Gerald Desmond Bridge along Ocean Boulevard but not mentioned in the Draft EIR/EA. This line will be impacted by the proposed project and its relocation should be included within the scope of the Draft EIR/EA. While the Port is in the process of developing preliminary bridge drawings and identifying utility conflicts, further design and collaboration will be needed prior to defining the scope of SCE's relocation work.

SCE appreciates the opportunity to review and comment on the Draft EIR/EA for the Gerald Desmond Bridge Replacement Project and looks forward to working with the POLB to determine feasible solutions for the 220kV and 66kV line relocations. If you have any questions regarding this letter, please do not hesitate to contact me at (562) 981-8215.

Sincerely,



Larry Labrado  
Local Public Affairs Region Manager  
Southern California Edison Company

Cc. CalTrans



February 16, 2010

Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
*Sent by E-mail*

Dear Mr. Cameron:

On behalf of the Waterfront Coalition I am writing in support of the replacement of the Gerald Desmond Bridge. The bridge is a vital piece of infrastructure helping to facilitate the movement of an impressive amount of the nation's commerce. Unfortunately the current structure is deteriorating. Failure to quickly replace the bridge with a new structure to facilitate both cargo and commuters could harm the region's economy.

By way of background, the Waterfront Coalition represents cargo owners including manufacturers, retailers and agricultural producers, along with transportation providers moving maritime commerce through North American blue water ports. Our members move quite a large amount of cargo through the San Pedro Bay each day by truck services, much of which travels over the bridge. We have a direct interest in making sure that this cargo transits the region safely, efficiently and as environmentally responsible as possible.

We believe the Desmond Bridge may be the single most important piece of infrastructure in the nation, because of the large amount of the nations commerce that travel across it on a daily basis. According to CalTrans, the bridge is nearing the end of its lifespan. The bridge is deteriorating, with chunks of concrete regularly falling from its undercarriage. The port cannot afford to wait to replace the bridge until it becomes so structurally deficient that it has to be closed. Without a replacement, commuters and cargo would find alternative routes leading to greater road congestion and a reduction in air quality for the region.

For our members, the elimination of the bridge has the very real potential to result in lengthy and very costly cargo delays. In this economic environment, importers and exporters are looking to reduce transportation costs by relying on speed to delivery to make sure that factory floors have inputs, store shelves are replenished and overseas markets are easily reached. Greater cargo delays that raise costs could force shippers to consider alternative maritime gateways. This

WC

1707 L Street NW | Suite 570 | Washington, DC 20036 | (202) 861-0825 | [www.portmod.org](http://www.portmod.org)

WC { diversion in cargo could result in lost business opportunities for logistics partners, that could negatively impact the many transportation, warehousing and other logistics jobs in the region.  
We believe that the Gerald Desmond Bridge is a vital piece of infrastructure for the region and the nation and we support its replacement.

Thank you,

Robin Lanier  
Executive Director

# Individuals

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Tuesday, March 16, 2010 7:35 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Ensure Pedestrian and Bicycle Access for the Gerald Desmond Bridge

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** dejaybe@gmail.com [mailto:dejaybe@gmail.com] **On Behalf Of** David Barboza  
**Sent:** Tuesday, March 16, 2010 6:02 AM  
**To:** Cameron, Rick  
**Subject:** Ensure Pedestrian and Bicycle Access for the Gerald Desmond Bridge

Dear Mr. Cameron,

DB

I am writing to urge you to design the Gerald Desmond Bridge with pedestrian and bicycle access when it is replaced.

Failure to do so would make POLB's claims of greenness laughable. You can cite low demand for these modes in an industrial area, but failing to accommodate pedestrians and cyclists and then observing low levels of pedestrian and bike activity is a self-fulfilling prophecy.

In this era of escalating environmental concern and increasing fuel costs, workers are looking for other ways to arrive at work, and cyclists are looking for ways to cross the region without having to resort to circuitous routes.

Bridges, no matter their location, should be designed with reasonable opportunities for ALL modes of transportation: walking, biking, transit, and private vehicles.

Regards,  
David J. Barboza

Crouch, Stacey

**From:** Cameron, Rick  
**Sent:** Thursday, March 18, 2010 11:56 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Gerald Desmond Bridge Replacement Project

*Richard D. Cameron*  
*Director of Environmental Planning*  
*Port of Long Beach*  
*925 Harbor Plaza*  
*Long Beach, CA 90802*  
*(562) 590-4156*  
[cameron@polb.com](mailto:cameron@polb.com)

**From:** Nicole Bissonnette [mailto:[nbissonnette@caltrop.com](mailto:nbissonnette@caltrop.com)]  
**Sent:** Thursday, March 18, 2010 11:47 AM  
**To:** Cameron, Rick  
**Subject:** Gerald Desmond Bridge Replacement Project

Port of Long Beach:

As a resident of the Long Beach Metro area, I would like to express my support of the Gerald Desmond Bridge Replacement Project. I am specifically interested in the impact the current bridge has on local traffic and traffic circulation on the main arterial roads and freeways that serve and lead in and out of the Port. Replacing the Bridge will increase capacity and improve traffic conditions from Long Beach to Orange County, as well as Los Angeles, north and east of the Port.

} NB-1

I am also concerned about the safety of the current Bridge. We have seen the impact of bridge safety during earthquakes in California, as well as the collapse of the bridge in Minnesota in 2007. Replacing the bridge now will prevent tragic accidents.

} NB-2

Thank you for the opportunity to express my views on this important project.

Sincerely,

Nicole Bissonnette  
10282 Aqueduct Drive  
Cypress, CA 90630

--  
Nicole Bissonnette  
CALTROP Corporation  
[nbissonnette@caltrop.com](mailto:nbissonnette@caltrop.com)

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Monday, March 01, 2010 8:06 AM  
**To:** Jelenic, Thomas; Crouch, Stacey  
**Subject:** FW: Replacement of the Gerald Desmond Bridge

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** Mercedes Broughton [mailto:Mercedes.Broughton@hacla.org]  
**Sent:** Monday, March 01, 2010 8:02 AM  
**To:** Cameron, Rick  
**Subject:** Replacement of the Gerald Desmond Bridge

MB { It is about time we begin tending to our infrastructure. That bridge is one of our lifelines and the cost of maintaining it will continue to grow as will the replacement cost. We have the means and the technology to do a fine job of rebuilding it now, lets do it.

Mercedes Broughton  
Manager II, Rancho San Pedro  
Housing Authority City of Los Angeles



**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Thursday, March 18, 2010 1:21 PM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Cc:** Ashley, Samara; Hall, Sam  
**Subject:** FW: EIR Comment regarding the Gerald Desmond Bridge replacement

*Richard D. Cameron*  
*Director of Environmental Planning*  
*Port of Long Beach*  
*925 Harbor Plaza*  
*Long Beach, CA 90802*  
*(562) 590-4156*  
[cameron@polb.com](mailto:cameron@polb.com)

**From:** Sue Castillo [mailto:Sue.Castillo@longbeach.gov]  
**Sent:** Thursday, March 18, 2010 1:08 PM  
**To:** Cameron, Rick  
**Subject:** EIR Comment regarding the Gerald Desmond Bridge replacement

Please make certain that the replacement bridge includes all modalities, especially pedestrians and bicyclists (One side of the bridge will be sufficient). I know that the current bridge provides this and the Vincent Thomas does not, but the Port of Long Beach should not miss this opportunity to provide a low-tech, non-motorized option for people traversing the Ports.

} SC

Sue Castillo  
City of Long Beach Department of Public Works  
Construction Services  
562-570-6996

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Thursday, March 04, 2010 12:39 PM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Re. new bridge, I propose bicycle lanes.

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** Robert Curtis [mailto:[rcsongs@yahoo.com](mailto:rcsongs@yahoo.com)]  
**Sent:** Monday, March 01, 2010 9:10 PM  
**To:** Cameron, Rick; Cameron, Rick  
**Subject:** Re. new bridge, I propose bicycle lanes.

Dear Mr. Cameron,

I'm writing to present some green ideas for the new Gerald Desmond Bridge project

RC-1 { Firstly, I'd like to suggest consideration of including some type of dedicated bicycle lanes, perhaps as an elevated expanse above the automobile lanes, that ultimately could connect Long Beach city, such as downtown, to local port businesses and stretch to San Pedro. It could also serve as a recreational route as well.

RC-2 { Secondly, I'd like to suggest getting some benefit out of the height of the two span towers by perhaps having them host vertical windmills on their tops to generate electricity to light the bridge at least and maybe more.

Perhaps these ideas are a bit far flung but maybe with more scrutiny and study they might turn out to be quite viable and smart.

Thank you, for your time

Robert Curtis

Bixby Knolls, Long Beach

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Thursday, March 04, 2010 12:21 PM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Comments on Gerald Desmond bridge  
**Attachments:** pic02168.jpg

Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)

-----Original Message-----

From: gerard.desmond@ldcommodities.com [mailto:gerard.desmond@ldcommodities.com]  
Sent: Thursday, March 04, 2010 12:18 PM  
To: Cameron, Rick  
Subject: Comments on Gerald Desmond bridge

HOW COULD YOU POSSIBLY CONSIDER TAKING DOWN A BRIDGE WITH SUCH A BEAUTIFUL NAME !!!!

I hope you are considering calling it the new and improved Gerald Desmond Bridge?

} GD

(Embedded image moved to file: pic02168.jpg)



**Gerard T. Desmond**  
**Louis Dreyfus Commodities**  
**Direct 203.761.4603**  
**Blackberry 203.856.0061 Fax 203.761.2365**  
**Email: [wltfrtchartering@ldcommodities.com](mailto:wltfrtchartering@ldcommodities.com)**  
**Instant Messenger: [desmondg@hotmail.com](mailto:desmondg@hotmail.com) (no email)**

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Monday, March 01, 2010 9:26 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: The new bridge

*Richard D. Cameron*  
*Director of Environmental Planning*  
*Port of Long Beach*  
*925 Harbor Plaza*  
*Long Beach, CA 90802*  
*(562) 590-4156*  
[cameron@polb.com](mailto:cameron@polb.com)

**From:** Dragony, Alexis [mailto:alexis.dragony@kyl.com]  
**Sent:** Monday, March 01, 2010 9:24 AM  
**To:** Cameron, Rick  
**Subject:** The new bridge

It's driving me *crazy* that no where is it mentioned in your news releases or articles the identity of the architect who rendered the drawings of the proposed bridge. I think it is stunning, by the way, but why no names? Was there a competition? I mean, what--?

} AD

I love the port, *love* being able to see it from my office window, and looking forward to the new bridge.

---

*Alexis M. Dragony*  
*Word Processor/Floater Secretary*  
**Keesal, Young & Logan**  
400 OceanGate, Long Beach, CA 90802  
562.436.2000 (office) | 562.436.7416 (fax)  
[alexis.dragony@kyl.com](mailto:alexis.dragony@kyl.com) | [www.kyl.com](http://www.kyl.com)

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# Open Letter To LB Port Bridge Commission

March 10, 2010

tags: [Bikes](#), [Long Beach](#), [Planning](#), [Port](#), [Walking](#)

by Drew

[LALoyalist.wordpress.com](#)

Dear Port Of Long Beach Bridge Commission:

D-1 { If I'm not mistaken, the Port of Long Beach has something of an interest in becoming "green", or at least creating an eco-friendly public image. The port has instituted its green port policy while also launching a massive publicity campaign to establish environmental credibility, including billboards, internet ads, and a vast series of pamphlets, newsletters, and videos. This is certainly commendable; the port has traditionally been a large source of pollution throughout the region, making environmental reform a welcome change. However, I fear the port's latest major undertaking – a replacement for the Gerald Desmond Bridge – falls short of the port's noble green goals.

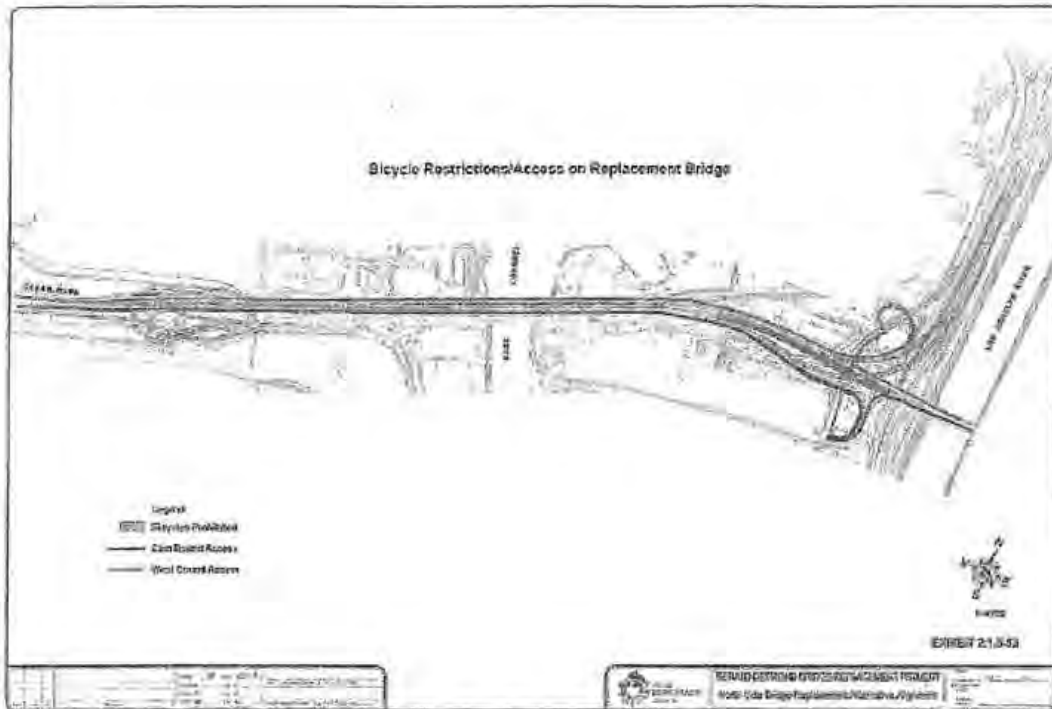
The replacement is planned as a sleek, cable-stayed bridge, the first to be built on the West Coast. It will certainly be pleasant to look at, and is designed to be more efficient in handling truck traffic. But the replacement is lacking a critical feature, one which would greatly increase the environmentally friendliness, accessibility, and overall effectiveness of the bridge: a pathway for bicycles and pedestrians.

D-2 { Why is there no pedestrian walkway? The revised draft environmental impact report for the replacement bridge offers this line of reasoning:

Terminal Island is an industrial area within the Harbor District where there is currently no residential, retail, or public recreational facilities. Since the closing of the Naval Shipyard and the opening of the Pier T container terminal, there has been low demand from nonmotorized traffic (e.g., pedestrians or bicycles) on Ocean Boulevard over the Gerald Desmond Bridge, despite a patchwork of sidewalks that exist along the roadway. In addition, Terminal Island does not include any designated bicycle route... Both pedestrians and cyclists can utilize the regularly scheduled bus service equipped with bicycle racks provided by the Los Angeles Department of Transportation to travel between downtown Long Beach, Terminal Island, and San Pedro. A designated bike route exists to the north of the Port on Anaheim Street at the northern edge of the Harbor District.

Having invested so heavily in a green brand, and ostensibly committed to genuine environmental reform, the port would surely have a great interest in promoting walking and bicycling – two of the most energy efficient forms of transportation. But here we see the port working *against* walkers and cyclists. It's true that Terminal Island and the Port complex are difficult to navigate on foot or bicycle, but this is because current conditions are not yet suitable; as the DEIR notes, there is only a "patchwork" network of sidewalks. The existing bike route on Anaheim and

LADOT bus service are hardly workable solutions: the bike route is a 3 mile detour between downtown Long Beach and San Pedro, and bus service is infrequent.



The port has been thoughtful enough to supply a proposed “Bike Restrictions/Access” map. This supposed bike access route would involve bikes having to follow a circuitous route, exiting and reentering the road on offramps and then having to travel in the breakdown lane. This is a route that would make even the most hardened road cyclist balk.

What is particularly painful about the replacement bridge’s pathway deficiency is that the current bridge actually *includes* one. It is far from perfect, but if coupled with further improvements it would be workable. The port is electing to make the situation even worse for cyclists and pedestrians, instead it should be working to reinstate bike and pedestrian access on the bridge, improve it on the other roads in its jurisdiction, and encourage the Port of Los Angeles to do likewise on its bridges and roads.

In San Francisco and Oakland, there is an effort being made to add bike and pedestrian access to the Oakland-Bay Bridge, here we are *removing* it. Is this something an environmentally conscious port would do? I think not. The Long Beach-San Pedro corridor can be seen as a smaller scale version of the Northern California span: Both are long and traverse industrial port regions, but have dense population and employment centers on either side. But in order for progress to be made, broad improvements in bicycle and pedestrian infrastructure. This will not happen if the port continues on its regressive course to remove pedestrian access from the bridge.

D-3



D-4 { It is my hope that the port will make good on its green aspirations, by including a bicycle/pedestrian pathway on the Gerald Desmond replacement bridge.

March 21, 2010

Mr. Richard Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza, Long Beach, CA 90802,  
via email [Cameron@polb.com](mailto:Cameron@polb.com)

Subject: Gerald Desmond Bridge Draft EIR/EIS

Dear Mr. Cameron:

I am a San Pedro Bay resident and a frequent user of the existing Gerald Desmond Bridge. I have observed the tremendous improvements in traffic flow across Terminal Island as a result of the removal of the Vincent Thomas Bridge toll requirement, the addition of the fifth lane on the existing Gerald Desmond Bridge, and TI Freeway Interchange improvements. The improvement in traffic flow has resulted in more efficient vehicle operation with a resulting reduction in pollution. I am pleased that the Port continues to make improvements to traffic flow through the planned bridge replacement. Increasing the number of lanes and reducing the slope of the approaches will continue this improvement process.

KF(A)

The draft environmental document was a substantial undertaking and appears to address the many issues associated with the significant new construction as well as the impacts associated with making the Port more accessible to larger ships. I encourage the approval of this document so that the planned new bridge can move forward.

Sincerely,



Ken Fredrickson  
1430 W. Hamilton Ave.  
San Pedro, California 90731

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Friday, February 26, 2010 3:35 PM  
**To:** Jelenic, Thomas; Crouch, Stacey  
**Subject:** Fw: Gerald Desmond Bridge EIR

Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
(562) 590-4156  
Cell (562) 477-1597

Sent from my BlackBerry Wireless Handheld

----- Original Message -----

From: Jane Kelleher <jane@savonsigns.com>  
To: Cameron, Rick  
Cc: Macias, Steven  
Sent: Fri Feb 26 15:27:55 2010  
Subject: Gerald Desmond Bridge EIR

Dear Richard,

I request the following concerns be included and addressed in the EIR for the replacement of the Gerald Desmond Bridge:

- JK-1 { --why do we not replace the bridge without the expansion component?
- JK-2 { --increased bridge lanes will increase traffic up the 710 freeway; even clean trucks spew black residue from their tires -- trucks hauling containers is an inefficient method of hauling goods; why are we building infrastructure to increase such inefficient method of goods movement?
- JK-3 { --why aren't we encouraging use of the Alameda corridor by financially incentivising such use?
- JK-4 { --heightened bridge will allow megacontainers and increase container traffic which will increase pollution from the bunker fuel --pollution from trucks represents only 20% of port generated pollution; bunker fuel represents most of the balance of the pollution; why are we building a pollution increasing bridge?
- JK-5 { --any port expansion should come after bunker fuel contamination problem is solved --why are we building a bridge to accomodate today's technologies? Are we going to be moving goods via trucks 30 years from now?
- JK-6 { --why not build a bridge to accomodate new technologies, such as electric lanes?

Thank you for your consideration.

Jane Kelleher  
Sav-On-Signs, Inc.  
3929 E. Anaheim St.  
Long Beach, CA 90804  
877-493-5065  
562-961-3414  
562-961-3525 fax  
562-472-5663 cell  
[www.savonsigns.com](http://www.savonsigns.com)

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Monday, March 22, 2010 6:49 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Plans for bicycle/pedestrian link on new Gerald Desmond bridge

**From:** michaelm2010 @dslextreme.com [michaelm2010@dslextreme.com]  
**Sent:** Saturday, March 20, 2010 7:29 AM  
**To:** Cameron, Rick  
**Subject:** Plans for bicycle/pedestrian link on new Gerald Desmond bridge

Hello Cameron:

No big issue, but I was just wondering if bicycle lanes and/or pedestrian walkways would be included on the future Gerald Desmond bridge. If they could be somehow integrated into the design of the bridge, many commuters including myself could ride between San Pedro and Downtown Long Beach. Some of the biggest trends/buzzwords lately have been "the environment" and anything "green." The POLB itself labels itself the "green port." Furthermore, many bridges in cities around the world integrate some type of pedestrian/bicycle right-of-ways, since those alternative modes of transportation are often ubiquitous in various regions. From the artist renderings and other documents, it doesn't appear that such pedestrian/bicycle lanes will be included in the final design. Of course, having to make many cost, safety, traffic-capacity and other tradeoffs may have precluded other features which would have also benefited different community groups (including pedestrians, bicyclists and possibly hang-gliders). Maybe a pedestrian/bike path would get little use, or isn't supported by enough people in the community.

In any instance I'll continue to commute by vehicle to work and recreation via the current and future Gerald Desmond spans. Nevertheless, if possible please appraise me of any bicycle/pedestrian issues relating to the new bridge.

MMei

Thank you, and enjoy your weekend.

Sincerely

Michael J Meichtry / San Pedro, CA.

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Monday, March 01, 2010 8:18 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Gerald Desmond Bridge Replacement

*Richard D. Cameron*  
*Director of Environmental Planning*  
*Port of Long Beach*  
*925 Harbor Plaza*  
*Long Beach, CA 90802*  
*(562) 590-4156*  
*[cameron@polb.com](mailto:cameron@polb.com)*

**From:** Jessica Mickelson [mailto:kailuajem@gmail.com]  
**Sent:** Saturday, February 27, 2010 7:02 PM  
**To:** Cameron, Rick  
**Subject:** Gerald Desmond Bridge Replacement

Good Evening Mr. Cameron,

I just received the newest re:port in the mail and noticed that the public hearing dates for the proposed new bridge have already passed, so I just wanted to take a minute to make a recommendation.

JMi

As an officer in the US Coast Guard, I commute to Terminal Island everyday and would be thrilled if consideration would be taken to add bicycle lanes on the new bridge. The current bridge is extremely dangerous to try to ride a bike on (an maybe even illegal- not sure). I think hundreds, if not thousands, of port workers, myself included would be inclined to bike to work if there were a safe means. With all of the Green Port initiatives, I can imagine that this idea would be well-received in the port and maritime community.

Thank you for your time and consideration.

Very respectfully,

Jessica Mickelson

[jessica.e.mickelson@uscg.mil](mailto:jessica.e.mickelson@uscg.mil) work  
[kailuajem@gmail.com](mailto:kailuajem@gmail.com) home  
808-371-1138 cell

2/26/10

MR. CAMERON

I AM A RETIRED SO CAL EDISON LINE CREW  
FOREMAN I WORKED IN LONG BEACH  
MANY YRS & EXTENDED TIMES WORKING  
IN LONG BEACH HARBOR. WE BUILT POWER  
LINES FOR ALL THE INDUSTRIES & HELPED  
BUILT LINES FOR PIERS & OTHER PROJECTS.  
THIS WAS IN THE 1950'S & 1960'S. WE NEED  
TO GET THE NEW BRIDGE BUILT AS  
SOON AS POSSIBLE FOR THE SAFETY  
& ECONOMY ON LB HARBOR LA. HARBER  
I HOPE THIS INPUT HELPS GET THE  
PROJECT GOING

Ted Olson

LONG BEACH

6760 CORALITE ST LONG BEACH  
90808

TO



Ted J Olson  
6760 E Coralite St  
Long Beach CA 90808-4120

POSTAL SERVICE  
27 FEB 2010 PM 5 L



RICK CAMERON  
915 HARBOR PLAZA  
LONG BEACH CALIF 90802

30402+6411



Andrew Reed  
723 Terraine Avenue  
Long Beach, CA 90804

Richard Cameron  
Director of Environmental Planning, Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

Dear Mr. Cameron:

Last week, I posted on my blog an open letter to you and all others concerned with the planning of the Gerald Desmond Bridge replacement project concerning the lack of bicycle and pedestrian considerations for the new bridge. I was pleased to receive a prompt reply from a representative of the port, leading me to believe that the letter has already been brought to your attention. However, I am sending it again in print, in case you have not yet read the letter, and because I feel my message bears repeating. On a related note, earlier this week I wrote a similar post to Streetsblog Los Angeles, a regional bicycle blog, which received support from others of similar views. Without further ado, here is the letter which appeared on my blog last week.

If I'm not mistaken, the Port of Long Beach has something of an interest in becoming "green", or at least creating an eco-friendly public image. The port has instituted its green port policy while also launching a massive publicity campaign to establish environmental credibility, including billboards, internet ads, and a vast series of pamphlets, newsletters, and videos. This is certainly commendable; the port has traditionally been a large source of pollution throughout the region, making environmental reform a welcome change. However, I fear the port's latest major undertaking – a replacement for the Gerald Desmond Bridge – falls short of the port's noble green goals.

AR

The replacement is planned as a sleek, cable-stayed bridge, the first to be built on the West Coast. It will certainly be pleasant to look at, and is designed to be more efficient in handling truck traffic. But the replacement is lacking a critical feature, one which would greatly increase the environmentally friendliness, accessibility, and overall effectiveness of the bridge: a pathway for bicycles and pedestrians.

Why is there no pedestrian walkway? The revised draft environmental impact report for the replacement bridge offers this line of reasoning:

"Terminal Island is an industrial area within the Harbor District where there is currently no residential, retail, or public recreational facilities. Since the closing of the Naval Shipyard and the opening of the Pier T container terminal, there has been low demand from nonmotorized traffic (e.g., pedestrians or bicycles) on Ocean Boulevard over the Gerald Desmond Bridge, despite a patchwork of sidewalks that exist along the roadway. In addition, Terminal Island does not include any designated bicycle route. . . Both pedestrians and cyclists can utilize the regularly scheduled bus service equipped with bicycle racks provided by the Los Angeles Department of Transportation to travel between downtown Long Beach, Terminal Island, and San Pedro. A designated bike route exists to the north of the Port on Anaheim Street at the northern edge of the Harbor District."

MAR 19 2010



Having invested so heavily in a green brand, and ostensibly committed to genuine environmental reform, the port would surely have a great interest in promoting walking and bicycling – two of the most energy efficient forms of transportation. But here we see the port working *against* walkers and cyclists. It's true that Terminal Island and the Port complex are difficult to navigate on foot or bicycle, but this is because current conditions are not yet suitable; as the DEIR notes, there is only a "patchwork" network of sidewalks. The existing bike route on Anaheim and LADOT bus service are hardly workable solutions: the bike route is a 3 mile detour between downtown Long Beach and San Pedro, and bus service is infrequent.

The port has been thoughtful enough to supply a proposed "Bike Restrictions/Access" map. This supposed bike access route would involve bikes having to follow a circuitous route, exiting and reentering the road on offramps and then having to travel in the breakdown lane. This is a route that would make even the most hardened road cyclist balk.

What is particularly painful about the replacement bridge's pathway deficiency is that the current bridge actually *includes* one. It is far from perfect, but if coupled with further improvements it would be workable. The port is electing to make the situation even worse for cyclists and pedestrians, instead it should be working to reinstate bike and pedestrian access on the bridge, improve it on the other roads in its jurisdiction, and encourage the Port of Los Angeles to do likewise on its bridges and roads.

In San Francisco and Oakland, there is an effort being made to *add* bike and pedestrian access to the Oakland-Bay Bridge, here we are *removing* it. Is this something an environmentally conscious port would do? I think not. The Long Beach-San Pedro corridor can be seen as a smaller-scale version of the Northern California span: Both are long and traverse industrial port regions, but have dense population and employment centers on either side. But in order for progress to be made, broad improvements in bicycle and pedestrian infrastructure need to be instituted. This will not happen if the port continues on its regressive course to remove pedestrian access from the bridge.

While I am not happy with the direction of the bridge replacement plan in regard to bicycles, I am quite pleased that the port is considerate of the views of the community. Your efforts to reach out to those affected by the project have not gone unnoticed, which is why I have chosen to contact you directly. Moreover, though I may at times seem unkind your environmental platform, I feel it necessary to reiterate that I feel your work to this end is both admirable and vital to the future of the port and city. If I seem critical, it is only because I feel that the port's policy towards bicycles should be brought in line with the innovative nature of its other environmental reforms.

It is my hope that the port will make good on its green aspirations, by including a bicycle/pedestrian pathway on the Gerald Desmond replacement bridge. I thank you for the consideration of this necessary addition, in addition to the valuable work you perform elsewhere.

Sincerely,



Andrew Reed (Drew)

AR

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Saturday, February 27, 2010 1:51 PM  
**To:** Jelenic, Thomas; Crouch, Stacey  
**Subject:** Fw: Gerald Desmond Bridge EIR

Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
(562) 590-4156  
Cell (562) 477-1597

Sent from my BlackBerry Wireless Handheld

----- Original Message -----

From: Tony Rivera <tony@easyrolloffservices.net>  
To: Cameron, Rick  
Sent: Sat Feb 27 13:06:24 2010  
Subject: Gerald Desmond Bridge EIR

Dear Richard,

I request the following concerns be included and addressed in the EIR for the replacement of the Gerald Desmond Bridge:

- TR-1 { 1) We need to replace the bridge with three traffic lanes plus one emergency lane on each side so that the bridge can safely handle the traffic demands for today and for the future.
- TR-2 { 2) Bridge must be coordinated for future expansion on the 710 freeway.
- TR-3 { 3) Any increase in container needs due to mega ships or any other increases must use on dock rail to accommodate the increase.
- TR-4 { 4) Any port expansion should address all bunker fuel contamination problems for today and in the future so that bunker fuel contamination can be eliminated.
- TR-5 { 5) We must have electric rail system to moved container in and out from the harbor to rail yard going out of state.

Thank you,

Tony Rivera  
Easy Roll Off Services  
2145 West 16th Street  
Long Beach, CA 90813  
562-432-0001  
562-432-0747 Fax

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Thursday, March 04, 2010 12:40 PM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Bike Lanes on The Bridge?

Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)

-----Original Message-----

**From:** Ron Smith [mailto:[dadasmith@mac.com](mailto:dadasmith@mac.com)]  
**Sent:** Monday, March 01, 2010 9:12 PM  
**To:** Cameron, Rick  
**Subject:** Bike Lanes on The Bridge?

Dear Mr. Cameron,

Where are the bike lanes? Where are the pedestrian pathways? I have lived in New York, San Francisco and Copenhagen. All of these great international cities have pedestrian and bike lanes on their urban bridges. What better way to advertise the "Green Port" of Long beach, than with a carbon-free way to see it from above! I ride a road bike for recreation, and have often wanted to ride over to Palos Verdes without riding the dreaded PCH through Wilmington. I also ride a commuter bike everyday to work at Poly High from Belmont Heights.

It is time to see the bike lanes as good advertisements for the city (look at Manhattan), and also as ways for adults and students alike to get to and from work or school. Long Beach has an incredibly bike friendly geography, but unfortunately a very unfriendly, car dominant, infrastructure.

We can change this through new projects that include them from the design phase, such as the Gerald Desmond Bridge. Ever been across the Brooklyn or Manhattan bridges on a bike? Unforgettable experiences. I used to commute on my bike from Brooklyn to Manhattan weekly, with hundreds of others. Get this one going, and LA can do the same on the Vincent Thomas.

I apologize for missing the Feb. 24 deadline, but I just received the re:port newsletter today. All the dates are passed. Is this purposeful?

Thank you,

Ron Smith  
Educator  
LB Poly HS

} RS

Bruce D. Sutherland  
353 Colorado Place. #301  
Long Beach, California  
90814, USA  
Email: [suth532000@yahoo.com](mailto:suth532000@yahoo.com)

3-3-10

Mr. Richard D. Steinke  
Executive Port Director, Port of Long Beach  
Long Beach, California  
Dear Mr. Steinke,

BS

Will the new Gerald Desmond Bridge be bike friendly?  
According to the photoshop renderings on the cover in "re-port"--a  
community newsletter from the Port of Los Angeles, there does not  
seem to be any bicyclists or pedestrians on this bridge. Gas prices  
in the long run will only go up. A lot of bicyclists want to ride  
safely from Long Beach to San Pedro and back.

Thank you for your attention.

Sincerely,

*Bruce D. Sutherland*  
Bruce D. Sutherland

MAR - 5 2010

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Friday, March 19, 2010 7:41 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: gerald desmond bridge

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** Amy Tingirides [mailto:[atingirides@cox.net](mailto:atingirides@cox.net)]  
**Sent:** Thursday, March 18, 2010 9:10 PM  
**To:** Cameron, Rick  
**Subject:** gerald desmond bridge

Hi Cameron,

I am a student interested in financing and wondered if you could answer a couple of questions for me regarding the Gerald Desmond Bridge.

I would like to address some questions in your current draft EIR for the Gerald Desmond Bridge, but didn't know where to send them. If you can please send these to the appropriate person I would appreciate it if they can be included.

1. Since, POLB is short \$487M per the estimated amount of funding necessary to build the Desmond Bridge what is being done to secure those funds? } AT-1
2. Has a P-3 been considered for possible alternative financing method? } AT-2
3. Has the EIR considered all private financing for the bridge project? } AT-3
4. If POLB has \$600M in commitments has the EIR considered going out to the contractor community to see what could be built for \$600M? } AT-4

Best Regards,  
Amy Tingirides

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Monday, February 22, 2010 4:24 PM  
**To:** Jelenic, Thomas; Crouch, Stacey  
**Subject:** FW: Gerald Desmond bridge

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** marie trotter [mailto:marie90803@gmail.com]  
**Sent:** Monday, February 22, 2010 4:20 PM  
**To:** Cameron, Rick  
**Subject:** Gerald Desmond bridge

MT { Richard Cameron,  
Whenever I see 'aging' Gerald Desmond bridge, the first thing that comes to mind is the Brooklyn Bridge.  
It was built lonnnng before the Desmond & is still in great shape.  
The Desmond bridge was a cheap shortcut build & aging should NOT be used for the reason it needs to be rebuilt.  
Thank you for letting me vent,  
M. Trotter

**Crouch, Stacey**

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**From:** Cameron, Rick  
**Sent:** Tuesday, February 23, 2010 8:50 AM  
**To:** Jack Volkov  
**Cc:** Jelenic, Thomas; Crouch, Stacey  
**Subject:** RE: Gerald Desmond Bridge

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** Jack Volkov [mailto:[jvol3@hotmail.com](mailto:jvol3@hotmail.com)]  
**Sent:** Tuesday, February 23, 2010 7:33 AM  
**To:** Cameron, Rick  
**Subject:** Gerald Desmond Bridge

Regarding the new Gerald Desmond Bridge, while new bridge it is under construction, will the old bridge still be in use? Or will I need to find a new way home? } JV

Sincerely,

Jack Volkov III  
[jvol3@hotmail.com](mailto:jvol3@hotmail.com)  
562.491.0930 Home  
626.252.2897 Cell

Hotmail: Trusted email with Microsoft's powerful SPAM protection. [Sign up now.](#)



**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Wednesday, March 10, 2010 2:59 PM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Comment on the Gerald Desmond Bridge

*Richard D. Cameron*  
*Director of Environmental Planning*  
*Port of Long Beach*  
*925 Harbor Plaza*  
*Long Beach, CA 90802*  
*(562) 590-4156*  
[cameron@polb.com](mailto:cameron@polb.com)

**From:** Brian Wolfe [mailto:bwolfe@prarchitects.com]  
**Sent:** Wednesday, March 10, 2010 1:34 PM  
**To:** Cameron, Rick  
**Subject:** Comment on the Gerald Desmond Bridge

Dear Mr. Cameron;

BW { The Gerald Desmond Bridge is a wonderful opportunity to create an iconic landmark for the port and city of Long Beach. I would suspect that an international design competition would bring forth innovative design from highly qualified bridge engineers and architects.

Respectfully;

**Brian Wolfe, AIA**  
Principal  
**Perkowitz + Ruth Architects**  
111 W. Ocean Blvd., 21st Floor  
Long Beach, CA 90802  
[562] 628-8000 phone  
[562] 628-8004 fax  
<mailto:bwolfe@prarchitects.com>  
[www.prarchitects.com](http://www.prarchitects.com)

**Crouch, Stacey**

---

**From:** Cameron, Rick  
**Sent:** Tuesday, March 23, 2010 8:05 AM  
**To:** Crouch, Stacey; Jelenic, Thomas  
**Subject:** FW: Gerald Desmond Bridge

*Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802  
(562) 590-4156  
[cameron@polb.com](mailto:cameron@polb.com)*

**From:** Kumars Zandparsa [mailto:kzandparsa@caltrop.com]  
**Sent:** Tuesday, March 23, 2010 8:04 AM  
**To:** Cameron, Rick  
**Subject:** Gerald Desmond Bridge

**Port of Long Beach:**

The Gerald Desmond Bridge is a vital project for our region and I would like to take this opportunity to express my support. As a resident of the region I am concerned about the deteriorating condition of the Bridge. In 2001, Caltrans deemed the bridge in need of immediate repairs. The bridge is not only important for Los Angeles, but the nation as a whole, because its connecting span is the mainstay for trucks that import and then carry goods from one of the busiest ports in the country.

The constant movement of trucks and big rigs is the causation of the damage to the bridge, due to the frequency, duration, and intensity of our area's needs and the port's of commerce from which those needs are met.

If it continues to deteriorate and become so unsafe it will be closed, traffic will potentially be at a standstill around the Port, Terminal Island, I-710 and negatively impact the region. I appreciate the opportunity to comment on the project.

KZ

Best Regards,

Kumars Zandparsa

1516 West First Street #315

San Pedro, CA 90732

1-714-476-3500

Confidentiality Notice:

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# Public Hearing Comments- February 17, 2010

1	
2	
3	GERALD DESMOND BRIDGE
4	REPLACEMENT PROJECT
5	PUBLIC HEARING
6	PORT OF LONG BEACH
7	CALIFORNIA DEPARTMENT OF TRANSPORTATION
8	
9	
10	<hr/>
11	REPORTER'S TRANSCRIPT OF PROCEEDINGS
12	<hr/>
13	
14	
15	
16	City Council Chambers
17	Long Beach City Hall
18	333 West Ocean Boulevard
19	Long Beach, California
20	Wednesday, February 17, 2010
21	6:30 P.M. - 7:30 P.M.
22	
23	Reported By:
24	Natalie Rodriguez, CSR No. 12851
25	JOB NO. 118621

<p style="text-align: right;">Page 2</p> <p>1 LONG BEACH, CALIFORNIA, WEDNESDAY, FEBRUARY 17, 2001</p> <p>2</p> <p>3 PROCEEDINGS</p> <p>4</p> <p>5 MR. CAMERON: I'd like to welcome everybody</p> <p>6 here this evening and welcome to the Gerald Desmond</p> <p>7 Bridge Replacement Project EIR/EA public hearing. My</p> <p>8 name is Rick Cameron and I'm the Director of</p> <p>9 Environmental Planning for the Port of Long Beach.</p> <p>10 Tonight we're holding this public hearing to solicit</p> <p>11 input on the proposed Gerald Desmond Bridge Replacement</p> <p>12 Project. The Port of Long Beach in cooperation with the</p> <p>13 California Department of Transportation, Cal Trans, has</p> <p>14 produced an Environmental Impact Report/Environmental</p> <p>15 Assessment for the proposed bridge replacement project.</p> <p>16 This is actually a revised draft. In 2004 we</p> <p>17 had the first draft that went out for public review and</p> <p>18 we're in the process right now of -- we made some</p> <p>19 corrections, some revisions and this is kind of round</p> <p>20 two. The Port is the state lead under the California</p> <p>21 Environmental Quality Act and Cal Trans is the federal</p> <p>22 lead under the National Environmental Policy Act. The</p> <p>23 purpose of tonight's meeting is to present the proposed</p> <p>24 project and its alternatives, to describe the impacts</p> <p>25 associated with the proposed project, and measures to</p>	<p style="text-align: right;">Page 4</p> <p>1 rehabilitation alternative of the existing bridge.</p> <p>2 Because of the length of time that has passed the traffic</p> <p>3 analysis was also updated and several of the technical</p> <p>4 studies, including the air quality and the health risk</p> <p>5 studies were also updated and are currently reflected in</p> <p>6 this current draft.</p> <p>7 The need for the project. The existing bridge</p> <p>8 was built in 1968 and there have been several studies</p> <p>9 conducted by Cal Trans and by the Port of Engineers which</p> <p>10 had deemed this bridge to be below sufficiency in terms</p> <p>11 of structure and for other seismic standards as well.</p> <p>12 There's also a need in terms of its current height</p> <p>13 limitations that it has for vessel navigation for the</p> <p>14 marine facilities that need to go north of the bridge</p> <p>15 area and in the back area of Port of Long Beach, as well</p> <p>16 as the need for additional capacity.</p> <p>17 There are currently insufficient -- there are</p> <p>18 two lanes on each side. There are no right-away areas</p> <p>19 for any type of emergency vehicles and/or for when cars</p> <p>20 break down on the bridge. A lot of this boils down to</p> <p>21 our purpose and need and reflects where we're moving</p> <p>22 forward with the proposed project. The purpose of the</p> <p>23 proposed projects and the building of the new bridge as</p> <p>24 well as looking at the alternatives, which includes</p> <p>25 rehabilitation of the existing bridge and we also look at</p>
<p style="text-align: right;">Page 3</p> <p>1 mitigate those impacts.</p> <p>2 They've been analyzed and a better --</p> <p>3 (inaudible) in the revised draft. This is the first of</p> <p>4 several opportunities for you to provide any comments you</p> <p>5 may have on the proposed project and the environmental</p> <p>6 document that's out for public review right now, any of</p> <p>7 the alternatives as well. There will be a second public</p> <p>8 hearing on the 24th, February 24, at Silverado Park in</p> <p>9 West Long Beach, and you may also submit written comments</p> <p>10 any time up until March 22. In the transmittal letter</p> <p>11 for releasing the environmental documents a couple weeks</p> <p>12 ago we had a typo. We had March 18.</p> <p>13 So I just want to make a clarification right now</p> <p>14 for the record that it's actually March 22, and we'll be</p> <p>15 putting out a notification to that as well. The draft</p> <p>16 EIR/EA for the proposed project, as I stated earlier, was</p> <p>17 circulated in June 2004. After which time the Port's</p> <p>18 environmental documents were put on hold pending</p> <p>19 development of some new environmental protocols, which</p> <p>20 are reflected in this current revised draft document.</p> <p>21 The 2004 EIR/EA considered three alternatives:</p> <p>22 The North-Side Alignment for the proposed project,</p> <p>23 preferred project; the South-Side Alignment, and the No</p> <p>24 Project. The 2010 current revised draft EIR/EI -- EA,</p> <p>25 excuse me, includes an additional alternative, which is</p>	<p style="text-align: right;">Page 5</p> <p>1 the No Project alternative in the environmental document.</p> <p>2 The overall goals and objectives is to build a</p> <p>3 new bridge that is structurally sound, deal with the</p> <p>4 seismic stability of the bridge at this point current</p> <p>5 time, bring it up to code and standards, address the</p> <p>6 approach grades. The current bridge has very steep</p> <p>7 approach grades and many of the alternatives in the</p> <p>8 document actually lower the current approach grades and</p> <p>9 have overall benefits in terms of reduce speeds, the need</p> <p>10 to climb the grade with heavy vehicles. It talked about</p> <p>11 the capacity for existing and future demand. That's</p> <p>12 adding additional lanes.</p> <p>13 There will be three lanes on each side in the</p> <p>14 alternatives in addition to 10 foot clearance for safety</p> <p>15 and set back areas. And more importantly, vertical</p> <p>16 clearance for the larger ships. The current bridge</p> <p>17 limits even the midsize current vessels from safely</p> <p>18 navigating into the back facilities. I've mentioned</p> <p>19 several alternatives that have been considered. There</p> <p>20 are four alternatives.</p> <p>21 Once again, the North-Side Alternative is the</p> <p>22 preferred project alternative. We have also looked at</p> <p>23 the South-Side Alignment Alternative, the bridge rehab</p> <p>24 alternative, and the No Project. I'm going to give a</p> <p>25 little bit of description on each of these currently.</p>

<p style="text-align: right;">Page 6</p> <p>1 The North-Side Alignment Alternative will provide a new 2 bridge located approximately 140 feet north of the 3 existing bridge. 4 The new bridge would be a cable-stayed design, 5 200 feet above the back channel, and have a five percent 6 grade with three lanes, plus shoulders, in each 7 direction. The project would also include reconstruction 8 of the existing horseshoe ramp interchange on Pier T, 9 which is on the westward side, island side, and 10 reconstruction of the connectors to the I-710 and Pico 11 Avenue, which would be on the eastern side of the project 12 area. The South-Side Alignment would include the same 13 basic elements as the North-Side Alignment as I've just 14 described, but it would be approximately 177 feet south 15 of the existing bridge. 16 Following construction of a new bridge on either 17 the North- or South-Side Alignments, the existing bridge 18 would be demolished. So the existing bridge on both of 19 these alternatives would stay in operation until either 20 one of the alternatives was ready for opening. There 21 probably would be some minor delays on the back end of 22 connecting the horseshoe ramps and I-710 connectors. 23 However, the overall operation of the existing bridge 24 will stay in place. 25 The Rehabilitation/No Project Alternatives:</p>	<p style="text-align: right;">Page 8</p> <p>1 impact to the Port operations, and maintenance. These 2 are all the considerations that have gone into evaluating 3 each of these alternatives and the selection of these 4 alternatives. Based on all of these parameters a single 5 mast tower, cable-stayed bridge design was chosen to move 6 forward with. 7 I now will highlight some of the impacts 8 associated with the project, which are also associated 9 with many of the alternatives and have a lot of 10 similarities when we're talking about the preferred 11 project of the Northern Alignment as well as Southern 12 Alignment alternative. Some of the impacts are much 13 different also with the rehabilitation and that's by 14 virtue of not replacing the existing bridge and so much 15 of the impacts are a little bit different, maybe even 16 less. And the No Project doesn't have many of the 17 structural impacts associated with it. So I'm just 18 going to give you a little bit of highlight on some of 19 the things -- the two alternatives for replacement of the 20 bridge. 21 Project Impacts: There would be impacts to 22 intersections during construction including the Pier B 23 Street, 9th Street, Pico Avenue intersection and the Pico 24 Avenue, Pier D Street intersection. The impacts 25 associated with construction would be temporary but</p>
<p style="text-align: right;">Page 7</p> <p>1 With the Bridge Rehabilitation Alternative the existing 2 bridge would be rehabilitated to improve its seismic 3 performance and extend its life span. No new lanes would 4 be added and the height of the bridge would remain at 156 5 feet. Rehabilitation would include replacement of the 6 bridge deck, expansion joints, and sway bracings, 7 painting of the steel members, and seismic retrofit of 8 foundations, columns, bent caps, abutments, and 9 superstructure. Rehabilitation would extend the life of 10 the existing bridge by approximately 20 years, after 11 which time it would need to be replaced. 12 The No Project Alternative, as the name implies, 13 would not result in any changes to the bridge, its 14 approach ramps, or connecting intersections. As traffic 15 is increased in the coming years, the area would become 16 more and more congested. That's as a result of not 17 adding additional capacity -- (inaudible). Replacement 18 Concepts. I'm just going to go over a little bit of the 19 different types of designs that went into the overall 20 replacement of the bridge and some of the elements. 21 The bridge replacement parameters include 22 different types of bridges, bridge roadway geometry, 23 height and span, dimension of the major structural 24 members, location, aesthetics, cost, constructability, 25 seismic performance, right-of-way issues, schedule,</p>	<p style="text-align: right;">Page 9</p> <p>1 mitigation measures such as lane widening, re-stripping, 2 and installation of a traffic signal would help lessen 3 these impacts. These are described as mitigation 4 measures in the current draft. By 2015, traffic volumes 5 would be such that there would be significant adverse 6 impact during operations at the Navy Way/Seaside Avenue 7 intersection. 8 There is no mitigation within the Port's control 9 that could be implemented. However, the Port of Los 10 Angeles is proposing improvements that would reduce the 11 impact to insignificant. Until that time, the impact 12 would remain significant. And this is associated with 13 some of the improvements that the Port of Los Angeles has 14 planned as part of their mitigation improvements. 15 There would be air quality impacts during 16 construction. The Port would use mitigation measures 17 prescribed by the South Coast Air Quality Management 18 District, such as dust suppression, turning off trucks to 19 reduce idling, and scheduling deliveries of construction 20 materials for off-peak hours. These are very basic and 21 standard mitigation measures. In addition, we would be 22 applying many of the same types of mitigation measures 23 associated with the cleaner -- cleaner construction 24 equipment that was proposed in the Middle Harbor Project. 25 For consistency purposes that was necessary.</p>

<p style="text-align: right;">Page 10</p> <p>1 There would also be significant cumulative air 2 impacts during the overall operation of the bridge. And 3 this is by virtue of that and other single lane capacity 4 volumes traffic on the bridge. From a habitat biological 5 standpoint there are Peregrine falcons that occasionally 6 use the existing bridge for nesting. They also use the 7 Heim Bridge on Terminal Island. 8 They use Koch Carbon's silos on Pier F in the 9 Port of Long Beach, as well as -- as many of you know or 10 do not know if you've ever served at the county 11 courthouse, they actually utilized the courthouse. It's 12 one of their primary nesting areas as well as city hall 13 here. They will actually nest at the top of building. 14 The Port has worked the California Department of Fish and 15 Game to establish a monitoring program associated with 16 this project, which would provide no work zones and place 17 nesting platforms on the new bridge for the new bridge 18 operations. 19 Since the old bridge would not be demolished 20 until the new one is finished, there would never be a 21 time when nesting platforms were not available. So there 22 will be nesting platforms at all times. The current 23 bridge also has bats, and yes, they are protected and we 24 have to make sure we are not impacting the bats on the 25 bridge. Again, the Port has worked with California</p>	<p style="text-align: right;">Page 12</p> <p>1 although traffic would continue to flow it would be much 2 slower than today creating traffic as well as air quality 3 issues. The existing bridge which currently has three 4 climbing lanes and two descending lanes on each side and 5 while the additional climbing lanes help traffic flow, it 6 is a Band-Aid at best. That's kind of -- I think 7 everybody knows what I'm talking about there. 8 The new bridge would have three through lanes 9 and a shoulder on each side. The shoulders, in 10 particular, would help maintain traffic flow on the 11 bridge since breakdowns and accidents could be moved to 12 the side and out of traffic lanes and help maintain flow. 13 I don't know if any of you have ever been stuck on the 14 top of that bridge during a traffic jam or accident, but 15 you can definitely feel the bridge moving around. 16 Raising the bridge would help accommodate the new 17 generation of ships currently being built or already in 18 service. 19 That factors back to the need for higher 20 clearance. The new bridge height would help the new, 21 larger ships transit the back channel safely. As a bonus 22 these newer ships also are the newer greener ships that 23 will be the future as well. I'm kind of wrapping up the 24 conclusion of my presentation at this point in time. I 25 just want to make a couple of announcements I should have</p>
<p style="text-align: right;">Page 11</p> <p>1 Department Fish and Game to establish the appropriate 2 mitigation measures that would provide a smooth 3 transition from the old bridge to the new bridge. 4 Another issue of concern is encountering 5 historic hazardous materials and hazardous waste. This 6 is associated with each of the alternatives for the 7 replacement of the bridge, and the document describes the 8 processes and protocols to ensure that worker health and 9 safety and the materials are properly handled, disposed 10 of, what that implies in the project. Once again, just a 11 reminder -- a little of summary of what we're trying to 12 accomplish here with the replacement of the bridge. 13 The existing bridge is nearing the end of its 14 useful life as I stated earlier. It was built in 1968 15 and the standards for bridges have evolved. The new 16 bridge would have a 100 year life span and would be 17 structurally sound, seismically resistant, and it almost 18 certainly would become a signature for the City of Long 19 Beach. The grades on the existing bridge make it 20 difficult for trucks to make the climb, resulting in much 21 slower speeds on the bridge. 22 The new lower grades would allow the trucks to 23 move faster and therefore keep traffic moving faster 24 overall. The projected future car and truck volumes 25 could overwhelm the capacity of the existing bridge and</p>	<p style="text-align: right;">Page 13</p> <p>1 made earlier. 2 We do have our partners. We have Carl Price 3 from Cal Trans who's here. Carl, would you raise your 4 hand. It really has been a collaboration for many years 5 now in preparing this environmental document, and it 6 needs to meet multiple standards and I think we've been 7 able to accomplish that. Some next steps: There will be 8 a second public hearing, which I indicated earlier, on 9 February 24. It will be at 6 o'clock, starting out in a 10 very similar format with the first half hour, we'll have 11 kind of a walk around through display boards, Q&amp;A. And 12 then at 6:30 the public hearing will start promptly. 13 That's at Silverado Park at the address listed 14 above. Finally, we have our court reporter here and I've 15 probably been talking a little bit faster than I should, 16 but when you do come up for the public comment, please be 17 clear, state your name. We do have this for the record. 18 We also have Spanish translation if there's anybody that 19 needs Spanish translation, as well as sign language for 20 hearing impaired. So I just want to accommodate that. 21 In conclusion, just a reminder where you can 22 find the draft environmental document and other project 23 information, special studies are available at the Port of 24 Long Beach or Cal Trans District 7 at the addresses above 25 on the slide in terms of the online and you can download</p>



<p style="text-align: right;">Page 14</p> <p>1 materials. If anybody has a need for hard copies or 2 doesn't have the means to access that material, feel free 3 to contact my staff or myself and we'll make sure that 4 you get the proper materials. We also have, as indicated 5 above, they also can be located at Long Beach City Hall, 6 City of Long Beach Main Library located next door, and 7 the San Pedro Regional Branch Library on 931 South Gaffey 8 Street, San Pedro; and the Wilmington Branch Library at 9 1300 North Avalon Boulevard in Wilmington. 10 Some of the kind of next steps as indicated 11 before the 45 day public comment period will conclude on 12 March 22. From that time moving forward both Port and 13 Cal Trans staff will be preparing the final EIR/EA, which 14 includes reviewing all the comments we receive, all the 15 public testimony that we receive at this hearing as well 16 as the next hearing next week. We will prepare responses 17 to those comments. We will make the necessary revisions 18 that need to be incorporated into the final document 19 pursuant to those comments in the public testimony. 20 Following preparation of the final document, it 21 will be distributed to all those who commented, firstly, 22 and then in the Port's case the EIR would go before the 23 Board of Harbor Commissioners for certification, and the 24 Board at that particular time could then choose one of 25 the alternatives to move forward. Cal Trans' -- their</p>	<p style="text-align: right;">Page 16</p> <p>1 Beach Gerald Desmond Bridge replacement project, which I 2 believe will bring jobs and encourage economic growth to 3 our communities and overall region. This bridge is vital 4 to the Ports of Long Beach and Los Angeles, the region, 5 national infrastructure and more than 60,000 vehicles a 6 day that travel on it. With its deteriorating physical 7 condition and low rating by state and federal inspectors, 8 the new bridge with additional lanes and emergency 9 shoulders in both directions will help keep the bridge 10 from becoming a traffic trap when an accident or 11 breakdown occurs. 12 The new higher clearance of 200 feet will also 13 help accommodate the bigger, greener ships of the future. 14 This project will support on average about 4,000 jobs a 15 year for five years. According to the LA Economic 16 Development Analysis the 1.1 billion dollars invested in 17 the bridge will generate 2.8 billion dollars in economic 18 activity for the area. Finally, I believe it is crucial 19 that the project move forward in a way that remains 20 respectful of and responsive to businesses and community 21 members whose lives will be most closely affected. Thank 22 you. 23 MR. CAMERON: Thank you. 24 PUBLIC SPEAKER: Good evening. My name is 25 Geraldine Knatz. I'm the Executive Director of the Port</p>
<p style="text-align: right;">Page 15</p> <p>1 next step would be to prepare a finding of no significant 2 impact, if that is the conclusion, and ultimately approve 3 the project. We release final document 10 days prior to 4 the Board -- (inaudible) taking any action on this 5 project. So it's a little bit of the next steps in the 6 process. 7 And as I indicated earlier, you can still make 8 comments to me directly at the contact information listed 9 above. And at this point in time I would like to thank 10 everybody. I'm going to conclude my presentation and 11 open it for public comment. I have the list of speakers 12 that have signed in. For those of you who have walked in 13 or have not signed in or choose to speak midway through, 14 please find -- I've got several staff of people around, 15 you can fill out a yellow card. 16 It's very important to get your contact 17 information. And we'll get you in the proper cue. The 18 first speaker I'm going to call is Bianca Villanueva and 19 she is a representative for Assembly member Bonnie 20 Lowenthal. The next speaker will be Geraldine Knatz, 21 executive director for the Port of Los Angeles. 22 PUBLIC SPEAKER: Good afternoon. My name is 23 Bianca Villanueva and I'm here to read a statement on 24 behalf of Assembly Member Bonnie Lowenthal. I am pleased 25 to add my voice to those in support of the Port of Long</p>	<p style="text-align: right;">Page 17</p> <p>1 of Los Angeles. That other San Pedro bay port. I'm here 2 tonight on behalf of the Port of Los Angeles to voice our 3 support for replacing the Gerald Desmond Bridge. On a 4 personal note as Long Beach resident I'm in the 5 population of motorists that collectively make about 6 25,000 daily trips over the bridge. 7 As a daily commuter I have to tell you that 8 crossing the Gerald Desmond Bridge can be a riveting 9 experience because it funnels down to two lanes at the 10 top and the trucks with the heaviest loads slow to a 11 crawl and push noncargo traffic to the inside lanes like 12 sheep being herded over a mountain pass. For that reason 13 you really have to have your wits about you as you drive 14 around the cargo-hauling trucks and the occasional 15 motorists who are not accustomed to a bridge with a 16 stunning view, a ton of freight traffic, and at its apex 17 only two lanes in each direction. 18 So those are the considerations that go through 19 my mind as a daily commuting adventure going across the 20 bridge. But in the bigger scheme of things tonight it 21 will be noted how important construction of a new bridge 22 is to our cities, our region, our state, and the nation. 23 This bridge is as important to the Port of Los Angeles as 24 it is to Long Beach not only because of the jobs created 25 by the construction, but because about 60 percent of</p>

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<p style="text-align: right;">Page 18</p> <p>1 containers going over the bridge come from Port of Los 2 Angeles cargo terminals. 3 Both the ports are presently investing hundreds 4 of millions of dollars to grow and green their facilities 5 for the decades ahead and to protect the regional job 6 base connected to international trade through San Pedro 7 Bay. It's for these reasons that as a de facto trade 8 highway to the nation the I-710 Gerald Desmond Bridge 9 gateway must be upgraded to 21st century standards. Now 10 the speakers here tonight will attest to the fact that 11 this is a project of national significance. 12 Although, in the wake of today's federal tiger 13 grant funding announcement and that's the pot of money 14 awarded by the Secretary of Transportation, the stimulus 15 money, we ought to remind people in Washington about this 16 fact because much to our surprise this project and really 17 all the projects in the City of Los Angeles and Long 18 Beach were overlooked in this award of important national 19 strategic transportation projects. And for a bridge like 20 this not to be at the top of the list, the top of the 21 nation's list is pretty shocking. Although, it is a 22 small consultation as a former planning director at the 23 Port of Long Beach, I happen to know the exact location 24 of the golden spike that was relocated on the bridge 25 following its dedication in 1978 and when the time comes,</p>	<p style="text-align: right;">Page 20</p> <p>1 tallest container vessels to enter the port. The Gerald 2 Desmond Bridge is old, antiquated, outdated, and 3 crumbling from excess wear and tear. 4 Bridge replacement will provide us with a 5 modern, safe, and seismically secure transportation 6 artery. A new bridge will keep our ports competitive 7 with other US ports. It will also serve as a catalyst 8 for new job creation benefiting those presently involved 9 in the goods movement industry and will provide unlimited 10 work and career opportunities for those young people 11 enrolled in high school, college, and university logistic 12 programs sponsored in large part by both the ports of San 13 Pedro Bay. 14 A new bridge will help the port recapture some 15 of its lost discretionary cargo and improve and increase 16 its cargo market share. As a consequence everyone 17 benefits. More jobs create an economic multiplier 18 effect, local businesses prosper, tax revenue increases 19 while our regional economy grows stronger. Taking a do 20 nothing approach will surely result in traffic 21 congestion, loss of jobs, loss of discretionary cargo, 22 loss of cargo market share. 23 Reduced cargo volume means reduced port revenue, 24 which will limit the port's ability to continue to expand 25 and improve its green port programs. As much as we love</p>
<p style="text-align: right;">Page 19</p> <p>1 I will pass on this protected piece of intelligence to 2 Mr. Sankey because he may need to hawk it in order to 3 raise some funds for this critical project, a project of 4 national importance. Thank you for providing me an 5 opportunity to speak in support of this important 6 project. 7 MR. CAMERON: Thank you. Domenick Miretti and 8 then after that will be Tom Moxley. 9 PUBLIC SPEAKER: Thank you Mr. Chairman. I'm 10 Domenick Miretti a member of ILWU Local 63 and the 11 union's liaison to the ports of San Pedro Bay. I'm 12 speaking in favor of replacing the aging Gerald Desmond 13 Bridge. Local market area residents often see massive 14 infrastructure projects as being cold, impersonal, and at 15 times intimidating. On the other hand, I along with ILW 16 coworkers and many community residents see replacing the 17 Gerald Desmond Bridge as a positive project that will 18 benefit numerous people. 19 Bridge replacement we believe will provide a 20 number of very positive benefits to local residents, the 21 business sector, our regional economy and improve our 22 area's quality of life. A new bridge will increase 23 capacity, cars, trucks and other cargo will faster and 24 more efficiently reducing traffic congestion. Increasing 25 the height of the bridge will allow the newest and</p>	<p style="text-align: right;">Page 21</p> <p>1 our northern and southern neighbors let's keep the ports 2 of San Pedro Bay the gateway to Pacific rim trade and 3 create American jobs. Replacing the Gerald Desmond 4 Bridge will help accomplish those goals. Thank you. 5 MR. CAMERON: Thank you. After Mr. Moxley will 6 be Mr. Larison. 7 PUBLIC SPEAKER: Mr. Chairman, thank you. My 8 name is Tom Moxley and I am President of the LA, Orange 9 County Building and Construction Trades Counsel, 140,000 10 men and women who work in the building construction 11 trades. Many of them are here in the audience tonight 12 from the different crafts that will be working on this 13 bridge. I also grew up in Long Beach. A little history, 14 I remember when the pontoon bridge was there with the 15 draw bridge. It was thought at that time and said we 16 don't need it. The Gerald Desmond Bridge was named after 17 a prominent attorney here in Long Beach and I hope it 18 retains that name. But this is job that provides jobs, 19 career opportunities for the young men and women in the 20 building construction trades. It was much needed then. 21 It's life has been used up and it's time to replace it. 22 The building construction trades, and I am a 23 member of the Iron Workers Association Bridge, 24 Structural, Ornamental Iron Workers and we have a very 25 concerned effort in this due to the fact that we build</p>

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<p>LA/OCBCTC</p>	<p style="text-align: right;">Page 22</p> <p>1 bridges. The bridges in the United States today are all 2 crumbling. If you look at the number of safe bridge, 3 it's deplorable what Eisenhower started in the '50s and 4 where we've come today. This is just one of the many 5 bridges that need to be replaced and it's much needed. 6 I have been following this bridge for 10 years, 7 and it should have been finished in 2007 as originally 8 designed. It's time to build this bridge, build it now, 9 and the impacts are greatly manifested that I think your 10 EIR, which I've been sitting down reading and sometimes 11 fall asleep, but the benefits that aren't in the EIR with 12 air quality -- I think is more beneficial by not having 13 trucks idling on the bridge and the traffic and the flow 14 of commerce. Thank you very much. 15 MR. CAMERON: Thank you. After Mr. Larison, 16 Carlo DeAntouguia -- sorry. 17 PUBLIC SPEAKER: Good evening. My name is 18 Michael Larison, and I represent tradesmen just like a 19 lot of these people that are sitting here. I'm retired 20 from local 12 operating engineers. I represent the 21 industry. I'd like to follow up a little bit on what the 22 gentleman said. I'm a native. I've worked here for -- 23 in the harbor for over 40 years. I remember the pontoon 24 bridge, and I remember when the Gerald Desmond Bridge was 25 built. My grandfather remembers the lift bridge</p>	<p style="text-align: right;">Page 24</p> <p>1 of those wires. So from 156 feet to 200 feet is what 2 this harbor needs to accommodate the newer vessels that 3 are in service or are going to be in service especially 4 to support Pier A and Pier S Project, not to mention what 5 might happen in Pier T. 6 There's a lot of work that's going to happen in 7 the future to accommodate these harbors on Terminal 8 Island. The traffic needs to get on and get off. This 9 bridge is going to help that immensely. Thanks. 10 MR. CAMERON: Thank you. Please pronounce your 11 name. 12 PUBLIC SPEAKER: Good evening. My name is 13 Carlo DeAntouguia. I'm the president of the Foreign 14 Trade Association of Southern California. The Foreign 15 Trade Association of Southern California is the oldest 16 international trade association in Southern California. 17 We represent over 300 member firms in the area who have 18 tons of thousands of employees who are not only residents 19 of the area but also commuters over the current Gerald 20 Desmond Bridge. 21 I'm here to voice my support for the 22 redevelopment of the new bridge. As has been eloquently 23 articulated by the speakers before me, not only will it 24 provide new jobs to the area which are much needed, but 25 being active in the international trade community, we</p>	<p>ML</p> <p>FTASC</p>
<p>ML</p>	<p style="text-align: right;">Page 23</p> <p>1 before it. So that's three different generations. This 2 will be the fourth. I'd like -- I want to be on record 3 as saying that we need this bridge and we need it now. 4 Knowing the industry and being associated with the 5 construction of the harbor in Long Beach and LA, there 6 are tremendous projects that are going on on Terminal 7 Island, not the least of which is the Pier S Project. 8 One of the studies in the EIR indicates that in 2005, 25 9 percent of the traffic that either have an origin or a 10 destination in LA or Long Beach went across the Gerald 11 Desmond. 12 By 2030 that will increase to 44 percent by 13 projections. A lot of the benefits of this bridge are 14 going to be the flatter slope going five and a half 15 percent east to west and six percent west to east or vice 16 versa to a flat five percent with three lanes either 17 direction and outside shoulders. So when the broke-down 18 trucks get broke down, they can pull off to the side. 19 It's time for the bridge and it's time to happen now. 20 As a little side bar one of the things that I'm 21 sure some of the people here that are familiar with the 22 harbor realize that at a 156 foot vertical clearance on 23 the existing Gerald Desmond, that's exactly equal to the 24 power lines on SCE from Pier A to Pier S. Part of this 25 EIR, as I understand it, will be to increase the height</p>	<p style="text-align: right;">Page 25</p> <p>1 cannot take our eye off the fact that the Panama Canal 2 will come on line on 2014 and we need to do whatever we 3 can in Southern California to ensure that we are ahead of 4 the game providing that we maintain our spot as the 5 biggest port in the United States. So once again on 6 behalf of the association of the Foreign Trade 7 Association I'd like to voice our support for the 8 development of a new Gerald Desmond Bridge. 9 MR. CAMERON: Thank you. The next two speakers 10 Bruce Russell and after Bruce will be Mark Jurisic. 11 PUBLIC SPEAKER: Good evening. My name is 12 Bruce Russell. I'm here as a member of the board of 13 directors of the Los Angeles County Chapter of the 14 American Counsel of Engineering Companies, also known as 15 ACEC. I'm here today on behalf of the chapter to express 16 our support of the FAIS for the Gerald Desmond Bridge. 17 ACECLA will provide a letter of support for the record 18 and to include the public comments in support of the 19 FAIS. 20 One of our partner organization, the American 21 Society of Civil Engineers each year issues a report card 22 for infrastructure throughout the United States. That 23 report card for Los Angeles County notes our roads and 24 highway is rated D plus and our bridges rate a C. 25 Neither of those grades are very admirable. Certainly,</p>	<p>LACACEC</p>

<p>LACACEC</p>	<p style="text-align: right;">Page 26</p> <p>1 the current condition of the Gerald Desmond Bridge is of 2 great concern. Parts of the bridge are literally falling 3 off and safety features must be added. 4 Overall it rates a very low inspections rating. 5 It is neither cost effective nor a wise use of public 6 money to simply patch the bridge. It must be replaced. 7 The bridge is also an important link for local 8 transportation and trucks carrying goods in and out of 9 the ports. 10 The new bridge will have a modern design, will 11 be safer for trucks and cars, and will provide safe 12 clearance for newer and cleaner fleets of cargo ships. 13 Construction of the new bridge will bring jobs and 14 economic impact to our region. More important the new 15 bridge will keep our two San Pedro ports at the top in an 16 increasingly competitive shipping climate. A strong – 17 strong ports mean good long-term jobs for our region. We 18 support the recommended north side project. Thank you. 19 MR. CAMERON: Thank you. 20 PUBLIC SPEAKER: Good evening. My name is Mark 21 Jurisic. I'm from the ILWU Local 13. I'm here to speak 22 in support of the Gerald Desmond replacement project. 23 I'm here to speak because this is the responsible thing 24 to do. This is not just a project that's going to create 25 jobs. This is a safety issue. Our friends, our</p>	<p style="text-align: right;">Page 28</p> <p>1 MR. CAMERON: Thank you. Tammy -- is it 2 Faavae -- Tommy. I apologize. It looked like an A. 3 PUBLIC SPEAKER: It's okay. I get that a lot 4 from the Mayor of Los Angeles. My name is Tommy Faavae. 5 I represent International Brotherhood of Electrical 6 Workers of the greater Los Angeles area. I'm a stake 7 holder in Port of Long Beach and City of Long Beach. I'm 8 an organizer in the particular area. No disrespect to 9 Gerald Desmond. I think this bridge should be named 10 after Larry Henderson because I feel he has put a lot of 11 mileage on this Gerald Desmond Bridge of going back and 12 forth to Port of Long Beach Harbor Commissioner meetings. 13 But I would like to say wholeheartedly that we 14 are in full support of this project -- this major project 15 to build a new Gerald Desmond Bridge. I feel this is -- 16 it's an opportunity and a ladder for our youth to come 17 into apprentice program and go through apprentice program 18 and finish it and say that they not just only have a job 19 but a career to come through -- a career pathway. And I 20 feel that's really needed in the Port of Long Beach and 21 City of Long Beach. That we move on this project and we 22 would like to, you know, have the Port of Long Beach 23 support a Project Labor Agreement because it gives the 24 opportunity for local hire within the Port of Long Beach 25 and the city also. So we definitely support this project</p>	<p>IBEWLA</p>
<p>MJ</p>	<p style="text-align: right;">Page 27</p> <p>1 families, our neighbors are using this bridge. Chunks of 2 concrete are falling off. It's not earthquake safe. 3 This is a safety issue first and foremost. 4 The creation of jobs is a wonderful byline, but 5 I drive this bridge and so does my family. I'm really 6 concerned. The only responsible thing we can do is 7 replace this bridge. It's insanity to think that some 8 people don't want to make this change. I'm here to speak 9 in support. Thank you. 10 MR. CAMERON: Thank you. Rich Pines, Kevin 11 Bass. 12 PUBLIC SPEAKER: Good evening. I'm Kevin Bass 13 with District Counsel 36, Painters and Allied Trades. We 14 represent about 11,000 workers from Bakersfield down to 15 the border and we have many workers that are in this area 16 also. Some of them are here. You guys can stand. These 17 are just some of the guys in some of our trades. 18 Above and beyond the obvious reasons the safety 19 issues, the obsolescence of the bridge, this is a good 20 opportunity to give some of these people an opportunity 21 to get back in the working force, help to stimulate our 22 economy, and just help people to raise their families and 23 give them good working jobs. Good jobs with a good 24 living wage. So that's what I'd like to say and we're 25 all in support of this project. Thank you.</p>	<p style="text-align: right;">Page 29</p> <p>1 and we'd like to see it several ready soon. Thank you. 2 MR. CAMERON: Thank you, Tom. I apologize. 3 The next two speakers Michele Grubbs and then Jane 4 Templin. 5 PUBLIC SPEAKER: Good evening. My name is 6 Michelle Grubbs and I'm here on behalf of Pacific 7 Merchant Shipping Association. We represent more than 60 8 marine terminal operators, ocean carriers, and passenger 9 vessel members. Our members are primarily engaged in 10 containerized trade at US West Coast ports. As the home 11 of one of the nation's busiest container ports Long Beach 12 must keep up and stay competitive with up-and-coming 13 ports on the horizon. The Gerald Desmond Bridge serves 14 as a critical cargo artery from the San Pedro Bay ports 15 to the rest of the nation. The 42-year-old bridge is on 16 the cusp of being found structurally deficient. 17 As we know Cal Trans has given the Gerald 18 Desmond Bridge a low sufficiency rating 43 out of a 19 hundred, and that is unacceptable for a critical piece of 20 infrastructure in California. The bridge today carries 21 millions of cars and trucks trips annually. Today's 22 reality far exceeds traffic expectations of the bridge 23 original planners in 1968. Replacing the bridge would 24 benefit the local community. Local commuters make up 75 25 percent of the traffic that travels over the bridge and</p>	<p>PMSA</p>
<p>PATDC36(A)</p>	<p>California Deposition Reporters</p>	<p style="text-align: right;">Page: 8</p>	



	Page 30	Page 32				
PMSA	1 my husband is one of those that travels it every day. 2 Ultimately, this one billion dollar investment 3 would generate 2.8 billion in economic growth for 4 Southern California economy. And I think we've heard 5 from a number of speakers about that today. It would 6 provide an average of 4,000 much needed jobs per year for 7 five years. And the benefits of this investment would 8 not just be for the immediate economic boost, which we 9 all desperately need to the region, but would run for 10 several decades as a result of improved traffic safety on 11 the new bridge. 12 We ask that the Gerald Desmond Bridge EIR be 13 approved in a timely manner. We cannot afford multiyear 14 delays like we've seen with other port projects. This is 15 a bridge that has a net referred to as a diaper below it 16 to catch falling concrete. And as we all well know 17 anything that requires a diaper definitely needs to be 18 changed.	1 Street and the privately held property. You then refer 2 in the EIR to look at section 2.1.3.2. When you refer to 3 that section, that section looks like it's been left out 4 of the draft on the web. I don't know. It's just blank. 5 And we would ask that inclusion in the final EIR 6 description of which properties would be taken, which 7 parcels, and the amount of size on each parcel, so that 8 our business can have a little bit more certainty about 9 future operations on Pier D Street. Thank you.	BCOM			
	19 PUBLIC SPEAKER: Good evening. Jane Templin, 20 resident, 30 year resident of Long Beach and IBEW Local 21 11 construction wire woman, 34 years. I'm here to 22 support the North-Side construction of the new Gerald 23 Desmond Bridge, but I'd also like to speak about -- I 24 hope it's going to be under a PLA. It is the opportunity 25 to bring in the youth. The tradesmen that you saw stand	10 MR. CAMERON: Thanks Lou. Lou, what we'll do 11 is we'll go back and double check what's online and if 12 there's something missing, we'll make sure we get it out 13 there. Thank you for noting that. Next speaker. 14 PUBLIC SPEAKER: Good evening. My name is 15 Stephanie Esparza. I am the secretary and treasurer for 16 the Propellor Club of Los Angeles and Long Beach. We 17 have close to 200 members residing in the LA, Long Beach 18 area. And representing the Propellor Club, I would like 19 to express our support for the Port of Long Beach's EIR 20 to construct the new Gerald Desmond Bridge. This bridge 21 is a major artery for commuter traffic, commerce, and 22 emergency vehicles in the cities of Los Angeles and Long 23 Beach. The Gerald Desmond Bridge is now 40 years old. 24 It is deteriorating with pieces of concrete 25 periodically falling from the span. Cal Trans has put				
	JTe	1 up -- those that are apprentices would you please stand 2 up. This is our youth in training to become the next 3 skilled craftsmen and the opportunity to have a steady 4 good job and a good life and career. Thank you. 5 The opportunity under a PLA to bring in our 6 community youth and to bring in the next middle class 7 style and career potential can't be passed up. So I 8 strongly urge you not only to build the bridge but to do 9 it under a PLA. Thank you. 10 MR. CAMERON: Thank you. The next two 11 speakers, Lou Baglietto and then Stephanie Esparza. 12 PUBLIC SPEAKER: Good afternoon. I'm Lou 13 Baglietto, a partner at Butterfield Communications and 14 I'm also a daily commuter across the bridge. I along 15 with every one of our clients at Butterfield 16 Communications enthusiastically supports the need to 17 rebuild the bridge and look forward to the day when we 18 reopen the new bridge. However, on behalf of one of my 19 clients, Gamble Industries, which is located at 1825 Pier 20 D Street, essentially we have a question. Looking -- and 21 the Port of Long Beach did a wonderful job at writing 22 this EIR. It's in depth. It's a breath. 23 However, in the community impact section you essentially 24 talk about there may be a potential need of taking 25 approximately point seven acre of property along Pier D		1 netting to protect people and vehicles from below the 2 bridge from this debris. However, a permanent fix must 3 be made as soon as possible. The Port of Long Beach has 4 a plan that enlists funding from federal, state, and 5 local sources to construct a new bridge alongside the 6 existing bridge. This will allow uninterrupted traffic 7 to flow during construction. 8 With approximately 18 million vehicle trips a 9 year over the existing bridge the Gerald Desmond has 10 exceeded its capacity. The proposed bridge will have 11 three lanes of traffic in each direction as well as 12 emergency lane for disabled vehicles. Having three lanes 13 in each direction as well as a breakdown lane will 14 decrease congestion and improve the flow of traffic. 15 Recently, Cal Trans inspectors have given the existing 16 Desmond Bridge a low mark. 17 The concrete decks and superstructure need 18 significant improvements. It makes sense rather than 19 putting more money into repairs to build a modern bridge 20 that will last many decades. The new proposed bridge 21 would have a 200 foot vertical clearance. That would 22 allow newer, cleaner, greener vessels to access the back 23 channel of Long Beach Harbor. The construction project 24 would create approximately 4,000 jobs that would last for 25 the length of the project, estimated at five years.	PCLALB	
		19 PUBLIC SPEAKER: Good afternoon. I'm Lou 20 Baglietto, a partner at Butterfield Communications and 21 I'm also a daily commuter across the bridge. I along 22 with every one of our clients at Butterfield 23 Communications enthusiastically supports the need to 24 rebuild the bridge and look forward to the day when we 25 reopen the new bridge. However, on behalf of one of my clients, Gamble Industries, which is located at 1825 Pier D Street, essentially we have a question. Looking -- and the Port of Long Beach did a wonderful job at writing this EIR. It's in depth. It's a breath. However, in the community impact section you essentially talk about there may be a potential need of taking approximately point seven acre of property along Pier D		1 netting to protect people and vehicles from below the 2 bridge from this debris. However, a permanent fix must 3 be made as soon as possible. The Port of Long Beach has 4 a plan that enlists funding from federal, state, and 5 local sources to construct a new bridge alongside the 6 existing bridge. This will allow uninterrupted traffic 7 to flow during construction. 8 With approximately 18 million vehicle trips a 9 year over the existing bridge the Gerald Desmond has 10 exceeded its capacity. The proposed bridge will have 11 three lanes of traffic in each direction as well as 12 emergency lane for disabled vehicles. Having three lanes 13 in each direction as well as a breakdown lane will 14 decrease congestion and improve the flow of traffic. 15 Recently, Cal Trans inspectors have given the existing 16 Desmond Bridge a low mark. 17 The concrete decks and superstructure need 18 significant improvements. It makes sense rather than 19 putting more money into repairs to build a modern bridge 20 that will last many decades. The new proposed bridge 21 would have a 200 foot vertical clearance. That would 22 allow newer, cleaner, greener vessels to access the back 23 channel of Long Beach Harbor. The construction project 24 would create approximately 4,000 jobs that would last for 25 the length of the project, estimated at five years.		
		California Deposition Reporters		Page: 9		

PCLALB

<p style="text-align: right;">Page 34</p> <p>1 The plan includes additional improvements to the 2 Terminal Island and the 710 interchanges. This should 3 also assist with the uninterrupted flow of traffic. 4 Overall, the construction of a new modern bridge through 5 the Port of Long Beach would be good for the economy, 6 good for the Port, and good for the community. The 7 larger bridge will keep traffic moving thus decreasing 8 truck and auto emissions by reducing engine idling. 9 The Propellor Club of Los Angeles, Long Beach 10 stands with the Port of Long Beach in support of the EIR 11 for a new Gerald Desmond Bridge. Thank you. 12 MR. CAMERON: Thank you. Those were all the 13 cards that I had and I butchered a couple people's names. 14 Tommy, I apologize. Is there anybody else that would 15 like to speak at this point in time? No. We have Rich 16 Pines, but we'll catch him next time. We have next week. 17 With that I'm going to go ahead and close the public 18 hearing at this given time. I do want to remind 19 everybody, once again, that we have the second public 20 hearing next Wednesday, Silverado Park. 21 You can find this information online. I also 22 want encourage everybody to -- if you don't have access 23 to our Web site, to get -- to review the environmental 24 document, I know there's been a lot of comments tonight 25 about a lot of the projects and alternatives. Please do</p>	<p style="text-align: right;">Page 36</p> <p>1 REPORTER'S CERTIFICATE 2 STATE OF CALIFORNIA ) 3 COUNTY OF LOS ANGELES ) 4 5 I, NATALIE RODRIGUEZ, CSR No. 12851, a Certified 6 Shorthand Reporter, certify; 7 That the foregoing proceedings were taken before me 8 at the time and place therein set forth. 9 That the testimony and all statements made at the 10 time of the hearing were recorded stenographically by me 11 and were thereafter transcribed; 12 That the foregoing is a true and correct transcript 13 of my shorthand notes so taken. 14 I further certify that I am not a relative or 15 employee of the parties, nor financially interested in 16 the action. 17 I declare under penalty of perjury under the laws of 18 California that the foregoing is true and correct. 19 20 Dated this 28th day of February, 2010. 21 22 23 NATALIE RODRIGUEZ, CSR No. 12851 24 25</p>
<p style="text-align: right;">Page 35</p> <p>1 review the environmental documents. We are going through 2 this process for that very purpose, and I also encourage 3 anybody who's spoken this evening or anybody who hasn't, 4 please provide your comments in writing. Thank you again 5 for participating and have a good evening. 6 (The proceedings were 7 concluded at 7:30 p.m.) 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	

# Public Hearing Comments- February 24, 2010



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2	
3	GERALD DESMOND BRIDGE
4	REPLACEMENT PROJECT
5	PUBLIC HEARING
6	PORT OF LONG BEACH
7	CALIFORNIA DEPARTMENT OF TRANSPORTATION
8	
9	
10	_____
11	REPORTER'S TRANSCRIPT OF PROCEEDINGS
12	_____
13	
14	
15	
16	City Council Chambers
17	Long Beach City Hall
18	333 West Ocean Boulevard
19	Long Beach, California
20	Wednesday, February 24, 2010
21	6:30 P.M. - 7:35 P.M.
22	
23	Reported By:
24	Natalie Rodriguez, CSR No. 12851
25	JOB NO. 118621

1 LONG BEACH, CALIFORNIA, WEDNESDAY, FEBRUARY 24, 2010

2 PROCEEDINGS

3  
4 MR. CAMERON: Good evening everybody. We're  
5 going to go ahead and get started. Just a couple --  
6 first of all, thank you for being here tonight. My name  
7 is Rick Cameron. I'm the director of Environmental  
8 Planning for the Port of Long Beach. Tonight we're here  
9 to have the public hearing -- this is the second public  
10 hearing for the Gerald Desmond Bridge Replacement  
11 Project. I want to go over a little bit of housekeeping  
12 before we start.

13 One, I'm going to give a presentation and  
14 lights -- we're going to kind of see how the lights are  
15 with the screen. So we may play around with the lights  
16 as I get going. So bear with us on that. If you have  
17 any cell phones, please put them on vibrate or turn them  
18 off. I'll appreciate that. We do have a court reporter  
19 who's taking transcripts of this proceeding this evening.  
20 So when you come up to the podium to make your comments,  
21 if you could speak clearly and not too fast, so she can  
22 pick up on that. I'll appreciate that.

23 I have to check myself on that. We also have a  
24 sign language interpreter if there's anybody in the  
25 audience who needs any assistance. We also have a

1 Spanish translation here this evening if anybody needs  
2 some assistance as well. So one last thing is I would  
3 appreciate -- this is a public hearing. We will be  
4 taking public comments after my presentation and I would  
5 ask that everybody be respectful of all the comments and  
6 if you can keep any type of reaction at a minimum. Be  
7 respectful. I would appreciate that.

8           With that tonight we're holding this public  
9 hearing to solicit input on the proposed Gerald Desmond  
10 Bridge Replacement Project. The Port of Long Beach in  
11 cooperation with the California Department of  
12 Transportation, Cal Trans, has produced an Environmental  
13 Impact Report/Environmental Assessment for the proposed  
14 project. The Port is the state lead under the California  
15 Environmental Quality Act and Cal Trans is the federal  
16 lead under the National Environmental Policy Act.

17           The purpose of tonight's meeting is to present  
18 the proposed project and its alternatives, describe the  
19 impacts associated with the proposed project, and  
20 measures to mitigate those impacts. We'll also be  
21 evaluating four alternatives, which are included in the  
22 revised draft document. This is the second of several  
23 opportunities for you to provide any comments you may  
24 have on the proposed project. This is the second public  
25 hearing we've had. We had the first public hearing last

1 Wednesday at city hall. And the comment period for this  
2 will end on March 22.

3 That's the conclusion of the 45 day public  
4 review period. A draft EIR/EA for the proposed project  
5 was circulated in June 2004, after which time the Port's  
6 environmental documents were put on hold pending  
7 development of its environmental protocols. The 2004  
8 EIR/EA considered three alternatives: The North-Side  
9 Alignment, which is the preferred proposed project; the  
10 South-Side Alignment, and No Project. The 2010 revised  
11 draft EIR/EA includes an additional alternative, the  
12 rehabilitation of the existing bridge.

13 So this is the fourth alternative. Because the  
14 length of time that had passed the traffic analysis and  
15 air quality and several other special technical studies  
16 were updated to support the analysis that's presented in  
17 the revised draft EIR. The overall need for the project.  
18 As with all bridges of that area and high seismic regions  
19 when the bridge was built, its original construction has  
20 performed to -- that do not meet current seismic  
21 standards required by the American Association of State  
22 Highways and Transportation officials and Cal Trans  
23 seismic criteria.

24 There are also other needs and deficiencies such  
25 as traffic capacity and overall roadway capacity as well

1 as the overall height of the bridge from a vessel  
2 navigation standpoint. The Port has three objectives in  
3 proposing the project. A, provide a structurally  
4 seismically sound bridge. Second, improve roadway  
5 capacity and safety so that the bridge can handle the  
6 predicted growth and regional traffic. And lastly,  
7 increase the height of the bridge to allow the next  
8 generation of larger, greener, and more efficient ships  
9 to access the terminals that are north of the bridge.

10 I'm going to be going over the four alternatives  
11 that are within the document. The four alternatives that  
12 are considered I've described; the North-Side Alignment,  
13 South-Side Alignment, Bridge Rehab, and the CEQA No  
14 Project or No Action. The North-Side Alignment  
15 Alternative would provide a new bridge located  
16 approximately 140 feet north of the existing bridge. The  
17 new bridge would be a cable-stayed design, 200 feet above  
18 the Back Channel, and have a five percent grade with  
19 three lanes, plus shoulders, in each direction.

20 The project would also include reconstruction of  
21 the existing horseshoe ramp interchange on Pier T, which  
22 is on the Terminal Island side, and the reconstruction of  
23 the connectors to the I-710 and Pico Avenue. The  
24 South-Side Alignment Alternative would include the same  
25 basic elements as I've just described and would be

1 approximately 177 feet south of the existing bridge.  
2 Following construction of the new bridge on either the  
3 North- or South-Side Alignments, the existing bridge  
4 would be demolished.

5 During construction of either one of those new  
6 bridge alternatives, the existing bridge would be in  
7 operation. There would be -- this is analyzed in the  
8 environmental document as part of the construction phase  
9 and would also have traffic control plans in place to  
10 deal with the overall connections after the new bridge is  
11 ready to be connected to the island and to the I-710.

12 The Rehabilitation and the No Project. With the Bridge  
13 Rehabilitation Alternative the existing bridge would be  
14 rehabilitated to improve its seismic performance and  
15 extend its life span.

16 No new lanes would be added and the height of  
17 the bridge would remain at 156 feet. Rehabilitation  
18 would include replacement of the bridge deck, expansion  
19 joints, and sway bracings, painting of all the members,  
20 seismic retro of the foundations, columns, bent caps,  
21 abutments, and superstructure. The overall  
22 rehabilitation life would extend the existing bridge by  
23 approximately 20 years, after which time the bridge would  
24 have to be reevaluated for replacement and/or more retro.

25 The No Project Alternative, as the name implies, would

1 not result in any changes.

2 The approach ramps and the interconnections,  
3 everything would stay in place. It would just be as is  
4 now, how it's currently operated today with the ongoing  
5 maintenance activity. Replacement concepts. The bridge  
6 replacement parameters included different types of  
7 bridges. When we went through an evaluation with Cal  
8 Trans, there were different concepts of the types of  
9 bridges that could be evaluated. Bridge roadway  
10 geometry, height and span, dimension of major structural  
11 members, location, aesthetics, cost, constructability,  
12 seismic performance, right-of-way issues, schedule,  
13 impact to Port operations, and maintenance.

14 Based on all of these parameters a single mast  
15 tower, cable-stayed bridge design was chosen to move  
16 forward with. I will now highlight some of the impacts  
17 associated with the project and -- which is the preferred  
18 project either the North Alignment and South Alignment  
19 have very similar overall impacts that we've analyzed as  
20 well as some of the mitigation measures. The  
21 Rehabilitation Alternative had less impacts associated  
22 with it by virtue of the construction as well as some of  
23 the operation. And the No Project has ongoing operation  
24 evaluated.

25 There would be impacts to intersections during



1 construction including the Pier B Street, 9th Street,  
2 Pico Avenue intersection and the Pico Avenue, Pier D  
3 Street intersection. That's a lot to take in one  
4 sentence there. The impacts associated with construction  
5 would be temporary but mitigation measures such as  
6 widening, re-striping, and installation of a traffic  
7 signal would help lessen these impacts. Those are all  
8 described in the revised draft document in the traffic  
9 section described in those mitigation measures.

10 By 2015, traffic volumes would be such that  
11 there would be a significant adverse impact during  
12 operations at the Navy Way, Seaside Avenue intersection.  
13 There is no mitigation within the Port's control that  
14 could be implemented. However, the Port of Los Angeles  
15 is proposing improvements that would reduce the impact to  
16 insignificant. Until that time, the impact would remain  
17 significant. There was proposed mitigation measures for  
18 the Port of Los Angeles projects that I'm referring to  
19 there.

20 There would be air quality impacts during  
21 construction. The Port would use mitigation measures  
22 similar to those that were adopted in the Middle Harbor  
23 Projects for construction in terms of clean equipment to  
24 be used during the construction project as well as those  
25 measures prescribed by the South Coast Air Quality

1 Management District, such as dust suppression. Kind of  
2 the standard mitigation measures that a lot of  
3 construction projects utilize. There would also be  
4 significant cumulative air impacts during operation of  
5 the bridge.

6 From a biological standpoint for wildlife, we  
7 have Peregrine falcons occasionally use the existing  
8 bridge for nesting. They also use the Heim Bridge, which  
9 is located just west on Terminal Island. They utilize  
10 Koch Carbon, which is one of our terminal operators on  
11 Pier F. They have silos and they utilize the height on  
12 those silos as well as city hall. We have nesting at  
13 city hall on the top of the building.

14 The Port is working with California Fish and  
15 Game to establish a monitoring program, which is  
16 contained within the document, which lays out no work  
17 zones and the placement of nesting platforms on the new  
18 bridge. So there's actually going to be a transition.  
19 Once the new bridge project is approved in one of the  
20 alignments they would be new nesting that would be  
21 provided and there would be kind of a transition to try  
22 to get the birds over there. Since the old bridge will  
23 not be demolished until the new one is finished there's  
24 going to be a lot of time to get these nesting in place.

25 The current bridge also has bats. Bats are also

1 protected and we have a full evaluation in the  
2 environmental analysis and we've also established  
3 mitigation measures that would provide a transition from  
4 the old bridge to the new one for the bats. Another  
5 issue of concern that we've analyzed or have laid out is  
6 encountering historic hazardous materials and hazardous  
7 waste. In the past, hazardous materials and waste  
8 handling and disposal from formal Port operations in the  
9 project area that -- have dealt with as well and we're  
10 going to be working with the responsive regulatory  
11 agencies for any of those cleanup plans as necessary.

12 In summary, the existing bridge is nearing the  
13 end of its useful life. There have been many studies  
14 contained within the environmental document whether in  
15 the executive summary or in Chapter one which highlights  
16 a lot of the studies that have been performed that  
17 highlight the deficiencies of the bridge. It was built  
18 in 1968 and the standards for these bridges have evolved.  
19 The new bridge would have a hundred year life span and  
20 would be structurally sound, seismically resistant, and  
21 it almost certainly would become a signature for the City  
22 of Long Beach.

23 The grades on the existing bridge make it  
24 difficult for trucks to make the climb resulting in much  
25 slower speeds on the bridge. This in and of itself

1 creates traffic as well as air quality impacts. The  
2 projected future car and truck volumes could overwhelm  
3 the capacity of the existing bridge. The existing bridge  
4 which currently has three climbing lanes and two  
5 descending lanes on each side and while the additional  
6 climbing lanes help flow traffic, it's only a Band-Aid at  
7 best in terms of keeping the circulation going.

8 The shoulders that are being proposed on two of  
9 the alternatives would help maintain traffic flow on the  
10 bridge, since breakdowns and accidents could be moved to  
11 the side out of traffic lanes, helping maintain flow.  
12 The current bridge doesn't have that. If any of you have  
13 been stuck on the bridge, you know what it's like. One  
14 lane gets held up and there you go. Another important  
15 factoid that's contained in the document is that 75  
16 percent of the traffic volume is commuter traffic.

17 I go over that bridge twice a day. 15  
18 percent -- actually, 25 percent is actually truck traffic  
19 or heavy truck traffic either from the Port or other  
20 operations. From both ports not just the Port of Long  
21 Beach. Raising the bridge would help accommodate the new  
22 generation of ships. This is the third objective for  
23 this project -- which currently are being built or  
24 already in service in many of the terminals south of the  
25 bridge. The new bridge height would help the newer,

1 larger ships transit the Back Channel safely as well. As  
2 a bonus new ships have cleaner engines.

3 If there are any questions -- if there's any  
4 questions, here's the contacts. Stacey Crouch, who's not  
5 here this evening, but she's the project manager. She  
6 works as part of my staff for the environmental document.  
7 This is her contact information. My contact information  
8 has also been provided, my e-mail address where you can  
9 get a hold of me. Cal Trans, our partner, Karl Price, is  
10 in the room and he's in the back and he's the project  
11 lead with Ron Kazinski as well. Ron is here.

12 Karl can be reached -- this is his e-mail  
13 address and phone number as well if there's any questions  
14 of Cal Trans. Overall the next steps; after the close of  
15 the comment period on March 22, the Port and Cal Trans  
16 will be preparing the final EIR/EA. The preparation of  
17 the final EIR/EA is to review all comments that are  
18 received. That we receive during the comment period.  
19 Including the comments that you'll be providing tonight  
20 here in the public comment period.

21 We go through those comments. We're obligated  
22 to respond to every comment, and we will go through and  
23 respond to the comments, make those changes to the  
24 environmental document to the final that are a result of  
25 those comments, and then we will -- basically, put the

1 final touches on the environmental document. Following  
2 that completion, the environmental document is released,  
3 report our responsive comments to those who commented,  
4 and we submit the final environmental -- EIR/EA for the  
5 10 days prior to the Board of Harbor Commissioners  
6 considering the certification and adoption of the  
7 environmental document approval of either one of the  
8 alternatives.

9           Following the preparation of the final, it will  
10 be distributed to all those who commented. After our  
11 Board of Harbor Commissioners weighed in on the project,  
12 Cal Trans' also has -- the next step would be to prepare  
13 a finding of no significant impact and approve or  
14 disprove the project. They have to go through their  
15 final consideration as well. At this point in time just  
16 like we did with Middle Harbor we have a request for  
17 extending the comment period. We will consider those.

18           We'll be in consideration for our Board of  
19 Harbor Commissioners and Cal Trans for an extension. So  
20 there may be an extension. If there is an extension of  
21 the comment period, we will put out the public notice and  
22 let everybody know of that extension. With that just  
23 once again submitting the comments, you can submit to my  
24 attention at this address. You can find all of the  
25 documents, the technical studies on the Port of Long

1 Beach Web site. It's under polb.com under the  
2 environmental documentation tab. It's the first big  
3 laundry list of documents.

4 If you'd like a hard copy or a CD, you can  
5 contact my staff or myself and we'll make sure you get  
6 that. We did not distribute hard copies of the  
7 environmental document. We're trying to be as green as  
8 possible, be sustainable, but if there's anybody in need  
9 of a hard copy, we'll be happy to provide that. With  
10 that I'm going to close my presentation and open it up  
11 for public comment. Last week I butchered a couple of  
12 names, so bear with me. Please correct me and I'll do my  
13 best. The first speaker will be Tim Lee and the second  
14 speaker after Tim will be Brian Mineshino.

15 PUBLIC SPEAKER: You didn't butcher my name.  
16 Tim Lee. I'm Deputy District of Record for Congresswoman  
17 Laura Richardson. And I actually have a statement to  
18 read from the Congresswoman. I want to express my  
19 appreciation and support for the continued focus of the  
20 community and its focus on the Gerald Desmond Bridge. As  
21 we all know the Gerald Desmond Bridge is a central part  
22 of the Port's operations and thus a central part of our  
23 national infrastructure.

24 Interstate 710 and the Gerald Desmond Bridge  
25 carry approximately 15 percent and 10 percent of all US



LR(B)



1 waterborne container volume respectively. While the  
2 recently opened Alameda Corridor can be thought of as a  
3 trade railway gateway to the nation, the 710 Gerald  
4 Desmond Bridge gateway is the de facto trade highway to  
5 the nation. However, the Gerald Desmond Bridge is  
6 presently experiencing serious performance problems due  
7 to a number of interrelated reasons including traffic,  
8 congestion, and safety. As you all know the bridge  
9 contains a diaper to catch falling debris which is a  
10 telling sign that it's time for a new bridge.

11 I recently met with Long Beach Port officials  
12 and Transportation Infrastructure Committee Chairman  
13 Oberstar in Washington DC to talk about this bridge.  
14 Chairman Oberstar already knew about the importance of  
15 this bridge, but explaining to him and letting him know  
16 that this bridge is sufficiently worse than the one that  
17 recently collapsed in his home state of Minnesota helped  
18 to reinforce how urgent our situation is. The bridge  
19 currently has a level of service rating of F during peak  
20 periods. And while the current situation is serious if  
21 we do not act now, things are only going to get worse.

22 While we currently see congestion on the bridge  
23 these poor existing traffic conditions will be further  
24 exacerbated due to the forecast's robust growth and  
25 international trade and growth here in the region.

LR(B)

1 Standing path is not an option and the time to act is now  
2 while the port is experiencing a temporary reduction in  
3 traffic due to the economy and thus can better cope with  
4 a large scale construction project. I've been working  
5 hard in Washington to get every dime I can to help fund  
6 this project.

7 I know that we need to start construction as  
8 soon as possible. It's a sad fact with large scale  
9 construction projects that necessary funding can be a  
10 moving target as time goes on and construction costs  
11 escalate. It's disheartening to know that project costs  
12 have already doubled over the past five years and we have  
13 worked to raise money, but this fact only strengthens my  
14 resolve to find funding as soon as possible. The bridge  
15 has already received funding from several federal  
16 government sources.

17 They include one hundred million dollars in the  
18 2005 Surface Transportation Organization Bill and almost  
19 six million dollars in annual earmark. I'm looking  
20 forward to the reauthorization of the surface  
21 transportation project that congress is currently  
22 considering to find the remaining funds for the bridge.  
23 For the current reauthorization requested 375 million  
24 dollars to the Gerald Desmond Bridge back in May, which  
25 would go a long way towards fully funding the project.

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1 Beyond the specific dollar requests I am excited that  
2 there seems to be congressional resolve for this  
3 reauthorization bill to include both programs and a large  
4 amount of money to be awarded through the competitive  
5 process.  
6 I am very confident that the merits of this  
7 project will be understood in Washington and the  
8 Department of Transportation and large sums of money  
9 would be awarded to this project and other important  
10 goods movements projects in this area due to projects of  
11 national significance and freight improvement programs.  
12 To leave as little as possible to chance I have already  
13 worked with the committee to change no less than 80  
14 different sections of their draft reauthorization bill,  
15 so that when these competitive programs are established,  
16 the particular needs of this area and this particular  
17 bridge will be fully considered.  
18 To ensure that officials who work to make  
19 funding decisions fully understand the needs of this area  
20 and the acute importance of this particular bridge, over  
21 the past year I have brought dozen of federal officials  
22 to come visit the bridge to better understand what a key  
23 component it is for our nation's goods movement  
24 infrastructure. These visitors have included Deputy  
25 Transportation Secretary Ricarie, Acting Administrator

1 Masuta, Chairman of the Federal Maritime Commission  
2 Richard Densky, and more than a dozen of my fellow  
3 members of congress.  
4 I also know that we must be careful in planning  
5 the bridge to ensure that the communities near the port  
6 and along the 710 freeway are not negatively impacted by  
7 increased freight traffic that will likely come with this  
8 expansion. I work hard in congress to help the ports  
9 expand their business because they are such an important  
10 economic drive for our area, but at the same time I work  
11 to ensure that every time the port expands efforts are  
12 made to mitigate environmental impacts of this expansion  
13 and to ensure that the quality of life and the health of  
14 those in the area do not suffer. I want to thank all of  
15 you again for coming out to discuss this project and I  
16 express my regrets that I am not able to be here in  
17 person with you today to give these remarks, but  
18 unfortunately my schedule and voting obligations do not  
19 allow me to be here.  
20 Please feel free to reach out to me or any of my  
21 staff to ask questions or if you have any requests that  
22 we may be able to help with. Thank you, Congresswoman  
23 Laura Richardson.  
24 MR. CAMERON: Thank you. Brian.  
25 PUBLIC SPEAKER: My name is Brian Mineshino.

LR(B)

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1 I'd like to read a statement on behalf of Assemblyman  
2 Warren Furutani. On behalf of Assemblyman Furutani I'd  
3 like to express our strong support for the Gerald Desmond  
4 Bridge Replacement Project. We'll be submitting a more  
5 detailed letter within the coming days outlining the  
6 reasons for our support. In short, the project is long  
7 overdue. As our economy begins its road to recovery it's  
8 important to ensure that our products leaving to and from  
9 the ports are safe and efficient.

10 This project does both. Additionally, this  
11 project is a much needed boost for the local economy with  
12 the prospect of new jobs being created through the  
13 construction -- activity -- it's with great pride that  
14 labor and business in support of the project. Thank you.

15 MR. CAMERON: Thank you. I know -- if you  
16 could just kind of keep the -- at a low level, I'd  
17 appreciate it. The next two speakers: Bartlett Patton  
18 and the next speaker will be Anthony Wayne Ford.

19 PUBLIC SPEAKER: Good evening. My name is  
20 Bartlett Patton. I am part owner in a business that  
21 operates an office and laboratory in Long Beach -- in the  
22 City of Long Beach and our people are affected daily by  
23 the traffic delays that are currently experienced on the  
24 bridge. I'm aware that the bridge is not sufficient to  
25 at least handle today's traffic and the traffic

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1 projections for the future. I'm also aware that the  
2 bridge is deteriorating and I'm concerned about the  
3 delays that the community will experience -- definitely  
4 will experience if those -- if that deterioration  
5 continues and, you know, we have to make repairs.

6 I'm also aware that the bridge is seismically  
7 deficient and I'm very concerned about the disruption  
8 that would occur and the economic impacts that would  
9 occur should the bridge be severely damaged and have to  
10 be repaired. I have reviewed the mitigation measures  
11 that were proposed in the documents, and I'm impressed by  
12 the efforts that have been made, and on behalf of our  
13 employees in Long Beach and myself, I am strongly in  
14 support of the project. Thank you.

15 MR. CAMERON: Thank you.

16 PUBLIC SPEAKER: Good afternoon. My name is  
17 Anthony Wayne Ford. I'm from Local Union 95 as you can  
18 see from my hat. I represent all unions because we're  
19 all brothers number one. You said the construction alone  
20 would support an average of 4,000 jobs a year for five  
21 years. So my question is who will be filling these 4,000  
22 jobs? California union workers or outside state of  
23 California workers? And can you make a promise here that  
24 these jobs will go to local union workers instead of  
25 non-union workers and will union workers be maintaining

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1 the upkeep on this property so it won't deteriorate the  
2 next 40 years? Thank you.

3 MR. CAMERON: Thank you. The next two speakers  
4 John Schafer and Kevin Bass.

5 PUBLIC SPEAKER: Good evening. Local pile  
6 drivers bridge dock local 2375 (inaudible.) I guess the  
7 basic thing that I want to try to get across is why there  
8 are so many people here. What's happened several times  
9 in the past EIRs, particularly, large infrastructure  
10 projects is that they get proposed, the congress people  
11 get the money to go do it, and they just linger in the  
12 environmental due process and never actually occur. What  
13 happens is many times our electives hire consultants and  
14 reviewers and so forth.

15 They'll spend the initial 10, 20, 30, 40, 50  
16 million dollars to study it after they've gotten all the  
17 support from the building trades and other workers to try  
18 to build it, but really in reality they don't have any  
19 intention of actually building it. What they do is they  
20 have the money to consult and look and everything else to  
21 get it done, but I think representing 900 workers who  
22 live primarily within the local area, what we're  
23 concerned in is the work that's involved. We take pride  
24 in our work. We try to build it right. There is a need.

25 If you look at any economic depression,

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1 infrastructure projects generate economy. They build  
2 jobs locally and get things going. And to continue to  
3 propose and then discuss and look over and think about it  
4 and then ultimately not build it because the electives  
5 now have gone into other posts and isn't concerned about  
6 it anymore is an insult to the community and particularly  
7 workers who are counting on that job to feed their  
8 families and to be able to work close to home.

9           So if you're going to be serious about building  
10 this project, then continue. But if this is an attempt  
11 to get money from the federal government to try to bring  
12 it home on other things that try to deal with and never  
13 actually build this project, don't waste our time. We  
14 want this project to go forward because it has real  
15 impact and is necessary. This bridge is getting old. It  
16 needs to be built.

17           And I hope that you take it seriously and build  
18 it the best you can because that's what we will do once  
19 that project gets started. Thank you for your time.

20           PUBLIC SPEAKER: Good evening. My name is  
21 Kevin Bass. I'm with the Painters and Allied Trades  
22 District Council 36. We represent 11,000 workers  
23 basically from Bakersfield to the border in four  
24 different trades and about 15 different unions. I work  
25 in the governmental affairs department. And I'm here to

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1 support this project, but more importantly not just this  
2 project because it's obvious something needs to be done  
3 with this bridge.  
4 As the lady said last week, if it has diapers,  
5 it's obvious that something needs to be changed. What  
6 I'm really here to speak about is how this needs to occur  
7 and it needs to happen with a project labor agreement  
8 ensuring local hire and union labor. All of these people  
9 here -- you guys can stand. These are all craftsmen from  
10 some of our various trades. I have probably about 500  
11 people in this area alone that could find work in this  
12 project and not only my union, as the brother said  
13 earlier, it's all the other unions.  
14 We're all brothers together. We work closely  
15 together. We're all trying to do the same thing. It's  
16 to get these people working, stimulate the economy. The  
17 more money they make, the more money they spend, other  
18 businesses thrive. And we just want your assurance that  
19 it's going to be done that way and, again, not bring in  
20 out of state labor which I don't know because everybody  
21 doesn't speak of it but that money doesn't even  
22 contribute to our taxes. So it really behooves everyone  
23 for this to be a union project under a project labor  
24 agreement. Thank you.  
25 MR. CAMERON: The next two speakers: Jesse

1 Marquez and Mark Mendonga.

2 PUBLIC SPEAKER: My name is Jesse Marquez. I'm

3 here to speak both as an individual resident from the

4 Harbor Community; I'm also executive director of the

5 Coalition for a Safe Environment. I've not had time yet

6 to review the whole environmental impact report, but I do

7 have some concerns that I do wish to share with you. We

8 do support building a new bridge but without any truck

9 capacity. We do support the bridge rehabilitation

10 alternative that is included in the EIR.

11 We do not support building a new bridge that

12 would increase truck traffic capacity and support future

13 capacity like the addition of additional truck lanes. We

14 do support building additional terminals that have on

15 dock rail capacity in order to decrease bridge usage. We

16 do support increase in the Alameda Corridor usage in

17 order to decrease bridge usage. We support the Port's

18 adoption -- adopt and incorporate the use of electric

19 train rail -- (inaudible.) Linear train alternative zero

20 polluting cargo transportation systems, which, if you

21 disclose the truth, they can actually triple the speed

22 and increase the impact capacity and triple the capacity

23 of the delivery of containers and cargo.

24 We request that the Port include feasibility

25 information of these alternative technologies in the

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1 environmental impact report. That you contact the  
2 companies so they can validate their feasibility for  
3 these applications that I have mentioned. We request  
4 that a health impact assessment be included in the final  
5 EIR. I request that the Port disclose significant  
6 benefits and additional public health impact information  
7 contained in a health impact assessment that is not  
8 contained in a health risk assessment.

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9 And the last point is we request that the EIR  
10 include information assessments of the benefits of  
11 allowing only electric trucks and hydrogen fuel cell  
12 trucks to use the bridge for local deliveries and  
13 prohibit diesel fuel trucks, which pose risk in public  
14 health and environmental global warming and biological  
15 impacts. And we will be submitting more extensive  
16 documentation in written comment form. Thank you.

17 MR. CAMERON: Thank you.

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18 PUBLIC SPEAKER: Mark Mendonga. I'm a local  
19 resident of Long Beach, also a proud member of Local  
20 Union No. 12, International Union of Operating Engineers.  
21 I'd like to encourage this project go forward as new  
22 construction of the bridge. Long Beach has, as well as  
23 LA Harbor, vastly increased their capacity. The bridge  
24 is, as has already been stated, just past its capacity,  
25 past its life span. It's time to go ahead and upgrade

1 our infrastructure.

2 The great nations of the world will always

3 upgrade their infrastructure whether it be the

4 information pipeline or the product pipeline, getting

5 trucks here to there with goods and services that are

6 needed. If we don't do this, we're going to start

7 falling behind and we need to take a leadership role on

8 that. The whole country is looking to California in many

9 instances to see what's being done and infrastructure, I

10 think, we need to take a lead in and not shy away from.

11 Thank you very much for your time.

12 MR. CAMERON: Thank you. The next two

13 speakers: Joel Thurwachter and Clay Sandidge.

14 PUBLIC SPEAKER: Good evening. My name is Joel

15 Thurwachter. I'm a business representative for the

16 International Operating Engineers Local 12. Local 12 is

17 in support of the Gerald Desmond Bridge Replacement

18 Project and would also like to see a project labor

19 agreement that ensures local hire. Thank you.

20 PUBLIC SPEAKER: Good evening. My name is Clay

21 Sandidge. I'm here representing Future Ports. I am the

22 current president of Future Ports, which is a local

23 community based organization that represents hundreds of

24 employees in and around the ports of LA and Long Beach.

25 We are here to support this EIR and concept. We are

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1 still going through the EIR with our committee -- our  
2 review committee.  
3           That is a very extensive document and we are not  
4 through it to date, but we will be presenting our final  
5 written comments by the deadlines. But I wanted to  
6 ensure that Future Ports membership is behind this  
7 project. We'd like to see it go forward. Some of the  
8 highlights, obviously, are the jobs, supply chain  
9 movement, goods movement in a safe environment, commuter  
10 safety. I travel across that bridge at least three or  
11 four times a week and it's certainly a concern of mine.  
12 Traffic flow and environment stewardship is obviously a  
13 very key concern.  
14           So we know the Port does its part on the  
15 environmental stewardship program. We greatly applaud  
16 your efforts and we'd like to see this project move  
17 forward. Thank you very much.  
18           MR. CAMERON: Thank you. Our next two  
19 speakers: Simi McMoore and Tommy not Tammy Faavae.  
20           PUBLIC SPEAKER: Good evening. My name is Simi  
21 McMoore. I'm a current resident of Long Beach. 180 East  
22 Morgan Street. I'm currently a summer helper with IBEW  
23 Local 11. I'm here today basically to move this project  
24 forward, you know. I think it would give a lot of  
25 opportunity to a lot of people in the city and it will,

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1 you know, help us get into the apprenticeship program.  
2 And we're here to just move this project forward. Thank  
3 you.

4 PUBLIC SPEAKER: Good evening. Tommy Faavae.  
5 I represent the International Brotherhood of Electrical  
6 Workers Local 11 in the Los Angeles area. I'm a  
7 stakeholder in Long Beach. I live in the City of Carson  
8 though but my area covers the whole South Bay and Harbor  
9 area. I just would like to say that this project means a  
10 lot to our community. It means that -- it gives  
11 opportunity for our young men and women to come into the  
12 trades, especially our electrical apprenticeship program,  
13 which gives them a leg up to go through apprenticeship  
14 program and reek the really good benefits and wages so  
15 they can support their families and move forward.

16 And that's all these gentlemen and women want to  
17 do. They want to be role models to pursue those careers  
18 and hopefully have their nephews and nieces and kids to  
19 come up into the trades also. I know this bridge has  
20 been -- has been around for a long time. You know, I  
21 traveled that bridge back and forth and, you know, put a  
22 lot of mileage on that bridge. But what it means is that  
23 when we can build this bridge, it means -- it means  
24 history to all these young men and women.

25 And lastly, I would like to say that with the

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1 federal funding that's coming from the federal government  
2 there needs to be a federal project labor agreement under  
3 this project because there is a federal PLA. When  
4 President Obama came into office, the second month when  
5 he was in office, he lifted the restrictions on a federal  
6 PLA, so he can make sure that federal PLA are practiced  
7 all over the state -- all over the country. So there is  
8 language in place to have a project labor agreement. We  
9 just need to push this forward. We need to create real  
10 good construction jobs and that's all we look forward to.  
11 Thank you.

12 MR. CAMERON: Thank you. The next two  
13 speakers: Tyrone Taaga and Davis Teofilo.

14 PUBLIC SPEAKER: Tyrone Taaga residing in Long  
15 Beach area over 20 years with the IBEW Local 11, summer  
16 helper program. I'm trying to get into the  
17 apprenticeship program. My father was a hardworking man.  
18 He was in the union over 20 years and he provided for a  
19 family of nine and I have family of my own as well now  
20 and I'm trying to do the same thing as my father did when  
21 he was in the union. Pushing this project forward would  
22 also give us an opportunity to get into the  
23 apprenticeship program.

24 It would help our families immensely. I also  
25 have brothers that are working down in the ports, a lot

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1 of relatives that I grew up with. They're always using  
2 that bridge daily, the Desmond Bridge. It would also be  
3 safe if we push this project forward. I would appreciate  
4 it a lot and thank you very much.

5 PUBLIC SPEAKER: My name is Davis Teofilo. I  
6 reside here in the City of Long Beach. I'm also a summer  
7 helpers for the IBEW Local 11. We're here today to push  
8 forward on this project. We also want to be a part of  
9 the history with this bridge. A lot of us want to jump  
10 into this apprenticeship program. The PLA put forth in  
11 this program -- project will give a lot of opportunity  
12 for a lot of local people who live here in Long Beach,  
13 put them to work for, you know, to better their families  
14 and put food on the table. That's especially why we're  
15 here. So push forward on this project and have PLA on  
16 the project. Thank you.

17 MR. CAMERON: The next two speakers: Elizabeth  
18 Warren and Ken Fredrickson.

19 PUBLIC SPEAKER: Good evening. My name is  
20 Elizabeth Warren. I'm the executive director of Future  
21 Ports and also Harbor area resident. I would thank you  
22 for the opportunity to speak this evening and we applaud  
23 the Port's staff for producing this document. We're  
24 eager to move forward with the final EIR. On behalf of  
25 Future Ports and its members we are pleased to provide

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1 some comments, however, as Clay mentioned earlier due to  
2 the short time period between the issuance of the  
3 document and the appearance, we've not had a chance to  
4 adequately review the draft document and will submit  
5 formal comments before March 22.

6 So as Clay mentioned we do agree in concept with  
7 the goals cited by the Port in the FAQs for this  
8 document. However, it is not only important to our  
9 region to replace this bridge, it's urgent that we move  
10 forward and replace it as soon as possible for many  
11 reasons. Number one, it's structurally deficient. This  
12 bridge is literally falling apart before us and it graded  
13 as poor by Cal Trans inspectors. It has tons of concrete  
14 falling off of it. We need to keep our port competitive.

15 The Port of Long Beach is the busiest seaport in  
16 the United States and this bridge has the lowest vertical  
17 clearance in the nation. At a time when shippers are  
18 looking for reasons to abandon Southern California ports,  
19 we need to do everything we can to keep our goods  
20 movement industry here in Southern California, keep the  
21 cargo and the hundreds of thousands of jobs supported by  
22 that cargo here and not in Canada, Mexico, or Panama  
23 Canal. Number three, greening our ports. Replacing this  
24 bridge will allow cleaner, greener ships to access the  
25 inner harbor where they can plug in to electric shore

1 power.

2 Modernizing the port and greening the port go  
3 hand in hand. This project is another example of how the  
4 Port of Long Beach can modernize and go green at the same  
5 time. Number four, safety. Lack of safety of emergency  
6 lanes is a huge problem. Many of us has been stuck on  
7 the bridge when there's been a breakdown or accident that  
8 can cause traffic problems, it can delay emergency  
9 responders and divert traffic to residential  
10 neighborhoods.

11 And the last point, jobs, jobs, and jobs. This  
12 project will create 2.8 billion in economic activity  
13 resulting in thousands of permanent jobs in the goods  
14 movement industry. The construction of this project will  
15 create 4,000 jobs a year for five years. The goods  
16 movement industry and construction industry both provide  
17 good jobs that provide benefits such as health insurance,  
18 paid vacations. The San Pedro Port complex is critical  
19 to a successful economy in Southern California. When the  
20 Port of Long Beach is doing well, the City of Long Beach  
21 benefits from increased revenues generated by that  
22 economic activity.

23 The residents of Long Beach benefit because they  
24 have access to the good jobs generated by the port or the  
25 benefit of those good jobs generated by the economic

FP(C)

FP(C)

1 stimulus provided by the port. It's a win win for all of  
2 us. This project is a key component and is critical to  
3 the future development of the Port of Long Beach. We  
4 must move forward with this project and expedite the  
5 final EIR. Thank you.

KF(B)

6 PUBLIC SPEAKER: I'm Ken Fredrickson. I'm a  
7 San Pedro resident who uses the Terminal Island cross  
8 through and the bridge routinely. One of the things  
9 we've seen in the past is that as we improve the roads  
10 through Terminal Island traffic flow has greatly  
11 improved. We no longer see trucks lined up for miles.  
12 We no longer see trucks idling. The Port has done a  
13 great job to improve the process we have to get cargo in  
14 and out of the ports.

15 We need to look at the bridge as the next step  
16 of doing that. The ports are going to continue to grow.  
17 The fact is it's an economic benefit for us. We're  
18 coming back out of a recession. We're going to start to  
19 see traffic in the ports again. We need to make sure  
20 that the infrastructure continues to improve along with  
21 the way the ports are going to grow. We need to look at  
22 these kinds of projects as positive developments for the  
23 environment.

24 The port is going to grow and we need to move  
25 the infrastructure along with that, so that in fact we

1 still have the smooth moving traffic that we see right  
2 now. Thank you.

3 MR. CAMERON: The next two speakers: John  
4 Sommers and then John Taleifi. I apologize.

5 PUBLIC SPEAKER: Good evening. My name is John  
6 Sommers. I'm a local businessman and architect in Long  
7 Beach, former president of the American Institute of  
8 Architects in Long Beach and a leading certified  
9 architect. I'm kind of ambivalent about the project. I  
10 feel at this point I have not read the EIR. All I've  
11 read is the various newspaper accounts and seen some of  
12 the renderings, things like that, and I have a lot of  
13 questions going on for what's going on.

14 One of the big points that has been raised is  
15 the creation of 4,000 jobs and I'm really quite amazed to  
16 see the turn out of local labor unions here to lobby for  
17 their portion of the work that's going to be handed out,  
18 but I have to tell the unions that in a way we've been  
19 kind of already sold out by the creators of this project  
20 because from my point of view as an architect and an  
21 engineer, the Port has hired an architect and engineer  
22 that is not local to Long Beach.

23 And while the labor unions here tonight  
24 represent a lot of sweat equity and hard work in the  
25 process the actual mind work of the process by the

KF(B)

JSo-1

JSo-1

1 architects and engineers is not being done in Long Beach.  
2 Mayor Foster has a great program going at Jordan High  
3 School, the Ace Program, training young architects and  
4 engineers and if they could apprentice to the firm that  
5 is actually designing the project, they would get a  
6 wonderful opportunity. So this is something I'd like to  
7 see; is more of the mind equity in the project coming  
8 locally. Another issue I have has to do with the overall  
9 planning process that's going on.

JSo-2

10 Besides this very large capital improvement  
11 there are several other large capital improvements that  
12 are planned or ongoing in the port. There's a new rail  
13 yard that's proposed only a few hundred yards from where  
14 we are tonight. A big multimillion dollar rail yard. Of  
15 course the new extension of the Mid Harbor dock is one of  
16 many hundreds of millions of dollars. There's been  
17 proposals to upgrade the lift bridge that is part of the  
18 Terminal Island Freeway. And all these things are  
19 contingent on the traffic and situations that take place  
20 in the harbor.

21 I'm not sure if the EIR really addresses the  
22 impacts of these various other big capital projects.  
23 Just some of the common sense things that I've seen, and  
24 again it's only from newspaper articles, I can understand  
25 the need to upgrade to a six lane bridge, but in reality



000

1 the Vincent Thomas Bridge is a four lane bridge and I do  
2 not see them or have not heard that they're going to make  
3 that bridge any wider. So the -- some of the thinking  
4 this goes on is it's going to attract more traffic or  
5 whatever by the fact that it's six lanes while the  
6 Vincent Thomas is only four lanes. It just doesn't make  
7 sort of common sense to me.

8 Lastly, I'd like to -- I have a question about  
9 some of the costs. The number that's been going on is  
10 1.1 billion dollars, which is a lot of money and -- but  
11 these things kind of tend to mushroom, and I'd like to  
12 make sure that this 1.1 billion is much more transparent.  
13 For instance, does that 1.1 billion allow for additional  
14 purchase of right-of-way. The new bridge is going to  
15 stand to the side of the old bridge on property that I'm  
16 not sure if Long Beach or the state currently owns.  
17 So -- and as well as realignment of say the 710 freeway  
18 with new on-ramps and off-ramps with that. So I'd like  
19 to know if those are part of the 1.1 billion. Thank you.

20 MR. CAMERON: Thank you.

21 PUBLIC SPEAKER: Good evening Rick and staff.  
22 Thank you for the great job and literature you've  
23 provided. My name is John Taleifi. I'm a resident of  
24 West Long Beach and also president of West Long Beach.  
25 Although, we all agree it seems that there must be

JSo-3

JTa

JTa

1 changes or a new structure placed to replace this, I'd  
2 like to say a couple things. Number one, I do support  
3 and endorse the labor request to keep the labor forces  
4 working on the project when that project is, of course,  
5 in motion forward.  
6           The other is I'd like to request, if we could,  
7 in fact, have an official meeting. I want to go on  
8 record to actually request that if time -- if your time  
9 frame allows. Specifically, for the West Long Beach  
10 Association. I'll tell you why. We are the first  
11 community in all of Long Beach that is impacted by the  
12 change or the additions or the improvements on this  
13 bridge.  
14           So Rick knows very well, West Long Beach, our  
15 association is very, very cordial, if you will, in  
16 working with the ports and if time allows in the future  
17 with your ability to come out, we would like to have an  
18 informal session such as this. So I want to thank you.  
19           MR. CAMERON: Mr. Carlson or Ms. Carlson. Mr.  
20 Carlson, sorry.  
21           PUBLIC SPEAKER: Good evening. My name is Thor  
22 Carlson. I'm a citizen of Long Beach. I'm here to talk  
23 about the design of the bridge. We have an opportunity,  
24 a once in a lifetime opportunity here in Long Beach to  
25 create an international icon for our city. Something

TC

1 that is going to be here for the next hundred years. I  
2 think we've really shortchanged ourselves on the design  
3 of this bridge. There are phenomenal architects who can  
4 design a much better bridge, have proved it again and  
5 again.

6 Just one name I'd like to throw out there is  
7 Santiago Calitrambo who is an international architect,  
8 sculptor, and artist and has created icons for cities  
9 around the world that generate tourist dollars and  
10 economic development for the cities that have his  
11 bridges. I think that's something we deserve. We've got  
12 to stop shortchanging ourselves with second rate mediocre  
13 architecture and actually design a world class bridge for  
14 our city. Thank you.

15 MR. CAMERON: Thank you. The last name is  
16 Salera.

17 PUBLIC SPEAKER: Oh, my goodness. I'm so  
18 nervous with all these men. (Inaudible.) I live here in  
19 west side alongside the freeway. Who's over here? The  
20 ladies? Oh, my God. I'm getting nervous. May I have my  
21 card. (Inaudible.) Well, you know since 2003 we've been  
22 having these meetings. We started with the 710. That's  
23 the first project that we had a meeting here and now  
24 later on we shout go to the air pollution. Okay. But my  
25 property alongside the 710 -- south 710 freeway right

TC

S-1

S-1

1 here on -- by 7th Street. But I know everybody need  
2 jobs. I need job too. But anyway. Okay.

3 I face you because I'm talking to you guys.  
4 (Inaudible.) Okay. Fine. I want job but first think of  
5 us the 710 south freeway. My property is there. I'm  
6 really 24 hours I'm living there. The trucks making me  
7 nervous. I live there 40 years. I'm going to die. I  
8 don't know when. My birthday was this week, 77, anyway.  
9 I want the job too, but don't work on the 710 south. You  
10 folks have the money. Come on. 710 south first.

S-2

11 Get the trucks one lane so you don't -- we get  
12 accident. We get death. The other one was killed. At  
13 the bridge did anybody die in there? Nobody died in  
14 there; right? The trucks -- they go with the cars.  
15 Okay. So I want one lane for the trucks because you  
16 getting too much business all the time and all that stuff  
17 coming here. So I'm looking for the future. So now  
18 build the 710 before you proceed with the bridge. I'm  
19 telling you. (Inaudible.)

20 I know meeting the people living there and the  
21 air we breathing our fine. We get the pollution, but you  
22 don't guarantee that we're not going to get cancer from  
23 there or whatever. Okay. Now can you reroute the bridge  
24 make the trucks or whatever go off to 710, maybe some of  
25 them. Select truck and put them on Pico or Alameda, you

1 know. Get -- you build a bridge and make a ramp for the  
2 other trucks getting off the load on the 710 freeway  
3 south. That's my backyard. That's why I'm worried about  
4 that. Well, as far as the business is going -- she came  
5 over.

6 She fight me for the bridge but how about fight  
7 for 710 south. I want the trucks one way. I don't want  
8 to be driving when the truck is coming behind me. I'm so  
9 small, but I'm still driving. (Inaudible.) 40 years now  
10 I live there. My husband is retired. I guess I got to  
11 put in the record. I want 710 south before bridge. Do  
12 not work on the bridge until you do my 710.

13 MR. CAMERON: Okay. Thank you everybody. I  
14 don't have anymore speaker cards. Anybody who has not  
15 spoken who would like to come up and provide some  
16 comments please do so. Going once, going twice -- when  
17 you're done, could you fill out a speaker card.

18 PUBLIC SPEAKER: Gary Anderson. I live in Long  
19 Beach. I've noticed recently the open bay bridge they  
20 are rebuilding and they say in the news a couple weeks  
21 ago they were showing the pavement they were installing  
22 comes from China. I don't want a bridge with anything  
23 from China or any where else other than the United  
24 States.

25 MR. CAMERON: Thank you. Okay. Once again,

S-2

GA


1 going once, going twice. I'm going to close the public  
2 hearing. I do want to remind everybody, first of all,  
3 thank you for coming this evening and being here and  
4 providing your comments. I would also like to remind  
5 everybody that the official comment period at this time  
6 closes on March 22.

7           You can find the materials on our Web site. My  
8 staff is roaming around. You have our contact  
9 information, if you'd like to contact us. I would  
10 strongly recommend that you provide written comments.  
11 This is on the record, but I think written comments help  
12 us when we're finalizing the environmental document to  
13 make sure all your comments have been addressed. And  
14 with that have a good evening. Thank you.

15                       (The proceedings were  
16                       concluded at 7:35 p.m.)  
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2	CERTIFIED COPY CERTIFICATE
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8	I, Natalie Rodriguez, CSR No. 12851, a Certified
9	Shorthand Reporter in the State of California, certify
10	that the foregoing transcript constitutes a true and
11	correct copy of the original transcript taken on February
12	24, 2010.
13	I declare under penalty of perjury under the laws of
14	California that the foregoing is true and correct.
15	
16	Executed at Covina, California this 8th day of
17	March, 2010.
18	
19	
20	
21	Natalie Rodriguez, CSR No. 12851
22	
23	
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25	

**4.4 RESPONSES TO COMMENTS ON DRAFT EIR/EA AND PUBLIC HEARING  
COMMENTS**

## **Responses to Comments from Elected Officials**

**Congresswoman Laura Richardson, 37 District, Dated 2/24/2010**

**LR(A):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Assemblyman Warren Furutani, 55th District, Dated 3/19/2010**

**WF(A):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Long Beach City Council Member Robert Garcia, Dated 3/19/2010**

**RG:** The Port and Caltrans agree that the new bridge should be architecturally significant and aesthetically relevant. It will be an important structure that will serve as a signature landmark for the City of Long Beach. For this reason, bridge architecture and aesthetics were evaluated during aesthetics workshops that considered various design options based on aesthetics, cost, constructability, seismic performance, and other factors.

As shown in the night simulation in the EIR/EA (Exhibit 2.1.7-17), aesthetic lighting is included in the preliminary design, and the potential impacts from the lighting have been analyzed in the EIR/EA. A final lighting plan will be developed during the final design phase of the project. The Port and Caltrans understand the iconic nature of the bridge, and the final lighting design will be in keeping with that understanding and should not require additional environmental review beyond the analysis contained in Section 2.1.7.3 of the EIR/EA.

## **Responses to Comments from State Government**

**California Department of Fish and Game, Dated 3/15/2010**

**CDFG:** The Port and Caltrans acknowledge the fee requirement and will submit the filing fee to the California Department of Fish and Game at the time the Notice of Determination for the EIR/EA is filed with the Los Angeles County Clerk. The potential impacts on the biological environment are set forth in Sections 2.3 and 3.2.3 of the Draft EIR/EA.

## **Responses to Comments from Regional Government**



**Southern California Association of Governments, Dated 3/10/2010**

**SCAG-1:** The Port and Caltrans acknowledge that the project is one of regional significance, as is noted in the comment. Responses to detailed comments are provided below.

**SCAG-2:** The horizon year for the Traffic Study was determined when the traffic study was undertaken in December 2005. At that time, the SCAG horizon year was 2030 and the 2008 RTP travel forecasting data for year 2035 were not available. Implicit in the comment is that the use of the 2035 data may yield different traffic forecast volumes and potentially different traffic impacts. The sensitivity analysis described below demonstrates that there would be no difference in adverse traffic effects. The sensitivity analysis was performed to determine if there were meaningful differences between traffic forecasts and analytical results for years 2030 and 2035. A roadway link operations analysis and ramp junction analyses for year 2035 were performed. Results of these analyses indicate that the traffic findings and conclusions based on the year 2030 traffic still apply for year 2035 and that the proposed design will accommodate the projected year 2035 traffic volumes. The year 2035 analysis is presented in Appendix J of the Draft Project Report and is summarized in the EIR/EA in Section 2.1.5.3 in a new subsection at the end of the section headed "Adverse Effects to Traffic during Operation of the Bridge Replacement Alternatives". The text to be added to the EIR/EA is as follows:

**Sensitivity Analysis for Year 2035 Traffic Forecasts**

This section summarizes the analysis and findings of year 2035 traffic conditions. The rate of growth in traffic along the Ocean Boulevard corridor within the study area would be 0.5 percent annually or a total of 2.5 percent for the 5 years from year 2030 to 2035. The growth rate was developed using traffic projections from the latest Port Area Model, which is based on the SCAG 2008 RTP model, with refinements made in the port area, and uses the forecasts recited in the comment.

Using the 2.5 percent growth rate, the roadway segment densities for year 2030 were adjusted upward to reflect a 2.5 percent increase. Similarly, the densities developed for the ramp junction analyses were adjusted upward. The roadway segment densities for years 2005, 2015, 2030, and 2035 for both the No Action/Rehabilitation and Bridge Replacement Alternatives are presented in Table 1 below. The table also shows the roadway segment results with and without the EB-to-NB SR 47 flyover ramp analyzed in the traffic study.

The results show that the only reduction in LOS to a condition worse than LOS D would be on the EB uphill side of the Gerald Desmond Bridge for the PM peak hour for the Bridge Replacement Alternatives with the SR 47 flyover ramp, which is projected to operate at LOS E, even though the density value increased by only 0.8 pc/mi/ln from 2030 to 2035.

The higher densities on this roadway segment are related to the convergence of EB through traffic, the on-ramp from the SR 47 interchange, and the on-ramp from Pier T all occurring on an uphill grade; however, the results indicate that the proposed design can adequately accommodate the projected year 2035 traffic.

For the ramp junction analysis, as shown in Table 2 below, none of the ramp junctions are projected to operate at a level worse than LOS C in year 2035.

In summary, none of the roadway segments or ramp junctions is expected to operate at a failing level of service (LOS F) in 2035. With either Bridge Replacement Alternative or the SR 47 flyover ramp in place, only one roadway segment would operate at LOS E; therefore, the findings and conclusions reached for year 2030 would also apply for year 2035.

# FINAL ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

## Comments and Coordination

**Table 1**  
Gerald Desmond Bridge Replacement Project  
CORSIM Highway Link Analysis Comparison Summary  
Years 2015, 2030, and 2035

Segment	From	To	With Eastbound Ocean Boulevard to Northbound SR-47 Flyover Ramp															
			Existing 2005				Year 2015			Year 2030			Year 2035					
			Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives				
1	EB Ocean Blvd	Newly Vly	19.3	C	202	C	115.1	F	256	C	118.0	F	263	D	168	B	183	C
2	WB Ocean Blvd	Pier S Avenue	17.8	B	258	C	22.9	C	25.6	C	25.3	C	25.6	D	17.8	B	25.1	D
3	WB Ocean Blvd	Terminal Island Freeway	16.5	B	198	C	18.1	C	20.8	C	19.5	C	21.4	C	18.8	C	19.2	C
4	EB Genesid Diamond Bridge	Horanah Ramps	17.0	B	213	C	23.2	C	23.7	C	18.5	C	24.3	C	22.3	C	22.9	C
5	WB Genesid Diamond Bridge	Terminal Island Freeway	21.8	C	28.6	D	21.3	C	24.3	C	28.4	D	24.9	D	28.9	D	28.3	D
6	WB Genesid Diamond Bridge	Downgrade	20.2	C	60.9	F	22.3	C	79.2	F	81.2	F	26.0	D	21.9	C	91.1	F
7	WB Genesid Diamond Bridge	Upgrade	13.8	B	16.2	B	10.1	A	11.9	A	12.2	B	9.5	A	16.3	B	9.9	A
8	WB Ocean Blvd	WB Ocean Blvd	17.4	B	25.7	C	17.8	B	30.6	D	31.4	D	20.1	C	26.0	D	17.9	B
9	WB Ocean Blvd	SB L710	17.4	B	13.8	B	17.4	B	13.1	A	18.2	B	13.5	A	13.8	B	17.4	B
10	WB Ocean Blvd	SB Connector	4.6	A	5.3	A	15.4	B	7.8	A	15.0	B	8.0	A	4.8	A	12.9	B
11	WB Ocean Blvd	Downtown	6.6	A	7.3	A	16.0	B	5.8	A	17.0	B	5.9	A	7.3	A	16.0	B
12	WB Ocean Blvd	Downtown	6.6	A	7.3	A	16.0	B	5.8	A	17.0	B	5.9	A	7.3	A	16.0	B

Segment	From	To	Without Eastbound Ocean Boulevard to Northbound SR-47 Flyover Ramp															
			Existing 2005				Year 2015			Year 2030			Year 2035					
			Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives				
1	EB Ocean Blvd	Newly Vly	22.0	C	230	C	175.3	F	165.8	F	179.6	F	169.9	F	178.8	B	154.4	F
2	WB Ocean Blvd	Pier S Avenue	18.4	C	22.0	C	19.3	C	22.8	C	17.8	B	23.4	C	17.8	B	21.2	C
3	WB Ocean Blvd	Terminal Island Freeway	16.5	B	150	B	17.7	B	19.7	C	18.2	C	20.2	C	16.5	B	20.6	C
4	WB Ocean Blvd	Horanah Ramps	12.8	B	47.0	F	17.7	B	47.6	F	130.9	F	48.8	F	12.3	B	13.0	B
5	EB Genesid Diamond Bridge	Upgrade	18.8	C	28.2	D	19.3	C	21.9	C	19.7	C	22.4	C	28.5	D	27.8	D
6	WB Genesid Diamond Bridge	Downgrade	19.4	C	52.0	F	21.0	C	70.8	F	72.8	F	25.9	D	19.3	C	20.9	C
7	WB Genesid Diamond Bridge	Upgrade	19.0	C	29.4	C	29.6	D	21.4	C	30.4	D	21.9	C	18.5	C	18.5	C
8	WB Ocean Blvd	WB Ocean Blvd	18.0	B	18.0	B	11.8	B	8.8	A	12.0	B	9.0	A	18.0	B	13.0	B
9	WB Ocean Blvd	WB Ocean Blvd	17.4	B	18.1	C	13.0	B	9.0	A	11.6	B	9.2	A	17.4	B	13.8	B
10	WB Ocean Blvd	SB L710	17.4	B	18.1	C	13.0	B	9.0	A	11.6	B	9.2	A	17.4	B	13.8	B
11	WB Ocean Blvd	SB Connector	6.5	A	3.3	A	9.0	A	7.3	A	4.4	A	7.5	A	6.5	A	8.7	A
12	WB Ocean Blvd	Downtown	6.6	A	5.0	A	12.0	B	4.4	A	4.4	A	4.4	A	6.6	A	11.6	B

Segment	From	To	With Eastbound Ocean Boulevard to Northbound SR-47 Flyover Ramp															
			Existing 2005				Year 2015			Year 2030			Year 2035					
			Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives				
1	EB Ocean Blvd	Newly Vly	24.4	C	248	C	178.0	F	156.0	F	182.4	F	159.9	F	165.5	B	169	B
2	WB Ocean Blvd	Pier S Avenue	20.3	C	25.0	C	26.0	D	29.0	D	26.7	D	29.8	D	20.3	C	24.5	C
3	WB Ocean Blvd	Terminal Island Freeway	22.9	C	24.8	C	23.4	C	29.2	D	24.0	C	28.9	D	23.1	C	24.7	C
4	WB Ocean Blvd	Horanah Ramps	20.4	C	24.8	C	16.4	B	25.2	C	16.8	B	25.9	C	19.8	C	23.3	C
5	EB Genesid Diamond Bridge	Upgrade	20.2	C	35.9	D	20.2	D	24.8	D	21.2	C	24.9	D	24.1	C	28.2	D
6	WB Genesid Diamond Bridge	Downgrade	18.9	C	58.3	F	22.0	C	108.1	F	23.5	C	26.8	D	18.9	C	20.9	C
7	WB Genesid Diamond Bridge	Upgrade	13.2	B	14.1	B	10.2	A	9.5	A	10.4	A	9.7	A	13.2	B	9.9	A
8	WB Ocean Blvd	WB Ocean Blvd	20.4	C	14.3	B	23.4	C	16.0	B	24.0	C	16.3	B	20.4	C	14.3	B
9	WB Ocean Blvd	SB L710	18.3	B	10.2	B	11.5	B	15.6	B	12.1	A	16.3	B	18.8	B	13.7	B
10	WB Ocean Blvd	SB Connector	8.5	A	7.3	A	13.6	B	8.8	A	16.0	B	9.0	A	8.6	A	12.4	B
11	WB Ocean Blvd	Downtown	6.9	A	8.6	A	20.8	C	7.9	A	19.4	C	8.1	A	6.6	A	12.4	B

Segment	From	To	Without Eastbound Ocean Boulevard to Northbound SR-47 Flyover Ramp															
			Existing 2005				Year 2015			Year 2030			Year 2035					
			Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives	Density	LOS	Bridge Rep/Rehab Alternatives	No Action/Rehab Alternatives				
1	EB Ocean Blvd	Newly Vly	24.4	C	248	C	178.0	F	156.0	F	182.4	F	159.9	F	165.5	B	169	B
2	WB Ocean Blvd	Pier S Avenue	20.3	C	25.0	C	26.0	D	29.0	D	26.7	D	29.8	D	20.3	C	24.5	C
3	WB Ocean Blvd	Terminal Island Freeway	22.9	C	24.8	C	23.4	C	29.2	D	24.0	C	28.9	D	23.1	C	24.7	C
4	WB Ocean Blvd	Horanah Ramps	20.4	C	24.8	C	16.4	B	25.2	C	16.8	B	25.9	C	19.8	C	23.3	C
5	EB Genesid Diamond Bridge	Upgrade	20.2	C	35.9	D	20.2	D	24.8	D	21.2	C	24.9	D	24.1	C	28.2	D
6	WB Genesid Diamond Bridge	Downgrade	18.9	C	58.3	F	22.0	C	108.1	F	23.5	C	26.8	D	18.9	C	20.9	C
7	WB Genesid Diamond Bridge	Upgrade	13.2	B	14.1	B	10.2	A	9.5	A	10.4	A	9.7	A	13.2	B	9.9	A
8	WB Ocean Blvd	WB Ocean Blvd	20.4	C	14.3	B	23.4	C	16.0	B	24.0	C	16.3	B	20.4	C	14.3	B
9	WB Ocean Blvd	SB L710	18.3	B	10.2	B	11.5	B	15.6	B	12.1	A	16.3	B	18.8	B	13.7	B
10	WB Ocean Blvd	SB Connector	8.5	A	7.3	A	13.6	B	8.8	A	16.0	B	9.0	A	8.6	A	12.4	B
11	WB Ocean Blvd	Downtown	6.9	A	8.6	A	20.8	C	7.9	A	19.4	C	8.1	A	6.6	A	12.4	B

Source: IERIS, Inc., 2009  
Notes:  
Analysis is for multi-lane highway sections that were not grade-separated highway sections in 2005 are not presented in this analysis compilation.  
Level of Service (LOS) criteria are based on peak hour traffic on the mainline of the highway. LOS is based on the peak hour traffic on the mainline of the highway. LOS is based on the peak hour traffic on the mainline of the highway.  
The density ranges for different LOS types: LOS A, 11-18; LOS B, 19-26; LOS C, 27-34; LOS D, 35-42; LOS E, 43-50; LOS F, 51-60.

**Table 2**  
**Year 2015, 2030, and 2035 Forecast Peak-Hour LOS at Ramp Junctions**

Ramp Location	AM Peak		MD Peak		PM Peak	
	Density (pc/mi/ln)	LOS <sup>1</sup>	Density (pc/mi/ln)	LOS <sup>1</sup>	Density (pc/mi/ln)	LOS <sup>1</sup>
<b>Year 2015 No Action/Rehabilitation Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	16.8	B	16.0	B	17.7	B
Horseshoe Off-Ramp to Pier T Avenue	24.9	C	23.3	C	24.5	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	16.9	B	17.8	B	20.2	C
Ocean Boulevard to SR 710/Downtown Diverge	14.2	B	15.6	B	20.0	B
Ocean Boulevard to Pico Avenue Off-Ramp	6.9	A	5.6	A	13.7	B
<b>Year 2015 Bridge Replacement Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	17.0	B	14.4	B	16.4	B
Horseshoe Off-Ramp to Pier T Avenue	21.5	C	20.3	C	20.4	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	18.9	B	19.8	B	22.9	C
Ocean Boulevard to SR 710/Downtown Diverge	22.5	C	24.6	C	25.8	C
Ocean Boulevard to Pico Avenue Off-Ramp	17.6	B	20.3	C	18.0	B
<b>Year 2030 No Action/Rehabilitation Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	17.9	B	17.0	B	18.6	B
Horseshoe Off-Ramp to Pier T Avenue	26.8	C	25.0	C	26.2	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	17.4	B	18.2	B	21.3	C
Ocean Boulevard to SR 710/Downtown Diverge	15.0	B	16.2	B	21.9	C
Ocean Boulevard to Pico Avenue Off-Ramp	6.9	A	6.6	A	13.8	B
<b>Year 2030 Bridge Replacement Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	18.8	B	16.7	B	19.6	B
Horseshoe Off-Ramp to Pier T Avenue	23.1	C	22.0	C	22.5	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	20.1	C	21.5	C	24.7	C
Ocean Boulevard to SR 710/Downtown Diverge	24.0	C	27.6	C	28.6	D
Ocean Boulevard to Pico Avenue Off-Ramp	18.9	B	23.5	C	20.3	C
<b>Year 2035 No Action/Rehabilitation Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	18.3	B	17.4	B	19.1	B
Horseshoe Off-Ramp to Pier T Avenue	27.5	C	25.6	C	26.9	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	17.8	B	18.7	B	21.8	C
Ocean Boulevard to SR 710/Downtown Diverge	15.4	B	16.6	B	22.4	C
Ocean Boulevard to Pico Avenue Off-Ramp	7.1	A	6.8	A	14.1	B
<b>Year 2035 Bridge Replacement Alternatives</b>						
<b><i>WB Ocean Boulevard</i></b>						
Pico Avenue On-Ramp Merge to Ocean Boulevard	19.3	B	17.1	B	20.1	C
Horseshoe Off-Ramp to Pier T Avenue	23.7	C	22.6	C	23.1	C
<b><i>EB Ocean Boulevard</i></b>						
Horseshoe On-Ramp from Pier T Avenue	20.6	C	22.0	C	25.3	C
Ocean Boulevard to SR 710/Downtown Diverge	24.6	C	28.3	D	29.3	D
Ocean Boulevard to Pico Avenue Off-Ramp	19.4	B	24.1	C	20.8	C

EB – eastbound; LOS – level of service; pc/mi/ln – passenger cars per mile per lane; WB – westbound  
<sup>1</sup> LOS criteria for ramp junction areas are in density (pc/mi/ln). Density ranges for different LOS types: LOS A, 0 – 10; LOS B, 10.1 – 20; LOS C, 20.1 – 28; LOS D, 28.1 – 35; LOS E, 35.1 – 43; LOS F, > 43.

- SCAG-3:** The Port and Caltrans concur that the project would not result in permanent employment or associated population growth (see EIR/EA Section 2.1.3.1.3).
- SCAG-4:** The Port and Caltrans agree that regional traffic is expected to increase, with or without the proposed bridge replacement. The Port also acknowledges that SCAG considers the project to be consistent with RTP Goals G1-G4 and G6.
- SCAG-5:** The Port and Caltrans acknowledge that exceedances of SCAQMD daily emissions thresholds and GHG emissions cannot be fully mitigated; therefore, only partial consistency with RTP Goal G5 can be achieved.
- SCAG-6:** Although the comment indicates that Goal G7 (maximize the security of the transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies) does not apply, construction of either of the Bridge Replacement Alternatives will include intelligent transportation system (ITS) components, such as closed-circuit television (CCTV) cameras that will feed directly into the Port's Security Command and Control Center. Furthermore, either Bridge Replacement Alternative will also be designed to endure more intense seismic activity than the existing bridge, thus improving recovery planning after a major seismic event. The Bridge Replacement Alternatives would therefore enhance Goal G7 within the project area.
- SCAG-7:** The Port and Caltrans concur that the project is located within industrial-zoned areas of the Port and that Growth Visioning Policies GV1.2, GV1.3, and GV1.4 are not applicable to the proposed project. The Port also acknowledges that the project is consistent with Policy GV1.1
- SCAG-8:** The Port and Caltrans agree that the project is located within industrial-zoned areas of the Port and is intended to improve Port and non-Port-related traffic within the project area; therefore, Policies GV 2.1, 2.2, 2.3, and 2.4 are not applicable to the proposed project.
- SCAG-9:** The Port and Caltrans agree that the project is located within industrial-zoned areas of the Port and is intended to improve Port and non-Port-related traffic within the project area; therefore, Policies GV 3.1, 3.2, 3.3, 3.4, and 3.5 are not applicable to the proposed project.
- SCAG-10:** The Port and Caltrans concur that the project is located within industrial-zoned areas of the Port and that the proposed project will mitigate project effects on sensitive species to less than significant. The proposed project is not sited in an area that contains agriculture, rural, recreational, or environmentally sensitive areas; therefore, Policy GV P4.1 is not applicable.
- SCAG-11:** The Port and Caltrans concur that the project is located within industrial-zoned areas of the Port and will focus development within urban areas and will not affect sensitive areas or habitats; therefore, the proposed project is consistent with Policy GV P4.2.
- SCAG-12:** The Port and Caltrans concur that the project adequately addresses project-related impacts and avoidance/minimization and mitigation measures with regard to additional impervious surface water runoff and treatment, construction debris recycling, and reduction of impacts to air quality; therefore, it is generally consistent with Policies GV 4.3 and 4.4.
- SCAG-13:** As required by CEQA, the EIR/EA identifies feasible mitigation measures that can minimize potentially significant adverse impacts of the project. In the course of seeking to identify feasible mitigation measures that could reduce the significant effects associated with the project, the Port and Caltrans surveyed a wide variety of source materials, including the Mitigation Monitoring and Reporting Program (MMRP) accompanying SCAG's 2008 RTP Final EIR (SCAG, May 2008). Certain measures, such as those pertaining to Aesthetics and Visual Impact, Air Quality, Geology, Hazardous Materials, and Noise, have been incorporated, in whole or in part, in the project's list of applicable mitigation measures. Based on information obtained from this survey and other efforts, the Port and Caltrans have developed the list of mitigation measures that the EIR/EA

recommends for the project. A comprehensive MMRP will be adopted and implemented as required by CEQA. In accordance with your request, a copy of the MMRP will be provided to SCAG.

**South Coast Air Quality Management District, Dated 4/2/2010**

**SCAQMD-1:** The comment is noted. Responses to detailed comments are provided below.

**SCAQMD-2:** Regarding vessel traffic, there will be some construction activities that would affect properties adjacent to the bridge, but this would have no effect on ship access to Port facilities or piers (EIR/EA Section 2.1.6.3). Both before and after construction and operation of the Build Alternatives considered in the EIR/EA, the only access to the Cerritos Channel terminals in the Port is and will be through the Back Channel under the bridge. This access will be maintained throughout construction and operation of the project. Because rerouting of vessel movements would not be required during construction, the EIR/EA does not contain an analysis of air emissions that might result from such rerouting of vessels.

The Port does not anticipate that there would be any quantifiable additional vessel-related air emissions associated with an increased bridge height for two reasons: (1) navigational constraints in the Back Channel limit the size of ships that can pass under the bridge, and (2) the limited capacities of the Cerritos Channel terminals do not allow for a mix of vessel calls that would increase air emissions. A detailed discussion of the potential effects of the bridge height increase on vessel traffic is provided in EIR/EA Section 2.1.2.3. As is noted in that discussion (under Overall Capacity/Maritime Growth Inducement Potential), only the existing Pier A and planned Pier S container terminals would be potentially affected by the bridge replacement. While the bridge replacement would make it possible for the largest ships (11,000 - 11,999 TEU capacity) to gain access to these two piers, it is not likely that they would call at Pier S because it would be one of the smallest container terminals in the Port and would therefore not provide adequate on-dock container storage capacity. It is possible that in the future Pier A could receive an estimated one call per week for a ship of the largest size; but even if the additional increased air draft is provided, there are still navigational constraints that make this currently infeasible. Current navigational safety concerns are such that widening the channel would be needed, as well as increasing the channel depth. Neither of these improvements is currently proposed; therefore, the largest ships able to navigate the channel safely even with the increased clearance from the new bridge would be of the 8,000 - 8,999 TEU capacity. As a result of the above-described conditions, the bridge replacement would not meaningfully increase the capacity of Pier A, even though it eliminates the air draft constraint for the largest ships.

Regarding emissions associated with partial closing of road or rail lines during construction, as explained in more detail in the response to SCAQMD-9, there will be only minimal localized rerouting of truck traffic, none of which would require the use of alternate routes, and the rerouting that would be necessary would occur only within the immediate project vicinity. Similarly, there will be only minimal impact on a single rail line for which a temporary replacement (called a "shoofly") will be constructed. Because traffic would continue to use current routes and because the affected rail line would remain operational during the construction period, no additional air quality analysis related to detours is necessary.

**SCAQMD-3:** The proposed project would not have any effect on existing rail lines, including all rail lines serving on-dock facilities. As discussed in the response to SCAQMD-9 below, a short section of one existing sparsely used rail line will require realignment, but a temporary "shoofly" would be provided and no interruption of service would occur. The Bridge Replacement Alternatives, including all related structures, were designed taking into account the Port's rail plans so that neither of the Bridge Replacement Alternatives would limit the Port's ability to expand on-dock rail capacity.

- SCAQMD-4:** In accordance with CEQA requirements, responses to SCAQMD comments will be provided prior to certification of the EIR by the Board of Harbor Commissioners.
- SCAQMD-5:** Please see the response to SCAQMD-2.
- SCAQMD-6:** Please see the response to SCAQMD-3.
- SCAQMD-7:** The “Trend Analysis” discussion is provided as part of the NEPA-required project-level conformity analysis following FHWA and EPA Guidelines in their March 2006 guidance: *Transportation Conformity Guidance for Qualitative Hot-Spot Analysis in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas* (Guidelines). EIR/EA Exhibit 2.2.5-3 is provided based on those guidelines for national standards. The included discussion is intended to show the overall change or “trend” of ambient pollutant concentrations in the project area over time. A review of this supporting data/information demonstrates that any increase in the emissions due to traffic changes associated with the project would be offset by decreasing background concentrations, as well as decreases in on-road vehicle emissions trends (reference: Guidelines - Section 4.3, part A). A comparison with state standards is included in Table 2.2.5-4 (EIR/EA). It should be noted that the declining “trend in pollutant ambient concentrations” would be the same whether compared to federal or state standards. This information helps the reader to better understand the context in which the project is being evaluated, as well as being required under the conformity requirements.

Data taken from the North Long Beach air monitoring station (ARB site #70072; start date 5/7/1969) is presented in Table 2.2.5-4. This information was used for trend analysis because it provides the most complete and continuous data recording throughout the years. This station has continuous records for all criteria pollutants (except lead) for every year from 1999 to the present. The other monitoring station in the area mentioned by the commenter (i.e., South Long Beach Station; 1305 E Pacific Coast Highway, ARB #70110) only started operation in 2003 (8/7/2003); it monitors PM concentrations and has only incomplete records of annual average data. Since the point of the information presented in Table 2.2.5-4 is to illustrate an historical trend of recorded ambient data for criteria pollutants, the choice of station noted above best fulfills that purpose. Furthermore, data from the nearest Port monitoring station (start date: 2006) is provided in Table 2.2.5-5 of the Draft EIR/EA for comparison with data from the North Long Beach station.

- SCAQMD-8:** Responses to the three bulleted items are as follows:
- Release heights of 3 ft (for passenger cars) and 15 ft (for heavy duty trucks) were initially established in the AERMOD model for the line sources representing passenger cars and heavy trucks, respectively. Each line source (representing a segment of the project corridor) was then mathematically converted into equivalent volume sources by AERMOD for use in the dispersion modeling. In addition, the terrain digital elevation coordinates of the bridge and approach roads were also developed (using the AERMAP module of the model) for use in the dispersion model.
- To use the results of dispersion modeling in the health risk model, HARP on-ramp and HARP, the following steps were taken:
- Generated source pathway was exported; a file with .p1 extension was created
  - All references to the line source (e.g, “source group ALL” were edited out to leave only the information on the volume sources
  - The source pathway was imported back to project setting in AERMOD – a set of individual volume sources generated that overlap the original line sources
  - The length of the side of all new volume sources were changed to the value of the original line source segment
  - The initial lateral dispersion of each new volume source was changed to the value of the source generated in original line source

- The original line sources were then deleted from the source list
- The terrain data (using AERMAP module) was imported again into the project.

Because the individual volume sources were generated as part of each line source segment (with original release heights of 3 ft and 15 ft for autos and trucks, respectively) and the terrain elevation data were incorporated, the model input information therefore faithfully represents the locations and characteristics of the emission sources relative to the bridge/highway and the bridge/highway relative to its surroundings.

- The calculations using speciated emissions are shown in Attachment D2 to the Air Quality Technical Study (AQTS) and were carried in the modeling through the files with the names ended in ".ems", as is described in the "Notes\_CD.doc" included in the HRA CD that was provided as Attachment D3 to the AQTS Report. The CARB speciation tables were provided in an attachment to Appendix D (HRA).
- The only source names that do not match are those for the Pico ramps. Table D-2 includes: ONPICO (Pico on-ramp), and OFFPICO (Pico off-ramp). These names in the model appear without the last letter: ONPIC (Pico on-ramp), and OFFPIC (Pico off-ramp). The correction has been provided in the Final EIR/EA. A footnote has also been added to the table explaining that for AERMOD modeling, each "link ID followed by letter A" is used for passenger car (automobile).

**SCAQMD-9:** Temporary changes to local traffic flow in the immediate vicinity of the bridge would be needed during several stages of the construction period, as described in EIR/EA Section 2.1.5.3. The SB-to WB connector from I-710 to Ocean Boulevard would be closed during the second stage of construction, but would be replaced with a temporary ramp connection using Pico Avenue. Also during the second and third stages of construction, WB traffic on Ocean Boulevard desiring access to Pier T would be directed by signage to proceed westerly to the interchange with SR 47, make a U-turn, and then proceed back easterly along Ocean Boulevard to the EB exit to Pier T.

The interim detour alignments would not require diversion of traffic to alternate routes, add a considerable length to the traveled road, or move traffic closer to any sensitive receptor. Minor variations in traffic behavior would occur during the construction period, but they would be isolated to specific construction zones and would be limited to very short durations of time during which vehicles might be queuing. These effects would be very small in the context of the overall impact assessment and would not be of sufficient magnitude to cause a measurable change in the results of the emissions analysis.

There is a short portion of an existing rail line that crosses from northwest to southeast beneath the existing bridge's west approach road just east of the horseshoe ramps that would require temporary relocation while bridge-related construction is occurring. This is an infrequently used rail line with an estimated 4 to 5 movements per day. A temporary "shoofly" would be constructed adjacent to the existing track prior to relocating the affected portion of the rail line, thereby allowing continued service during the construction period. The change in rail movements associated with the construction period activity would be minimal and therefore would not change the results of the emissions analysis. Because traffic would continue to use current routes and because the affected rail line would remain operational during the construction period, no additional air quality analysis related to detours is necessary.

**SCAQMD-10:** The Final EIR/EA Section 2.2.5.3 includes the requested refined analysis for localized construction impacts related to NO<sub>x</sub> emissions for years 2 and 3 of the project construction period using dispersion modeling. The modeling results, summarized in Table 3, show that the concentrations of NO<sub>2</sub> at the nearest sensitive receptors remain below the CAAQS for 1-hour NO<sub>2</sub> during the peak construction activities; therefore, no change in impact conclusions would occur.



<b>Table 3 Localized NO<sub>2</sub> Concentration during Peak Construction Activities</b>					
<b>Receptor Type</b>	<b>Nearest Receptors</b>	<b>Project Impact at the Nearest Sensitive Receptors (µg/m<sup>3</sup>)</b>	<b>Distance from Construction Site Boundary (m)</b>	<b>Maximum Project Impact + Background (µg/m<sup>3</sup>)</b>	<b>SCAQMD Threshold (µg/m<sup>3</sup>)</b>
School	Cesar Chavez Elementary	31	457	269	338
	Edison Elementary	27	488	265	338
Daycare	Childtime Learning Center	41	663	279	338
	Lucy's Baby Care	64	1,178	302	338
Hospital	St Mary Medical Center	52	2,200	290	
Convalescent	The Breakers of Long Beach	27	1,557	265	

a As recommended by the SCAQMD, offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling; however, onsite truck emissions were included in the modeling (SCAQMD 2005).

b NO<sub>2</sub> concentrations were calculated using the conversion rate from NO<sub>x</sub> to NO<sub>2</sub> based on the distance of receptor from the construction site boundary (SCAQMD, 2003).

**Table 2-4. NO<sub>2</sub>-to-NO<sub>x</sub> Ratio as a Function of Downwind Distance**

Downwind Distance (m)	NO <sub>2</sub> /NO <sub>x</sub> Ratio
20	0.053
50	0.059
70	0.064
100	0.074
200	0.114
500	0.258
1000	0.467
2000	0.75
3000	0.9
4000	0.978
5000	1

c Background concentration of 238 µg/m<sup>3</sup> was estimated based on the ambient concentration trends and the last 3 years of monitored data at the Port of Long Beach Inner Harbor Monitoring Station (<http://polb.airsis.com/HistoricalSummary.aspx>). These data are preliminary; however, the estimate provides a conservative value that is higher than the North Long Beach Monitoring Station (215 µg/m<sup>3</sup>).

**SCAQMD-11:** Responses to the three bulleted items are as follows:

- All feasible mitigation measures, including measures imposed by SCAQMD and measures prescribed by the Port, have been included in the impact analysis. For purposes of estimating the effectiveness of construction period mitigation measures, a conservative approach was taken in which the estimated reduction of 15 percent for NO<sub>x</sub> was used (URBEMIS 2007; Version 9.2) because it is only regional NO<sub>x</sub> emissions for which an exceedance of the significance threshold is estimated. Further reductions in emissions, resulting from the EPA Tier 4 non-road engine standards, while they may occur, cannot be guaranteed; therefore, credit for those additional benefits were not taken to present a conservative portrayal of impacts. However, it should be noted that the project construction specifications will include a provision requiring the use of Tier 4 equipment should such equipment become available for general use at the time of bridge construction. Tier 4 equipment is expected to begin to become available in the 2011-2012 time frame, which may permit some amount of such equipment to be used for construction work on the bridge; however, because it is not known how much Tier 4 equipment can be utilized on the project, an estimate of the emissions reduction benefit cannot be reliably calculated. For this reason, credit for the additional likely reduction attributable to the use of Tier 4 equipment has not been taken.
- The emission estimates presented in the Final EIR/EA air quality analysis have been calculated using the latest available data, assumptions, and emission factors taken from the OFFROAD 2007 Model. This source incorporates the estimated benefits from improvements in engine technology to the level of Tier 3 equipment, which

constitutes the inventory of equipment expected to be universally available for work on the project. Offsite haul truck emissions, used for purposes of estimating trips hauling away construction debris, were estimated using the EMFAC2007 model, which is also the most recent data set for that emissions source.

- Electric power would be needed to power a variety of construction equipment. Diesel-powered generators would be primarily used to power hand tools and compressors that would be needed at various unspecified locations throughout the construction period, whereas power taken from temporary stationary power poles would more likely be used for stationary construction equipment, such as power saws, drill presses, or similar fixed equipment. Electricity taken from fixed power poles will be used to the extent practicable, rather than from generators, but such application will not be universally applicable, due to not only the need for mobile equipment to be used at many locations, but also because a substantial portion of the construction activity will be occurring over water, which would make such use infeasible. During the final design stage of project development, the Port will determine where fixed power sources may be feasibly used and will require the contractor to take power from existing or temporary fixed power sources in lieu of generators, as required in Mitigation Measure AQ-C4. Because the particulars of the application of fixed source power cannot be known at the present time, an estimate of associated emissions reduction would be speculative; therefore, it has not been calculated.

**SCAQMD-12:** Responses to the three bulleted items are as follows:

- The historical data reported in the document were taken from the CARB, EPA, and/or SCAQMD Web sites. At the time of preparation of the draft report, the available data for 2008 had 48 percent coverage of the collected data (i.e., processed and validated sufficient to be reported on the Web site). Currently, the data reported on the same Web site has 98 percent coverage; therefore, they are different from those that were reported earlier. The Final AQTs and EIR/EA include the latest data available from the monitoring sites.
- The Final EIR/EA includes the most recent available data.
- The Final EIR/EA has been updated to reflect the most recent SCAQMD LST threshold for NO<sub>x</sub>. It should be noted that the refined analysis of the maximum NO<sub>x</sub> emissions from peak construction activities (Years 2 and 3 of project construction) was conducted using dispersion modeling, which concludes that no localized significant impact would be anticipated from construction-related pollutant emissions. Please also see the response to SCAQMD-10.

## **Responses to Comments from Local Government**

**City of Long Beach, Department of Development Services, Dated 3/22/2010**

**LBDS-1:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**LBDS-2:** Responses regarding your comments and concerns to accommodate non-motorized access are addressed below in responses LBDS-3 through LBDS-8.

**LBDS-3:** The proposed bridge and Ocean Boulevard are currently designated as the future extension of SR 710 by the California legislature in Section 622.1(a) of the State of California Streets and Highways Code as described below:

622.1. (a) Route 710 shall also include that portion of the freeway between Route 1 and the northern end of Harbor Scenic Drive, that portion of Harbor Scenic Drive to Ocean Boulevard, that portion of Ocean Boulevard west of its intersection with Harbor Scenic Drive to its junction with Seaside Boulevard, and that portion of Seaside Boulevard from the junction with Ocean Boulevard to Route 47.

The reference in the Draft EIR/EA to this area being part of SR 710 was not intended to act as a designation, but it was instead merely describing the legislature's designation.

Subsequent to opening of the new bridge, it will be transferred from the Port to Caltrans upon completion of the route adoption by the California Transportation Commission (CTC), consistent with California law. CVC Section 21960 does not automatically prohibit bicycle use on designated freeways or expressways but instead leaves it to the discretion of the department or local agency as described below.

21960. (a) The Department of Transportation and local authorities, by order, ordinance, or resolution, with respect to freeways, expressways, or designated portions thereof under their respective jurisdictions, to which vehicle access is completely or partially controlled, **may** (Bold added) prohibit or restrict the use of the freeways, expressways, or any portion thereof by pedestrians, bicycles or other non-motorized traffic or by any person operating a motor-driven cycle, motorized bicycle, or motorized scooter.

The Port supports the use of the bridge by cyclists and has no intention of taking any action in the future to prohibit that use. Caltrans has determined that at least initially, bicyclists will not be prohibited from using the proposed bridge. The path that a cyclist would take to cross the bridge is shown in Final EIR/EA Exhibit 2.1.5-3. The new bridge will provide a 10-ft-wide shoulder for use by cyclists to cross the bridge. Currently, cyclists are required to climb a series of stairs at either end of the bridge to access the sidewalk or to share the travel lane with vehicles due to the lack of shoulders. Cyclists will be prohibited from using the Ocean Boulevard ramps due to safety concerns associated with a required merge from the Ocean Boulevard connection (center/left lanes of the bridge) across high-speed freeway traffic to get to the safety of the right-hand shoulder; however, as previously discussed, the bridge will be adopted into the State Highway System (SHS), and consistent with CVC Section 21960, Caltrans at some point in the future could prohibit future bicycle access on the bridge for safety or other reasons.

Having the City retain jurisdiction over the bridge is not feasible. If the City chooses not to relinquish the bridge to the State, the project would not be eligible for \$250 million in Proposition 1 Trade Corridor Infrastructure Funds (Prop. 1 TCIF) and \$49.8 million in State Highway Operation and Protection Plan (SHOPP) funds that have been allocated to the project pending transfer of the facility to Caltrans. As stated in 4.4.3 of the TCIF Baseline Agreement between the Port and the CTC dated September 29, 2008, and signed by CTC Executive Director on November 21, 2008, the State of California intends to use the SHOPP funds financed with Grant Anticipation Vehicle Revenue (GARVEE) bonds for the project. As a condition of eligibility for SHOPP funds, the CTC must adopt the bridge route into the SHS prior to the start of construction.

- LBDS-4:** The policies set forth in Caltrans Deputy Directive (DD)-64 Complete Street – Integrating the Transportation System apply to the project. Caltrans is the lead NEPA agency, the Port’s partner for the Gerald Desmond Bridge Replacement Project, and is responsible for implementation of the DD on all projects consistent with the guidelines and responsibilities as outlined in the DD. The Caltrans District 7 Bike Advocacy Department has been actively involved in the development of the project and concurs that neither designation (e.g., signing, striping) of a bicycle route nor replacement of the pedestrian walkway is required for the reasons discussed in Final EIR/EA Section 2.1.5.3. As described in DD-64, a complete street is a “transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit riders, and motorists **appropriate to the function and context of the facility.**” (Bold added) Caltrans and the Port have considered the requirements of DD-64 in balancing the multimodal alternative needs for this project with the function and context of the facility. In consideration of those needs, bicyclists will not be prohibited from using the bridge (see also LBDS-3). In the future, if a bicycle route from San Pedro to Long Beach was designated, the 10-ft-wide shoulders provide an area for use by cyclists that could function as a Class III bikeway. Additionally, the current configuration of the existing walkway is accessible by stairs only, has 6 percent grade, and does not comply with the ADA. Pedestrian access on the new bridge is not feasible. Such access could not exceed a 5 percent grade, would require a separated flat resting area for every 2 ft of rise, and would have to be accessible by all handicapped persons. Construction of an ADA-compliant pedestrian access is also not consistent with the function and context of the facility. No pedestrian walkway will be provided for either of the Bridge Replacement Alternatives because there is no other connecting pedestrian infrastructure on Terminal Island, no pedestrian attractions, and no feasible way to provide an ADA-compliant pedestrian walkway
- LBDS-5:** State and federal regulations require the inclusion of non-motorized routes in roadway improvement projects only if the facility already includes an existing major non-motorized route. The current Gerald Desmond Bridge has a walkway, but the walkway is not considered “major” per federal guidelines. The CVC (Sections 21200-21212) and Streets and Highways Code (Sections 890-894.2) identify the rights of bicyclists and pedestrians, and they establish legislative intent that people of all ages using all types of mobility devices are able to travel roads, unless prohibited under CVC Section 21960. The Port addressed this issue in a report in January 2004 in consideration of federal statute Title 23, Section 217, as amended by the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which states, “The Secretary shall not approve any project or take any regulatory action that will sever an existing major non-motorized route or adversely affect the safety of non-motorized traffic and light motorcycles, unless a reasonable alternate route exists or is established. [1202(c)]”.
- LBDS-6:** In addition to adding a travel lane, the new bridge would add 10-ft-wide outside shoulders. In the future, as required, the shoulder could function as a Class III bikeway should other segments of a bike route be developed in the future. The I-710 Freeway and Ocean Boulevard merge east of the bridge, with Ocean Boulevard traffic entering via the inside lanes and I-710 traffic entering via the outside lanes. Traffic traveling from I-710 is traveling at high speeds, and for the safety of the traveling public, bicycle access to the bridge or from the bridge via the Ocean Boulevard ramps will be prohibited.
- On August 10, 2006, the PDT made the determination that further consideration of a designated bicycle route on a new bridge was not warranted at this time. PDT representation at the meeting included the bikeway modal lead and staff from Los Angeles County Metropolitan Transportation Authority (Metro), City of Long Beach Public Works staff, the Senior Bicycle Program Coordinator, and staff from the City of Los Angeles and the bridge design team.
- Designating the bridge as a bicycle route would require three key steps, including Caltrans approval, designation of a safe connection to the bridge from downtown Long

Beach, and an amendment to the City's Bicycle Master Plan to designate the route. As stated, I-710 merges onto the bridge using the outside lanes. At the meeting, it was determined that it would not be safe for bicyclists connecting to the bridge from downtown Long Beach via Ocean Boulevard because bicyclists would be required to traverse two lanes of heavy traffic traveling at speeds in excess of 55 mph. In addition to high speeds and volumes entering from the I-710 freeway, the bridge currently accommodates a significant amount of heavy-duty truck traffic that uses the bridge to access marine terminals on Terminal Island and in the POLA.

As a result of the meeting, all meeting participants jointly concluded that further consideration of a dedicated bicycle route or pedestrian walkway is not compatible with this project, because: (1) The project area is within the highly industrialized areas of the Ports with no current or planned infrastructure supporting non-motorized or pedestrian uses on Terminal Island and (2) planned future improvements and existing conditions on the other adjacent bridges (Vincent Thomas and existing or proposed Schuyler Heim Bridges) also do not include dedicated facilities for pedestrian or non-motorized use.

However, in recognition of the desire to maintain continued access for bicycles, and in accordance with discussions during project development meetings, bicyclists will be allowed to use the bridge as previously discussed. In the future, as appropriate, should a future bike route connecting downtown Long Beach and San Pedro via Terminal Island be designated, the shoulders on the bridge could be designated as a Class III bikeway and function as a supporting component of a future designated route within the project area; however, due to safety concerns for cyclists due to the previously discussed traffic merges, any future designated route would likely have to be the same as described in Final EIR/EA Section 2.1.5.3 and shown in Exhibit 2.1.5-13.

**LBDS-7:** The Port and Caltrans have considered all applicable federal and state policies regarding accommodation of bicycles and pedestrians during the development of the Gerald Desmond Bridge Replacement Project. The 10-ft-wide shoulder could function as a Class III bikeway in the future, as required to supplement any planned future non-motorized access between Long Beach and San Pedro; however, pedestrian use/access within the POLB/POLA on Terminal Island is not compatible with Port and other industrial activities. The Ports, through efforts formalized in the San Pedro Bay CAAP, are aggressively working at reducing port-related emissions, which will greatly enhance enjoyment and health benefits of walking, biking, and all other healthy lifestyle activities.

**LBDS-8:** The Port agrees that other major bridges have been designed to accommodate pedestrian and bicycle access; however, the need to accommodate bicycle and pedestrian access is associated primarily with the surrounding land uses, densely populated urban areas separated by water from major employment centers and city attractions, and few reasonable alternative routes. The George Washington Bridge is located in one of the most densely populated areas in the United States and separates New Jersey from New York City. The Golden Gate Bridge is a tourist attraction itself with demands for non-motorized travel that are very different from those of the proposed bridge. Cyclist (weekday 80 to 1,600; weekend/holiday 125 to 5,000) and pedestrian (weekday up to 3,800; weekend/holiday 5,000 to 6,600) demands on the Golden Gate Bridge are substantially higher than on the Gerald Desmond Bridge (<http://goldengatebridge.org/bikesbridge/GoldenGuidelines.php>). Port staff notes only occasional use of the pedestrian walkway by pedestrians and cyclists. As indicated above, upper ranges for cyclists and pedestrians on one peak weekend would very likely be more than the entire year for the existing or proposed new bridge. Other than the proposed size of the bridges, there is little validity in the comparison of current or potential future use of these bridges by pedestrians or cyclists to the uses of the bridges cited in the comment. Nevertheless, bicyclists will not be prohibited from using the proposed bridge, and the 10-ft-wide shoulders could be designated as a Class III bikeway as necessary in the future.

**Long Beach Unified School District, Dated 3/22/2010**

**LBUSD-1:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners; responses to the detailed comments are provided below.

**LBUSD-2:** The Port acknowledges the presence of the two schools noted in the comment. The distances of the two schools (Cesar Chavez and Thomas Edison) from the project, as stated in the comment, are inaccurate. As is noted in the response to comment LBUSD-7, the distances from Cesar Chavez Elementary School to the nearest pile-driving activity would be 1,535 to 1,610 ft, and the distances from Thomas Edison Elementary would be 2,260 to 2,626 ft. Both of these schools have been taken into account in the impact analyses presented in the EIR/EA. Please see responses to LBUSD-3 through -10 for detailed responses to concerns raised regarding TAC exposure, health risk, and noise.

**LBUSD-3:** The primary source of TACs from construction activities would be the emission of DPM from operating heavy-duty construction equipment on the construction site. The analysis of construction impacts on air quality, provided in Section 2.2.5.3 of the EIR/EA, shows that the peak daily emissions for PM<sub>10</sub> (a recognized surrogate for DPM) (OEHHA, 2003) would be expected to be below the thresholds established by SCAQMD for impact significance at both the regional and localized levels. This indicates that, even under worst-case daily assumptions, construction-related DPM emissions are not expected to reach a level constituting a significant impact, as defined by SCAQMD.

Furthermore, it is useful to put the amount of construction emissions into an appropriate context. As discussed in the HRA section of the EIR/EA, an estimate of total construction emissions of DPM for the 5-year duration of project construction (using the worst-case daily emissions for each construction year), only amount to 2 to 2.3 percent of operational emissions, when compared with the 70-year exposure period used for purposes of HRA analysis. Because nearly all construction activities would occur prior to the opening year of the new bridge, the year-by-year risk from construction emissions would be smaller than the risk from operational emissions from the project corridor on an annual basis.

Moreover, it should be noted that the analysis procedure employed for the project used the more conservative 'Derived Method' for point-estimate of exposure to calculate project-related cancer risk, rather than the less conservative 'Derived Adjusted Method'. The former uses the 95th percentile (i.e., high-end) breathing rate for assessment of cancer risk by the inhalation pathway, whereas the latter recommends the use of the 80th percentile value (i.e., the mid-point value for breathing pathway), to assess risk. The Derived Method provides a more conservative approach, the result of which is an estimated order of magnitude higher estimate than would be produced using the Derived Adjusted Method. The approach utilized for the EIR/EA analysis, therefore, represents a worst-case, most-conservative approach to estimating cancer risk, and even under these extreme assumptions, the results show a risk level below the level of significance.

Additionally, the analysis further used the sensitive receptor module of the HARP model, which provides a conservative algorithm to predict relative health risk for sensitive receptors, including schools, daycare centers, eldercare facilities, and hospitals.

To reflect the most recent information on the subject – using the methodology provided in the recently released OEHHA guidance (Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures; OEHHA, May 2009), the cancer risk values in the Final EIR/EA have been revised to consider OEHHA-recommended adjustments for the early life-stage exposures. The results of these revised estimated risk values are provided in Table 4 below. As the table shows, the conclusions are not changed, and even with these adjustments, the project's incremental impacts are still below the significance threshold.



<b>Table 4 Estimate of Maximum Cancer Risk<sup>a</sup> Impacts (with Adjustments for Early Life Stage Exposure)</b>					
Receptor Type	Scenario/Alternative			Increment	
	CEQA Base Year	No Action	Proposed Project	CEQA	Project-Related
Residential	8.87 x 10 <sup>-6</sup>	3.52 x 10 <sup>-6</sup>	4.94 x 10 <sup>-6</sup>	-3.93 x 10 <sup>-6</sup>	1.42 x 10 <sup>-6</sup>
Occupational <sup>b</sup>	2.79 x 10 <sup>-6</sup>	1.11 x 10 <sup>-6</sup>	1.44 x 10 <sup>-6</sup>	-1.35 x 10 <sup>-6</sup>	3.30 x 10 <sup>-7</sup>
Sensitive	3.34 x 10 <sup>-6</sup>	1.32 x 10 <sup>-6</sup>	1.82 x 10 <sup>-6</sup>	-1.52 x 10 <sup>-6</sup>	4.99 x 10 <sup>-7</sup>

<sup>a</sup> The estimated cancer risks include OEHHA default age sensitivity factors (ASF) to adjust for higher risks to infants and children as follows:

<u>Risk adjustment period</u>	<u>ASF</u>
third trimester to age 2 years	10
age 2 to age 16 years	3
age 16 to 70 years (for residential)	1

Source: OEHHA, 2009 – page 61

<sup>b</sup> No adjustments used for occupational risk estimates.

It should be further noted that the 2004 OEHHA Guidance proposes a year-by-year annual risk estimate to be summed (for the duration of construction) to obtain the aggregate risk for any multi-year period (Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites Pursuant to Health and Safety Code §901(f): Final Report; OEHHA, February 2004, page 29). This proposed consideration has been included in the methodologies provided in the subsequent 2009 OEHHA document (OEHHA, May 2009). The 2009 document presents age-sensitivity adjustment factors (ASF) (based on toxicological and epidemiological studies) to account for the effect of age exposure on cancer potency. The updated cancer risk estimates presented in Table 4 include the adjustments that provide the age-sensitivity factors for sensitive receptors (including schools and daycare centers). The results indicate that, taking into account age sensitivity, the conclusions of the risk analysis remain the same, namely that the maximum project-related increment for residential cancer risk, as well as the maximum increment for cancer risk at the sensitive receptor locations (including schools and day care centers), remain well below the adverse effect criterion of 10 in one million (10 x 10<sup>-6</sup>) excess cancer risk.

It should be noted that the model-generated cancer risk estimates for sensitive receptors considers a 9-year exposure at the operational emission levels. As explained above: (1) the maximum annual emissions of toxics (mainly DPM) from construction activities are less than the average annual operational emissions (approximately 28 percent of operational DPM emissions on an annual basis); (2) the main portion of construction activities occur prior to the opening year of the new replacement bridge; (3) the duration of construction activities is only 5 years; and (4) when compared over the 70-year exposure period, construction DPM emissions only account for an estimated 2.3 percent of operational emissions; therefore, the risk from toxics produced by construction activities would be considerably less than the estimated sensitive receptor risk and thus construction emissions would not cause adverse risk impacts to the nearby schools and other sensitive receptors.

**LBUSD-4:** The reference exposure level (REL) of 5 µg/m<sup>3</sup> for the DPM inhalation exposure pathway, is the currently accepted REL for use in HRA analyses. The OEHHA Web site (<http://www.oehha.ca.gov/air/allrels.html>) states that the value is developed using the revised methodology (OEHHA, 2008) and all posted RELs are updated as of December 18, 2008. The Draft EIR/EA Section 2.2.5.4 includes a section entitled Uncertainties in Risk Evaluation Results, which discusses some of the limitations of the project-level

HRA. It is true that the non-cancer REL for DPM approved by the OEHHA was not specifically based upon the considerations referenced in this comment (e.g., the potential greater sensitivity of children to toxic effects of diesel exhaust, such as allergic response, exacerbation of asthma, and developmental effects). Section 2.2.5.4 has been revised in the Final EIR/EA to include this additional information. In addition, the discussion about uncertainty in the HRA has been expanded to provide more explanation about the limitation of accurate health factors and the effect on the uncertainty in the results. Please also see the response to LBUSD-3.

**LBUSD-5:** As described in the response to LBUSD-3, the project HRA identifies the maximum health impacts to the sensitive receptor group, which includes schools, daycare centers, convalescent homes, and hospitals. These maximum impacts identified by the HRA can be used as indicators of the relative impact of the proposed project to LBUSD school locations. Furthermore, the cancer risk values in the Final EIR/EA have been revised to follow recent guidance from OEHHA to consider recommended adjustments for early life-stage exposure (including the weighting factor recommended by the OEHHA for children ages 2 to 15 years). Please see response to LBUSD-3.

**LBUSD-6:** The following is a summary of the ambient noise information presented in Table 3.9-5 from the Middle Harbor Redevelopment EIS/EIR.

Readings (with the results shown parentheses) were taken for 15-minute intervals, at the following times of day on April 17 and 18, 2006: (a) 4/17 at 17:10 (61 dBA); (b) 4/17 at 22:40 (56 dBA); (c) 4/17 at 02:25 (47 dBA); (d) 4/18 at 08:35 (57 dBA); and (e) 4/18 at 15:20 (68 dBA). Averaging (on a logarithmic basis) these five readings yields an average overall value of 62 dBA. Removing the late night reading (47 dBA) and averaging yields an average value of 63 dBA. The representative daytime readings (i.e., a, d, and e, above) yield an average of 64 dBA. The representative nighttime readings (i.e., b and c, above) yield an average of 54 dBA. Based upon this information, the text shown in the Gerald Desmond Replacement Bridge Final EIR/EA in Section 2.2.6.2 was revised as follows (**bold text** indicates changes):

" ... existing peak daytime ambient noise levels (Year 2006) ... ranged from 61 to **68** dBA (rather than 67 dBA); nighttime noise levels ranged from **47** dBA to **56** dBA (rather than 58 to 65 dBA)."

To re-establish current ambient conditions in the context of the Gerald Desmond Bridge environmental process, new ambient readings (over a 20-minute duration; one taken in the morning and another in the afternoon) were taken in the same vicinity as the previous Middle Harbor measurements. These new measurements differ from the previous ones in two key respects. First, the new measurements (taken in July 2009) were taken on the site of Cesar Chavez Elementary School, whereas the previous Middle Harbor measurements were taken on Golden Avenue immediately east of Cesar Chavez Park, between 4th and 5th Streets, which is five blocks north of the elementary school; therefore, the 2009 readings are more representative of conditions at the school, as opposed to the vicinity. Second, the 2009 readings are more representative of current ambient noise conditions in general, compared with conditions 4 years prior.

The measured ambient noise level at the school was averaged to be 62 dBA. It is appropriate to use averaged values to represent a given time period, not only because such averaging is mathematically acceptable, but also because the construction noise is also based upon averages at the sources onsite over the course of the day (Construction Site Noise Control Cost-Benefit Estimating Procedures, Construction Engineering Research Laboratory, 1978).

Please also see Noise Exhibit 01, which is attached to the response to LBUSD-7, below, for location of Cesar Chavez Elementary School in relation to the project location across the river.

<b>Location</b>	<b>Date</b>	<b>Time</b>	<b>L<sub>eq</sub> Noise Level, dBA</b>
Cesar Chavez Elementary School	7/16/2009	11:29 – 11:49	59.3
	7/16/2009	13:12 – 13:32	64.0
<b>Overall/Average</b>			<b>62</b>

**LBUSD-7:** As explained in response to LBUSD-6, the more current baseline noise level at Cesar Chavez Elementary School was measured to be 62 dBA. As illustrated on the attached Noise Exhibit 01, Caesar Chavez Elementary School is located at distances of approximately 1,535 to 1,610 ft from the closest proposed pile-driving locations. Thomas Edison Elementary School, on the other hand, is located substantially farther away, between approximately 2,260 and 2,626 ft away from the pile-driving locations (see Noise Exhibit 01). As predicted and shown in Table 2.2.6-2 of the EIR/EA, the anticipated noise level at Cesar Chavez Elementary School associated with the pile-driving activity is estimated to be 60 dBA, which is below the ambient level; therefore, no impact is expected as a result of the construction activity. With Thomas Edison Elementary School being roughly another 700 to 1,000 ft farther away, the anticipated noise level there would be approximately 8 to 15 dB lower than the predicted 60 dBA at Caesar Chavez Elementary School, due to distance propagation attenuation and shielding provided by building structures; therefore, noise impacts at Thomas Edison Elementary School would be less than significant as well.



**NOISE EXHIBIT 01**

05 / 04 / 2010

**LBUSD-8:** Please see the response to LBUSD-7. Because Edison Elementary School is farther from the project site than Caesar Chavez Elementary School, the noise impacts at Thomas Edison Elementary School will be less than those at Caesar Chavez Elementary School, which would be less than significant.

**LBUSD-9:** Appendix C to the Middle Harbor document, at Table C-1, shows the "Estimated Usage Factor" for a pile driving hammer as 0.30. Footnote 2 to the table references Parsons, 2006, as the source of this assumption. Parsons, 2006, is the San Pedro Bay Ports Rail Study Update; Executive Summary; prepared for the Ports of Los Angeles and Long Beach. This study was done for a completely different type of project; the data and assumptions are not directly transferrable. The Estimated Usage Factor shown in Middle Harbor Appendix C, Table C-1, is associated with wharf construction. Construction of wharf facilities would logically require many more piles, spaced at fairly close intervals, to be installed; whereas, freeway structures require far fewer piles to support above-grade freeway columns. This could explain why the Middle Harbor usage factor is higher than that which is assumed for the Gerald Desmond Bridge Replacement Project. Secondly, the referenced Middle Harbor usage factor may be a maximum factor, not taking into account the actual usage over the course of the working day, whereas the Gerald Desmond analysis was done based upon engineering estimates of certain engineering activities organized on a typical daily basis.

The acoustical usage factor (20 percent for a pile driver) and referenced noise level (at 50 ft) used for purposes of the Gerald Desmond analysis is conservative and consistent with published data and measurements taken from other similar projects conducted previously by Parsons. For example, from the reference source Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances (USEPA; 1971), the recommended acoustical usage factor for a pile driver is 4 percent; therefore, the 20 percent usage factor used in this analysis is conservative. The referenced noise level at 50 ft (97 dBA) used in the calculations is the same as that used in the Middle Harbor Redevelopment Project EIS/EIR; however, the overall noise levels for each construction activity would be different for each project, depending on the construction schedule; the extent of the construction activity; and various other operating parameters, such as the mixture of construction equipment fleet for the activity, hours of operation, and type and number of pieces of equipment utilized simultaneously, etc., as explained above. It is therefore not appropriate that assumptions used on one form of construction be arbitrarily applied to another; each project's unique construction requirements, processes, and schedule must be taken independently into account.

The 0.15 effective usage factor shown in Table 2.2.6-2 of the EIR/EA takes into account the number of pieces of equipment and the expected hours of operation. For this particular case, one pile driver operating 6 hours out of an 8-hour work day (6/8 = 0.75 usage factor) was given.

The following is a sample calculation:

$$\begin{aligned}
 \text{Effective usage factor} &= \text{number of pieces of equipment} \times \text{equipment usage factor} \\
 &\quad \times \text{acoustical usage factor} \\
 &= 1 \times (6/8) \times 0.20 \\
 &= 0.15
 \end{aligned}$$

**LBUSD-10:** According to the analysis conducted in the EIR/EA (see Section 2.2.6.3), no significant noise or vibration impacts are anticipated as a result of either construction or operation of the proposed project; therefore, mitigation measures are not required. However, in the interest of maintaining a noise environment that results in as little intrusion as practicable, the Port and Caltrans have committed to including additional noise control measures for pile-driving activities into the contract specifications, as described in Section 2.2.6.3 and

provided below. In addition, other noise-reduction practices will be incorporated into the construction specifications, as outlined in Section 2.2.6.3 of the Final EIR/EA.

- The Contractor will install temporary noise barriers between pile-driving activities and Cesar Chavez Elementary School at all pile-driving locations within 0.5-mi (2,640 ft) of the school; and
- Pile-driving activities will be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays, between 9:00 a.m. and 6:00 p.m. on Saturdays, and prohibited anytime on Sundays and holidays, as prescribed by Section 8.80.202 of the LBMC.

**LBUSD-11:** We apologize for inadvertently omitting LBUSD from the distribution list. LBUSD has been added to the distribution list for all POLB projects, including the Gerald Desmond Bridge Replacement Project. In addition, as soon as it is available, the Port will provide LBUSD with the construction schedule for this project, and LBUSD will be given notice of all public meetings on this project.

**LBUSD-12:** Please see responses to LBUSD-2 through LBUSD-11 for specific responses to LBUSD concerns.

## **Responses to Comments from Community Groups**



**Long Beach Coalition For A Safe Environment, Dated 3/22/2010**

**CSE-1:** The EIR/EA has been prepared in conformance with all applicable regulatory requirements and guidance pursuant to both NEPA and CEQA, as well as other related federal and state requirements that pertain to the proposed project and its potential impacts. In addition, the EIR/EA was prepared by Caltrans in the context of the NEPA delegation authority given to Caltrans under Section 6005 of SAFETEA-LU, following the procedures and guidance as directed by Caltrans' Standard Environmental Reference. Please see the detailed responses to CSE-2 through CSE-32 for the reasons the EIR/EA is not deficient, as alleged in this comment.

**CSE-2:** Consistent with CEQ Regulations and CEQA Guidelines Section 15124(b), the EIR/EA includes a discussion of the project purpose and need and objectives that are used to explain the underlying reasons why Caltrans and the Port are proposing the project. As stated in EIR/EA Sections 1.1.1 and 1.1.2, the overall purpose of the proposed project is to provide a bridge that will be structurally sound and seismically resistant, reduce approach grades, provide additional capacity to handle current and future car and truck traffic volumes, and provide vertical clearance that would afford safe passage of existing container ships and in the future for the new-generation larger vessels currently being constructed. It should be noted, as discussed in SCQAMD-2, that there are additional constraints other than vertical clearance that will continue to preclude vessels larger than those that can currently access the Cerritos Channel Terminals due to existing navigational constraints. Justification for the project purpose, based upon stated needs, is documented in Section 1.1.2.2.

In addition, all potentially significant impacts have been analyzed using widely accepted methodologies and have been thoroughly discussed and documented in the EIR/EA. Moreover, for all potentially significant impacts, all feasible mitigation measures have been imposed on the project to reduce the significant effects to the extent possible. For impacts that cannot be fully avoided, minimized, or mitigated, such impacts have been acknowledged (see EIR/EA Section 3.2). This approach fully satisfies the requirements of CEQA and NEPA.

Below are responses to the remaining detailed comments.

**CSE-3:** **a.** The Port of Long Beach is the correct lead agency under CEQA, and Caltrans is the correct lead agency under NEPA. Table 1-4 of the EIR/EA outlines all of the permits and approvals needed for the project. In accordance with the criteria for identifying the lead agency set forth in CEQA Guidelines Section 15051(a), the Port is the correct CEQA lead agency because it is the entity that will carry out the project. The project is located wholly within the boundaries of the City of Long Beach. The POLA is not funding or carrying out this project and has no discretionary authority over the project, so it cannot serve as the lead agency.

**b.** As discussed in EIR/EA Section 2.1.5 (beginning on page 2-74), the traffic study completed for the project considered all port-related (POLB and POLA) and regional traffic volumes in the impact analysis. Vehicles with origins and destinations within the San Pedro Bay Ports will use the proposed bridge, as will other users traversing through the area. The origins and destinations of traffic using the Bridge Replacement Alternatives are not relevant to the determination of the CEQA lead agency role.

**c.** Bridge traffic associated with both San Pedro Bay Ports has been included in the traffic analysis for the proposed project. For purposes of assessing the potential traffic impacts of the proposed project, it is neither necessary nor relevant to separately consider traffic from each port. While it is possible that POLA-related usage will exceed POLB-related usage, it has no bearing on the lead agency designation.

**d.** The traffic impact analysis in the EIR/EA accounted for all port-related (both POLA and POLB) and regional traffic impacts within the study area. Once potentially significant impacts were identified, it was the responsibility of the lead agencies to determine

whether feasible mitigation measures were available that could eliminate or reduce the significant impact. For all Build Alternatives considered in the EIR/EA, the lead agencies have identified the feasible mitigation measures and have included them in the project. See Section 2.1.5.4 of the EIR/EA for a description of the mitigation measures incorporated to reduce potentially significant traffic impacts.

**CSE-4:** a. Please see the response to CSE-3a.

b. Please see the response to CSE-3b.

c. Please see the response to CSE-3d.

**CSE-5:** The EIR/EA acknowledges that the bridge will carry a substantial amount of regional, non-Port related traffic, as well as Port-related traffic, and that growth in traffic will come from a variety of sources, both local and regional in context. Table 1-1 of the Draft EIR/EA shows that only 25 percent of traffic on the Gerald Desmond Bridge in year 2005 was trucks; the text on the same page of the Draft EIR/EA states that, in year 2030, 39 percent of bridge traffic is expected to be regional through traffic, meaning that it has neither an origin nor a destination on Terminal Island. The Gerald Desmond Bridge thus serves a wide range of travel needs. The comment provides no support for its assertion that the existing bridge was built to serve only the two categories of travelers identified in the comment. Given the bridge's location adjacent to the San Pedro Bay Ports, it is reasonable to assume that one of its primary functions would be to facilitate the movement of goods to and from the Ports. Likewise, the comment provides no support regarding the source of funds for construction of the existing bridge. The EIR/EA does not contain a discussion regarding the funds used in the 1960s to construct the existing bridge, as that information has no relevance to the potential environmental effects of the various Bridge Replacement Alternatives.

See also response to CSE-6.

**CSE-6:** a. With the advent of containerization of cargo at the POLB in 1962, improved shipping access to the inner terminals was necessary. Construction of the Gerald Desmond Bridge provided a permanent structure that improved shipping access, navigational safety, and access for Port-related and regional traffic. The Gerald Desmond Bridge was built and paid for by the POLB in 1968, at a cost of \$14 million to replace a pontoon bridge that previously provided access for port-related and regional traffic from the City of Long Beach to Terminal Island. In 1982, Caltrans identified the Port-owned portion of SR 710 and Ocean Boulevard as a future extension of I-710 and formalized the intent to adopt the project area into the SHS in the California Streets and Highways Code. Ship calls and cargo volumes continued to increase and, in 1989, the Gerald Desmond Bridge was connected via the existing ramps to SR 710. Partial funding for the ramp connections to SR 710 was provided by FHWA.

The Gerald Desmond Bridge is currently the Gateway to 10 percent of all waterborne goods entering the U.S. and no longer provides sufficient roadway capacity to meet forecasted increases in Port-related or regional traffic volumes within the project area and is not sufficient to meet navigational requirements of future generation vessels. As noted in Section 2.1.2.3 of the EIR/EA, increasing the vertical clearance of the bridge would provide sufficient air draft to allow future (larger) generation vessels into the Back Channel, but until additional navigational improvements are made by the Port, such passage would not be possible. Moreover, as is also noted in the EIR/EA, neither Pier A nor Pier S is projected to attract the larger future vessels. Thus, the original purpose of the bridge was about improving movement of people and goods, the same as the proposed new bridge will do in the future. As noted above, Table 1-1 of the Draft EIR/EA shows that only 25 percent of traffic on the Gerald Desmond Bridge in year 2005 was trucks; the text on the same page of the Draft EIR/EA states that, in year 2030, 39 percent of bridge traffic is expected to be regional through traffic, meaning that it has neither an origin nor a destination in the port area. The Gerald Desmond Bridge thus serves a wide range of travel needs. Furthermore, Ocean Boulevard is designated as Overweight Vehicle Special Permit Route by the City of Long Beach, Department of

Public Works (see map at <http://www.longbeach.gov/pw/traffic/projects/ovs.asp>) and as designated as a truck route in the City of Long Beach General Plan from the western City limit on Terminal Island to Magnolia Street.

**b.** The existing Gerald Desmond Bridge was constructed by and is owned by the POLB. The original construction cost was \$14 million and came from Port revenues. Port funds are generated from Port leasing and other activities, and they do not come from the City's general fund (see also CSE-6c below).

**c.** As discussed in EIR/EA Chapter 1 Section 1.5, under the Bridge Replacement Alternatives, the bridge and Ocean Boulevard would become part of SR 710 and would operate as a freeway facility with controlled access. The improvements between the existing SR 710 and SR 47, including the bridge, would be transferred to Caltrans by easement following route adoption and execution of a freeway agreement.

Funding for the project will come from POLB revenues and state, federal, and possibly private sources. POLB continues to seek funding from all available sources for construction of one of the Bridge Replacement Alternatives. Port revenues for the project are generated from terminal leasing and other operations within the POLB; the Port does not receive funding from the City general fund. Thus, the Port contribution for the project does come directly from Port tenants and indirectly from importers and exporters who pay to move goods through the Port to/from their facilities.

**CSE-7:**

**a.** The Gerald Desmond Bridge is one of the major entry and exit points into the local, regional, statewide, and national goods movement network. Neither Caltrans nor the Port has the authority to restrict access to the bridge. It is the responsibility of the California Highway Patrol to enforce the usage restrictions imposed by the CVC on state or federal highways and local law enforcement agencies on other public roadways. In addition, the Port cannot prohibit trucks from using the bridge because it is a designated truck route in the City's General Plan Circulation Element and part of the City/Port Overweight Vehicle Special Permit Route; it is also a National Highway System Intermodal Connector Route and, upon the anticipated relinquishment of the bridge to Caltrans, it will become part of the Interstate Highway System. It should be noted that the Port has implemented measures to alleviate traffic congestion on the Bridge during peak hours, such as PierPass. This program has successfully diverted 40 percent of Port traffic to off-peak hours. Additionally, if trucks were prohibited from using the bridge, as suggested by the comment, there would not be adequate capacity leaving Terminal Island on the Vincent Thomas and Schuyler Heim bridges to handle the diverted traffic without substantial delays and congestion. In addition, trucks diverted from the bridge would likely use alternative parallel roadways on local neighborhood streets, thereby transferring impacts to city streets and local neighborhoods, which would not be acceptable to the City, the Port, or the affected communities.

**b.** The comment provides no support for the assertion that "old trucks" present significant traffic and safety problems on the Gerald Desmond Bridge. Even if such support were available, regulation of motor vehicles using the highway system and local roadways is within the jurisdiction of the Department of Motor Vehicles (DMV), not Caltrans or the Port; however, through implementation of the Ports' Clean Trucks Program, all trucks serving the Port must meet 2007 emission standards. In 2012, trucks serving both Ports will be required to meet 2010 emission standards. Thus, the Clean Trucks Program will result in a newer, cleaner truck fleet operating within the project area.

**c.** Neither the Port nor Caltrans maintains statistics quantifying vehicle "breakdowns" by type of vehicle, and no such statistics have been located. Moreover, the comment provides no support for its allegation that trucks are the "cause of breakdowns" on the bridge. One of the objectives of the project is to provide a safer bridge so that a breakdown of any vehicle, new or old, passenger car or truck, will not cause delays and congestion that result from breakdowns on the current bridge, which has no shoulders for such emergency situations.

**CSE-8:**

Please see the responses to CSE-7a, CSE -7b, and CSE-7c.

- CSE-9:**
- a.** The need to raise and/or relocate the SCE transmission lines is disclosed in EIR/EA Section 2.1.4.2. At this time, the cost to raise and/or relocate the transmission lines cannot be determined until further study is completed by SCE and additional coordination with the POLB occurs during the final design phase. The allocation of the costs is an economic issue that is beyond the scope of this EIR/EA pursuant to CEQA Guideline 15131(a). Allocation of costs to relocate and/or raise the transmission lines will be completed in accordance with SCE, CPUC, and Port policy.
  - b.** Costs associated with raising and/or relocating the transmission lines cannot be determined until further study is completed by SCE and additional coordination with the POLB during the final design phase is completed. See response to CSE-9a.
  - c.** As stated in the response to CSE-9a, it has not been determined how the cost for raising and/or relocating the transmission lines will be allocated. Should SCE be responsible for all or a portion of the cost, it would appear likely that such cost would be accommodated by an existing SCE capital improvement account. Given the magnitude of the SCE operation in the southern California region, it appears unlikely that the cost of relocating the affected transmission lines, while substantial, would be of such significance as to cause a change in the rates charged to SCE customers. SCE has not indicated the need for such a change in its comments on the EIR/EA.
  - d.** See response to CSE-6 for a discussion regarding Port revenues that may be used to fund construction of any of the Build Alternatives.

Please also see the responses to SCE-1 through SCE-3.

**CSE-10:** Please see the responses to CSE-9a, CSE-9b, CSE-9c, and CSE-9d.

**CSE-11:** **a.** This comment is factually inaccurate. The existing bridge was seismically upgraded in 1995, and the Port has continued to maintain the bridge as necessary. For example, in the last 3 years, the Port has spent approximately \$1.6 million on maintenance of the Gerald Desmond Bridge. The work included:

- Deck seal 300,000 square feet;
- Replace cable restraint plates (70);
- Repair fingers on expansion joints;
- Install joint seals (30) to prevent stormwater from reaching deck supports;
- Repair 3 overhead beams by heat straightening that were damaged by high trucks;
- Restriping;
- Paint lower chords; and
- Fix several hundred potholes. Since deck sealing, there have not been any new potholes.

In addition, reports on the bridge's condition were prepared in 2002 (*Load Rating Report*) and 2005 (*Inspection Report*), both of which indicated conditions requiring replacement of either certain structural components or the entire bridge within the near future. Accordingly, a study was initiated in 2002 to consider possible actions. In April 2002, the Port prepared a Conceptual Study to determine an "order of magnitude" cost for replacing the existing bridge. Project studies were initiated in early 2002 to develop viable alternatives for a Project Study Report (PSR) for the project.

Due to potential funding constraints, as well as the potential for reduced impacts to the environment, the Port included in the EIR/EA the Rehabilitation Alternative, which would include a full seismic upgrade of the Gerald Desmond Bridge, as an alternative to replacement. As described in Section 1.6 of the EIR/EA, the Rehabilitation Alternative would only postpone for a time the need to replace the bridge; based on a lifecycle cost and net present value analysis, rehabilitation would only extend the service life for

another 30 years. In addition, the Rehabilitation Alternative would not satisfy one important project need, namely accommodating expected future traffic.

**b.** This comment is factually inaccurate. The POLB has applied for “stimulus funds” for the bridge but has been unsuccessful in its applications. For example, the POLB application for Transportation Investment Generating Economic Recovery (TIGER) funds, which are discretionary grants under the American Recovery and Reinvestment Act (ARRA), for the Gerald Desmond Bridge Replacement Project was unsuccessful at least in part because ARRA stimulus funding for transportation projects is available only for projects that can be completed within 3 years and that are located in economically distressed areas. This project is not within an economically distressed area and could not be completed within 3 years (<http://www.fhwa.dot.gov/economicrecovery/guidancedistressed.htm>). Meeting these criteria for any of the proposed Build Alternatives was not possible; however, the Port will continue to pursue all available federal and state funding sources for the project.

**c.** See responses to CSE-5, CSE-6, and CSE-7.

**d.** See responses to CSE-5, CSE-6, and CSE-7.

**e.** The 100-year design life of the replacement bridge makes it necessary to consider likely developments in the vessel fleet that may occur in the future. As noted in EIR/EA Section 2.1.6.2, the next generation of vessels likely will not increase their air draft due to limitations in the on-deck stack heights of containers and major bridge clearances around the world; however, even larger ships are being considered for the future (upwards of 12,500 container capacity), which would increase air draft to 180 ft, and even larger vessels (18,000 container capacity) also are being discussed. It is, therefore, prudent to provide for such potential future conditions because they may come to fruition within the bridge's design life. The proposed replacement bridge would have an air draft of 200 ft, thereby allowing for potential increases in vessel size. It should be noted, however, that channel depth issues currently limit such larger ships from calling at the Port; therefore, improvements to the Port's channels would also be needed at some point in the future before such larger vessels could proceed through the Back Channel.

**CSE-12:**

**a.** A detailed seismic study will be performed as part of the final design activities for the selected alternative. Such detailed studies would be duplicative and, therefore, wasteful if done for several alternatives during the preliminary design phase of project development.

**b.** The Caltrans-required Project Report documents the engineering development of the project to this point in time. The Project Report was prepared by Parsons/HNTB professional engineers, which includes engineers with expertise in every aspect of the project design, including seismic design. The Project Report was reviewed and approved by Caltrans professional engineers, who also have expertise in every aspect of the project design, including seismic design. In addition, professional engineering opinions regarding seismic performance of the proposed Build Alternatives have been considered and incorporated into the preliminary designs of all of the Build Alternatives. This includes the opinions of Caltrans, FHWA, the project Technical Advisory Panel (TAP) and the following professional engineering firms: Parsons and HNTB. The TAP includes five experts from USC, UCSD, TYLIN, McNary Bergeron, and John Clark Consulting Engineers. During final design, the plans and specifications for the selected alternative will undergo rigorous review by all members of the PDT to ensure that the project meets or exceeds all federal and state seismic design requirements.

**CSE-13:**

**a.** Please see response to CSE-12a.

**b.** Please see response to CSE-12b.

**c.** The purpose of the EIR/EA is to disclose the potentially significant environmental effects of the Build Alternatives. The Port and Caltrans believe that all necessary studies have been completed to evaluate and disclose the potential effects of the project on the environment in accordance with both CEQA and NEPA and that no additional seismic studies are required at this time to evaluate environmental effects. Additional detailed

seismic engineering studies will be conducted during the final design phase of the project, such that all applicable and current seismic safety requirements are incorporated into the project. For purposes of the environmental document, however, the level of information presented in the EIR/EA (see Section 2.2.2) is sufficient to determine whether seismic impacts would occur that would affect the proposed project and also indicate the differences among the alternatives, if any, as related to that factor. As described in EIR/EA Section 2.2.2, seismic design standards will be imposed upon the project. No additional seismic studies would be required for purposes of the EIR/EA, nor is recirculation of the document required. Such studies would only be warranted if the proposed project is approved. Pursuant to CEQA Guideline Section 15004, lead agencies are encouraged to complete the CEQA review prior to preparation of final design and construction documents.

**CSE-14:**

**a.** The EIR/EA considers and evaluates a reasonable range of feasible project alternatives. For each of the Build Alternatives, forecasted traffic volumes are provided and were considered in the traffic impact study consistent with CEQA and NEPA requirements. The existing Gerald Desmond Bridge is and will continue to be a major gateway to the local, regional, state, and interstate goods movement network. Restricting or prohibiting truck use of the bridge is likely to divert traffic to local streets and neighborhoods, which would increase the environmental impacts associated with truck traffic in the project area. In accordance with CEQA Guidelines Section 15126.6(a), a truck limitation on the bridge was not considered a reasonable alternative because, among other reasons, it would increase, rather than decrease or lessen the significant effects of the proposed project. See also responses to CSE-7 and CSE-8.

**b.** Please see response to CSE-14a.

**c.** The San Pedro Bay Ports have been and are pursuing an aggressive program to shift container cargo from trucks to rail using on-dock and near-dock rail facilities; however, a certain amount of cargo coming into the Ports is destined locally to accommodate direct demand in southern California. This cargo will continue to be carried by trucks to local destinations that cannot be accessed by rail. The travel demand modeling that was done for purposes of the traffic analysis in the EIR/EA is based on regional projections that include projections related to the amount of cargo forecasted to go by rail and truck; therefore, the suggested "option" described in the comment already is included as part of the analyses in the EIR/EA.

**d.** Construction of a new system to facilitate goods movement to the near- and/or off-dock railyards, such as commenter's suggested Zero Emission Electric MagLev Train System by American MagLev, is not a feasible project alternative. The bridge currently carries 25 percent of port truck traffic, which includes a mix of trucks destined for intermodal railyards, as well as warehouses, distribution centers, factories, etc. throughout the region. The remaining traffic consists of commuters, domestic delivery trucks, transit buses, visitors, etc. Construction of a new goods movement system that would connect the marine terminals to nearby intermodal railyards would only address less than 10 percent of the traffic congestion on the bridge. Furthermore, such an alternative would not address the existing safety concerns, such as the lack of emergency shoulders, the lane drop at the crest of the bridge, the seismic condition, or the lack of air draft that has resulted in ships clearing the bridge with just a few feet to spare.

Although a Zero Emission Container Mover System (ZECMS) is not a feasible project alternative, it is being investigated as a possible option for transporting containers between the port marine terminals and the near- and/or off-dock railyards. The ports of Long Beach and Los Angeles have set a goal to minimize combustion emissions resulting from port operations. To date, their clean air action initiatives have led to reduced emissions from ships, harbor craft, on-terminal handling equipment, and port drayage diesel trucks. In addition, both ports have jointly invested more than \$1 million to date to identify promising zero-emission container conveyance technologies and investigate their readiness for commercial deployment by issuing a Request for Concepts

and Solutions (RFCS) for a ZECMS. The purpose of the RFCS was to determine the practicality of available systems in a demanding port environment, as well as to determine the financial feasibility of a consortium deploying a complete ZECMS. It was envisioned that the ports could develop and release a Request for Proposals (RFP) based on one or more promising concept(s) at the conclusion of the RFCS process. This RFP would contain detailed requirements for the design, construction, and long-term operation and maintenance of a ZECMS, and the issuance of the RFP would be administered by the ACTA on behalf of both ports.

The ports of Long Beach and Los Angeles, and ACTA are currently evaluating concept documents submitted by American Maglev, Bombardier, Flight Rail Corp., Freight Shuttle Partners, Innovative Transportation Systems Corp. in partnership with General Atomics, Magna Force, Inc., and Tetra Tech, Inc. The findings will be released in summer 2010.

- CSE-15:**
- a. Please see response to CSE-14a.
  - b. Please see response to CSE-14d.

With regard to the comment that American Maglev Company has volunteered to build the test facility, American Maglev submitted an unsolicited proposal to the POLB and POLA in early 2008. While the proposer claimed it would build this facility at its own expense, it also asked the Ports to grant it the use of land for the train alignment connecting Pier A and ICTF. A preliminary review by Port staff on the alignment proposed by American Maglev revealed that a significant number of parcels are not owned by the Port. The unsolicited proposal did not assess the cost of land acquisition, permitting process, and potential environmental impact on sensitive uses along its proposed alignment. The financial plan included in the unsolicited proposal had not been fully audited by any financial institutions. Additionally, the American Maglev project does not meet the project purpose and need and does not address any of the project objectives discussed in EIR/EA Sections 1.1.1 and 1.1.2. Although the Port is committed to a pollution-free cargo-moving system as described in CSE-14d, evaluation or implementation is not within the scope of the Gerald Desmond Bridge Replacement Project and would not reduce the magnitude of any significant and unavoidable impact; therefore, discussion of the proposal within the environmental document is not required.

- c. Please see response to CSE-15b.

Additionally, the commenter is incorrect. The Port has not refused to grant a 20-ft ROW to build a demonstration MagLev project at no cost to the public. The Port is in the process of evaluating seven proposals received through the ZECMS RFCS (see response to CSE-14d). The results will be presented in summer 2010. No decisions, including a decision of whether to grant ROW for a demonstration project, have been made by the Board of Harbor Commissioners as of this date.

- d. The Port is not aware of any such offer by a Long Beach marine terminal operator to place 400 containers per day onto a MagLev Train; however, assuming that the 400 containers referenced in the comment were to use the demonstration project described in CSE-15b, based on the location of Pier A in relation to the ICTF and associated transportation routes shipping, few if any of these eliminated trips would translate into fewer trips on the bridge. The Port is actively pursuing alternatives and technologies that will reduce Port-related truck volumes; however, implementation of alternative goods movement technology at the required scale to substantially reduce truck trips will likely be employed after the design horizon year (2030) for the proposed project. Additionally, the comment fails to consider that decreasing truck trips through alternative goods movement technology is governed not only by the destination of the goods, but how the goods are shipped.

At present, approximately 60 percent of the containerized goods coming into the Ports are destined for points east of the Rocky Mountains, including transloaded cargo, whereas the balance are local goods destined for the local region and elsewhere in the Southwest. Local goods are not transported via rail for financial and operational reasons.



Upgrading the roadways, including the proposed project, within and connecting to the Port is essential to local regional goods movement. An alternative goods movement technology at an appropriate scale to reduce truck trips to off-dock rail yards or to local destinations that would change the financial or operational paradigm, making local goods movement by truck prohibitive, has not yet been identified. The American Maglev proposal would have a limited impact by reducing truck trips between Pier A and one near-dock rail yard. The American Maglev proposal would have no effect on reducing truck trips within the project area or use of trucks in transporting the 40 percent of goods within the local region.

- CSE-16:**
- a. Please see responses to CSE-7 and CSE-14.
  - b. Please see responses to CSE-14d and CSE-15.
  - c. Please see response to CSE-14d and CSE-15b.
- CSE-17:**
- a. Please see responses to CSE-7, CSE-14, and CSE-15.
  - b. Please see responses to CSE-14d and CSE-15.
  - c. Please see responses to CSE-14d and CSE-15.
  - d. Please see response to CSE-15b.
- CSE-18:**
- a. As described in Section 1.7 (page 1-28) in the EIR/EA, the Toll-Operation Alternative was considered but not carried forward for analysis. Potential environmental effects of the Toll-Operation Alternative are discussed in Section 1.7.1. This alternative was dropped from further consideration because it would have resulted in substantially more environmental and social impacts associated with traffic diversion when compared to the three non-tolling build alternatives evaluated in the EIR/EA.
  - b. Please see response to CSE-18a.
  - c. Please see responses to CSE-5, CSE-6, and CSE-20.
  - d. Please see responses to CSE-5 and CSE-6.
  - e. Please see responses to CSE-5 and CSE-6.
- CSE-19:**
- a. Please see response to CSE-18a.
  - b. Please see response to CSE-18a.
  - c. Please see responses to CSE-5 and CSE-6.
  - d. Please see responses to CSE-5 and CSE-6.
  - e. Please see responses to CSE-5 and CSE-6.
- CSE-20:**
- The information noted in the comment is clearly stated in EIR/EA Section 2.1.2 Growth Inducement (page 2-16). The quoted information in the comment comes from the section discussing "Land-Side Indirect Growth Inducement Potential." This section discusses whether the congestion relief benefits associated with Bridge Replacement Alternatives would result in indirect growth inducement through diversion of cargo to or from POLB/POLA.
- In January 2008, POLB and POLA approved tariff items that established an Infrastructure Cargo Fee (ICF) of \$15 per TEU, effective January 1, 2009. On December 15, 2008, however, due to the severe economic recession that resulted in significant declines in cargo volumes through the ports, the Board postponed the collection of that fee for 6 months to July 1, 2009, and reduced the fee to \$6 per TEU due to lack of project readiness. On May 4, 2009, the economic recession continued, so the Board again postponed the collection of the fee, for 1-year, until July 1, 2010. Recognizing the nation's economic downturn continued to persist; on April 20, 2010, the Board of Harbor Commissioners approved the recommendation of the Trade Relations and Port Operations Committee to further postpone collection of the fee until January 1, 2012. Unless additional Board action is taken, the collection of the ICF tariff will commence on

January 1, 2012. The Gerald Desmond Bridge Replacement project is one of the projects identified to receive funding from the ICF when implemented.

**a.** As stated above, the source of the funding for this project is beyond the scope of this EIR/EA. Nonetheless, the following information is provided to the commenter. Funding for construction of the selected alternative could come from POLB revenues, state, regional, and federal funds, and possibly private funding. Additionally, if implemented, the ICF on containerized cargo will supplement funding for critical highway and rail projects within the San Pedro Bay area, including the Gerald Desmond Bridge Replacement Project. The Port will use the ICF revenue to match funds from Proposition 1B and to help pay for major port-related transportation infrastructure and air quality improvements. The ICF funds could also help leverage other local, state, and federal monies, as necessary.

Funding sources currently programmed for the project include the following:

- Federal Highway Bridge Program: \$10 million (prior to FY 2010)
- SAFETEA-LU: \$90 million
- Federal Appropriation: \$6.1 million (prior to FY 2009)
- Federal Highway Bridge Program: \$201.9 million (Programmed through “Advanced Construction” Authority)
- Prop 1B TCIF: \$250.0 million (SHOPP through GARVEE)
- Los Angeles County Call for Projects: \$28.6 million
- Local Funds: \$112.5 million (estimated at 10 percent of total project cost)

**f. (sic)** The studies mentioned in the comment are described in the EIR/EA at Section 2.1.2.3. In recognition of the study results, the Port adopted the ICF that is described in response to CSE-20a. When implemented, the ICF will apply to each loaded import or export container moved through the ports’ terminals by truck or rail. While it may be true that the ICF could fully fund the project, doing so would be counter to the intent of the ICF. Not only would it redirect ICF allocations from other important rail projects that will increase rail usage and decrease truck drayage, but it would also contradict the adopted ICF tariff language that cargo interests shall not pay more than their fair share of the project. See the introduction to the response to CSE-20 for a discussion of the status of the ICF. Also see responses to CSE-5 and CSE-6 regarding bridge usage.

**b.** The purpose of the EIR/EA is to evaluate the potentially significant environmental impacts of the proposed Build Alternatives. Because there is no evidence of environmental impacts resulting from any of the identified sources of possible funding for any of the alternatives, the EIR/EA does not contain a recommendation regarding a container fee. See also the discussion in the introduction to the response to CSE-20.

**c.** The Gerald Desmond Bridge Replacement Project is considered to be of State and national importance. Both the state and federal governments have identified the project as critical for mobility for all motorists, as demonstrated by its designation as a high-priority project recommended for Proposition 1B bond funding; by its inclusion in the State of California Business, Transportation, & Housing Agency/Cal EPA Goods Movement Action Plan; its designation as a “Project of National & Regional Significance” in the federal SAFETEA-LU by Congress; and as a regionally significant project by Metro. As discussed in CSE-5, 39 percent of the forecast traffic volumes using the bridge will be regional traffic, with neither an origin nor destination in the Ports. Contrary to the allegation in the comment, Caltrans and the Port are carrying out their responsibilities by proposing to improve bridge safety and reliability for all users of the bridge.

**CSE-21:**

- a.** Please see response to CSE-20.
- b.** Please see response to CSE-20.
- d. (sic)** Please see the response to comment 20b, above.

c. Caltrans is a division for the State's Business, Transportation, and Housing Agency and is responsible for maintaining, construction, and operating the SHS and all other duties assigned to the agency pursuant to Sections 14030-14053 of the California Government Code. The POLB is a department of the City of Long Beach charged with managing the Harbor District in accordance with Article XII of the Charter of the City of Long Beach, the tidelands grant, and all applicable local, state, and federal laws.

**CSE-22:**

a. The comment asserts "that there is an abundant [sic] of Port data that will clearly disclose that there has always been increased growth when there have been transportation infrastructure improvements". The comment does not, however, identify or provide the data that would allow quantification of the growth-related impacts or otherwise reduce the level of speculation described in the EIR/EA. The potential for growth inducement is discussed in EIR/EA Section 2.1.2. The potential for the bridge to result in additional growth is acknowledged as an indirect effect (under Land-side Indirect Growth Inducement); however, the nature and extent of such indirect growth and, therefore, the precise impacts of that growth, cannot be identified or quantified at this time. Therefore, in accordance with CEQA Guidelines Section 15145, the lead agency determined that any analysis beyond what is included in the EIR/EA would be too speculative to provide meaningful information.

b. Expert consultant assistance was extensively used in the preparation of the EIR/EA. See Chapter 5 of the EIR/EA for the list of experts who assisted in the preparation of the document.

As is noted in EIR/EA Section 2.1.2.3 and the response to comment SCAQMD-2, it is acknowledged that there is some potential for growth to be affected indirectly by improved project-related transportation conditions that reduce congestion. This type of growth is highly speculative and extremely difficult to quantify in an urban environment that is already developed. The future traffic projections used for purposes of the traffic impact analysis account, in part, for this added increment of growth, because they are based upon future projections of regional population and employment through 2030, which includes Port-related trips at build-out. It should also be noted that, when compared with the overwhelming economic forces that occur on a global scale, the transportation-related effects would be very small in comparison with overall traffic movement. For the reasons stated above, it is determined that identification of the proposed project's potential indirect effects on growth and quantifying the related environmental effects would be speculative.

**CSE-23:**

a. Please see response to CSE-22.

b. A detailed analysis of the potential for growth inducement is provided in Section 2.1.2. The project is acknowledged to potentially indirectly affect growth, although the quantification of such growth is considered speculative. Accordingly, the second-order environmental consequences resulting from an additional increment of growth would also be too speculative to quantify; however, regional travel projections, which are based on adopted socioeconomic growth forecasts, have been used for purposes of determining the likely impacts resulting from increased traffic handling made possible by the bridge replacement. In that sense, the effects associated with indirect growth are accounted for. All other potentially significant effects of the project have been fully disclosed in the EIR/EA.

c. Although the comment requests additional mitigation to address negative environmental, public health, public safety, and socioeconomic impacts, no additional measures were recommended by the commenter for consideration. For all potentially significant impacts of the proposed project, all feasible mitigation measures have been identified and incorporated to reduce, minimize, or lessen the identified impact. See Table ES-1 of the EIR/EA for a summary of the significant impacts of the project and the mitigation measures imposed to reduce those impacts. See Final EIR/EA Sections 2.1.5, 2.2.3, 2.2.4, 2.2.5, 2.3, and Chapter 3 for complete analysis of the related topics. Chapter 3 also includes the final contribution amounts to the Port's grant programs and

methodology utilized to calculate the contributions as described in CEQA (AQ)-1 and CEQA (GHG)-1.

**CSE-24:** a. The EIR/EA has been prepared in accordance with requirements of both CEQA and NEPA. Final EIR/EA Section 2.1.2 (Growth Inducement) contains a detailed, thorough analysis of growth inducement and, based on the evidence set forth in Section 2.1.2.4 and the cited studies, concludes that no mitigation measures are required. In addition, the EIR/EA discloses and considers all known potential project effects on the environment and has proposed avoidance, minimization, and/or all reasonable and feasible mitigation measures to avoid, minimize, or mitigate project-related effects to the maximum extent practicable. For the reasons set forth in response to CFASE comments, Caltrans and the Port do not believe that CFASE has identified any deficiencies in the EIR/EA.

b. Please see response to CSE-24a.

**CSE-25:** Please see response to CSE-24. In addition, Caltrans and the Port believe that the EIR/EA contains a reasonable range of potentially feasible project alternatives and includes all feasible mitigation measures to reduce the significant effects of the project.

**CSE-26:** a. Regarding the appropriateness of study areas, each of the impact categories (e.g., air quality and noise) discussed in the environmental document were considered individually, and study areas were identified for each category based upon a due consideration of the extent to which impacts of the proposed project would occur (see also NRDC-3 below). The determination of appropriate study areas is described in each of the technical sections in Chapter 2 of the EIR/EA. Appropriate study areas vary by subject based upon the area of influence or extent of the expected effects. The study areas identified in the Draft EIR/EA are based on the above considerations, along with expert consultation and guidance from various agencies (e.g., SCAQMD); therefore, the scope of the study areas are not arbitrary. Community impacts, which encompass one of the larger study areas, are discussed in EIR/EA Section 2.1.3. As is noted in this section, traffic impacts were taken as the impact category likely to have the broadest geographic effect. Using this to define the study area for community impacts, an area encompassing 11 surrounding census tracts was defined. This area includes portions of both the City of Long Beach and the Wilmington area of the City of Los Angeles. The geographic area circumscribed by this definition of study extends beyond 0.75-mi from the project site. The comment indicates that entire communities and cities will be impacted, but it fails to provide any information that would support the comment. The commenter has not demonstrated that any consideration of modified study areas is called for.

b. The proposed project is a transportation infrastructure project, and completion of either of the Bridge Replacement Alternatives would not directly generate any additional new trips. As discussed in Sections 2.1.5 and 2.1.3.3.3, operation of the Bridge Replacement Alternatives is expected to result in some local redistribution of traffic as Port and regional traffic modify travel paths to take advantage of the congestion-relief benefits of either of the Bridge Replacement Alternatives. This redistribution would most likely occur from parallel roadways north of the Ports, such as Anaheim Street, PCH, and Willow Street. Some trips that would otherwise seek local street routes may use the new bridge, thereby acting to improve local circulation and reduce port-related traffic in the referenced communities. Port transportation demand is generated at the terminal, and completion of any Build Alternative would have no effect on the origin of goods that pass through the Port, the destination of those goods, or demand for goods. Additionally, due to other navigational constraints within the Back Channel, larger ships referenced in the comment still would not be able to transit the back channel (see response to similar comment CSE-11).

It is unclear what communities the commenter is referring to as "transportation corridor communities" and "warehouse distribution center communities," and the commenter has not provided evidence as to what impacts would be expected to occur on those communities beyond those identified in the EIR/EA. Careful thought was put to the selection of each study area, such that potential impacts resulting from the proposed

project would be captured and also that potentially affected persons and locations would also be identified (see also NRDC-3 below).

**CSE-27:**

1. The comment requests that the Final EIR/EA include "...all of Wilmington, Carson, North San Pedro, and all of the City of Long Beach Transportation Corridor Communities and Warehouse Distribution Center Communities." However, the comment does not provide any reasons for considering additional areas than what were included in the EIR/EA. As is noted in EIR/EA Section 2.1.3.1.2, the entire document was reviewed to determine the broadest area subject to potential impacts to define the community impacts study area. Traffic was determined to be that area, with the affected area being determined on the basis of a change in travel amounting to 50 or more peak-hour trips (City of Long Beach traffic impact analysis guidelines). Using that as a basis, the community impact study area was defined to be the area shown in the dotted line on Figure 2.1.3-1, but it was enlarged to encompass 11 surrounding census tracts. This area includes a portion of the POLA, a portion of the City of Los Angeles Wilmington community, and the southwesternmost portion of the City of Long Beach, extending to PCH on the north. This area also includes the southernmost reach of SR 710. The study area had a year 2000 population estimate of 31,000. Community impacts (as discussed in Section 2.1.3.1.3) were evaluated across four categories: community facilities and services, recreation, population, and housing. The evaluation concluded that no adverse effects would occur to communities within that study area.

The commenter references "transportation corridor communities" and "warehouse distribution center communities" but provides no explanation of what communities are included in the terms. A search of the City of Long Beach General Plan was conducted for the terms "transportation corridor communities" and "warehouse distribution center communities," and no information was found; therefore, it is unclear to what area of geography the commenter is referring. The effects of the proposed project are judged to not extend beyond the area described above and shown in Figure 2.1.3-1 (see also NRDC-3).

2. The comment suggests that the commenter may be considering the project as though it were a cargo terminal expansion improvement project that directly resulted in additional truck or train trips, which trips may have impacts that could extend some distance from the terminal project; however, the project is a bridge replacement project that does not itself generate any new trips. Although the project does provide additional roadway capacity within the study area, it will have no effect on the demand for goods or on the origin or destination of the goods that pass through the Port. The unidentified communities referred in the comment as being within a 50-mi radius of the proposed project would be well out of the range of potential effects associated with this project, as described in the response to comment CSE-27 (1.) above; therefore, they are not required to be evaluated in the document.

**CSE-28:**

a. The lead federal agency environmental justice policies and procedures were applied in preparing the environmental justice analysis. Caltrans, in accordance with FHWA environmental justice policy and procedure, oversaw and assisted in the preparation of the environmental justice analysis, which is consistent with FHWA Region 9 (California) Guidance, "Addressing Environmental Justice in the Environmental Assessment (EA)/Impact Statement." Caltrans is experienced in completing environmental justice analyses for transportation projects and has environmental justice experts both in the District and at Headquarters. The environmental justice analysis was completed in accordance with DOT and FHWA policy and is consistent with the requirements of EO 12898. Additionally, Caltrans, through its commitment to its Title VI policy and consistent with the Executive Order, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

Caltrans, both as a state agency and as a department whose funding is substantially tied to federal programs, has long been a leader in understanding environmental justice,

since the inception of President Clinton's EO 12898. Caltrans does have special advocates in both Planning and Environmental Divisions. This includes a dedicated full-time environmental justice senior-level statewide coordinator in HQ Division of Planning since 2001, and a designated staff representative in the Division of Environmental Analysis since 1997. In recognizing the importance of local expertise, Caltrans HQ designated an environmental justice coordinator in each of the 12 districts' planning units in 2004. Furthermore, as Environmental Justice is largely encompassed within Title VI of the Civil Rights Act, the Caltrans Headquarters Division of Civil Rights works closely with its Planning and Environmental staff, as well as the other programs, to not only prohibit discrimination, but actively promote fair treatment and the meaningful involvement of people of all races, cultures, and income levels, including minority and low-income populations. Caltrans was the first California state agency to issue its own Director's Policy on Environmental Justice (2001) and in that same year began an Environmental Justice Grant Program that distributed \$3 million in each 2-year cycle. It has also developed and distributed guidance products for both planners and the public, including *Environmental Justice in Transportation Planning and Investments* (2003) and *Community Primer on Environmental Justice and Transportation Planning* (2009).

**b.** Other than the Port's consultant, Parsons, no other consulting firm or outside organization was requested to provide advice or guidance on Environmental Justice or analysis for purposes of considering potential project effects on Environmental Justice populations. Caltrans HQ and Districts are experts in analyzing and determining Environmental Justice impacts in accordance with FHWA policy and guidance. According to the independent *California Planning and Development Report*, "Caltrans might be farther along in actually carrying out its Environmental Justice policies than any other state agency (April 2003)." Caltrans has conducted environmental justice analyses as part of its environmental compliance process for well over a decade; in fact, Caltrans Headquarters conducts a 2-day training workshop for its environmental and transportation planners specifically on Community Impact Assessment, which includes a 4-hour module on the topic of Environmental Justice, including in-house exercises. HQ staff are national experts and have served on not only the California's Governor's Office of Planning and Research's Environmental Justice Task Force, but were active members of two National Academies Transportation Research Board studies helping to shape the state of the art: *Technical Methods to Support Analysis of Environmental Justice Issues* (2002) and *Effective Methods for Environmental Justice Assessment* (2004).

**c.** The environmental justice analysis included in EIR/EA Section 2.1.3.3 meets all requirements of the Executive Order, FHWA and DOT environmental justice policy and procedure, and applicable requirements of NEPA and CEQA. Cumulative effects related to environmental justice were also considered in Section 2.4.3.3. As described in the EIR/EA, construction and operation of the Bridge Replacement Alternatives would not directly or indirectly affect residences. The proposed project would not result in disproportionately high and adverse effects on minority and/or low-income populations and, when considered with other past, present, or reasonably foreseeable projects, would not result in cumulatively considerable significant or disproportionately high and adverse effects within the study area as it relates to EO 12898.

Separate and apart from this project, the Port has developed two programs in an effort to mitigate potential cumulative air quality and noise impacts of Port projects: (1) Schools and Related Sites Program -- Guidelines for the Port of Long Beach Grant Programs and (2) Healthcare and Seniors' Program-- Guidelines for the Port of Long Beach Grant Program. These programs are specifically aimed at sensitive populations (i.e., school-age children, senior citizens, and persons with specific respiratory illnesses), which have been identified by state and local air agencies as being particularly sensitive to air pollutants. The Schools and Related Sites Program focuses on school-age children and identifies schools, preschools, and daycare centers as eligible applicants for the funding opportunities of the program. The Health Care and Seniors' Facility Program is focused on specific prevention, education, and outreach programs, as well as direct mitigation projects, for schools, hospitals, healthcare facilities, retirement homes, senior centers,

and convalescent homes that help sensitive receptors such as children, senior citizens, and people with respiratory illnesses in areas near the Port.

The eligibility criteria for these programs have been developed to take into account that cumulative air quality and noise impacts are a function of distance from the Port and the Port's transportation routes. Accordingly, three zones of impact have been established for purposes of ranking each applicant based on the distance of each facility to the Port or the Port's transportation routes (e.g., I-710 and SR 47). Facilities within 1-mi of the Port or these transportation routes are defined to be in Zone 1, facilities within 2 mi are in Zone 2, and facilities within 3 mi are in Zone 3. In addition, because areas downwind (to the north and east) of the Port would be more heavily affected by pollution from Port and related goods movement activities, the guidelines in the two Port programs give preference to receptors and individual facilities located downwind.

The implementation guidelines for the two programs are: (1) establish eligibility criteria for potential applicants based on the facility type and proximity to the Port; (2) provide metrics that assess a proposed project's air quality, noise and/or health mitigation potential; and (3) explain how the Port Board of Harbor Commissioners should choose among eligible proposals and approve funding. As described in Chapter 3, Section 3.2.2.4, Mitigation CEQA (AQ)-1, the project will contribute \$1 million to each of the Schools and Related Sites Program and the Healthcare and Seniors Program.

**d.** Please see response to CSE-14d.

**e.** For the reasons stated above in response to CSE-28.b, Caltrans and the Port did not deem it necessary to retain an additional expert with regard to Environmental Justice issues. Moreover, Caltrans and the Port did an exhaustive review of potential project alternatives and mitigation measures and thoroughly considered and evaluated all known alternatives and mitigation technologies. The commenter has not explained how a consulting firm hired to research "Environmental Justice Community recommended alternatives" would be able to identify any additional technological approaches not already considered. Caltrans and the Port believe that their analysis is thorough and complies fully and in good faith with the spirit and intent of the laws and policies. Please see response to CSE-14d.

**f.** Please see responses to CSE-7, CSE-8, CSE-14, and CSE-15.

**g.** Please see the responses to similar comments CSE-7, CSE-8, CSE-14, and CSE-15; however, at the terminal level where the Port does have authority to restrict access based on equipment type, implementation is guided by the CTP, which utilizes existing regulatory emission requirements versus requiring Best Available Control Technologies; which are often financially infeasible on a large scale. However, a component of the Technology Advancement Program is development of "Green Container" Transport Solutions. The Ports will be investing in hybrid, alternative-fueled, and electrical trucks for moving containers from the Ports. Once proven as feasible, the technologies will be moved forward as mitigation measures in future CAAP updates.

**h.** Please see responses to CSE-7, CSE-8, CSE-14, and CSE-15. At the terminal level, where the Port does have authority to restrict access based on equipment type, all trucks currently serving the Port must meet 2007 emission standards in accordance with the CTP. Starting in 2012, all pre-2007 trucks will be banned from serving Port terminals. On trucks built in 2007 or later, fuel combustion efficiency equipment and high-efficiency pollution control devices are standard.

**i.** As set forth in Section 2.1.6.3 of the EIR/EA, until improvements are made to the Back Channel, ships larger than those that currently pass under the Gerald Desmond Bridge will not be able to access the terminals behind the bridge (see response to CSE-11 and SCAQMD-2). Thus, this project would not result in any direct increase in marine vessel air emissions as described in Section 2.2.5.3. For these reasons, there was no need for the EIR/EA to consider the AMECS for ship stack emissions as part of a bridge replacement project. Moreover, the Port is investing a significant amount of capital in



cold-ironing technology to achieve the greatest emission reductions in the long-term consistent with the CAAP. Consideration of technologies to reduce vessel emission is beyond the scope of this project.

**CSE-29:**

a. Please see response to CSE-28a.

b. The Port has provided the opportunity for affected communities, individuals, organizations, and groups to participate in the EIR/EA process by providing public notifications about preparation and availability of the EIR/EA. The Port has held public scoping meetings and public hearings to inform the public about the project, the alternatives, and the associated impacts. Meetings were held in evening hours in surrounding communities in locations that were as close as practical to areas most affected by the project. Most of the public comments received during the public comment period and at the public hearings were in favor of the project. A separate project-specific advisory committee is not necessary; however it should be noted that the Port has formed a community advisory committee in connection with implementation of the Port's mitigation grant programs that the project will be contributing to. The grant program advisory committees include an industry representative, a regulatory agency representative, and three Long Beach community representatives, appointed by the Mayor's Office, and will advise Port staff on the development of application materials, review of project applications, and award recommendations based on ranking criteria outlined in each of the three grant programs.

c. Please see response to CSE-28c.

d. Please see responses to CSE-7, CSE-8, CSE-14, CSE-15, and CSE-28.

**CSE-30:**

A. The EIR/EA does not include an assessment of public health impacts that would be covered in a Health Impact Assessment (HIA), as noted in the comment. The EIR/EA does, however, address public health impacts in the context of the HRA that was performed for the proposed project, following the analytical methods and guidance prescribed by the OEHHA and SCAQMD. The HRA used accepted mathematical models based upon a detailed set of technical assumptions and factors, applied to a broad study area in which potential residential, occupational, and sensitive receptors were identified. Applying these procedures resulted in findings that cancer risk and hazard indices are all below the established impact significance thresholds for all receptors. The above process is described in detail in EIR/EA Section 2.2.5.4.

The analysis of air quality health effects provided in the EIR/EA is not intended or required to be an exhaustive toxicological study; it does, however, disclose the potential air quality/health risk impacts/benefits from implementation of the proposed project. To address the list of 13 public health impacts noted in the comment would require toxicological studies that are beyond the bounds of typical project-level impact determinations required under NEPA and CEQA. Moreover, a study of this scope is not warranted because the analyses in the EIR/EA demonstrate the absence of health risk effects above established significance thresholds.

HIA approaches to evaluating impacts are, by definition, holistic, taking into account a broad range of factors. As stated in *A Health Impact Assessment Toolkit* (Human Impact Partners; April 2010) -- "The scope of a HIA assesses physical and mental health outcomes like mortality and disability, and also assesses behavioral, neighborhood, environmental and economic factors, as well. A broad definition of health is necessary because most social decisions affect health indirectly through effects on social or environmental conditions." To address such effects on a holistic basis would require a series of assumptions regarding second- and third-order effects that would be considered speculative. Moreover, potential outcomes affecting mental health and disability cannot be determined as a direct effect of a given project, would require the use of methodologies that are not generally agreed upon, and would produce results that would be speculative. Such analyses are not required under NEPA or CEQA, nor are they generally suited to the procedural and substantive requirements of NEPA or CEQA. Such studies tend to be longer term than HRAs, whereas the environmental review process is

supposed to have a beginning and end to facilitate informed and prompt decision making in a manner that does not unduly stifle project progression. For example, CEQA sets a 1-year time period for completing EIRs (see, e.g., PRC Section 21151.5).

Nonetheless, the underlying intent of the HIA approach – namely a comprehensive view of potential impacts on persons – is addressed in the EIR/EA in the sense that effects are considered and documented across a broad range of topics relating to the human environment. Included among these are land use, parks and recreation facilities, growth inducement, community character and cohesion, community facilities and services, relocations, environmental justice, traffic and circulation (including pedestrian and bicycle travel), visual and aesthetic considerations, hazardous waste/materials, public health and safety, air quality, noise, and energy. Therefore, a substantial portion of the subjects that would be examined in an HIA already are included in the EIR/EA.

**B.** The HRA was prepared using the methods recommended by Cal-EPA's OEHHA and the SCAQMD. The OEHHA develops guidelines to evaluate cancer and non-cancer effects from TAC exposure based on information available from published animal and human studies. Preparation of a public health status baseline study is not part of the recommended protocol to analyze health risks. The HRA prepared for purposes of this project assesses the impact of the proposed project as the risk increment related to the project (incremental decrease or increase). A baseline public health assessment of the area/region of the project is not an appropriate scope for the project. The HRA in the Draft EIR/EA provides adequate discussions of project health impacts for NEPA/CEQA purposes and complies with the current requirements for such an analysis.

**C.** The HRA conducted for the proposed project evaluated a broad geographic area within which sensitive receptors were identified (see EIR/EA Exhibit 2.2.5-1). A detailed grid was also used for purposes of estimating cancer risk within the study area (see Figure D-1; Appendix D; Revised Air Quality Technical Study; January 2010). The HRA analysis grid encompassed an area extending outward in all directions from the project site a distance of 5 km (3.125 mi).

In accordance with OEHHA recommendation, and consistent with other Port projects environmental studies (e.g., Middle Harbor), the study area for receptors (including the residents and offsite workers) extended approximately 5 km (3.125 mi) in all directions from the project corridor. Sensitive receptors, including schools, daycare centers, convalescent facilities, and hospitals, were identified within this distance using Internet searches, Long Beach School District maps, and state database information.

**D.** As described in Appendix D (HRA) to the Air Quality Technical Study, page D-10, the AERMET-processed meteorological data from the St Peter and Paul School Monitoring Station (a POLA monitoring station). This station is the most suitable for dispersion modeling in the Port area and was incorporated into the AERMOD model for conducting dispersion modeling for the project

- CSE-31:**
- a. Please see response to CSE-30a.
  - b. Please see response to CSE-30b.
  - c. Please see response to CSE-30b.
  - d. Please see response to CSE-30c.
  - e. Please see the response to comment 30d, above.

**CSE-32:**

a. As described in Section 2.2.5.4 of the EIR/EA, and as discussed in CSE-15, there are no significant public health impacts associated with construction or operation of the Build Alternatives. For this reason, mitigation is not required.

b. This comment requests that the Port establish a Public Health Care Mitigation Trust Fund based on a \$10.00 per TEU fees for every ship that passes beneath the new bridge. As explained above, this is not a terminal improvement project. Moreover, the Port already has established two programs to mitigate potential cumulative air quality and

noise impacts of Port projects: (1) Schools and Related Sites Program -- Guidelines for the Port of Long Beach Grant Programs and (2) Healthcare and Seniors Facility Program-- Guidelines for the Port of Long Beach Grant Program. As described in the Final EIR/EA, the proposed project will contribute \$1.0 million to each of these programs to fund projects specifically aimed at sensitive populations (i.e., school-age children, senior citizens, and persons with specific respiratory illnesses), which have been identified by state and local air agencies as particularly sensitive to air pollutants. The Schools and Related Sites Program focuses on school-age children and identifies schools, preschools, and daycare centers as eligible applicants for the funding opportunities of the program. The Healthcare and Seniors Facility Program is focused on specific prevention, education, and outreach programs, as well as direct mitigation projects, for schools, hospitals, healthcare facilities, retirement homes, senior centers, and convalescent homes that help sensitive receptors, such as children, senior citizens, and people with respiratory illnesses in areas near the Port.

The eligibility criteria for these programs have been developed to take into account that cumulative air quality and noise impacts are a function of distance from the Port area and the related goods movement transportation routes, including I-710 and SR 47. The most recent SCAQMD MATES III, the CARB DPM Exposure Assessment Study for the POLB and POLA Study, and recent modeling work completed in connection with development of the CAAP San Pedro Baywide Standard, have shown that areas downwind (north and east) of the Port are most heavily impacted by pollution from Port and related goods movement activities. For this reason, the guidelines in the two Port programs give preference to facilities closer to the Port because the sensitive receptors at these facilities would likely be exposed to greater cumulative air and noise impacts.

#### **Natural Resources Defense Council, Dated 3/22/2010**

**NRDC-1:** Both the Port and Caltrans believe that the EIR/EA complies with the requirements of both NEPA and CEQA and all relevant associated mandates. The document provides a thorough and comprehensive assessment of impacts, identifies those impacts deemed significant under CEQA, and prescribes reasonable and feasible mitigation measures for such impacts. A discussion of the project alternatives is also provided (see EIR/EA Sections 1.6, 1.7, and 1.8, including both physical and operational alternatives and design variations).

The proposed project is not a "massive freight expansion project" (as it is described in the comment) but is rather a project that is intended to provide a replacement bridge to address existing seismic deficiencies and provide sufficient capacity to accommodate anticipated future demand. The bridge has no direct relationship to expanded Port capacity, other than accommodating local and regional travel demand through the corridor. The replacement bridge would continue an existing linkage between Terminal Island and Long Beach/I-710.

The Port and Caltrans are not aware of crucial information that has been omitted, impacts that are underestimated, nor impacts or other relevant facts that have been ignored. The analyses and underlying assumptions throughout the document have been implemented and chosen to deliberately reflect a conservative (i.e., estimating greater, rather than fewer, impacts) view of likely impacts resulting from the project.

An open public comment and review process has been conducted, during which comments from all parties have been encouraged and accepted, including written comments and oral comments delivered at two widely advertised public hearings. It is the opinion of the Port and Caltrans that the EIR/EA is sufficient and that the review process has been satisfactory.

The commenter also states that, "this project will be funded by taxpayers to the tune of \$1.125 billion dollars..." As described in Section 1.6.1.1 of the Final EIR/EA, the most recent estimate for the preferred alternative is \$983 million dollars. The assertion that the project is funded solely by taxpayers does not acknowledge the substantial financial

contribution by the POLB from Port revenues. As described in CSE-6c, POLB revenues for the project are generated from terminal leasing and other operations within the POLB and not from taxpayers via the City general fund (see CSE-6).

Responses to detailed comments are provided below.

**NRDC-2:**

Caltrans, as the federal lead agency, has been delegated discretionary authority under SAFETEA-LU Section 6005 to determine which type of environmental document is required for projects under NEPA. Based on the information contained in, and the public comments received on, both the original EIR/EA (circulated in 2004) and the Revised Draft EIR/EA (circulated in February 2010), Caltrans has determined that an EA was the appropriate level of environmental document under NEPA for the proposed project.

The comment states that an EIS should have been prepared because the project is “highly controversial.” However, the public comments that have been received on both the original and the Revised EIR/EA have predominantly been supportive of the project; there has not been substantial debate or disagreement expressed over the project, indicating that in Caltrans’ judgment, it is not “highly controversial.”

The comment further states that an EIS should have been prepared for this project because it will result in significant impacts to the environment. The impacts referred to were determined to be significant under CEQA. As indicated in Chapter 3 Section 3.1 of the EIR/EA, the way in which significance is determined is one of the major differences between CEQA and NEPA. Under CEQA, the CEQA lead agency, in this case the POLB, is required to identify each “significant effect on the environment” resulting from the project. If the project may have a significant effect on any one or more environmental resources, then an EIR must be prepared. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR.

Under NEPA, an EIS must be prepared when the proposed 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. The severity of the impact must be examined in terms of the type, quality, and sensitivity of the resource involved; the location of the proposed project; the duration of the effect (short- or long-term) and other considerations of context. Significance of the impact will vary with the setting of the proposed action and the surrounding area. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. In addition, there are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA.

It is therefore often the case that impacts are identified as significant under CEQA (requiring preparation of an EIR), but the project as a whole is not considered significant under NEPA (allowing preparation of an EA/FONSI). Examples of recent EIR/EAs completed by Caltrans can be reviewed on the Web at <http://www.dot.ca.gov/dist07/resources/envdocs/>. Based on the context and intensity of the impacts as described in Chapter 2 of the EIR/EA, it has been determined that the project will not result in a significant impact on the environment pursuant to NEPA, and an EA is the appropriate level of document.

**NRDC-3:**

The comment references studies prepared by others indicating that the traffic to and from the POLB is a major contributor to traffic congestion on the SR/I-710 freeway. It is not disputed that both San Pedro Bay Ports (Los Angeles, as well as Long Beach) account for the totality of the port-related traffic on the SR/I-710, and it should further be noted that it is the policy of both Ports to aggressively pursue an increased modal shift of cargo transport from trucks to rail, to the extent made practical by virtue of available handling facilities, consistent with mode choice and cargo destination; however, because the operation of the two Ports contributes to the congestion on SR/I-710 is not the issue at hand, which instead is: What are the impacts of modifying the existing Gerald Desmond Bridge as proposed? The modification of the bridge is not a terminal development or redevelopment project that directly generates new vehicle trips. It is a transportation project, which, while it will improve the flow of traffic, will not itself generate additional

traffic trips (apart from construction-related trips during construction). Thus, for example, the Institute of Traffic Engineers (ITE) Trip Generation Manual does not include trip generation rates for bridge replacement projects. This is no doubt because a bridge is not a destination, although it could affect route of travel that drivers choose to get to their destination.

The comment further asserts that the study area selected for the Gerald Desmond Bridge Replacement Project is too narrow and confined, and that explanations for the selection of the study area are lacking. Traffic and air quality are cited as primary examples of impacts pertaining to these assertions.

As required by both CEQA and NEPA, the purpose of the EIR/EA is to identify and disclose the potentially significant impacts (under CEQA) and/or major adverse effects (under NEPA) of the proposed Gerald Desmond Bridge Replacement Project, across a full spectrum of environmental factors. CEQA and NEPA do not mandate that agencies conduct a broad study addressing effects associated with activities not connected with the project being examined in the environmental document. Accordingly, the purpose of the EIR/EA is narrower in scope than the studies referenced in the comment. The EIR/EA for the proposed project is intended to examine those impacts that would logically occur as a result of replacing the existing bridge with a new bridge; therefore, comments illustrating impacts of general port activities as a whole are not relevant to the requirements of this environmental document, but are rather more appropriately directed to subregional and regional studies conducted for other purposes. The studies referenced in the comment – Los Angeles County Metropolitan Transportation Authority Study entitled I-710 Major Corridor Study and the Port of Los Angeles Baseline Transportation Study prepared by Meyer, Mohaddes & Associates – are examples of studies conducted for purposes different from that which this EIR/EA is required to fulfill.

Regarding the appropriateness of study areas, each of the impact factors considered in the environmental document were considered individually and study areas were identified for each, based upon a due consideration of the extent to which impacts of the proposed project would occur. A few examples illustrate this approach:

**Land Use, Recreation, and Coastal Zone (Section 2.1.1)** – The study area was defined as the Port's Northeast Planning District, within which the proposed project is entirely located and within which all affected land use impacts are contained.

**Community Impacts (Section 2.1.3)** – The study area was defined on the basis of potential effects circumscribed within an area of 11 adjacent census tracts. This study area definition touches portions of both Ports, the Wilmington community, and the southwestern portion of the City of Long Beach, to the east of the Los Angeles River.

**Visual and Aesthetics (Section 2.1.7)** – Both local and regional visual settings were defined, the former being confined to the immediate Port surroundings and the latter including distant views experienced by residents, recreational users, businesses, workers, and motorists.

**Hazardous Materials/Wastes (Section 2.2.3)** – An area extending 0.25-mi from the proposed project was considered and the effects pertaining to surrounding uses were also considered.

**Public Health and Safety (Section 2.2.4)** – The study area was defined to encompass the nearest emergency service responders and included both fire and police.

**Noise (Section 2.2.6)** – The study area was chosen based upon FHWA guidance and included the nearest areas of frequent human use, which were residential, park, and school uses east of the Los Angeles River.

**Air Quality Study Area (Section 2.2.5.2)** – Several study areas were defined, corresponding to the particular impact considered. For example, the SCAB, inclusive of some 6,745 square miles, is the context for criteria pollutant evaluation. The study area for addressing localized impacts extended as far as 1.3 mi from the project site to capture

potentially affected receptors. This definition resulted in the inclusion of 61 child-care centers, 24 convalescent homes, 49 schools, and 5 hospitals, as well as nearby residential areas (see Exhibit 2.2.5-1).

**Traffic Study Area (Section 2.1.5.2)** – The traffic study area defined in Section 2.1.5.2 of the Draft EIR/EA is appropriate to assess the potential traffic impacts of the project. The traffic study area includes those locations with sufficient additional traffic resulting from the operation of the replacement bridge or its construction activity to have a significant impact. The traffic study area was determined by evaluating the forecast changes in traffic for increases attributable to a replacement bridge that would potentially result in any of the following:

- Significant impacts at CMP monitoring locations where impact would be measured based on the criteria in the 2004 CMP for Los Angeles County;
- The addition to a signalized intersection of 50 or more vehicles during a peak hour as required by the City of Long Beach traffic impact analysis guidelines available from the City of Long Beach Department of Public Works Traffic and Transportation Bureau; and
- LOS F (over capacity) conditions on SR 710 north of the project to 9th Street or SR 47 (Seaside Avenue) west of Navy Way.

The study area extends to the east into downtown Long Beach as far as needed to include intersections expected to receive an additional 50 entering vehicles during a peak hour, consistent with the City of Long Beach traffic impact analysis guidelines cited above. To the west, the study area includes the intersection of Navy Way and Seaside Avenue. Farther west, the forecast volumes on Seaside Avenue are well within its capacity as a four-lane controlled-access roadway, and no LOS F conditions or significant impacts are expected. To the north, the additional volumes redistributed to I-710 do not create a significant impact at the CMP monitoring location at the Willow Avenue interchange with I-710. Nor do they create LOS F conditions or a significant impact on the portion of SR 710 south of 9th Street. Because the portion south of 9th Street has fewer lanes than portions to the north, it was concluded that there would be no significant impacts to SR 710 or I-710 farther north where the highway has more lanes.

As can be seen from the above examples careful thought was used to define each subject study area, such that potential impacts resulting from the proposed project would be captured and also that potentially affected persons and locations would also be identified. Accordingly, the various study areas were selected to be sufficiently broad to be sure that impacts of significance would be identified.

While it is true that traffic passing over the bridge can be found on I-710 as far north as I-105 and at other locations in the region, the EIR/EA is only concerned with changes in traffic attributable to the replacement bridge that would potentially result in significant traffic impacts. No changes in traffic attributable to the replacement bridge and potentially resulting in significant traffic impacts are expected outside the traffic study area because no significant impacts are expected:

- To the north of the project on I-710 at the CMP monitoring location at the Willow interchange or south of 9<sup>th</sup> Street;
- To the west of the project on SR 47 (Seaside Avenue) west of Navy Way; or
- To the east of the project at signalized intersections in downtown Long Beach because all intersections with a potentially significant impact are included within the study area.

The “I-710 Major Corridor Study” and the “Port of Los Angeles Baseline Transportation Study” referenced in the comment are studies that examine very different trip generation and trip redistribution potential than the bridge replacement. The former study involves potential capacity additions along I-710 for 18 mi north of the Ports. The latter considered

all traffic from all terminals and properties in both POLA and POLB. The EIR/EA for the bridge replacement properly examines only the potential for traffic impacts that might occur when a new bridge is constructed to replace the existing bridge.

Using the study areas described above, the EIR/EA identifies potential impacts associated with the proposed project and, where available, corresponding mitigation measures are offered to lessen such impacts. For example, traffic impacts accruing to the project along study area roadways, for both project construction and operations, are identified in Section 2.1.5 of the EIR/EA. Given the 50-trip criterion used to assess affected roadways, all potential impacts directly associated with the proposed project have been identified and addressed. Similarly, construction and operational air quality impacts have been identified and mitigation measures have also been identified (see Section 2.2.5).

The project is not a “freight expansion project” as stated in the comment. As is noted in Section 2.1.5 of the EIR/EA, the project is a bridge replacement and does not generate any additional new traffic in and of itself. Because the project provides more capacity than the existing bridge and thereby may reduce congestion on the bridge, some traffic avoiding the bridge under the No Action or Rehabilitation conditions may change travel path and use the new bridge. Such changed travel paths are identified and discussed in the EIR/EA as traffic redistributions. While it is true that traffic ultimately traveling across the bridge can be found on I-710 as far north as I-105 and at other locations in the region, the Bridge Replacement Alternatives would affect only the localized paths in the Port area to access these freeways and not the destination or origin of the goods being hauled. Thus, the traffic impact analysis within the EIR/EA is concerned with changes in traffic attributable to a replacement bridge and the potential impacts associated with these changes. No changes in traffic attributable to the replacement bridge and potentially resulting in significant traffic impacts are expected outside the traffic study area.

**NRDC-4:**

The EIR/EA analyzes all potentially significant effects of the proposed project and, where possible, identifies mitigation measures that would reduce those impacts to less than significant levels; however, even after incorporation of these measures, certain unavoidable significant impacts remain as defined by CEQA.

Regarding traffic, the CEQA analysis identifies temporary unavoidable significant impacts at four intersections during the construction phase and a significant unavoidable impact at one intersection after the new bridge is put into service. No other significant impacts were identified and each is described below (see Chapter 3, Section 3.14).

Regarding the four intersections affected during construction, two are the intersections of the Ocean Boulevard EB and WB service roads with the Terminal Island Freeway described in Section 2.1.5.3 under the heading “Construction Impacts.” During construction stages when the Terminal Island East Interchange (i.e., the Horseshoe Ramps) is closed, these two intersections are along the detour route. WB traffic on the bridge bound to Pier T, which would normally exit Ocean Boulevard at the Horseshoe Ramps, will be detoured west along the WB Ocean Boulevard service road to complete a “u-turn” at the Terminal Island Freeway by making left turns at both of the referenced intersections and passing beneath the Ocean Boulevard overcrossing. Similarly, traffic from Pier T to Ocean Boulevard EB, which would normally enter Ocean Boulevard at the Horseshoe Ramps, will be detoured through the same two intersections. These detours will increase the traffic volumes at the two intersections on the Terminal Island Freeway beneath the Ocean Boulevard overcrossing. The overcrossing span limits the ability to provide additional lanes to service the increased volume on the detour. Other alternative detour routes were considered, but none were deemed acceptable.

The other two intersections affected during construction are the intersections of Pico Avenue with Pier B Street/9<sup>th</sup> Street and Pier D Street. During Construction Stages 3 and 4, the connector between EB Ocean Boulevard and NB SR 710 will be closed. Traffic on that movement will be detoured along NB Pico Avenue. At the intersection of Pico



Avenue, Pier B Street, 9<sup>th</sup> Avenue, and the SR 710 ramps, the detoured traffic must make a left turn onto the SR 710 NB entrance ramp, thereby congesting the intersection. The following intersection mitigations are identified in Section 2.1.5.4 of the EIR/EA:

- Add dual NB right-turn lanes;
- Restripe EB through/right lane to a right-turn lane;
- Provide one EB through lane;
- Continue two SR 710 SB off-ramp lanes to Pico Avenue;
- Restripe NB through lane to a NB left-turn lane;
- Widen SB approach and provide two left-turn lanes and one through lane; and
- Continue two on-ramp lanes to NB SR 710.

These measures exhaust the improvements that are feasible at the intersection; however, they are not sufficient to fully mitigate the significant impact during Construction Stages 3 and 4. Other alternative detour routes were considered, but none were deemed acceptable. Because of their temporary nature, the impacts were considered minor for purposes of NEPA but significant for purposes of CEQA because CEQA looks at each impact on a standalone basis.

The intersection of Pico Avenue and Pier D Street is affected by the closure of the connector between EB Ocean Boulevard and NB SR 710 described above. The additional traffic on NB Pico Avenue at Pier D Street would be partially mitigated by installation of a traffic signal, as noted in Section 2.1.5.4 of the Draft EIR/EA. If sufficient green time is allocated to the heavy NB detour traffic volume, there would be insufficient green time available to serve Pier D Street. Additional mitigation measures, including adding a NB lane, was considered, but ROW was determined to be inadequate.

The EIR/EA identifies only one long-term significant traffic impact that is not mitigated under CEQA at the intersection of Navy Way and Seaside Avenue. The impact is addressed under NEPA. Several alternative mitigation measures are identified for the intersection. The impact is not mitigated under CEQA because the Port has no authority to implement improvements at the intersection because it lies outside the Port's jurisdiction. If mitigation measure TC-5 (described in Section 2.1.5.4) is implemented under NEPA, or if any of the other improvements identified for the intersection as described in Section 2.1.5.4 are implemented, the impact would be addressed.

The commenter states that "increasing transit service to the Port would obviously reduce traffic impacts." The evidence shows that there is currently transit service in the vicinity of the project's sole long-term significant traffic impact at the intersection of Navy Way and Seaside Avenue. The commenter states that "increasing transit service to the Port would obviously reduce traffic impacts." Increased public transit at the Port facilities would not take trips off Ocean Boulevard. The general public does not travel to the Port. The vehicle traffic generated by the Port will be largely truck traffic that would not involve public transit, and terminal operators currently operate shuttles to transport longshoremen to the terminals when ships arrive. This practice will continue and is part of the CAAP that the Port will continue to enforce through leases with the terminal operators; therefore, increased transit service to the Port would not address traffic impact issues.

Implementing transit routes is primarily a business decision that Long Beach Transit (LBT) would make based on the demand along a certain route. Based on information about ridership on the Los Angeles Department of Transportation (LADOT) Commuter Express Route 142, demand is low and there is sufficient capacity on the buses serving this route, so additional service would not be prudent. Currently, only 15 passengers per hour use this service during the weekdays, with a daily ridership of 147 passengers. This shows that there is not much demand on the route. The service is operated daily from approximately 5:30 a.m. to 11:00 p.m. and provides service on Navy Way south of

Seaside Avenue in the immediate area of the project's sole long-term significant traffic impact. Additional transit service at this location would not reduce this impact.

The commenter argues that transit improvements would mitigate air quality and GHG impacts. There is also no evidence that additional transit service would reduce vehicular traffic or serve as effective measures for air quality and/or GHGs in the vicinity of the Port; however, as discussed in Section 3.3.2 of the EIR/EA, the Port is developing a Climate Change/GHG Strategic Plan that will examine GHG impacts for all activities within the Harbor District and strategies for reducing the overall carbon footprint of these activities. The Port has already undertaken many activities described in Section 3.3.2 of the EIR/EA to address climate change and GHGs.

The commenter states that the Port can improve truck efficiency and thereby reduce truck traffic by requiring all trucks accessing the Port to be owned by an asset-based trucking company. The commenter further claims that this Port trucking model would reduce the amount of commute-only trips. Neither of these conclusionary assertions is supported by facts of any kind. Moreover, neither assertion can be substantiated because they are untrue.

As part of the CAAP, the POLB and POLA implemented a Clean Trucks Program (CTP). The CTP currently bans from the ports all 1993 and earlier truck engines and nearly all 1994-2003 truck engines. Although the CTP is almost identical at POLB and POLA, the two ports opted to implement the truck ban and the other requirements of the CTP in slightly different manners. POLB requires truck operators to sign a registration agreement and allows both independent owner operators and asset-based trucking companies to access its terminals. In contrast, POLA's program as adopted allows only asset-based trucking companies with driver employees to access its terminals and requires such companies to sign a concession agreement rather than a registration agreement. The "employee mandate" component of the POLA program has been controversial and was enjoined by a federal court in April 2009 in *American Trucking Associations v. Los Angeles, Long Beach, et al.*, United States District Court, Central District of California, Case No. CV 08-04920 CAS (CTx).

The current drayage system at both of the ports is overwhelmingly based on owner operators. POLB determined that allowing this model to continue while requiring newer trucks and subsidizing their purchase would be the best mechanism to move to a clean and sustainable drayage fleet. Claims that the "employee mandate" model is more efficient or somehow reduces truck traffic as compared to the POLB approach are unsubstantiated by the commenter. There have been no comprehensive studies supporting a finding that the "employee mandate" model reduces commute-only trips, nor have there been documented findings on efficiency differential, especially since an owner-operated truck also could be used for multiple shifts. In fact, the POLA "employee mandate" model may result in more total passenger and truck trips because employee truck drivers would be required to commute to and from worksites for their shifts. Whether a truck enters a terminal pursuant to a registration agreement or a concession agreement is irrelevant to the environmental impact of that truck trip. Similarly, whether the driver is an owner operator or an employee also is irrelevant to the environmental impact of the truck trip; therefore, even if the employee mandate had not been enjoined by a federal court, such a requirement for drivers would not function to reduce or mitigate any environmental impact of the proposed project or the alternatives.

**NRDC-5:** As noted in the comment, the Port has developed mitigation grant programs to address impacts of Port projects in the surrounding communities. See response to CSE-28, CSE-29, CSE-32, and NRDC-6 for more information about two of the grant mitigation programs. Regarding project contributions to these programs, the comment inappropriately attempts to calculate this project's contribution to those programs based on the estimated construction cost of the project compared to the Port's Middle Harbor Redevelopment Project. Construction costs are irrelevant to the impacts of a project; however, the methodology for determining the funding amount associated with the project has been adjusted to better take into account a number of factors, including the Ports'

progress in reducing emissions through implementation of the CAAP, as a measure of cumulative impacts, and project-specific impacts when compared to established significance thresholds. The net result of this revision is an increase in total funding for the programs, although the nature of the projects and activities that would be funded by the contributions to the programs is unchanged.

For these reasons, the Gerald Desmond Bridge Replacement Project will contribute \$1 million each to the POLB Schools and Related Sites Program -- Guidelines for the Port of Long Beach Grant Programs and Healthcare and Seniors' Facility Program--Guidelines for the Port of Long Beach Grant Program. Methodology for this calculation is provided below, as described in the refined Mitigation Measure CEQA (AQ)-1 in Final EIR/EA Chapter 3 Section 3.2.2.4. The adjusted methodology is described below.

**CEQA (AQ)-1: Cumulative Air Quality Impact Reduction Program.** To help reduce air quality impacts associated with the project, the Port will require the project to make a contribution to the Schools and Related Sites Guidelines for the Port of Long Beach Grant Programs and to the Healthcare and Seniors Facility Program Guidelines for the Port of Long Beach Grant Programs. Although all feasible mitigation measures that would lessen significant environmental effects have been incorporated into the project, contributions to these grant programs are intended to fund projects or activities that could provide additional emission or exposure reductions in the communities surrounding the Port beyond what can be achieved through incorporation of all feasible mitigation measures. The types of projects that will be funded through these programs are described in detail in the guidelines for the Schools and Related Sites Program and the guidelines for the Healthcare and Seniors Facility Program, which are available by request from the Director of Environmental Planning or on the Port's Web site at <http://www.polb.com/grants>. While the guidelines identify the projects that can be funded from contributions to the programs, the project takes no specific credit for any emission reductions that may result from any funded projects because it is not possible to quantify any emission reductions until such time as grants are awarded. Instead, the EIR/EA analyzes all environmental impacts, identifies all feasible mitigation measures, and reaches conclusions regarding unavoidable significant effects of the project without taking into account any specific benefits that may result from contributions to the programs.

Project Air Quality Impacts. As discussed in previous sections of this document, the project would contribute to local and regional air quality impacts in the following ways: First, it would produce emissions of criteria pollutants during the project's 5-year project construction period, which includes demolition of the existing bridge. Such emissions have been estimated to exceed the SCAQMD threshold of significance for only one pollutant – NO<sub>x</sub>. That exceedance has been estimated to occur on a peak daily basis during years 2 and 3 of the construction period.

Second, operation of the new bridge would result in daily operational emissions that would be expected to be below the SCAQMD significance threshold for all but one criteria pollutant – NO<sub>x</sub>. Based on the analysis presented in Section 2.2.5 of the EIR/EA, operation of the project would yield an estimated daily exceedance of the SCAQMD significance threshold for NO<sub>x</sub> in the opening year (2015), but it would not show an exceedance of that threshold by the year 2030. Assuming that a straight line decline in emissions would occur over the intervening time, the SCAQMD significance threshold would be reached approximately 13 years after opening of the new bridge, or by 2028. When compared with CEQA Baseline (year 2005) conditions, years 2015 and 2030 show substantial declines in NO<sub>x</sub> emissions under both the No Project and Project scenarios. It is only when compared to the NEPA Baseline (i.e., against No Project) conditions that the project shows an estimated small increase in NO<sub>x</sub> emissions. Because the bridge carries a combination of Port-related and regional traffic, it is a conservative assumption to associate all of the increased NO<sub>x</sub> emissions with the proposed project.

Third, the project would have a very small contribution to MSAT production. Again, when comparing against the CEQA Baseline, both the 2015 and 2030 No Project and Project

conditions show substantial estimated reductions; however, when compared with the NEPA Baseline/No Project conditions, the project would result in additional daily contributions of total MSATs on the order of 1.4 pounds per day and 0.9 pounds per day, in 2015 and 2030, respectively. PM<sub>2.5</sub> production, compared to the NEPA Baseline/No Project Alternative, is estimated to be 11 pounds per day in 2015 and 6 pounds per day in 2030.

Fourth, while all CEQA estimates for cancer risk, chronic hazard indices, and acute hazard indices for residential, occupational, and sensitive receptor exposure show decreases when compared to the CEQA Baseline, there are small estimated increases, none of which rise above established thresholds of significance, when the project is compared to the NEPA Baseline/No Project conditions.

Grant Funding Level Methodology and Formulas: This section describes the methodology and related formulas that will be used to establish the project's contribution to the two grant programs. There are three steps in calculating the grant funding level, each of which is explained in more detail below:

1. Using the Middle Harbor Redevelopment Project funding levels as a baseline, calculate a base funding level that reflects ports-wide air quality and health risk impacts at the start of project construction.
2. Using project-specific PM<sub>2.5</sub> incremental emission impacts, adjust the amount from Step 1 to account for project-specific contributions to cumulative air quality impacts.
3. As appropriate and justified based on other factors that have not been captured in Steps 1 and 2, adjust grant funding levels.

Step 1: The baseline funding is the \$10 million contributed by the Middle Harbor Redevelopment Project for both the Schools Grant Program and the Healthcare and Seniors Grant Program. This baseline is appropriate because, as additional CAAP measures are implemented over time that result in emission reductions, it is anticipated that a project that begins construction in a future year will result in lower cumulative air emission impacts than the Middle Harbor project, which began construction in 2009. While cumulative air quality impacts are traditionally evaluated qualitatively as part of most CEQA/NEPA project evaluations, the CAAP allows the ports to comprehensively look at current and future expected port-related projects and their expected air quality impacts. By forecasting emissions and taking into account pre-recession Ports' growth estimates, future terminal development, implementation of CAAP emission reduction strategies, and adopted regulations, the CAAP allows the Ports' to quantitatively assess risk from future port-related operations and establish long-term goals that reduce long-term cancer risk and "achieve an appropriate 'fair share' of necessary pollutant emission reductions" to achieve regional attainment of federal ambient air quality standards (CAAP Technical Report, page 11). While other non-port-related sources contribute to air pollution and the cumulative burden, Port-related sources contribute a significant portion of local air quality impacts; therefore, changes in Port-related emissions directly affect the cumulative burden experienced by communities surrounding the Ports.

This baseline funding amount is therefore adjusted to account for the forecasted reductions in DPM emissions at the anticipated construction start date for the project. Because DPM has been identified as a TAC by the State of California and is the primary driver of Port-related cancer risk, the Ports use changes in Port-related DPM inventories to assess changes in risk, as described in the draft 2010 CAAP update. The Ports have DPM emission inventories for 2005 through 2009 and have forecasted DPM emissions for 2020. Based on recent updates to the CAAP, the following cumulative emission reductions have been achieved as of 2009 compared to the 2005 baseline: 52 percent reduction in DPM, 35 percent reduction in NO<sub>x</sub>, and 46 percent reduction in SO<sub>x</sub> (CAAP, 2006; Draft 2010 CAAP Update; 2009 Emissions Inventory).

Table 3-3 summarizes the percent reduction in DPM emissions achieved as of 2009 compared to the 2005 baseline year. In addition, the forecasted reductions in DPM emissions from the 2005 baseline were estimated in the 2010 CAAP Update for 2009 through 2014 and for 2023, as summarized in Table 3-3.

This step of the grant contribution calculation is designed to address the amount of Port-related DPM emission reductions not yet achieved as of the project construction start date (i.e., 1-% CAAP DPM Reduction Achieved/100). When the DPM reduction factor is applied to the base funding amount, the calculation for Step 1 is \$10 million x (1-% CAAP DPM Reduction for Project Construction Year/100).

<b>Table 3-3 Anticipated CAAP Diesel Particulate Matter Emission Reductions</b>								
<b>Emission Reductions Compared to 2005 Baseline</b>	<b>Actual</b>	<b>CAAP Forecast</b>						
	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2023</b>
DPM	22%	25%	60%	60%	68%	68%	72%	75%

Using the construction start date for the Gerald Desmond Bridge Replacement Project, the following forecasted CAAP DPM emissions compared to the 2005 baseline are applicable.

<b>Project</b>	<b>Construction Start Date</b>	<b>CAAP DPM Reduction (%) Compared to 2005 at Construction Start Date</b>
Gerald Desmond Bridge	2011 (see Table 3-3)	60

Using these figures in the Step 1, the calculation is

$$\$10 \text{ million} \times (1 - 60/100) = \$4 \text{ million}$$

Step 2: To account for the varying contributions by different types of projects to cumulative impacts, the Step 1 funding amount determined above is adjusted for project-specific impacts. The project-specific adjustment is based on the project-specific impacts compared to the CEQA Baseline and the No Build/No Project Alternative. The purpose of this step is to require greater funding from projects with significant project emissions and to require less funding from projects that do not exceed SCAQMD significance thresholds. Consistent with Step 1 and the discussions above, PM<sub>2.5</sub> emissions, which are typically DPM for Port-related projects, are used as a surrogate. The project-specific adjustment is then determined by comparing the operational DPM emissions increase relative to the CEQA Baseline and the No-Build/No Project Alternative to the values included in Table 3-4. These factors account for projects in which the incremental PM<sub>2.5</sub> emissions (compared to the CEQA Baseline and/or the future No-Project Alternative) are below or significantly above SCAQMD’s CEQA significance threshold (55 pounds per day). Under this scenario, the project-specific funding amount would be decreased by 50 percent for projects with PM<sub>2.5</sub> emissions relative to the NEPA No Project baseline that are less than the SCAQMD significance threshold.

<b>Table 3-4 Project-Specific Adjustment Factors Relative to DPM Emission Increases</b>	
<b>Project-Specific PM<sub>2.5</sub> Emissions Increase (pounds per day)*</b>	<b>Project-Specific Adjustment (A<sub>PS</sub>)</b>
< 55	50%
55 - 100	100%
101 – 150	150%
> 150	200%

\* As compared to the No-Build or No Project Alternative.

This adjustment is then applied to the Step 1 amount. Overall, the combined Schools Grant Program and the Healthcare and Seniors Grant Program funding contribution methodology entails the following calculation:

$$\text{Total (Schools and Healthcare/Seniors Programs) (\$)} = \text{Step 1 amount} \times \text{Step 2 percentage}$$

As discussed above, the project-specific PM<sub>2.5</sub> emissions increase relative to the No Project Alternative (NEPA baseline) for the Gerald Desmond Bridge Replacement Project is 11 pounds per day (2015) and 6 pounds per /day (2030); there is a net decrease compared to the CEQA Baseline. Comparing this number to Table 3-4 provides a project-specific adjustment factor of 50 percent. This adjustment is then applied to the Step 1 amount to give a final combined funding contribution amount for the Schools Grant Program and the Healthcare and Seniors Grant Program.

Gerald Desmond Bridge potential combined funding contribution

$$= \$4 \text{ million} \times 50\%$$

$$= \$2 \text{ million total (\$1 million each to the Schools and Healthcare/Seniors Programs)}$$

Step 3: The Board may also want to consider other unique factors, which may cause the calculation above to not reflect project circumstances, in determining the final amount of the contribution to the grants programs; however, no adjustments to the calculated amounts appear to be needed for purposes of the project, so the \$2 million set forth at the end of Step 2 remains the appropriate recommendation.

Distribution of Funding Contributions

The distribution of the funds being contributed to the Schools and Related Sites and Healthcare and Seniors Facility Programs to potential applicants and projects will be determined in accordance with guidelines for the two programs. The process includes evaluation by an advisory committee established to make recommendations to Port staff and then approved by the Board of Harbor Commissioners. The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Project Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication.

**NRDC-6:**

As is noted in the response to comment NRDC-3 above, several study areas were defined for purposes of analyzing different types of air quality impacts (see EIR/EA Section 2.2.5) that were evaluated in the environmental document. For example, the SCAB, inclusive of some 6,745 square miles, is the context for evaluation of criteria pollutants. Project-related criteria pollutant emissions were calculated (see Table 2.2.5-9) along the project corridor, because that is where the effects of the project would occur, based upon a criterion of 50 or more trips per peak hour being added to roadway intersections (see the response to comment NRDC-3 above for an explanation of the

traffic corridor study area). The results displayed in Table 2.2.5-9 demonstrate that this study area was chosen appropriately because the analysis revealed no impacts when compared with the SCAQMD significance thresholds. It is therefore reasonable to conclude that no impacts would occur in a larger study area.

Similarly, the study area for localized emissions analysis (NO<sub>x</sub>, CO, and PM) also corresponded to the traffic corridor study area, for the same reason as is stated above. Review of Tables 2.2.5-15, 2.2.5-16, and 2.2.5-19 indicate that the proposed project would not generate substantial amounts of CO or PM; therefore, it is reasonable to conclude that this finding also would hold true for any larger study area.

In addition, local area MSATs were evaluated within the project corridor and again the results (see Exhibit 2.2.5-5) showed that: (a) future year baseline emissions of DPM, acetaldehyde, benzene, 1,3-butadiene, acrolein, and formaldehyde are expected to be substantially lower than at present, and (b) additional emissions associated with the project are expected to be small. Again, the choice of a larger study area would not yield different results.

For purposes of the HRA, a broad study area was defined that extended over 1-mi distant from the project. This definition circumscribes 61 child-care centers, 24 convalescent homes, 49 schools, and 5 hospitals, as well as nearby residential areas (see Exhibit 2.2.5-1). Again, the results presented in Table 2.2.5-22 show impacts below the established significance threshold.

Neither the analysis of GHGs nor the proposed mitigation is "deeply hidden" as asserted by the comment. The mitigation measure can be found in Section 3.2.2.4 and analysis can be found in Section 3.3. Regarding the study area, as is described in EIR/EA Section 3.3.4, the project corridor was again chosen as the appropriate study area within which to calculate GHG production because the corridor has already been demonstrated to be appropriate for purposes of the traffic analysis and localized air quality analysis. The corridor is also appropriate because the project merely accommodates trips within it; no new trips are generated by the project and therefore a logical argument cannot be made for a capture area extending beyond the immediate vicinity.

Furthermore, as discussed in EIR/EA Section 3.3.4, although California law now states that climate change is a topic subject to disclosure under CEQA, no guidance has as of yet been promulgated to determine project-level significance for transportation projects. In the absence of guidance to prescribe an appropriate measure of significance, as well as study area, those decisions are left to the discretion of the CEQA lead agency. It is important to note that the recently adopted CEQA Guideline Section 15064.4 instructs lead agencies to focus on GHG emissions "resulting from" the project. This was specifically modified from an earlier draft of the section, which had referenced the need to study GHG emissions "associated with" a project. Given this "resulting from" language, and the fact that the traffic consequences are reasonably circumscribed by the transportation analysis corridor, and further given that the expected project versus no project differences are captured within that corridor, it is reasonable to use that same corridor as the study area for GHG estimation.

As can be seen from the above information, the study areas chosen for the air quality analyses, including GHGs, have been selected carefully to capture the effects of the project and to include the likely receptors of those effects.

Regarding GHG mitigation measures, the following is our response:

Chapter 9 and Appendix B of the CAPCOA reference (*CEQA & Climate Change; January, 2008*) reveal the following: (1) Chapter 9 discusses example mitigation measures to be applied to residential and commercial development projects, General and Specific Plans, Air District Plans and Rules, and RTPs – no examples are discussed pertaining to transportation projects; and (2) Appendix B offers a broad range of mitigation measures, but none are applicable to a project such as the Gerald Desmond Bridge Replacement Project, with one exception (MM M-1 on page B-33). Transportation



measures include pedestrian and bicycle enticements and parking restrictions. There are two measures noted under the heading of Regional Transportation Plan Measures - HOV lanes and tolls/user fees (the latter is discussed in EIR/EA Section 1.7.1). Under Circulation, the measures include providing for safe and convenient local travel and enhancing the regional transportation network, both of which the project would do. Also under this heading are measures addressed to public transit and pedestrian/bicycle strategies; the former does not pertain to the proposed project and the latter is discussed in responses to other comments (see responses to Comment Nos. 3-8 from LBDS). Under Land Use, one measure asks that roads be made safe, accessible, and attractive for use day or night, which the project would do. Under Miscellaneous, Measure MM-1 identifies "off site mitigation fee program". Other than these measures, no others are offered that pertain to transportation projects.

Regarding the Attorney General document referenced in the comment (*Addressing Climate Change at the Project Level*; 1/6/2010), the following mitigation measures are offered:

1. Meet an identified benchmark for reducing GHGs (e.g., VMT per capita).
2. Adopt a comprehensive parking policy that discourages private vehicle use.
3. Build transit stops.
4. Provide public transit incentives.
5. Promote "least polluting" ways for people to travel.
6. Incorporate bicycle lanes into street systems.
7. Require amenities for non-motorized transportation.
8. Ensure that projects do not disrupt or create barriers to the use of non-motorized transportation.
9. Connect parks and open space.
10. Improve bicycle and pedestrian access to schools.
11. Institute teleconferencing, telecommuting, and flexible work hours.
12. Provide information on alternative transportation options.
13. Educate consumers about GHGs.
14. Purchase or create incentives for zero-emissions vehicles.
15. Create/promote ride-sharing programs and vanpools.
16. Create local networks for electric vehicles.
17. Enforce vehicular idling time restrictions.

Items 6 and 8 are addressed in the response to comments LBDS-2, LBDS -6, LBDS-7, and LBDS -8, and Item 14 is addressed in the response to comment CSE-28d. All of the others are either program-level measures (some of which the Port is pursuing) or are not relevant to the proposed project.

On page 17 of the document, the Off-Site Mitigation is recommended:

*If, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site mitigation projects that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase verifiable carbon "credits" from another entity that will undertake mitigation.*

The EIR/EA does, in fact, include recommendations for applicable feasible GHG reduction measures; specifically, Section 3.2.2.4 includes a prescribed reduction measure entitled *CEQA (GHG)-1: Greenhouse Gas Emission Reduction Program*, which provides funding for the project to the Ports' GHG Emission Reduction Program. The GHG Emission Reduction Grant Program addresses ways that the Port can reduce the impacts of GHGs. Often, as is the case with the Gerald Desmond Bridge Replacement Project, GHGs cannot be mitigated on a project site and, as a result, the GHG Emission Reduction Program funds projects that can be implemented outside the boundaries of the development or operation emitting the GHGs. Control and/or avoidance or reduction of project-related GHG sources associated with the Gerald Desmond Bridge Replacement Project (tailpipe emissions) are controlled/regulated at the State and federal levels and are outside of Port or Caltrans jurisdiction. As described in the Final EIR/EA CEQA (GHG)-1, the Port will require the project to contribute \$400,000 to the Port's GHG Emission Reduction Program. Projects funded by contribution to the GHG Emission Reduction Program are intended to partially offset the incremental effects of the Gerald Desmond Bridge Replacement Project's cumulative contribution to increases in GHGs. As is noted, and consistent with the discussion above, the CAPCOA document indicates that contribution to an "offsite mitigation fee program" (MM M-1 on page B-33) is an effective measure applicable to transportation projects such as the Gerald Desmond Bridge Replacement Project. Additionally, other measures applicable (directly or indirectly) to construction or operation of the proposed project are also discussed in EIR/EA Section 3.3.4 under the heading "Mitigation Measures," which includes measures recommended in the CARB Scoping Plan and by the Caltrans CAP (see Table 7, below).

The POLB recognizes the potential adverse effects of climate change and is pursuing a proactive approach to controlling GHG emissions within the Port's jurisdiction. As is noted in EIR/EA Section 3.2.2 (beginning on page 3-2), based upon an action by the Port's Board of Harbor Commissioners, a number of specific actions have been undertaken to address this issue. The Port believes that a programmatic approach will yield the most effective methods of addressing GHG production. As previously discussed, there are no other feasible measures for application to individual transportation projects, and a contribution of \$400,000 to the Port's GHG Emission Reduction Program, as required by mitigation measures CEQA (GHG)-1 described below, would partially offset the project contribution to cumulative GHGs emissions; however, as discussed in detail in Chapter 3, the Port nonetheless concludes that these cumulative impacts remain significant and unavoidable.

Contributions to the GHG Emission Reduction Program are intended to fund projects or activities that could provide additional emission reductions in the communities surrounding the Port beyond what can be achieved through incorporation of all feasible mitigation measures. The types of projects that will be funded through this program are described in detail in the guidelines for the GHG Emission Reduction Grant Program, which are available by request from the Director of Environmental Planning or on the Port's Web site at <http://www.polb.com/grants>. While the guidelines identify the projects that can be funded from contributions to the programs, the Project takes no specific credit for any emission reductions that may result from any funded projects because it is not possible to quantify any emission reductions until such time as grants are awarded. Instead, the EIR/EA analyzes all environmental impacts, identifies all feasible mitigation measures, and reaches conclusions regarding unavoidable significant effects of the project without taking into account any specific benefits that may result from contributions to this program. It should be noted that there was a mathematical error in the Draft EIR/EA, which previously stated that the contribution would be \$647,000. While the methodology described was presented correctly, the mathematical error resulted in a misstatement of the proposed funding amount, which should have been presented as \$400,000. An explanation as to how the funding amounts for the project contribution to the GHG Emission Reduction Program were calculated utilizing the same methodology from the Draft EIR/EA is provided below:

Table 7. Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO <sub>2</sub> Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, Cal-EPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Ca- EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.67

Source: Climate Action Program at Caltrans

**CEQA (GHG)-1: Greenhouse Gas Emission Reduction Program Guidelines (GHG Program).** To address the cumulative GHG impacts of the Gerald Desmond Bridge Replacement Project, the Port will require the project to provide funding for the GHG Program. The Gerald Desmond Bridge Replacement Project is estimated to result in 47,169 metric tons per year of CO<sub>2e</sub> in 2015 and 55,999 tons per year of CO<sub>2e</sub> in 2030. When compared with the CEQA Baseline (year 2005) condition, these estimates show increases of 14,291 metric tons per year (2015) and 23,121 metric tons per year, respectively. When compared with the NEPA Baseline (i.e., No Project) condition, the estimated increases are smaller, namely 5,618 metric tons per year (2015) and 6,383 metric tons per year (2030), respectively. These increases are considered by the Port to be cumulatively considerable, although specific thresholds to establish significance have not been adopted for transportation projects. It should be noted that, similar to the discussion under Mitigation Measure AQ-1, the new bridge will carry both Port-related and regional trips, as are being carried on the existing bridge. Because the above figures include Port-related and regional trips, they represent conservative estimates of potential impacts.

The calculation of the contribution to be made to the GHG Emission Reduction Program is based upon a consideration of the contribution to daily cumulative emissions occurring from the project, as compared with the CEQA Baseline condition. This is consistent with the approach used for the Middle Harbor Redevelopment EIS/EIR. Research has indicated that the cost of verified emission reductions from established mitigation measures ranges between \$5 and \$14 per ton of CO<sub>2e</sub> reduced. SCAQMD has taken this research and, in Rule 2702 (adopted February 6, 2009), has established a “fair upper range” fee of \$15 per ton of CO<sub>2e</sub> produced. This conservative rate has been applied to GHG emissions associated with the Gerald Desmond Bridge Replacement Project. Using the difference between year 2030 Project versus CEQA Baseline quantity calculations yields the following:

$$\begin{aligned} \text{GHG Mitigation Contribution} &= \text{Gerald Desmond total annual contribution (year 2030)} - \text{CEQA Baseline (2005) value} \times \$15 \text{ per metric ton} \\ &= (55,999 \text{ metric tons per year} - 32,878 \text{ metric tons per year}) \times \$15 \text{ per metric ton} \\ &= 23,121 \text{ metric tons per year} \times \$15 \text{ per metric ton} = \$346,816, \rightarrow \$400,000 \end{aligned}$$

This contribution will be used to pay for measures pursuant to the GHG Emission Reduction Program Guidelines, which include, but are not limited to, generation of green power from renewable energy sources, ship electrification, goods movement efficiency measures, cool roofs to reduce building cooling loads and the urban heat island effect, building upgrades for operational efficiency, tree planting for biological sequestration of CO<sub>2</sub>, energy-saving lighting, and purchase of renewable energy certificates (RECs).

The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication.

**NRDC-7:**

The comment asserts that the EIR/EA does not consider an adequate range of alternatives based on failure to identify an alternative that reduces significant and unavoidable GHG impacts. Later the comment states, “The most important aspect of this alternative [an alternative that would reduce project GHGs] would be the reduction of the Port’s dependence on diesel trucks.” The project is a transportation infrastructure project designed to address the seismic performance and deterioration of the bridge, insufficient current and future roadway capacity, traffic operations, and navigational safety. The project does not create new vehicle trips (apart from temporary construction trips) and would not affect the origin or destination of goods received or shipped from the Port. No mention is made in the comment of trips using the bridge for purposes other than

container movement. In 2005, at the time of the NOP, it was estimated that 38 percent of all traffic on the Gerald Desmond Bridge had an origin or destination within the San Pedro Bay Ports (*Gerald Desmond Bridge Replacement Project Draft Traffic Analysis Report*, October 2009). This means that an estimated 62 percent of the bridge traffic was regional in nature, rather than port-related. That same study estimated that 25 percent of vehicles using the bridge were trucks and 75 percent were autos. Based on these figures, it is clear that the bridge serves both regional and local roles, and trucks, while constituting a substantial portion of traffic using the bridge, do not dominate its use.

As described in Final EIR/EA Chapter 3 Section 3.3, project-related increases in GHGs are associated with forecasted increased traffic demand that occurs with or without the project as shown in Final EIR/EA Table 3-3 (e.g., No Project also results in increased GHG emissions). Given the project's purpose and objectives set forth in Chapter 1, as well as the information regarding GHG emissions in Section 3.3 of the Final EIR/EA, the commenter's suggestion regarding an alternative that reduces the Port's dependence on diesel trucks, and the alternatives recommended on pages 10 to 11 of the comment letter do not constitute feasible alternatives to the project. The suggested alternatives would not improve the condition of the existing bridge, eliminate the need to rehabilitate or replace the existing bridge, or provide the additional capacity necessary to accommodate forecasted increases in both Port-related and regional traffic volumes that will occur with or without the project (Iteris, 2009).

The commenter also asserts that the EIR/EAR must consider a reasonable range of alternatives that avoids or substantially lessens this impact while feasibly attaining most of the projects objectives; however, instead of recommending such an alternative, the commenter recommends alternative container movement technologies. The Ports are already evaluating those technologies under their CAAP Alternative Technology Program, as noted in the comment. Those technologies focus narrowly on the smallest component of traffic within the project study area – intermodal trips. They do not address the project's objectives.

As previously discussed, these technologies are primarily focused on reducing intermodal trips ([http://www.portoflosangeles.org/DOC/Zero\\_Emissions\\_Container\\_Mover\\_System\\_Pres\\_090607.pdf](http://www.portoflosangeles.org/DOC/Zero_Emissions_Container_Mover_System_Pres_090607.pdf)). Although the Port is committed to development and implementation of ZECMS, such implementation would have no effect on reducing truck use in the movement of 40 percent of the goods moved through the Port for ultimate distribution within the local region, as discussed in CSE-15. Goods within that local region are hauled by truck and will continue to be hauled by truck until movement of these goods by other means becomes economically feasible and/or operationally practicable.

Caltrans and the Port believe that the EIR/EA (see Sections 1.6, 1.7, and 1.8) has considered an appropriate range of alternatives to address both the purpose and need (see Section 1.1.2) of the project pursuant to NEPA and the project objectives pursuant to CEQA. Briefly, the purpose of the project is to provide a bridge that would: (1) be structurally sound and seismically resistant, (2) reduce approach grades, (3) provide sufficient roadway capacity to accommodate expected future demand, and (4) provide vertical clearance for safe passage of existing and future vessels beneath the bridge. In attempting to determine the appropriate range of alternatives to consider in the environmental document, 12 alternatives were considered, including a Toll-Operation Alternative, two Tunnel Options, two Bridge Design Options, two Horseshoe Interchange Variations, two Route 710 Interchange Variations, a Bridge Rehabilitation Alternative, and two Bridge Replacement Alternatives, in addition to the No Project Alternative. Of these, for reasons stated in EIR/EA Section 1.7, four alternatives were deemed worthy of being carried forward – No Project, a Bridge Rehabilitation Alternative, and two Bridge Replacement Alternatives. Both decisions – which alternatives to carry forward and which ones to no longer consider – were firmly governed by the alternative's ability to satisfy the project purpose and need. For those alternatives that were carried forward, they were examined at an equal level of detail in the EIR/EA.

The comment makes reference to mitigation measures "aimed at SCAQMD thresholds... [which] utilize technologies that decrease diesel fuel use and corresponding use of greenhouse gases," and goes on to state that "these measures can form the basis of an alternative project design aimed at improving the efficiency of ships, trucks, locomotives, and cargo-handling equipment..." None of the objectives noted in the comment, while intended to address the management of GHGs, would also address the primary purposes of the project, namely improving the seismic performance and forestalling further deterioration of the bridge and providing sufficient roadway capacity.

The comment goes on to offer up several technologies as alternatives that should be considered, including a magnetically levitated system, a linear induction motor system, and electric dual-mode trams. Systems using magnetic levitation to move vehicles may have some future potential (although not yet demonstrated) to be applied to the movement of cargo containers, and this could perhaps play a role in localized container movements within the Port complex, at some future date, if demonstrated to be technologically feasible, cost effective, and capable of handling high volumes of transfers. It is unclear how or why such a technology would be applied to traffic moving across the Gerald Desmond Bridge, however. Systems powered by linear induction motors, as the comment notes, could be used on railroad tracks. This may be a worthy technology to explore for the movement of rail traffic, but rail traffic does not use the Gerald Desmond Bridge. Electric dual-mode trams may perhaps offer some benefit in future applications, if and when they are demonstrated to function in a cost-effective manner, but such trams are not now available and their use, to be effective, would need to be implemented over a network of routes, not just the Gerald Desmond Bridge.

Again, it should be noted that all of the technologies that are identified by the commenter as "alternatives" in the comment are being evaluated separately for further development and implementation by the Ports through their CAAP Alternative Technology Program. However, once again, development and implementation of alternative container movement technologies is beyond the scope of the project and currently, although all of the recommended alternatives were considered more feasible and more ready, none of these alternatives address the project's purpose and need or project objectives, and none of these options are currently available for widespread use.

The Ports will continue to work towards implementation of ZECMS; however, implementation of ZECMS is not an alternative to the project or a reasonable or feasible mitigation measure that would substantially lessen or avoid project GHG emissions and is not currently technically or economically feasible. See also CSE-14 and CSE-15.

**NRDC-8:**

As discussed in EIR/EA Section 1.7.1 at pages 1-28 through 1-30, the Toll-Operation Alternative was not carried forward for detailed analysis in the EIR/EA because the *Terminal Island Traffic and Toll Revenue Study* (POLB 2005) (T&R Study) found that the alternative would cause a substantial traffic diversion that would cause additional adverse environmental consequences likely to be greater in magnitude than the impacts of the proposed project.

The rationale for not carrying the Toll-Operation Alternative forward that was provided in the EIR/EA was taken from the T&R Study prepared for the two San Pedro Bay Ports. The T&R Study evaluated tolling as a method of capital cost recovery. In the T&R Study, the new bridge was considered both as an independent tolled facility and also as part of a tolling district that would include tolling all three bridges providing access to Terminal Island (Gerald Desmond Replacement Bridge, Vincent Thomas Bridge and Schuyler Heim Bridge). Both tolling scenarios assumed tolls to be imposed on all autos and trucks using the facilities. The study concluded that all three bridges would need to be tolled, at similar rates; otherwise traffic would avoid the new bridge; therefore, tolling only the Gerald Desmond replacement bridge was removed from consideration.

Traffic analysis that assumed that the tolling district would be in place found the following traffic diversion effects attributable to toll avoidance:

(1) Traffic increases during peak periods would be experienced on the I-405, I-110, and SR 91 freeways, ranging from 3 to 5 percent on I-405 to as much as 20 percent in one direction on I-110, with peak-hour increases in trucks on I-110 up to 41 percent.

(2) Traffic decreases during peak periods would be expected on SR 710 (16 percent) and SR 47/103 (11 to 28 percent).

(3) Peak-period traffic increases would be expected on PCH and Anaheim Street (24 percent) and Ocean Boulevard/Seaside Avenue (40 to 45 percent).

Due to the traffic diversion effects noted above, additional travel lanes (54.8 lane-miles altogether) would be needed on the affected facilities. Such additions to the highway system would require substantial additional capital funding and the participation of multiple agencies, resulting in a program of improvements beyond the intended purpose and need associated with the bridge replacement project.

The required improvements on the local arterial streets would necessitate either on-street parking removal or street widening with attendant ROW impacts in some locations. On Anaheim Street, acquisitions affecting upwards of 50 apartment complexes, 50 businesses, 40 auto wrecking/repair yards, and encroachment into the Saints Peter and Paul School would occur. On PCH, 10 apartment complexes, 35 businesses, 30 auto wrecking/repair yards, Banning High School, and a Senior Citizen Community Center would be affected.

Because of the expected traffic diversion, required lane additions and attendant ROW impacts, the tolling option was dropped from further consideration.

All of the traffic diversion discussed in the EIR/EA assumes the imposition of tolls on all three bridges. The diversion resulting from tolling all three bridges is associated principally with regional traffic – traffic with neither an origin nor a destination on Terminal Island, but simply passing through the island. Some regional traffic passing through Terminal Island with free bridges is induced to avoid Terminal Island when tolls are imposed on the bridges. Little diversion of traffic with one trip end on Terminal Island results from tolling all three bridges because this traffic must cross one of the three bridges. The Final EIR/EA has been revised to clarify that the discussion of the traffic diversion and potential effects is diverted regional traffic with little impact on port traffic with a trip end on Terminal Island.

The commenter questions why diverted traffic could not be serviced by public transit. There is no evidence that such diversion would affect the modal distribution of those trips; however, assuming that additional transit service might affect the modal distribution and capture 5 percent of the diverted trips, that capture would not result in sufficient reduction of diverted vehicles to materially change the impacts to I-405, I-110, or SR 91. U.S. Census data show that approximately 5 percent of journey to work trips, the prevalent trip type during morning and evening peak hours, are by transit in the Los Angeles, Riverside, Orange County Consolidated Metropolitan Statistical Area (see <http://www.fhwa.dot.gov/ctpp/jtw/jtw8.htm>). A 10 percent transit capture of diverted trips is therefore unlikely but would result in transit capture of:

- 150 to -260 of the 1,500 to 2,600 autos diverted to I-405 if tolls were imposed;
- 350 of the 3,500 autos diverted to one direction of I-110 if tolls were imposed; and
- 200 of the 2,000 autos diverted to SR 91 if tolls were imposed.

Increased transit would have no impact on truck trips. Based on the conservative 10 percent potential transit capture identified above, the associated reduction in vehicles is still insufficient to change the mitigations identified in Section 1.7.1.2 of the Draft EIR/EA for the three roadways listed above. Those mitigations are an additional travel lane in each direction on I-405 between SR 710 and I-110, on I-110 south of SR 91, and on SR 91 between SR 710 and I-110.



As noted in Section 1.7.1.2 of the EIR/EA, the diverted traffic would create significant traffic impacts requiring capacity improvements along five roadways identified in Section 1.7.1.3 of the EIR/EA. Those impacts exceed the impacts of the Bridge Replacement Alternatives included in the EIR/EA. As the commenter points out, the tolling alternative decreases traffic along SR 710 and I-710 south of I-405; however, the Build Alternatives included in the EIR/EA do not have adverse/significant impacts on SR 710 or I-710. As noted in the response to NRDC-3, forecast traffic data for SR 710 and I-710 north of the project were examined in defining the traffic study area, and it was determined that these segments would not be adversely affected by the project. In summary, the Toll-Operation Alternative would have significant traffic impacts along five roadways and reduce traffic on a roadway where the Bridge Replacement Alternatives would not have significant traffic impacts. In electing not to carry the tolling alternative forward, substantial traffic impacts were avoided.

The commenter suggests that port-related heavy-duty trucks are responsible for deterioration of the existing bridge. While it is generally true that trucks and heavy vehicles are responsible for substantially more damage to roadways than passenger cars and lightweight vehicles, that observation is not relevant to the current condition of the Gerald Desmond Bridge. The reports cited in Section 1.1.2.2 of the EIR/EA (1989 Fatigue Memorandum, a 2002 Load Rating Report and a 2005 Inspection Report) indicate that rust and the presence of seawater are the major factors contributing to the bridge's deterioration. Rust and seawater are not a function of truck and heavy vehicle usage of the bridge. There has been some damage of some main span sway struts due to collisions with traffic, which is likely due to trucks because the sway struts are above the bridge's roadway and would be struck by vehicles exceeding the height limit. Other than this information, there is no evidence to suggest that "industry" has had a disproportionate impact on the bridge.

**The Propeller Club of Los Angeles – Long Beach, Dated 2/23/2010**

**PCLA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Southern California Environmental Health Sciences Center, Dated 3/22/2010**

**SCEHSC-1:** The Port considers seriously its responsibility to comply with all applicable federal and State requirements concerning the management of hazardous waste and the potential adverse public health implications of exposure to such materials. LBP and asbestos abatement and handling requirements are heavily regulated and require procedures to be carried out by contractors certified in abatement specialties. The Port and Caltrans regularly encounter these issues on projects; therefore, they have long-standing experience with them. While very detailed and specific measures are prescribed for the removal, handling, transport, and disposal of hazardous materials encountered in the field, such measures typically are not recounted in the environmental document for a project so long as it is made clear that such procedures are in place and will be adhered to; such is the case with the Gerald Desmond Bridge Replacement Project. The general requirement to comply with all applicable State and federal laws will be referenced in the CEQA-required MMRP, and the details themselves will be incorporated into the contract specifications governing construction of the project; however, recognizing the level of concern raised in some of the commenter's more-detailed comments, provided below is an example of the specific requirements for LBP management, taken from the contract specifications for a similar project. Requirements similar to (and as stringent as) these will be incorporated into the construction contract documents to ensure compliance with all applicable State and federal laws. It should be noted that LBP is now prohibited in Caltrans specifications regarding bridge paint and yellow highway striping.

***Debris/Water Containment and Collection Program***

*Prior to starting work, the Contractor shall submit a debris/water containment and collection program to the Engineer in conformance with the provisions in Section 01330,*

"Shop Drawings/Submittals," of the General Requirements 5-1.02, "Plans and Working Drawings," of the Standard Specifications, for debris/water produced when the existing paint system is disturbed. The program shall identify materials, equipment, and methods to be used when the existing paint system is disturbed and shall include working drawings of containment systems, loads applied to the bridge by containment structures, and provisions for ventilation and air movement for visibility and worker safety.

If the measures being taken by the Contractor are inadequate to provide for the containment and collection of debris/water produced when the existing paint system is disturbed, the Engineer will direct the Contractor to revise the operations and the debris/water containment and collection program. The directions will be in writing and will specify the items of work for which the Contractor's debris containment and collection program is inadequate. No further work shall be performed on the items until the debris/water containment and collection program is adequate and, if required, a revised program has been approved for the containment and collection of debris/water produced when the existing paint system is disturbed.

The Engineer will notify the Contractor of the approval or rejection of the submitted or revised debris containment and collection program within 2 weeks of submittal of the Contractor's program or revised program.

### **Safety and Health Provisions**

Attention is directed to Section 00308, "Injury and Illness Prevention – Safety Measures", of the General Conditions.7-1.06, "Safety and Health Provisions," of the Standard Specifications. Work practices and worker health and safety shall conform to the California Code of Regulations, Title 8, Construction Safety Orders, including Section 1532.1, "Lead."

The Contractor shall furnish the Engineer a written Code of Safe Practices and shall implement an Injury and Illness Prevention Program and a Hazard Communication Program in conformance with the requirements of Construction Safety Orders, Sections 1509 and 1510.

Prior to starting work that disturbs the existing paint system, and when revisions to the program are required by Section 1532.1, "Lead," the Contractor shall submit the compliance programs required in subsection (e)(2), "Compliance Program," of Section 1532.1, "Lead," of the Construction Safety Orders to the Engineer in conformance with the provisions in Section 01330, "Shop Drawings/Submittals", of the General Requirements. 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The compliance programs shall include the data specified in subsections (e)(2)(B) and (e)(2)(C) of Section 1532.1, "Lead." The compliance programs shall be reviewed and signed by a Certified Industrial Hygienist (CIH) who is certified in comprehensive practice by the American Board of Industrial Hygiene (ABIH). Copies of all air monitoring or jobsite inspection reports made by or under the direction of the CIH in conformance with Section 1532.1, "Lead," shall be furnished to the Engineer within 10 days after the date of monitoring or inspection.

### **Debris Handling**

Debris produced when the existing paint system is disturbed shall not be temporarily stored on the ground. Debris accumulated inside the containment system shall be removed before the end of each work shift. Debris shall be stored in approved, leak-proof containers and shall be handled in such a manner that no spillage will occur.

Disposal of debris produced when the existing paint system is disturbed shall be performed in conformance with all applicable Federal, State, and Local hazardous waste laws. Laws that govern this work include:

- A. Health and Safety Code, Division 20, Chapter 6.5 (California Hazardous Waste Control Act).
- B. Title 22; California Code of Regulations, Division 4.5, (Environmental Health Standards for the Management of Hazardous Waste).
- C. Title 8, California Code of Regulations.

Except as otherwise provided herein, debris produced when the existing paint system is disturbed shall be disposed of by the Contractor at an approved Class 1 disposal facility in

conformance with the requirements of the disposal facility operator. The debris shall be hauled by a transporter currently registered with the California Department of Toxic Substances Control using correct manifesting procedures and vehicles displaying current certification of compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing of the debris required by the operator.

At the option of the Contractor, the debris produced when the existing paint system is disturbed may be disposed of by the Contractor at a facility equipped to recycle the debris, subject to the following requirements:

A. Copper slag abrasive blended by the supplier with a calcium silicate compound shall be used for blast cleaning.

B. The debris produced when the existing paint system is disturbed shall be tested by the Contractor to confirm that the solubility of the heavy metals is below regulatory limits and that the debris may be transported to the recycling facility as a non-hazardous waste.

C. The Contractor shall make all arrangements with the operator of the recycling facility and perform any testing of the debris produced when the existing paint system is disturbed that is required by the operator.

#### **Work Area Monitoring**

The Contractor shall perform work area monitoring of the ambient air and soil in and around the work area at the bridge site to verify the effectiveness of the containment system. The work area monitoring shall consist of collecting, analyzing, and reporting air and soil test results and recommending the required corrective action when specified exposure levels are exceeded. The work area monitoring shall be carried out under the direction of a CIH. The samples shall be collected at locations designated by the Engineer.

Air samples shall be collected and analyzed in conformance with National Institute for Occupational Safety and Health (NIOSH) methods. Air samples for lead detection shall be collected and analyzed in conformance with NIOSH Method 7082, with a limit of detection of at least  $0.5 \mu\text{g}/\text{m}^3$ . Air samples for detection of other metals shall be collected and analyzed in conformance with NIOSH Method 7300, with a limit of detection of at least one percent of the appropriate Permissible Exposure Limits (PELs) specified by the California/Occupational Safety and Health Administration (Cal/OSHA). Alternative methods of sample collection and analysis, with equivalent limits of detection, may be used at the option of the Contractor.

The airborne metals exposure, outside either the containment system or work areas, shall not exceed the lower of either: (1) 10 percent of the Action Level specified for lead by Section 1532.1, "Lead," of the Construction Safety Orders, or (2) 10 percent of the appropriate PELs specified for other metals by Cal/OSHA.

The air samples shall be collected at least once per week during progress of work that disturbs the existing paint system. All air samples shall be analyzed within 48 hours at a facility accredited by the Environmental Lead Laboratory Accreditation Program of the American Industrial Hygiene Association (AIHA). When corrective action is recommended by the CIH, additional samples may be required by the Engineer to be taken, at the Contractor's expense.

Soil samples shall be collected prior to the start of work, and collected within 36 hours following completion of cleaning operations of existing steel. Where the cleaning operations extend over large areas of soil or many separate areas of soil at each bridge site, the samples shall be collected at various times during the contract when determined by the Engineer. A soil sample shall consist of 5 plugs, each 19 mm {3/4 inch} in diameter and 13 mm {1/2 inch} deep, taken at each corner and center of a one square meter {1.2 square yard} area. Soil samples shall be analyzed for [listed contaminants] in conformance with Method 3050 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846 published by the United States Environmental Protection Agency.

There shall be no increase in the concentrations of heavy metal in the soil in the area affected when the existing paint system is disturbed. When soil sampling, after completion of work that disturbs the existing paint system, shows an increase in the concentrations of heavy metal, the area affected shall be cleaned and re-sampled at the Contractor's

expense until soil sampling and testing shows concentrations of heavy metal less than or equal to the concentrations collected prior to the start of work.

In areas where there is no exposed soil, there shall be no visible increase in the concentrations of heavy metal on the area affected when the existing paint system is disturbed. Any visible increase in the concentrations of heavy metal, after completion of work that disturbs the existing paint system, shall be removed at the Contractor's expense.

Air and soil sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH, shall be submitted to the Engineer. The results shall be submitted both verbally within 48 hours after sampling and in writing with a copy to the Contractor, within 5 days after sampling. Sample analysis reports shall be prepared by the CIH as follows:

A. For both air and soil sample laboratory analysis results, the date and location of sample collection, sample number, contract number, bridge number, full name of the structure as shown on the contract plans, and District-County-Route-Kilometer Post {Post mile} will be required.

B. For air sample laboratory analysis results, the following will be required:

1. List of emission control measures in place when air samples were taken.
2. Air sample results shall be compared to the appropriate PELs.
3. Chain of custody forms.
4. Corrective action recommended by the CIH to ensure airborne metals exposure, outside either the containment system or work areas, is within specified limits.

C. For soil sample laboratory analysis results, the concentrations of heavy metal expressed as parts per million will be required.

#### **Containment System**

At the option of the Contractor, the containment system shall consist of either (1) a ventilated containment structure, (2) vacuum shrouded surface preparation equipment and drapes, tarps, or other materials, or (3) an equivalent containment system. The containment system shall contain all water, resulting debris, and visible dust produced when the existing paint system is disturbed.

For bridges over water, the containment system shall include a skimming boom consisting of a float with a skirt to collect floating debris.

Modify clearances to agree with approved available dimensions.

Containment systems shall provide the clearances specified under "Maintaining Traffic" of these special provisions, except that when no clearances are specified a vertical clearance of 10.5 feet above invert of the Pacoima Wash Diversion Channel. 4.6 m {15 feet} and a horizontal clearance of 9.8 m {32 feet} shall be provided for the passage of public traffic. Falsework or supports for the ventilated containment structure shall not extend below the vertical clearance level nor to the ground line at locations within the roadbed.

Negative air pressure shall be employed within the ventilated containment structure and will be verified by visual methods by observing the concave nature of the containment materials while taking into account wind effects or by using smoke or other visible means to observe airflow. The input airflow shall be properly balanced with the exhaust capacity throughout the range of operations. The exhaust airflow of the ventilation system in the ventilated containment structure shall be forced into dust collectors (wet or dry) or bag houses.

#### **Protective Work Clothing and Hygiene Facilities**

Wherever there is exposure or possible exposure to heavy metals or silica dust at the bridge site, the Contractor shall, for City State personnel: (1) furnish, clean, and replace protective work clothing and (2) provide access to hygiene facilities. The furnishing, cleaning, and replacement of protective work clothing and providing access to hygiene facilities shall conform to the provisions of subsections (g), "Protective work clothing and equipment," and (i), "Hygiene facilities and practices," of Section 1532.1, "Lead," of the Construction Safety Orders, and will be required for no more than 3 people.

*The protective work clothing and access to hygiene facilities shall be provided during exposure or possible exposure to heavy metals or silica dust at the bridge site and during the application of the undercoats of paint. Protective work clothing and hygiene facilities shall be inspected and approved by the Engineer before being used by City/State personnel. The protective work clothing shall remain the property of the Contractor at the completion of the contract.*

**BRIDGE REMOVAL (Partial text)**

*Removing bridges or portions of bridges shall conform to the provisions in Section 15-4, "Bridge Removal," of the Standard Specifications and these special provisions.*

*Bridge removal (portion) for the bridge (State Bridge No. 53C-1152) shall include, but not limited to the following as shown on the plans:*

*Removing existing horizontal cable restrainers, and steel anchorage plates, bolts and nuts on abutment concrete seats*

*The paint system on the existing steel girders and cross-frames consists of lead.*

*Removed materials that are not to be salvaged or used in the reconstruction shall become the property of the Contractor and shall be disposed of in conformance with the provisions in subsection 300-1.3, "Removal and Disposal of Materials," of the Standard Specifications for Public Works Construction and the Additions and Amendments.7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.*

*The Contractor shall submit a complete bridge removal plan to the Engineer for each bridge listed above, detailing procedures, sequences, and all features required to perform the removal in a safe and controlled manner. The bridge removal plan shall include, but not be limited to the following:*

- A. The removal sequence, including staging of removal operations.*
- B. Equipment locations on the structure during removal operations.*
- C. Temporary support shoring or temporary bracing.*
- D. Locations where work is to be performed over traffic, utilities, or railroad property.*
- E. Details, locations, and types of protective covers to be used.*
- F. Measures to assure that people, property, utilities, and improvements will not be endangered.*
- G. Details and measures for preventing material, equipment, and debris from falling onto public traffic, channel, or railroad property.*

*When protective covers are required for removal of portions of a bridge, or when superstructure removal works on bridges are involved, the Contractor shall submit working drawings, with design calculations, to the Engineer for the proposed bridge removal plan, and the bridge removal plan shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California. The design calculations shall be adequate to demonstrate the stability of the structure during all stages of the removal operations. Calculations shall be provided for each stage of bridge removal and shall include dead and live load values assumed in the design of protective covers. At a minimum, a stage will be considered to be removal of the deck, the soffit, or the girders, in any span; or walls, bent caps, or columns at support locations.*

*Temporary support shoring, temporary bracing, and protective covers, as required, shall be designed and constructed in conformance with the provisions in Section 51-1.06, "Falsework," of the Standard Specifications and these special provisions.*

**SCEHSC-2:** LBP removal requirements and risks to human health are well known and disclosed in the EIR/EA. The EIR/EA indicates that removal of LBP would be completed in accordance with all applicable federal and state laws and that such conditions will be included in the contract documents including oversight by a CIH. Prior to demolition of the bridge, bridge covering materials will be tested by a field engineer, and if such materials are determined to contain lead or lead-based compounds, such materials will be handled and disposed of in accordance with applicable regulatory procedures. See also response to SCEHSC-1.

**SCEHSC-3:** Protection of construction workers from exposure to LBP (and other hazardous compounds) is governed by Occupational Safety and Health Administration's (OSHA) Lead Standards, both General Industry and Construction, the Construction Standard (29 CFR 1926.62) and/or the General Industry Standard (29 CFR 1910.1025). As stated in

Section 2.2.2.3 of the EIR/EA, all applicable protective measures will be followed during bridge removal and construction activities. These requirements will be incorporated into the construction bid specifications. It should also be noted that materials covering the new bridge will not contain lead-based compounds; therefore, they will not pose a future hazard to bridge maintenance workers.

**SCEHSC-4:** Worker exposure to LBP during bridge demolition would not constitute, in and of itself, a significant adverse environmental impact requiring preparation of an EIS, particularly when applicable standard industry protective measures are considered. Those protective measures would provide adequate protection from such exposure, in conformance with applicable state and federal laws. In the case of the Gerald Desmond Bridge Replacement Project, the EIR/EA analyzed this issue and concluded that the impact will be less than significant so long as the requirements of all applicable laws are met. Please see also the response to NRDC-2, and SCEHSC-2, -3.

**SCEHSC-5:** As described in the EIR/EA (see Section 2.2.1.3), none of the Build Alternatives would require construction activities resulting in dredge or fill within the waters of the Back Channel; therefore, a CWA Section 404 permit from USACE is not required. Moreover, no dredged or fill materials will be placed into the water below the bridge. In addition, as referenced in the cited EIR/EA section, the potential for construction debris to affect waters below the bridge is acknowledged and is addressed. Contract specifications (see the response to SCEHSC-1 under “*containment*”) will require that all work that potentially disturbs the paint system be conducted so as to contain all water, resulting debris, and visible dust produced, and prevent such material from entering the surface waters beneath the bridge. A site-specific SWPPP will be implemented that will include appropriate construction site BMPs to ensure that no water quality standards or WDRs are violated. The SWPPP will address the following: erosion and sediment control, non-stormwater management, post-construction stormwater management, waste management and disposal, maintenance and repair of BMPs, employee training to perform inspections of BMPs at the project site, and an SAP for contaminated stormwater runoff. The SWPPP will describe the structural and non-structural BMPs to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind. During demolition of the bridge, debris netting will be installed to capture material or debris that could fall from the bridge. There is also a list of additional BMPs that will be implemented to prevent debris from entering the surface water, sited in EIR/EA Section 2.2.1.3.

**SCEHSC-6:** Caltrans and the Port acknowledge the potential serious adverse health effects associated with exposure to lead and, potentially, chromate. Reference to such hazards are discussed in EIR/EA Section 2.2.3.3 where it is noted that buildings subject to demolition and the existing bridge may contain ACMs and LBP. The level of hazard is well understood, and accepted industry construction standards will be implemented as required by law to protect workers and the public from exposure to materials such as these and others that may be encountered during construction activities. As is noted in mitigation measures HM-1 through HM-8, the Port is required to and will investigate, identify, and manage hazardous materials encountered during construction of the proposed bridge project and demolition of the existing bridge. All required protective measures will be implemented in accordance with all applicable state and federal laws governing construction activities. Moreover, the standards and requirements in these laws were developed in response to the type of research cited in the comment. Regarding chromate, this compound was typically used on aircraft, not bridges, beginning in the late 1960s because of its high cost. Because the Gerald Desmond Bridge was completed in 1968, it is possible that chromate may be in the LBP used on the bridge. Mitigation measure HM-7 will result in a plan to address LBP and chromate, should either material be discovered in the course of field testing. (Please also see the responses to comment SCEHSC-3 and SCEHSC-8 below.) It should also be noted that in response to this comment, mitigation measure HM-4 was modified to include LBP screening in addition to screening for ACM. The requirement for LBP screening was discussed in the

text in Section 2.2.3.3, but it was inadvertently excluded from the text of HM-4. Revised text for measure HM-4 is provided below.

**HM-4:** The Port shall conduct a survey to screen for ACMs and LBP in all affected buildings and the bridge prior to any demolition activities. Identification of locations of buildings or structures containing ACMs and LBP will be clearly identified on the construction plans and incorporated into the project safety plan and hazardous waste management plan. Any disturbance/demolition of structures containing ACM or LBP will be completed in accordance with the contract specifications and all State, federal, and local laws and regulations.

**SCEHSC-7:** All of the regulations noted in Table 1 of the comment are referenced or discussed in Section 2.2.3.1. As is noted in EIR/EA Section 2.2.3.4, under mitigation measure HM-7, the construction contractor will be required to submit a Lead Compliance Plan, in accordance with CCR Title 8 Section 1532.1. This plan, and other contract specifications consistent with those provided in SCEHSC-1, will require the contractor to implement measures to demonstrate adherence to all applicable state and federal regulations for the handling, transportation, and disposal of lead, including the OSHA regulation cited in the comment.

**SCEHSC-8:** Caltrans and the Port acknowledge that the task of removing LBP, as well as other work associated with construction of the new bridge and the demolition of the existing bridge, involves potential exposure to hazardous materials and conditions. Accordingly, through the contract specifications that will apply to the project, the Port will require the contractor to comply with all applicable state and federal laws regarding worker and worksite safety. Regulations authored by the federal OSHA, which has a cooperative agreement with Cal-OSHA regarding occupational lead handling, among others, would apply to the bridge project construction practices. Reference to OSHA's *Pocket Guide for the Construction Industry* (Construction Safety Orders, Article 4. Dust, Fumes, Mists, Vapors and Gases, section 1532.1 - Lead; updated - July 9, 2007 [CSO]), reveals the following summarized requirements:

1. Before engaging in any work during which an employee may be exposed to lead, the employer must be thoroughly knowledgeable about the requirements of CSO 1532.1.
2. For each jobsite, the lead hazard must be assessed [1532.1(d)(1)].
3. Where lead is present, the following is required:
  - a. Lead dust must be controlled by high efficiency particulate air (HEPA) vacuuming, wet cleanup, or other effective methods [1532.1(h)].
  - b. Workers must be provided with washing facilities that are supplied with soap and clean water [1532.1(i)].
  - c. Workers must receive appropriate training [1532.1(l)].
  - d. The employer must implement a written compliance program to ensure control of hazardous lead exposures. [1532.1(e)].
  - e. The employer must provide the worker with and require the use of appropriate PPE [1532.1(e),(g)].

The CSO goes on to specify allowable exposure limits, describe "trigger tasks" that are identified as highly hazardous (as a result of their likelihood to create airborne exposure), describe the type of PPE that is required to be available and used, provides the text and posting requirements to identify the hazard, and other applicable requirements. Regulatory guidance for the management of all hazardous materials likely to be encountered during project construction and demolition activities, such as this portion of the CSO, will be made part of the construction specifications made available to the construction industry prior to accepting bids for the work.



- SCEHSC-9:** An offsite location has not been identified at the present time for removal of bridge sections or other components. The availability of such sites varies from time to time; therefore, it would be speculative to suggest that a particular site identified at the present time would be available at the time of construction several years from now. As construction approaches, a suitable site will be identified, and specifications and directives as to how that site would be managed will be prescribed. The decision regarding how bridge sections will be removed and transported offsite for general demolition purposes or purposes more specific to the handling of hazardous materials will be made at a later date when more information is available about a possible offsite location. Appropriate measures to ensure the safety of construction workers and the general public are required by law and will be enforced as part of the construction documents.
- SCEHSC-10:** Please see responses to SCEHSC-1 through SCEHSC-8 for additional information on this subject. As is noted in the response to SCEHSC-1, debris produced when the paint system is disturbed (i.e., wherein LBP is likely to be encountered) must be characterized in the field, temporarily stockpiled in an appropriate location that is separated from the rest of the worksite and is also located away from contact with anyone except certified construction workers, hauled off by a transporter currently registered with the California DTSC using correct manifesting procedures and vehicles displaying current certification of compliance, and then disposed of at an approved Class 1 facility. Appropriately trained and certified personnel, supervised by field engineers, will follow the established handling procedures for these and any other hazardous materials encountered during construction.
- SCEHSC-11:** Please see responses to SCEHSC-1 through SCEHSC-8. No additional mitigation is necessary beyond the requirements of applicable laws.
- SCEHSC-12:** Please see response to SCEHSC-2. The Port does not maintain a permanent staff with required technical training for this type of work; therefore, it regularly utilizes the services of outside professionals with specialized expertise to supplement its staff. See Chapter 5 of the EIR/EA for an example of the range of experts utilized by the Port to assist in the preparation of the EIR/EA. As indicated, the Port will utilize the services of an Industrial Hygienist certified in Comprehensive Practice by the ABIH.
- SCEHSC-13:** Because the project is jointly sponsored by the POLB and Caltrans, all applicable federal regulations, such as those referenced in the comment, will be followed.
- SCEHSC-14:** Consistent with 29 CFR 1926.62, contract specifications will require hygiene requirements for workers with the potential to come in contact with LBP dust. Standard requirements are for the contractor to provide disposable work clothes and access to showers. Section (g) of this regulation requires that employers potentially exposing employees to lead must do the following: (1) provide and assure that employees use appropriate protective work clothing (e.g., coveralls, gloves, hats, shoes, disposable coverlets, face shields, vented goggles) that protects the employee's garments at least weekly (daily, if exposure is above a specified level); (2) provide for the cleaning, laundering, and disposal of protective clothing; (3) provide for the repair or replacement of protective clothing; (4) ensure that all protective clothing is removed at the completion of a work shift only in change areas provided for that purpose; (5) assure that contaminated protective clothing is placed in a closed container (appropriately labeled); and (6) inform persons who clean or launder protective clothing of the potentially harmful effects of exposure to lead. 29CFR1926.62 provides comprehensive and thorough regulatory guidance on the management of lead to reduce the possibility of harm to employees and any others who may come in contact to an acceptable level.
- SCEHSC-15:** Lead is a regulated hazardous waste. Removal, handling, and disposal will be governed by the contract special provisions for the project. Such provisions require the contractor to take the following actions when hazardous waste (including lead) is encountered: (1) material shall be tested to determine if concentrations are such to qualify as hazardous waste regulated by the State of California; (2) material shall be transported to and

disposed of at a Class I disposal site, by a properly registered transporter, using a vehicle conforming to current certifications; (3) a Lead Compliance Plan (as referenced in the Standard Specifications) shall be prepared, approved, and followed, involving daily monitoring, analysis of samples, and describing procedures for handling, transporting, and disposal of such material. Any materials containing lead will be handled, stored, and disposed of in accordance with OSHA, RCRA, DTSC, and all other federal and State regulatory requirements. Areas and materials containing lead will be identified and managed in accordance with State and federal law. Quantities and locations of yellow thermoplastic striping and lead paint on the bridge or lead in the soil within the project limits will be delineated on the design plans. The construction engineer will be responsible for ensuring proper handling and disposal by the contractor.

**SCEHSC-16:** Caltrans special provisions regarding paints approved for use in bridge painting contain no LBPs. LBPs are an old method of reducing corrosion and are no longer used by the painting industry or allowed for use by Caltrans. Paint for the new bridge will not contain lead. Similarly, LBP is no longer permitted for use in yellow highway striping. Any new yellow striping will be lead free.

**SCEHSC-17:** As discussed in SCEHSC-1, the Port considers seriously its responsibility to comply with all applicable federal and State requirements concerning the management of hazardous waste and the potential adverse public health implications of exposure to such materials. Hazardous waste screening and characterization will be completed prior to construction, and abatement handling and disposal requirements for all hazardous waste, including asbestos and chromates, will be completed in accordance with all State and federal laws. The Port and Caltrans regularly encounter these issues on projects; therefore, they have long-standing experience with them, as evidenced by the example of the detail shown in the example contract specification in SCEHSC-1. For all hazardous waste encountered during the project, including chromates and LBP, a general requirement to comply with all applicable State and federal laws will be referenced in the CEQA-required MMRP, and the compliance details themselves will be incorporated into the contract specifications governing construction of the project.

## **Responses to Comments from Industry and Business**

**American Council of Engineering Companies, Dated 2/18/2010**

**ACEC:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Future Ports, Dated 3/22/2010**

**FP(A)-1:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**FP(A)-2:** Decisions regarding sources of construction materials or locations for debris hauling and disposal, including potentially contaminated water, soil, and other construction materials will be determined by the contractor as part of the contracting process and in accordance federal and State laws and local regulations; however, minimizing unnecessary travel distance is an objective that is shared by the Port and will be reflected in the bidding process.

**FP(A)-3:** As discussed in EIR/EA Section 2.1.4, recycling of construction materials will be managed consistent with the City of Long Beach Construction and Demolition Program. The contractor for the project will be required to complete/implement a waste management plan in accordance with the City of Long Beach Ordinance (Municipal Code Chapter 18.97) requiring certain demolition and/or construction projects to divert at least 60 percent of waste either through recycling, salvage, or deconstruction. Recycling of usable materials is an objective shared by the City and the Port.

**FP(A)-4:** The contractor will determine where materials will be recycled based on the construction bid process.

**FP(A)-5:** The section that is referenced in the comment is a discussion of the existing or affected environment for purposes of the air quality analysis. The Environmental Consequences section includes a discussion and data about the type of emissions considered, including PM exhaust emissions, and brake wear and re-entrained road dust, which include copper and zinc as byproducts. The amounts expected from the added capacity provided by the new bridge would be approximately 8 ounces per year for each element, or approximately 0.03 ounces per day. When compared to baseline conditions (21 pounds per year for copper and 8 pounds per year for zinc), the project-related contributions would be on the order of 2.4 percent and 6.2 percent, respectively. Control of materials resulting from tire and brake wear is within the purview of federal (EPA) and state (CARB) regulators; the proposed bridge replacement project is not capable of influencing the localized production of those elements. A portion of the copper and zinc would be deposited on the roadway surface. As is acknowledged in EIR/EA Section 2.2.1.3, runoff that would contain these materials would flow along gutters toward the ends of the bridge and discharged into biofiltration swales and media filters, prior to entering the storm drain system. This will prevent some (and perhaps most) of the deposited copper and zinc from entering surface waters beneath the bridge.

In addition, the referenced section includes a discussion about the general impact of the CAAP in reducing all air pollutants, but it does not discuss the impact on individual pollutants. A separate section under the "Local Plans and Regulations" provides a brief description of the CAAP and its impact on improving air quality in the Port region.

**FP(A)-6:** The comment requests an Accident and Terrorist Assessment of the preferred alternative. As discussed in Section 2.2.4.2 of the EIR/EA, an Accident and Terrorist Vulnerability Study is required if one of the Bridge Replacement Alternatives is selected. This requirement has been imposed as mitigation measure HS-1.

**FP(A)-7:** The referenced Measure GHG-1 addresses mitigation for project-level GHG emissions. The GHG emissions were calculated using the projected traffic conditions for project alternatives (including No-Action Alternative). The analysis used all relevant traffic information (i.e., VMT, average speed, emission factors) for passenger car and truck

traffic on each segment of the project corridor and summed to estimate the project corridor emissions. Furthermore, as the traffic data presented in Tables 2.2.5-11 and 2.2.5-12 of the Draft EIR/EA show, the truck volumes for Bridge Replacement Alternatives, compared to the No-Action Alternative, would increase in some segments and decrease in other segments within the project corridor. As such, the results are based on an adequate analysis of the GHG emissions for project alternatives

**FP(A)-8:** As discussed in Section 2.2.2 of the EIR/EA, the Bridge Replacement Alternatives will be designed to withstand the Safety Evaluation Earthquake with only minor damage so that the bridge could be returned to service within weeks. No substantial damage to the bridge from a tsunami is anticipated, based on 2007 Port studies. Finally, structure protection and security measures recommended in the Accident and Terrorist vulnerability study will be implemented to minimize both the likelihood and potential for damage of such events.

**FP(A)-9** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Harbor Association of Industry & Commerce, Dated 3/11/2010**

**HAIC:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Harbor Truckers for a Sustainable Future, Dated 2/24/2010**

**HTFSF:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Intermodal Association of North America, Dated 4/16/2010**

**IANA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Long Beach Generation LLC, Dated 3/22/2010**

**LBG-1:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners. Responses to detailed comments are provided below.

**LBG-2:** The EIR/EA has compared the three Build Alternatives and the No Build Alternative and has concluded: (1) the No Build Alternative does not satisfy the project purpose and need; (2) the North-side and South-side Alignment Alternatives, when compared with the Rehabilitation Alternative, better satisfy the project purpose and need because they better provide for future traffic demand; (3) the environmental effects associated with the North-side and South-side Alignment Alternatives (both during construction and operation) are reasonably equivalent; and (4) the North-side Alignment Alternative is more cost effective than the South-side Alignment Alternative. Accordingly, the North-side Alignment Alternative has been selected as the preferred alternative for purposes of the environmental review. Recognizing that this choice has consequences for several owners of private property (including Long Beach Generation), each affected property owner will be consulted if the Board of Harbor Commissioners approves the North-side Alignment Alternative, and as final design information becomes available, regarding the details of the required acquisition and associated mitigation measures that may be applied to each site-specific circumstance.

**LBG-3:** The elevation of the new Gerald Desmond Bridge, as well as of the associated roadway connectors (near the LBGS Units) will be higher than the elevation of the LBGS inlet facilities; thus, pollutants from the vehicular traffic on the new Gerald Desmond Bridge will be emitted at higher elevations than the inlet facilities of the LBGS Units; therefore, it is expected that increase in pollutant concentrations at the inlet facilities of the LBGS Units from vehicular traffic on the new Gerald Desmond Bridge would be minimal. In addition, filtration systems provided as part of the inlet facilities, and other pollution

control systems installed at the LBGS will further reduce emissions at the LBGS stacks. Thus, minimal increase in pollutant concentrations at LBGS inlet facilities from vehicular traffic on the new Gerald Desmond Bridge is not expected to create any problems in meeting the LBGS facility Title V permit conditions (emission-related conditions). It is also anticipated that truck emissions will be declining over time as a result of implementation of the Port's CTP.

**LBG-4:** In 2003, Long Beach Generation raised this same comment during the scoping process for the first Draft EIR/EA. In response, an HRA was conducted by ENVIRON, an air quality consultant (*Draft EIR/EA: Gerald Desmond Bridge Replacement Project - Appendix B*; June 2004). This HRA was conducted following the detailed risk assessment techniques prescribed by SCAQMD for Rules 1401 and 212 for acute exposure. Atmospheric dispersion modeling was conducted to determine the maximum 1-hour concentration of TACs from the facility based on generally accepted modeling practices and modeling guidelines from EPA and SCAQMD, using the ISCT3 dispersion model. Both carcinogenic and non-carcinogenic compounds were identified, emanating from the facility's seven combustion turbine generators, emitted through five individual stacks. A fine grid of receptors was selected for evaluation, representing persons traveling on the bridge. A row of receptors was placed along the closest edge of the bridge to the facility and two others were placed next to the first row to represent two additional traffic lanes. These data were inputted to the CAPCOA AB2588 model; this model provides conservative algorithms to predict relative health risks from exposure to carcinogenic and chronic/acute non-carcinogenic compounds; acute non-carcinogenic compounds were used for the analysis. The results of the above procedure indicated that the maximum total acute hazard index was estimated to be 0.0043 for the respiratory endpoint. This is well below the established significance threshold value of 1.0; therefore, it was concluded that acute health effects from the LBGS facility would not result in adverse acute health effects for travelers along the proposed new bridge.

**Los Angeles County Business Federation, Dated 4/7/2010**

**LCBF:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**The Los Angeles Customs Brokers & Freight Forwarders Association Inc., Dated 3/11/2010**

**LACB&FFA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Mobility 21, Dated 3/17/2010**

**M21-1:** The Port acknowledges and concurs with the comment that implementation of this key project will advance the goals and objectives of the Multi County Goods Movement Action Plan (MCGMAP).

**M21-2:** As the project moves forward into the design and construction stages, continued coordination with the public and all stakeholders regarding project schedule and status including, but not limited to, major construction activities and construction detours, will be conducted.

**M21-3:** The EIR/EA provides comprehensive disclosure and analysis of the direct, indirect, and cumulative impacts of the proposed project and incorporates all feasible mitigation measures to avoid or substantially reduce potential project effects. The proposed project would have no substantial impacts and supports the goals and objective identified in the MCGMAP.

**National Retail Federation, Dated 3/22/2010**

**NRF-1:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Plains West Coast Terminals, Dated 3/11/2010**

- PWCT-1:** Plains West Coast Terminals, LLC (PWCT) will be added to the Port's distribution list for the project, and all correspondence will be sent to Mr. Thomas J. McLane at 5900 Cherry Avenue, Long Beach, CA 90805-4408.
- PWCT-2:** All references to the subject property at 2685 Pier S Lane will be revised in the document from Pacific Pipeline System, LLC to PWCT.
- PWCT-3:** Although not specifically referenced in the EIR/EA, the BP lines 82, 83, and 95 are included in the utility plans for the project. Line 95 is a 42-in. oil line owned by ConocoPhillips and operated by BP. Lines 82 and 83 are currently not in direct conflict with the alignment for the preferred alternative. Line 95 is included within utility plans; however, potential impacts to this line and the need to relocate or protect the line in place is still being determined. The utility identification process is ongoing, and the Port will work with PWCT during the design phase of the project to ensure that all utilities potentially affected by the project have been identified, located, and either relocated or protected in place.
- PWCT-4:**
- a.** Based on a review of the project reference drawings and plans, no information is available regarding an existing 30-in. water main on the north side of the existing bridge; however, there is a 24-in. Long Beach Water District (LBWD) line in Pier T Avenue south of Ocean Boulevard and the Gerald Desmond Bridge. The 24-in. LBWD line has a 16-in. branch that goes north towards NRG and the Plains tank farm. The 16-in. LBWD line is just east of the existing BP lines 82 and 83. The 24-in. LBWD water main and the 16-in. branch line are not in direct conflict with the alignment for the preferred alternative. The utility identification process is ongoing, and the Port will work with PWCT during the design phase of the project to ensure that all utilities potentially affected by the project have been identified, located, and either relocated or protected in place.
  - b.** Based on a review of the project reference drawings and plans, the existing firewater line at the cooling water intake structure is outside of the project area and is not in direct conflict with the alignment for the preferred alternative.
- PWCT-5:** Please see the response to comment LBG-2, above, for the rationale supporting the identification of the North-side Alignment Alternative as the preferred bridge alignment for purposes of completing the environmental review. Your comments regarding the alternatives will be transmitted to the Board of Harbor Commissioners for consideration in assessing the various alternatives. Responses to detailed sub-comments are provided below.
- a, b, c.** Clearly one of the highest priorities for the project will be to provide adequate protection from a potential terrorist attack. As is noted in the EIR/EA (Section 2.2.4.2), an analysis of accident and terrorist vulnerability for the new bridge has been recommended by the Gerald Desmond Bridge TAP and mitigation measure HS-1 requires initiation of an Accident and Terrorist Vulnerability Assessment and incorporation of recommendations during final design. This study will address such topics as anti-terrorist design modifications, security and hardening measures, security systems, etc. The Port acknowledges that your site contains facilities that could be particularly susceptible to harm and potentially serious consequences, including the potential for interaction among the crude oil, natural gas, and high-voltage lines identified in the comment. If the North-side Alignment Alternative is approved by the decision makers, the design team will meet with you during the final design process to obtain more details about your onsite facilities to be sure that the Accident and Terrorist Vulnerability Assess appropriately reflects the potential risks to your facilities and adequate means of protection is incorporated into the bridge design such that the potential for off-bridge consequences is minimized.
  - d.** The extreme earthquake referenced in the comment that could result in catastrophic collapse is purely speculative. Though no one can state with certainty that any particular structure will never collapse, adherence to such stringent design criteria described below



is deemed adequate by the State of California for all bridges, whether in close proximity to another structure or not.

The proposed bridge structure will be designed in accordance with established criteria for two levels of earthquake: (1) the lower intensity “functional evaluation earthquake” – a reasonable earthquake for which the bridges should behave elastically and not sustain any damage, and: (2) a maximum intensity “safety evaluation earthquake,” for which the bridge should not collapse. This earthquake is called by Caltrans the “Maximum Credible Earthquake” and is defined by the maximum envelope of two calculations:

- The largest earthquake with a probability of 95 percent of not being exceeded in 50 years, which is equivalent to a probable return period of 975 years, based on the record of past earthquakes from different sources.
- The largest physically plausible earthquake based on nearby subsurface fault rupture geometry based on established known active faults.

The performance criteria established for the project go beyond those required for ordinary bridges by further limiting the level of accepted damage under the maximum earthquake condition. The California Highway Design Manual states that the minimum lateral clearance from a building to an elevated structure is 15 ft (Art. 309.4).

It should also be noted that the design of the new bridge exceeds all State and federal SDC for bridges and uses state-of-the-art modeling techniques. It is unlikely that the referenced facilities would even withstand such a large quake, and thus analysis of collapse on the referenced facilities also is purely speculative.

e. Please see the response to comment LBG-2, above, for the rationale supporting the selection of the North-side Alignment Alternative as the preferred bridge alignment to move forward into final design if approved by the Board of Harbor Commissioners. The commenter’s preference for the South-side Alignment Alternative will be presented to the Board.

**PWCT-6:** Based on the current utility files for the project, the two 24-in. Plains lines are not within the Gerald Desmond Bridge Replacement Project area; however additional plans were previously requested from PWCT for facilities around the Plains tank farm to update the files as necessary, but PWCT has not yet provided the requested files. As coordination with SCE on the transmission line relocation progresses, additional utilities may be identified for relocation including, but not limited to, the two referenced 24-in. pipelines. If necessary and when appropriate, the lines will be included for SCE layout and planning of potential relocations. Any relocation need or potential project effect on these lines will be coordinated with PWCT and SCE during the final design phase of the project.

**Port Petroleum Inc., Dated 3/17/2010**

**PP-1:** The comment is acknowledged; a detailed response is provided below.

**PP-2:** If the North-side Alignment Alternative is approved by the Board of Harbor Commissioners, the Port and Caltrans will be developing the project in much more detail; however, during development of the current geometric designs, alternative ramp alignments/locations were considered. Some of the alternative concepts considered included similar configurations/locations to those suggested in the comment. These alternative configurations were dropped from further consideration because of the extensive conflicts with existing and planned rail and local roads, including Pier D Street and Pico Boulevard. The design of the loop ramp was developed as shown in the preliminary plans because it: (1) was able to meet Caltrans Design Standards, providing sufficient length to allow for a standard roadway profile, with an acceptable ascending slope (6 percent) necessary to gain elevation from Pico Avenue to join the proposed SB to WB elevated freeway ramp (SB to EB connector); and (2) minimizes ROW conflicts and impacts on existing and planned Port operations and local and regional circulation.

Additional discussion regarding major conflicts with the referenced Options 1 through 3 is provided below.

- Option 1: The first option conflicts with existing and proposed rail, as well as the intersection spacing of the realigned entrance ramp and Pier D Street.
- Option 2: The second option of extending ramp to the existing ramp presents design issues due to the 60-ft elevation difference between the existing entrance ramp and the proposed elevated freeway connector ramp, as well as the requirement to clear the realigned Broadway Street.
- Option 3: The third option includes similar conflicts with existing and proposed rail as Option 1. This option would also present additional conflicts with the existing SR 710, Channel 3, and the proposed I-710 project.

The Port will continue to coordinate with Port Petroleum and all affected tenants/property owners during the final design phase. As identified during final design and through continued coordination with affected tenants/property owners, the Port will consider minor refinements in the project that could reduce costs and minimize the need for property acquisition/relocations.

**Retail Industry Leaders Association, Dated 3/22/2010**

**RILA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Southern California Edison, Dated 3/22/2010**

**SCE-1:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners; detailed responses are provided below.

**SCE-2:** If the project is approved, additional coordination between Caltrans, the Port, and SCE will occur during the final design phase of the project to resolve issues associated with the relocation of the 220-kV line.

**SCE-3:** The project would require relocation of many utilities within the project area, not all of which are shown on figures or discussed specifically within the EIR/EA; however, all requirements will be known during the design phase of the project and all utilities affected by the construction or operation of the preferred alternative will require relocation or protection in place. Utility coordination is an iterative process, completed throughout the project development and design phases. The Port will continue to work with SCE to identify utility relocation requirements including, but not limited to, the 66-kV line referenced in the comment. A summary of the utility coordination with SCE is provided below.

All SCE overhead and underground facilities have been added to the project utility plans based on reference drawings for SCE facilities provided to the Port by SCE on 5/23/07, 2/10/09, and 3/12/09.

The Port then provided SCE with electronic files containing all existing SCE facilities, existing topography, aerial photography, existing utilities, and layout for the preferred alternative, including location of the foundations, profiles, connectors, and ramps. The files were submitted to SCE in November 2009, and updated files were submitted in February 2010.

**Waterfront Coalition, Dated 2/16/2010**

**WC:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

## **Responses to Comments from Individuals**

**David J. Barboza, Dated 3/16/2010**

**DB:** Please see responses to LBDS-3 through LBDS-8.

**Nicole Bissonnette, Dated 3/18/2010**

**NB-1:** As described in the EIR/EA, the existing bridge is currently heavily congested and will only become more so in the future. This congestion has resulted in a diversion of traffic in the project vicinity from Ocean Boulevard to other parallel routes in the area. Subsequent to construction of the new bridge, the traffic would likely remain on Ocean Boulevard to gain access to SR 710 instead of diverting to other local roads. Based on the POLB Traffic Model, it was estimated that completion of the bridge replacement project would result in a 2.2-minute reduction in travel time for motorists within the project area.

**NB-2:** The existing bridge, although it needs to be replaced or rehabilitated, is currently safe for use by the traveling public. As described in the EIR/EA, the Gerald Desmond Bridge underwent a partial seismic retrofit in 1993, and it is regularly inspected for structural safety. The preferred alternative would be designed to withstand a major seismic event with only minor damage allowed so that the bridge could be returned to service within weeks. Please also see also response to FP(A)-8.

**Mercedes Broughton, Dated 3/1/2010**

**MB:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Sue Castillo, Dated 3/18/2010**

**SC:** Please see responses to LBDS-3 through LBDS-8.

**Robert Curtis, Dated 3/4/2010**

**RC-1:** Please see responses to LBDS-3 through LBDS-8.

**RC-2:** Thank you for your suggestion regarding energy savings. During the final design process, measures to reduce energy consumption will be considered for inclusion in the bridge's design and operation.

**Gerard T. Desmond, Dated 3/4/2010**

**GD:** At this time, it has not been determined whether the new bridge would retain its existing name if it is replaced or realigned.

**Alexis M. Dragoon, Dated 3/1/2010**

**AD:** The architectural design was completed by the Danish firm of Dissing & Weitling.

**Drew, Dated 3/10/2010**

**D-1:** Your comment is acknowledged; detailed responses are provided below.

**D-2:** Please see responses to LBDS-3 through LBDS-8.

**D-3:** Access for bicycles will be maintained as noted in the comment. As shown in the EIR/EA (see Exhibit 2.1.5-13), continued access for bicycles on Ocean Boulevard presents a complex set of safety issues that require the seemingly circuitous route. Safety issues with continuous EB and WB bicycle access along Ocean Boulevard are discussed below:

For WB Ocean Boulevard, on the west side of the Los Angeles River, 5 percent grades begin and continue to the crest of the bridge. The incline will result in reduced speeds for cyclists until reaching the crest of the bridge. Approximately 1,500 ft west of the Los Angeles River, the SR 710 connector and the Pico Avenue on-ramp will join Ocean

Boulevard. Continuous access would require cyclists to merge across three lanes, on a 5 percent incline, to reach the 10-ft-wide shoulder. By having cyclists access the new bridge from the Pico Avenue on-ramp, they can remain within the shoulder the entire length of the bridge and eliminate merging across three lanes of high-speed traffic.

For EB Ocean Boulevard, continuous access in the EB direction would be the same, but in the reverse direction. For a cyclist to continue on Ocean Boulevard across the Los Angeles River, the cyclist would be required to merge from the shoulder across three lanes of traffic to reach the ramp to Ocean Boulevard. By having cyclists continue on Ocean Boulevard by first exiting on the Pico Avenue off-ramp, they can remain within the shoulder the entire way across the bridge and eliminate merging through three lanes of high-speed traffic.

**D-4:** Please see response to D-3.

**Ken Fredrickson, Dated 3/21/2010**

**KF(A):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Jane Kelleher, Dated 2/26/2010**

**JK-1:** As described in the EIR/EA (see Section 1.1.2.2), neither the No Build nor Rehabilitation Alternatives would provide the additional capacity that is needed to accommodate expected future demand.

**JK-2:** As described in EIR/EA Section 1.1.1.2.2 and Table 1-1, only 38 percent of all traffic using the existing bridge in 2005 had an origin or destination within the Ports of Long Beach or Los Angeles; 25 percent of daily traffic was trucks. By the year 2030, the proportion of trucks is forecast to grow to 44 percent of daily traffic using the bridge irrespective of whether the bridge is replaced. Both of the San Pedro Bay Ports are engaged in long-term planning and projects that will result in a greater modal shift of goods from trucks to rail, thereby reducing the number of trucks used to haul containers and increasing goods movement efficiency; however, trucks will remain an important component of goods movement. As described in CSE-15, it is not currently feasible to ship the 40 percent goods destined for the local region via rail for financial and operational reasons. Furthermore, it should be noted that although the bridge is forecast to convey a large number of trucks, 39 percent of traffic forecast for year 2030 is expected to be regional trips with neither an origin nor destination on Terminal Island.

**JK-3:** See response to JK-2. Both Ports are pursuing long-term planning and projects to increase the amount of containers being moved by rail, which would use the Alameda Corridor.

**JK-4:** After bridge replacement, larger ships would be able to pass under the bridge; however, the Back Channel navigational constraints (depth and width) will remain the same, precluding vessels larger than 8,000-8,999 TEUs (see Final EIR/EA Section 2.1.2.3) until such time as those constraints are removed. Replacing the bridge alone would not allow access for the "megacontainer" ships referenced in the comment. Additionally, also described in Section 2.1.2.3, the project would have no measureable impact on Port throughput capacity based upon the characteristics of the terminal areas upstream of the bridge. Regarding pollution associated with truck pollution; all trucks servicing port terminals must meet 2007 emission standards and are estimated to reduce Port-related truck pollution 80 percent by 2012. In addition, the Ports are aggressively working to reduce vessel emissions. In 2006, the Ports of Los Angeles and Long Beach jointly promulgated the *San Pedro Bay Ports Clean Air Action Plan*, which included, among other measures, a Control Measure aimed at reducing at-berth emissions from ocean-going vessels (OGVs). In 2010, a draft update of this plan was prepared and is undergoing review. The above-referenced control measure, identified as OGV2, is included in the draft update. This measure was initiated in 2004, and in 2007 the POLB

installed its first shore-powered berth. More shore-powered berths are programmed for phasing in by 2013. CARB regulation now requires 50 percent of all container, cruise, and reefer vessels to use shore power by 2014. The use of shore power will reduce OGV hotelling emissions of DPM, NO<sub>x</sub>, and SO<sub>x</sub> by 95 percent per vessel call. CARB regulation requiring cleaner fuels in OGV will reduce the referenced bunker pollution even further.

**JK-5:** Please see response to JK-2.

**JK-6:** As discussed in JK-2, the Bridge Replacement Alternatives will serve Port and non-Port traffic. The commenter did not provide any background information about what was meant by the "electric lanes" suggestion for the bridge. A "Google search" of "electric lanes" revealed no locations or related technology with this name; however, assuming the comment is referencing a future transportation system that uses an advanced car or a modification to existing cars to receive power from an electrified roadway for propulsion, the technology for such a project at this juncture has not been developed to the point that it would be feasible. However, if it were to become feasible in the future, it could certainly be considered for incorporation into the project area. The Port and ACTA are currently assessing similar types of technologies for trains that utilize existing and modified rail infrastructure; however, feasibility for Port application is still being investigated. Please see the response to related comments CSE-14, CSE-15, CSE-28, and NRDC-7 regarding implementation of alternative technologies being considered for use at the Ports.

**Michael J. Meichtry, Dated 3/20/2010**

**MMei:** Please see responses to LBDS-3 through LBDS-8 and D-2 and D-3.

**Jessica Mickelson, Dated 3/1/2010**

**JMi:** Please see responses to LBDS-3 through LBDS-8 and D-2 and D-3.

**Ted J. Olson, Dated 2/26/2010**

**TO:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners

**Andrew Reed, Undated (received 3/19/2010)**

**AR:** Please see responses to D-2 through D-3 and LBDS-3 through LBDS-8.

**Tony Rivera, Dated 2/27/2010**

**TR-1:** The Bridge Replacement Alternatives include three traffic lanes with 10-ft-wide shoulders.

**TR-2:** Caltrans District 7 is the lead federal agency for both the Gerald Desmond Bridge Replacement Project, as well as the I-710 expansion project. Additionally, the Port's engineering staff has been coordinating the Gerald Desmond Bridge Replacement Project design with the PDT for the I-710 expansion project.

**TR -3:** Increases or decreases in container volumes are directly related to the demand (need) for goods at the local, state, regional, and national levels. As described in Final EIR/EA Section 2.1.2.3, the Bridge Replacement Alternatives would have no measureable effect on either the Port's maximum cargo capacity or on projected market demand. The project would not allow the referenced "mega ships" to access terminals in the Inner Harbor (see JK-4 above). Additionally, it should be noted that both Ports committed to modal shifts from truck to rail wherever feasible (see CSE-15d). Please see the response to JK-2 above.

**TR -4:** Please see response to JK-4.

**TR -5:** Please see the responses to comments CSE-14, CSE-15, CSE-28, and NRDC-7. At this time, rail electrification is not economically or functionally feasible to replace diesel locomotives. The Port has several studies underway to further investigate rail electrification.

**Ron Smith, Dated 3/1/2010**

**RS:** Please see the response to similar comments from the City of Long Beach Development Services (LBDS-3 through LBDS-8).

**Bruce D. Sutherland, Dated 3/3/2010**

**BS:** At this time, Caltrans and the Port have determined that bicyclists will not be prohibited from using the proposed bridge; however, as previously discussed, the bridge will be adopted into the SHS, and consistent with CVC Section 21960, Caltrans has the authority to prohibit future bicycle access within the project area. Please see response to similar comments LBDS-3 through LBDS-8 and D-2 and D-3.

**Amy Tingirides, Dated 3/18/201**

**AT-1:** The Port continues to pursue additional funding from various federal, State, regional, and local sources. Some of the programs being considered are various annual federal transportation appropriations, future Metro calls for projects, additional California SHOPP funds, and the deferred 2009 Surface Transportation Authorization Act. Please also see response to CSE-20a.

**AT-2:** The potential use of a public private partnership funding mechanism is being considered for this project.

**AT-3:** The Port has considered other private funding mechanisms for this project, such as tolls and cargo fees. For a variety of technical and commercial reasons, neither of these options has been considered viable. The Port is open to other ideas involving private funding, but no acceptable plan has been proposed to date.

**AT-4:** Regulatory restrictions on public agencies make it difficult for the Port to pursue the method of procurement suggested by the comment. Additionally, the Port studied many alternative types of bridge designs, and the cable-stayed structure type was chosen because it could provide the desired landmark bridge design and was one of the most cost-effective bridge types considered for a bridge of this magnitude. If the proposed project is approved, the Port will investigate other cost-saving possibilities in at least two formal value engineering workshops at prescribed milestones throughout the final design process.

**Marie Trotter, Dated 2/22/2010**

**MT:** As described in EIR/EA Section 1.1.2.2, the need for replacing the Gerald Desmond Bridge is that it is functionally obsolete and seismically deficient. The term "aging" is used to denote that it has exceeded its useful life and can no longer efficiently accommodate either current or forecasted travel demands.

**Jack Volkov III, Dated 2/23/2010**

**JV:** As described in EIR/EA Section 2.1.5.3, the existing bridge will be open to traffic during construction while the new bridge is being constructed. Subsequent to opening the new bridge, the existing Gerald Desmond Bridge will be demolished.

**Brian Wolfe, Dated 3/10/2010**

**BW:** The current architectural design was completed by the Danish firm Dissing & Weitling, which was selected as part of the entire bridge engineering/design team. The Port's consultant team was selected pursuant to a competitive process. In July 2001, the Port



issued a Request For Qualifications for professional services for the Gerald Desmond Bridge Replacement Project, seeking to identify and place under contract a world-class team of consultants. Based on the Port's review, in July 2001, the best-qualified firms/teams were issued a Request for Proposal for outside consulting services for preliminary engineering, environmental documentation, and ROW support services. Four teams from the RFP process were interviewed. The winning team was the Parsons/HNTB Joint Venture team, which included the Danish architectural firm of Dissing & Weitling.

**Kumars Zandparsa, Dated 3/23/2010**

**KZ:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

## **Responses Public Hearing Comments – February 17, 2010**

**Statement on Behalf of Assembly Woman Bonnie Lowenthal, From 2/17/2010 Public Hearing**

**BL:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Port of Los Angeles, From 2/17/2010 Public Hearing**

**POLA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**International Longshore and Warehouse Union Local 63, From 2/17/2010 Public Hearing**

**ILWUL63:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Los Angeles and Orange County Building and Construction Trades Counsel, From 2/17/2010 Public Hearing**

**LA/OCBCTC:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Michael Larison, From 2/17/2010 Public Hearing**

**ML:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners. With regard to the portion of the comment indicating that the project will accommodate future generation vessels at Piers A, S, and T, it should be noted that the existing Back Channel navigational constraints (depth and width) will remain the same, precluding vessels larger than 8,000-8,999 TEUs until such time as those constraints are removed.

**Foreign Trade Association of Southern California, From 2/17/2010 Public Hearing**

**FTASC:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**American Counsel of Engineering Companies, Los Angeles Chapter, From 2/17/2010 Public Hearing**

**LACACEC:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Mark Jurisic, From 2/17/2010 Public Hearing**

**MJ:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Painters and Allied Trades District Counsel 36, From 2/17/2010 Public Hearing**

**PATDC36(A):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**International Brotherhood of Electrical Workers, Los Angeles, From 2/17/2010 Public Hearing**

**IBEWLA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Pacific Merchant Shipping Association, From 2/17/2010 Public Hearing**

**PMSA:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Jane Templin, From 2/17/2010 Public Hearing**

**JTe:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners. Although the Port does support Project Labor Agreements (PLA), as is evidenced by the recently approved PLA for the Port's Middle Harbor Project, applicability and feasibility for PLAs are determined on a project-by-project basis. At this time, it is too early in the project to make any determination if a PLA is a good fit for the Gerald Desmond Bridge Replacement Project. The decision regarding the applicability and use of a PLA for the Gerald Desmond Bridge Replacement Project will be made by the Board of Harbor Commissioners prior to putting the contract out for bid.

**Butterfield Communications, From 2/17/2010 Public Hearing**

**BCOM:** Subsequent to the public hearing, the Port reviewed the Web version of the document, and the section referenced in the comment was found to be included in the Web version. As described in the EIR/EA (see Table 2.1.3-6; page 2-38), at this time it is not anticipated that construction of the preferred alternative would require any permanent acquisition or easements at 1825 Pier D Street; however, the EIR/EA and discussion of potential effects on adjacent properties is based on preliminary engineering design plans, aerial photographs, and field reviews. Locations and numbers of affected properties could change during final design. At this time, the information as presented in the EIR/EA is the best available information regarding potential property acquisition, and size and location of affected parcels. Any changes in final ROW requirements will be coordinated with businesses in the Port as part of the final design phase of the project.

**The Propeller Club of Los Angeles and Long Beach, From 2/17/2010 Public Hearing**

**PCLALB:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

## **Responses Public Hearing Comments – February 24, 2010**

**Statement on Behalf of Congresswoman Laura Richardson, From 2/24/2010 Public Hearing**

**LR(B):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Statement on Behalf of Assemblyman Warren Furutani, From 2/24/2010 Public Hearing**

**WF(B):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Bartlett Patton, From 2/24/2010 Public Hearing**

**BP:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Anthony Wayne Ford, From 2/24/2010 Public Hearing**

**AF:** As is noted in EIR/EA Section 3.2.11.1 at page 3-12, the temporary construction work force is expected to come from the local southern California labor pool.

**John Schafer, From 2/24/2010 Public Hearing**

**JSc:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Painters and Allied Trades District Counsel 36, From 2/24/2010 Public Hearing**

**PATDC36(B):** Please see the response to AF and JTe, above.

**Jesse Marquez, From 2/24/2010 Public Hearing**

**JMa-1:** As is also noted in the response to comment CSE-7a, the bridge is a Port-owned and maintained facility, and Caltrans is not empowered to restrict access to the bridge. Additionally, Caltrans does not have authority to restrict access to vehicles operating lawfully under the California Department of Motor Vehicles code on portions of the SHS, unless it is completed in accordance with Division 15 of the code or, in limited instances, where safety of the traveling public so requires. In addition, the Gerald Desmond Bridge is a designated truck route in the City of Long Beach General Plan Circulation Element, and it is also federally designated as a National Highway System Intermodal Connector Route. The bridge serves a much-needed purpose of providing for conveyance of vehicles, including trucks with origins and destinations within the San Pedro Bay Ports, between the cities of Long Beach and Los Angeles. Restricting truck access to this facility would not benefit the surrounding areas and communities, largely because vehicles (including trucks) needing to gain access to the freeway system (e.g., I-110 and SR 710) would then be required to use local streets, with attendant impacts on local neighborhoods. An orderly means of carrying autos and truck traffic in the Port vicinity to the freeway system and providing sufficient capacity for such traffic, both now and in the future, is necessary to the efficient functioning of the roadway system serving the southernmost portion of Los Angeles County.

Regarding the Bridge Rehabilitation Alternative, as is described in EIR/EA Section 1.6.2, while the seismic stability of the bridge can be improved and its life span increased under this alternative, two deficiencies would accrue to this alternative that would be overcome by either of the Bridge Replacement Alternatives. The rehabilitated bridge would not provide additional carrying capacity, which either of the Bridge Replacement Alternatives would accomplish, and the height of the bridge would remain at its present 156 ft above the MHWL, which would preclude passage of larger container vessels expected to call at the Port in the future. The Rehabilitation Alternative is therefore not designated as preferred.

**JMa-2:** Please see the response to comments CSE-14, CSE-15, CSE-28, and NRDC-7.

**JMa-3:** Please see the response to comment CSE-30.

**JMa-4:** Please see the response to comments JM-1, CSE-14, CSE-15, CSE-28, and NRDC-7

**Mark Mendonga, From 2/24/2010 Public Hearing**

**MMe:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**International Operating Engineers, From 2/24/2010 Public Hearing**

**IOE12:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners. Please see response to JTe.

**Future Ports, From 2/24/2010 Public Hearing**

**FP(B):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Simi McMoore, From 2/24/2010 Public Hearing**

**SM:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**IEBW11, From 2/24/2010 Public Hearing**

**IEBW11:** Please see response to JTe.

**Tyrone Taaga, From 2/24/2010 Public Hearing**

**TT:** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Davis Teofilo, From 2/24/2010 Public Hearing**

**DT:** Please see response to JTe.

**Future Ports, From 2/24/2010 Public Hearing**

**FP(C):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**Ken Fredrickson, From 2/24/2010 Public Hearing**

**KF(B):** Your comments are acknowledged and will be transmitted to the Board of Harbor Commissioners.

**John Sommers, From 2/24/2010 Public Hearing**

**JSo-1:** As discussed in comment BW above, the Port's consultant team was selected through a competitive process to identify and place under contract a world-class team of consultants. The Parsons/HNTB Joint Venture, which included the Danish architectural firm of Dissing & Weitling, was selected by the Port. Being located in the City of Long Beach was not a selection criterion.

Regarding the Port's involvement with local school programs, the Port is involved with and sponsors numerous programs intended to reach out to the educational community. The goal of these efforts is fostering long-term relationships that can yield local talent serving the Port. Among these are the following examples:

- Since 1982 – Business partner with Long Beach Poly's Center for International Commerce;



- Since 1990 – Business partner with Long Beach Poly's Pacific Rim Academy;
- Partner – LBUSD, LBCC, and CSULB for day-long staff development programs focused on international trade careers;
- Staff lecturers at CSULB and LBCC international business classes;
- Since 1993 – Port awards of more than \$260,000 in scholarship support to 200 students enrolled in college programs focused on international trade and the maritime industry;
- Founder – CSULB Global Logistics Specialist Program (more than 500 people have completed the program); the program now offers a Master's Degree; and
- Various other outreach efforts to elementary and secondary schools in the Long Beach area.

**JSo-2:** The cumulative impact analysis (see EIR/EA Section 2.4; beginning on page 2-361) takes into account all known past, present, and reasonably foreseeable projects.

**JSo-3:** The referenced cost estimate includes all components of capital cost, including ROW acquisition.

**John Taleifi, From 2/24/2010 Public Hearing**

**JTa:** Subsequent to the public hearing on March 12, 2010, Rick Cameron, POLB Director of Environmental Planning, met with Mr. Taleifi and other representatives of the West Long Beach Association. Further meetings will be scheduled, as needed.

**Thor Carlson, From 2/24/2010 Public Hearing**

**TC:** Please see response to BW and JSo-1.

**Salera, From 2/24/2010 Public Hearing**

**S-1:** The I-710 Improvement project is in the project development stage. The Gerald Desmond Bridge Project Team has been coordinating with the I-710 Team regarding the proposed improvements within the Gerald Desmond Bridge Replacement Project area. The I-710 project is proceeding on its own schedule; coordination between the two projects with regard to construction scheduling will be necessary. Project information and contact information for the project can be found at [http://www.metro.net/projects/i710\\_corridor/](http://www.metro.net/projects/i710_corridor/). You can also leave a voice message on the project line by calling (213) 922-4710.

**S-2** One of the alternatives being considered in the I-710 project is to provide separate lanes for truck use; however, alternatives for the project are still being considered, and the environmental document is being prepared. The Port understands your concerns regarding potential health impacts related to the project. An HRA was prepared for the Gerald Desmond Bridge Replacement Project and showed decreasing risk associated with TACs. An HRA will also be completed as a component of the I-710 project. Additional information regarding the HRA and all other issues, including the current schedule and status, can be found on the METRO Web site (see S-1). Based on the status of the I-710 project when compared to the Gerald Desmond Bridge Replacement Project, it is likely that the new bridge will be well into construction before construction begins on the I-710 project. With regard to rerouting the bridge, the project is a bridge replacement project. There is no supporting infrastructure for rerouting truck traffic from the bridge or I-710, and it would result in greater impacts than the proposed project. The bridge is the entry point for 10 percent of all waterborne goods on the west coast, the beginning of the I-710 goods movement corridor, and a vital component for POLB and POLA operations and for regional traffic.

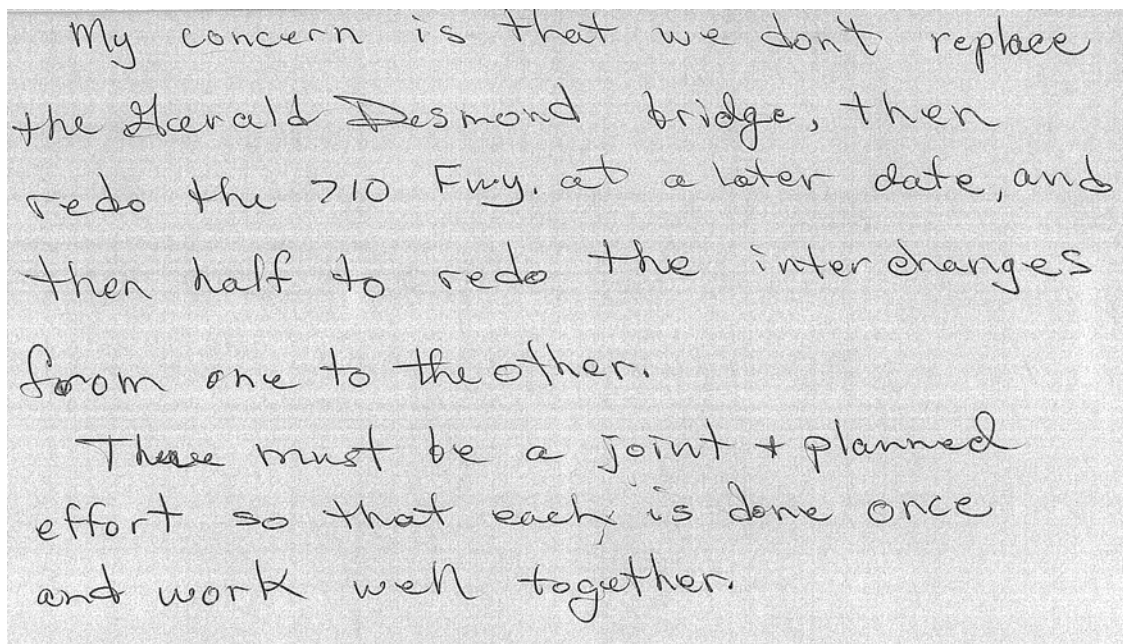
**Gary Anderson, From 2/24/2010 Public Hearing**

**GA:** This project will be procured under the provisions of the Federal "Buy American" policy for federally funded projects.

**Edith Pearl, From 2/24/2010 Public Hearing (written comment)**

**EP:** The I-710 Corridor Project is in the project development stage. The Gerald Desmond Bridge Project Team has been coordinating with the I-710 Project Development Team (PDT) regarding the proposed improvements within the Gerald Desmond Bridge Replacement Project area. The preliminary plans for the Gerald Desmond project have been provided to the I-710 PDT for consideration and planning during the development of the I-710 Corridor Project. Based on the most recent coordination meeting held on April 14, 2009, the only portion of the Gerald Desmond Bridge project that could be impacted by the future I-710 Corridor Project would be where a portion of the I-710 Project connects at the northern limits of the Gerald Desmond Project. The Port will continue to coordinate with the I-710 PDT as planning for that project progresses. See also response to S-1 above.

EP



My concern is that we don't replace the Gerald Desmond bridge, then redo the 710 Fwy. at a later date, and then half to redo the interchanges from one to the other.

There must be a joint + planned effort so that each is done once and work well together.

*Chapter 5*  
*List of Preparers*



## **CHAPTER 5 LIST OF PREPARERS**

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### **Port of Long Beach Staff**

Mike Bogner	Project Manager
Stacey Crouch	Senior Environmental Specialist
Larry Cottrill	Director of Master Planning, Author of Growth-Inducing Impacts
Eric Shen	Director of Transportation Planning
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*Chapter 8*  
*Application Summary Report*





**CHAPTER 8  
APPLICATION SUMMARY REPORT**

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**APPLICATION SUMMARY REPORT  
PREPARED IN ACCORDANCE WITH THE CERTIFIED PORT MASTER PLAN  
AND CALIFORNIA COASTAL ACT OF 1976**

**for the**

**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**

This narrative, including the EIR/EA project description, project background, project objectives, staff analysis, and, where appropriate, mitigation measures to be implemented, constitutes an Application Summary Report (ASR) and Proposed Staff Recommendations prepared in accordance with the certified PMP, as amended, and the California Coastal Act of 1976. Based upon data contained herein, the proposed project is in conformance with the stated policies of the PMP. This document was circulated for public review and becomes effective upon adoption by the Long Beach Board of Harbor Commissioners.

## 8.1 PORT MASTER PLAN ISSUES

The Port's Preferred Alternative (North-side Alignment Alternative) for the Gerald Desmond Bridge Replacement project is located within the Port's Northeast, Middle Harbor, and Terminal Island Planning Districts. These areas are largely devoted to port facilities, port-related industries, facilities that do not require access to berthing facilities or water frontage, hazardous cargo facilities, ancillary port facilities, oil production uses, navigable corridors, and utilities.

The proposed North-side Alignment Alternative is consistent with the six long-range planning goals and objectives for future port development and expansion stated in the PMP:

- Goal 1: Consolidate similar and compatible land and water areas.
- Goal 2: Encourage maximum use of facilities.
- Goal 3: Provide for the safe cargo handling and movement of vessels within the Port.
- Goal 4: Develop land for primary port facilities and port-related uses.
- Goal 5: Improve internal traffic circulation (i.e., roadway and rails).
- Goal 6: Protect, maintain, and enhance the overall quality of the coastal environment.

## 8.2 CALIFORNIA COASTAL ACT ISSUES

Relevant sections of the California Coastal Act are listed below, with a discussion of their relationship to the proposed project.

### 8.2.1 Section 30701

*(b) – Existing ports shall be encouraged to modernize and construct necessary facilities within their boundaries in order to minimize or eliminate the necessity for future dredging and filling to create new ports in new areas of the state.*

The North-side Alignment Alternative would replace the over-capacity and deteriorating Gerald Desmond Bridge with a bridge that would:

- Be structurally sound and seismically resistant;

- Provide a roadway with three through lanes in each direction with standard shoulders;
- Provide maximum 5 percent approach grades;
- Provide vertical clearance that would allow safe passage of some existing container ships and new-generation vessels currently being constructed.

This structure would meet the 2030 transportation needs of the Port and the region. Furthermore, its design would meet current structural and seismic standards, ensuring a 100-year design life. The project would improve access to primary port facilities and increase the efficiency of existing port facilities, thus reducing the need for new ports in new areas of the state.

### 8.2.2 Section 30780

*(a) – Minimize substantial adverse environmental impacts.*

The North-side Alignment Alternative would provide a structurally sound and seismically resistant replacement bridge that would improve public safety.

The otherwise significant impacts associated with air quality, seismic hazards, biological resources, hazardous materials, public health and safety, traffic, and socioeconomic issues would be minimized to a level of less than significant by incorporating necessary mitigation measures during each phase of the project.

*(c) – Give highest priority to the use of existing land space within harbors for port purposes, including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities.*

The North-side Alignment Alternative would replace the existing over-capacity and deteriorating bridge with a structurally sound and seismically resistant bridge to maximize the efficient use of Port facilities.

### 8.2.3 Section 30715

*(a) – Appealable Developments.*

Approval of any regional transportation project that is not principally for internal circulation within the Port boundaries is appealable to the CCC.

*Appendix A*  
*Air Quality Data*



## **Appendix A – Air Quality**

### A-1 Construction Emissions

- Construction Schedule
- Construction Equipment and Emissions Calculations Worksheets
- SCAQMD Rule 403

### A-2 Transportation Conformity Working Group Project Documentation

### A-3 2008 RTIP and RTP Project Listings



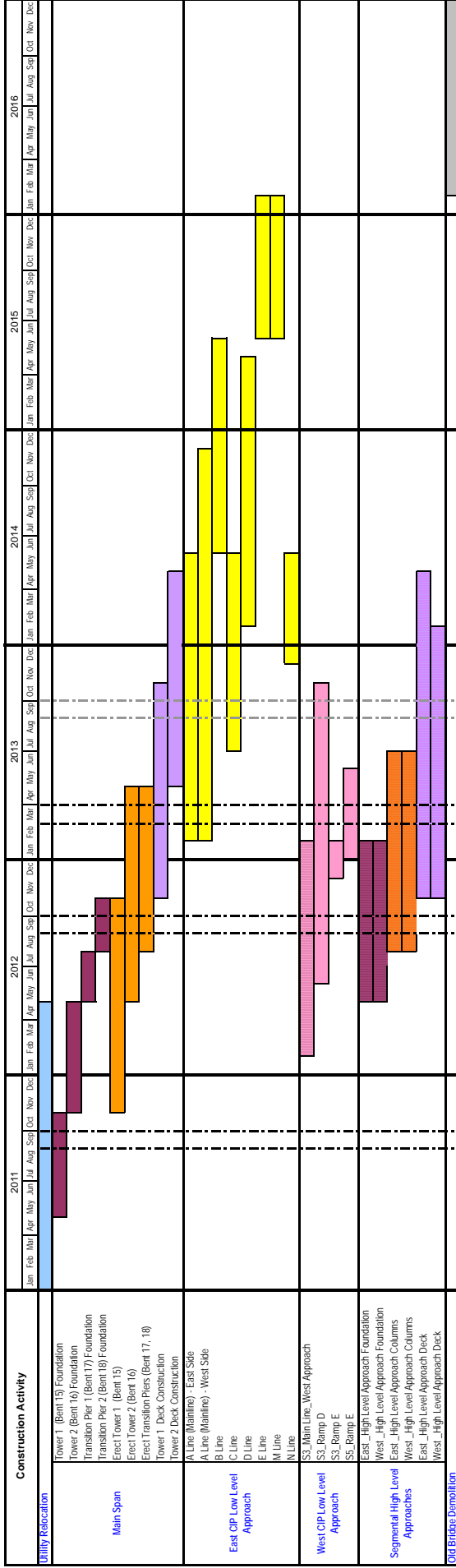
## **A-1 Construction Emissions**

- Construction Schedule
- Construction Equipment and Emissions Calculations Worksheets
- SCAQMD Rule 403





Gerald Desmond Bridge Replacement Project  
Construction Schedule - Summary





**Gerald Desmond Bridge Replacement Project  
Construction Emissions**

**Timeline #1**

**YEAR 1 - Maximum Daily Emissions (Month 9)**

**2011 (September)**

Utility Relocation and Main Spans	Hours per Day	Number of Equipment	Peak Emissions (lbs/day)					
			CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>	
Dump Truck	8	2	0.53	1.20	0.0	0.05	0.05	
Flatbed Truck	8	4	18.81	63.45	5.0	0.20	0.18	
Pile Driver	8	1	3.16	9.29	0.8	0.32	0.29	
Concrete Truck	8	8	2.74	3.07	0.6	0.80	0.71	
Crane	8	2	6.47	11.07	1.0	2.54	2.26	
Pickup Truck	8	20	0.93	0.10	0.1	0.01	0.01	
Main Spans Total		Unmitigated	<b>32.6</b>	<b>88.2</b>	<b>7.5</b>	<b>3.9</b>	<b>3.5</b>	
		Mitigated	31.0	83.7	7.2	3.7	3.3	
<b>Offsite Emissions</b>								
Offsite Haul Trucks (Roundtrips)		40	26.0	17.7	0.7	0.4	0.38	
Offsite Delivery Trucks (Roundtrips)								
Offsite Trash Trucks (Roundtrips)								
Truck trip Total			26.0	17.68	0.71	0.38	0.38	
Worker Trips (Phase 1 and 2)		140	3.3	2.7	2.8	0.2	0.23	
Worker Trips (Phase 3)								
Worker Trips Total			3.3	2.7	2.8	0.2	0.23	
Fugitive Dust (yd3 per day)		4.9					93.6	19.65
Fugitive Dust (acres per day) - Max								
Fugitive Dust (square footage per month) - Demol.								
<b>Fugitive Dust Total</b>		Unmitigated					93.6	19.7
		Mitigated					59.9	12.6
<b>Off-site Total</b>		Unmitigated	<b>29.2</b>	<b>20.3</b>	<b>3.6</b>	<b>0.6</b>	<b>0.6</b>	
		Mitigated	29.2	20.3	3.6	0.6	0.6	
<b>On-site Total</b>		Unmitigated	<b>32.6</b>	<b>88.2</b>	<b>7.5</b>	<b>97.5</b>	<b>23.1</b>	
		Mitigated	31.0	83.7	7.2	63.6	15.9	
<b>Regional Total</b>		Unmitigated	<b>61.8</b>	<b>108.5</b>	<b>11.1</b>	<b>98.1</b>	<b>23.8</b>	
		Mitigated	60.2	104.1	10.7	64.2	16.5	

**Summary Table**

Maximum Daily Emissions - Year 1	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Unmitigated (lbs/day)</b>					
On-site	33	88	8	98	23
Off-site	29	20	4	1	1
<b>Total</b>	<b>62</b>	<b>108</b>	<b>11</b>	<b>98</b>	<b>24</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	488	(8)	64	52	31
Exceed Threshold?	No	Yes	No	No	No
<b>Mitigated (lbs/day)</b>					
On-site	31	84	7	64	16
Off-site	29	20	4	1	1
<b>Total</b>	<b>60</b>	<b>104</b>	<b>11</b>	<b>64</b>	<b>17</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	490	(4)	64	86	38
Exceed Threshold?	No	Yes	No	No	No

**Gerald Desmond Bridge Replacement Project  
Construction Emissions**

**Timeline #2**

**YEAR 2 - Maximum Daily Emissions (Month 9)**

**2012 (September)**

Approach Spans	Hours per Day	Number of Equipment	Peak Emissions (lbs/day)				
			CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>
Drilling Rig	8	3	12.2	21.6	0.8	0.88	0.78
Screed Machine	8	1	3.3	4.7	0.7	0.39	0.35
Dump Truck	8	5	1.3	2.5	0.4	0.13	0.11
Generator	8	12	30.0	51.6	6.8	3.37	3.00
Flatbed truck	8	19	84.8	283.6	23.4	10.86	9.67
Concrete Pump	8	8	24.6	55.0	5.8	2.34	2.08
Pile Driver	8	6	18.5	41.3	4.4	1.76	1.56
Concrete Truck	8	8	2.7	3.6	0.6	0.18	0.16
Backhoe/Loader	8	6	19.5	32.0	4.9	3.57	3.18
Scraper	8	3	26.4	46.2	3.6	2.61	2.32
Bulldozer	8	3	15.9	54.9	3.8	2.73	2.43
Crane	8	14	43.3	77.2	6.7	5.16	4.59
Pickup Trucks	8	20	0.9	0.1	0.1	0.01	0.01
Total - Approach Spans	Unmitigated		<b>283.20</b>	<b>674.35</b>	<b>61.98</b>	<b>33.99</b>	<b>30.25</b>
	Mitigated		269.04	640.63	58.88	32.29	28.74
<b>Main Spans</b>							
Flatbed truck	8	3	13.38	44.8	3.7	1.7	1.53
Concrete Truck	8	14	4.76	6.3	1.0	0.3	0.29
Crane	8	1	3.09	5.5	0.5	0.4	0.33
Total - Main Spans	Unmitigated		<b>21.23</b>	<b>56.61</b>	<b>5.22</b>	<b>2.41</b>	<b>2.14</b>
	Mitigated		20.17	53.78	4.96	2.29	2.04
<b>Offsite Emissions</b>							
Offsite Haul Trucks (Roundtrips)	10	40	3.0	15.5	0.7	0.4	0.35
Offsite Delivery Trucks (Roundtrips)							
Offsite Trash Trucks (Roundtrips)							
Truck Trip Total			3.0	15.5	0.7	0.4	0.3
Worker Trips (Phase 1 and 2) - Site Prep		190	32.5	3.3	3.6	0.3	0.31
Worker Trips (Phase 3) -							
Worker Trips (Phase 3)							
Worker Trips Total			32.5	3.3	3.6	0.3	0.3
Asphalt (acres per month)							
Fugitive Dust (yd3 per day)							
Fugitive Dust (acres per day) - Max		4.5				86.08	18.08
Fugitive Dust (square footage per month) - Demol.							
<b>Fugitive Dust Total</b>	Unmitigated					<b>86.1</b>	<b>18.1</b>
	Mitigated					55.1	11.6
<b>Off-site Total</b>	Unmitigated		<b>35.5</b>	<b>18.8</b>	<b>4.2</b>	<b>0.7</b>	<b>0.7</b>
	Mitigated		35.5	18.8	4.2	0.7	0.7
<b>On-site Total</b>	Unmitigated		<b>304.4</b>	<b>731.0</b>	<b>67.2</b>	<b>122.5</b>	<b>50.5</b>
	Mitigated		289.2	694.4	63.8	89.7	42.3
<b>Regional Total</b>	Unmitigated		<b>340.0</b>	<b>749.8</b>	<b>71.4</b>	<b>123.1</b>	<b>51.1</b>
	Mitigated		324.8	713.2	68.1	90.3	43.0

**Summary Table**

Maximum Daily Emissions - Year 2	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Unmitigated (lbs/day)</b>					
On-site	304	731	67	122	50
Off-site	36	19	4	1	1
<b>Total</b>	<b>340</b>	<b>750</b>	<b>71</b>	<b>123</b>	<b>51</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	210	(650)	4	27	4
Exceed Threshold?	No	Yes	No	No	No
<b>Mitigated (lbs/day)</b>					
On-site	289	694	64	90	42
Off-site	36	19	4	1	1
<b>Total</b>	<b>325</b>	<b>713</b>	<b>68</b>	<b>90</b>	<b>43</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	225	(613)	7	60	12
Exceed Threshold?	No	Yes	No	No	No

**Gerald Desmond Bridge Replacement Project  
Construction Emissions**

**Timeline #3**

**YEAR 3 - Maximum Daily Emissions (Month 3)**

**2013 (March)**

Approach Spans	Trip Length	No. of Eq.	CO	NOx	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>	
Drilling Rig		1	4.03	6.50	0.29	0.24	0.21	
Dump Truck		5	1.28	2.40	0.04	0.12	0.10	
Generator		8	19.49	32.83	4.16	2.07	1.84	
Flatbed truck	5	11	48.05	158.78	13.27	5.50	4.90	
Concrete Pump		5	15.06	31.75	3.44	1.32	1.17	
Pile Driver		3	9.04	19.05	2.09	0.77	0.69	
Screed Machine		2	6.54	8.91	1.60	0.62	0.56	
Backhoe/Loader		3	9.63	14.98	2.24	1.65	1.47	
Concrete Truck		12	4.04	5.33	0.87	0.25	0.23	
Scraper		2	16.63	29.47	2.37	1.61	1.43	
Bulldozer		2	10.11	35.44	2.78	1.70	1.52	
Crane		10	29.60	51.61	4.04	3.32	2.95	
Pickup Truck	5	20	0.78	0.08	0.01	0.01	0.01	
Total East Approaches			Unmitigated	<b>174.29</b>	<b>397.15</b>	<b>37.20</b>	<b>19.19</b>	<b>17.08</b>
			Mitigated	165.58	377.29	35.34	18.23	16.23
<b>Main Span</b>								
Generator		1	1.83	3.08	0.43	0.19	0.17	
Flatbed truck	4	1	4.37	14.43	1.08	0.52	0.46	
Concrete Truck		2	0.67	0.89	1.21	0.04	0.04	
Crane		2	5.92	10.32	0.14	0.68	0.60	
Total West Approaches			Unmitigated	<b>12.79</b>	<b>28.72</b>	<b>2.86</b>	<b>1.43</b>	<b>1.27</b>
			Mitigated	12.15	27.29	2.71	1.36	1.21
<b>Offsite Emissions</b>								
Offsite Haul Trucks (Roundtrips)	20	40	2.84	13.64	0.60	0.33	0.32	
Offsite Delivery Trucks (Roundtrips)								
Offsite Trash Trucks (Roundtrips)								
Truck Trip Total				2.84	13.64	0.60	0.33	0.32
Worker Trips (Phase 1 and 2)	20	150	28.84	2.37	3.32	0.25	0.25	
Worker Trips (Phase 3)								
Worker Trips - Calculated Total				28.84	2.37	3.32	0.25	0.25
Asphalt (acres per month)								
Fugitive Dust (acres per day) - Normal								
Fugitive Dust (yd3 per day)								
Fugitive Dust (acres per day) - Max		4.6				87.86	18.45	
Fugitive Dust (square footage per month) - Demol.								
<b>Fugitive Dust Total</b>			Unmitigated			87.9	18.5	
			Mitigated			56.2	11.8	
<b>Off-site Total</b>			Unmitigated	<b>31.68</b>	<b>16.02</b>	<b>3.92</b>	<b>0.58</b>	<b>0.57</b>
			Mitigated	31.68	16.02	3.92	0.58	0.57
<b>On-site Total</b>			Unmitigated	<b>187.08</b>	<b>425.87</b>	<b>40.06</b>	<b>108.48</b>	<b>36.80</b>
			Mitigated	177.73	404.58	38.06	75.82	29.24
<b>Regional Total</b>			Unmitigated	<b>218.76</b>	<b>441.89</b>	<b>43.98</b>	<b>109.06</b>	<b>37.37</b>
			Mitigated	209.41	420.59	41.98	76.40	29.81

**Summary Table**

Maximum Daily Emissions - Year 3	CO	NOx	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Unmitigated (lbs/day)</b>					
On-site	187	426	40	108	37
Off-site	32	16	4	1	1
<b>Total</b>	<b>219</b>	<b>442</b>	<b>44</b>	<b>109</b>	<b>37</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	331	(342)	31	41	18
Exceed Threshold?	No	Yes	No	No	No
<b>Mitigated (lbs/day)</b>					
On-site	178	405	38	76	29
Off-site	32	16	4	1	1
<b>Total</b>	<b>209</b>	<b>421</b>	<b>42</b>	<b>76</b>	<b>30</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	341	(321)	33	74	25
Exceed Threshold?	No	Yes	No	No	No

**Gerald Desmond Bridge Replacement Project  
Construction Emissions**

**Timeline #3-a**

**YEAR 3 - Maximum Daily Emissions (Month 9)**

**2013 (September)**

Approach Spans	Trip Length	No. of Eq.	CO	NOx	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>		
Generator		4	9.74	16.42	2.27	1.04	0.92		
Flatbed truck	5	4	17.47	57.74	4.82	2.06	1.83		
Concrete Pump		1	3.01	6.35	0.70	0.26	0.23		
Concrete Truck		1	0.34	0.44	0.07	0.02	0.02		
Crane		4	11.84	20.64	2.16	1.36	1.21		
Pickup Truck	5	20	0.78	0.08	0.01	0.01	0.01		
Total Approach Spans			Unmitigated		<b>43.20</b>	<b>101.67</b>	<b>10.03</b>	<b>4.75</b>	<b>4.22</b>
			Mitigated		41.04	96.59	9.53	4.51	4.01
<b>Main Spans</b>									
Flatbed truck	5	4	17.47	57.74	4.82	2.06	1.83		
Concrete Truck		2	0.67	0.89	0.14	0.04	0.04		
Total Main Spans			Unmitigated		<b>18.15</b>	<b>58.63</b>	<b>4.97</b>	<b>2.10</b>	<b>1.87</b>
			Mitigated		17.24	55.70	4.72	2.00	1.78
<b>Offsite Emissions</b>									
Offsite Haul Trucks (Roundtrips)	20	40	22.67	13.64	0.60	0.33	0.32		
Offsite Delivery Trucks (Roundtrips)									
Offsite Trash Trucks (Roundtrips)									
Truck Trip Total			22.67	13.64	0.60	0.33	0.32		
Worker Trips (Phase 1 and 2) - Site Prep	20	148	2.84	2.29	2.62	0.25	0.25		
Worker Trips (Phase 3)									
Worker Trips - Calculated Total			2.84	2.29	2.62	0.25	0.25		
Asphalt (acres per month)									
Fugitive Dust (yd3 per day)									
Fugitive Dust (acres per day) - Max		4.6				87.86	18.45		
Fugitive Dust (square footage per month) - Demo									
Fugitive Dust Total			Unmitigated			87.9	18.5		
			Mitigated			56.2	11.8		
<b>Off-site Total</b>									
			Unmitigated		<b>25.51</b>	<b>15.94</b>	<b>3.22</b>	<b>0.58</b>	<b>0.57</b>
			Mitigated		25.51	15.94	3.22	0.58	0.57
<b>On-site Total</b>									
			Unmitigated		<b>61.35</b>	<b>160.30</b>	<b>15.00</b>	<b>94.71</b>	<b>24.55</b>
			Mitigated		58.28	152.28	14.25	62.74	17.60
<b>Regional Total</b>									
			Unmitigated		<b>86.86</b>	<b>176.24</b>	<b>18.22</b>	<b>95.29</b>	<b>25.12</b>
			Mitigated		83.79	168.22	17.47	63.31	18.17

**Summary Table**

Maximum Daily Emissions - Year 3	CO	NOx	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Unmitigated (lbs/day)</b>					
On-site	61	160	15	95	25
Off-site	26	16	3	1	1
Total	<b>87</b>	<b>176</b>	<b>18</b>	<b>95</b>	<b>25</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	463	(76)	57	55	30
Exceed Threshold?	No	Yes	No	No	No
<b>Mitigated (lbs/day)</b>					
On-site	58	152	14	63	18
Off-site	26	16	3	1	1
Total	<b>84</b>	<b>168</b>	<b>17</b>	<b>63</b>	<b>18</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	466	(68)	58	87	37
Exceed Threshold?	No	Yes	No	No	No

**Gerald Desmond Bridge Replacement Project  
Construction Emissions**

**Timeline #4**

**Old Bridge Demolition - Maximum Daily Emissions**

**2015 (October)**

Bridge Demolition	Trip Length	Number of Eq.	CO	NOX	VOC	PM10	PM2.5	
Sawcutters		2	6.45	8.43	1.4	0.9	0.78	
Dump Truck	2	2	0.51	0.95	0.1	0.1	0.04	
Excavators		2	8.46	13.28	0.8	0.6	0.50	
Barge		1	2.96	5.73	0.6	0.4	0.34	
Cranes/Genie Lifts		2	5.69	9.57	0.8	0.5	0.46	
Pickup Truck	4	4	0.11	0.01	0.0	0.0	0.00	
Total Bridge Demolition								
			Unmitigated	<b>24.18</b>	<b>37.97</b>	<b>3.69</b>	<b>2.39</b>	<b>2.12</b>
			Mitigated	22.97	36.08	3.50	2.27	2.02
<b>Offsite Emissions</b>								
Offsite Haul Trucks (Roundtrips)	20	40	1.7	7.6	0.3	0.20	0.20	
Offsite Delivery Trucks (Roundtrips)								
Offsite Trash Trucks (Roundtrips)								
Truck Trip Total			1.68	7.55	0.35	0.20	0.20	
Worker Trips (Phase 1 and 2)	20	150	2.9	0.3	0.3	0.05	0.05	
Worker Trips (Phase 3)								
Worker Trips - Calculated Total			2.87	0.29	0.33	0.05	0.05	
Asphalt (acres per month)								
Fugitive Dust (acres per day) - Normal								
Fugitive Dust (yd3 per day)								
Fugitive Dust (acres per day) - Max								
Fugitive Dust (square footage per month) - Demo		27,000				5.2	1.08	
<b>Fugitive Dust Total</b>						<b>5.2</b>	<b>1.1</b>	
			Unmitigated					
			Mitigated			3.3	0.7	
<b>Off-site Total</b>								
			Unmitigated	<b>4.56</b>	<b>7.84</b>	<b>0.67</b>	<b>0.25</b>	<b>0.25</b>
			Mitigated	4.56	7.84	0.67	0.25	0.25
<b>On-site Total</b>								
			Unmitigated	<b>24.18</b>	<b>37.97</b>	<b>3.69</b>	<b>7.54</b>	<b>3.21</b>
			Mitigated	22.97	36.08	3.50	5.57	2.71
<b>Regional Total</b>								
			Unmitigated	<b>28.74</b>	<b>45.81</b>	<b>4.36</b>	<b>7.79</b>	<b>3.45</b>
			Mitigated	27.53	43.91	4.18	5.82	2.96

**Summary Table**

Maximum Daily Emissions	CO	NOx	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Unmitigated</b>					
On-site	24	38	4	8	3
Off-site	5	8	1	0	0
<b>Total</b>	<b>29</b>	<b>46</b>	<b>4</b>	<b>8</b>	<b>3</b>
SCAQMD Regional Significance Thresho	550	100	75	150	55
Over/Under	521	54	71	142	52
Exceed Threshold?	No	No	No	No	No
<b>Mitigated</b>					
On-site	23	36	4	6	3
Off-site	5	8	1	0	0
<b>Total</b>	<b>28</b>	<b>44</b>	<b>4</b>	<b>6</b>	<b>3</b>
SCAQMD Regional Significance Thresho	550	100	75	150	55
Over/Under	522	56	71	144	52
Exceed Threshold?	No	No	No	No	No



**Gerald Desmond Bridge Replacement Project  
Construction Emissions**

**Rehabilitation Alternative**

**Bridge Rehabilitation**

**2012 (September)**

Phase	Trip Length	Number of Eq.	CO	NOX	VOC	PM10	PM2.5	
Concrete Truck		2	0.3	0.5	0.1	0.0	0.02	
Concrete Pump	5	1	1.7	4.4	0.4	0.2	0.19	
Dump Truck		5	0.8	3.0	0.1	0.1	0.09	
Excavator		1	3.7	5.4	0.4	0.3	0.27	
Cranes/Lifts		3	8.2	16.0	1.4	0.9	0.77	
Bulldozer (Liebherr Crawler)		1	5.3	17.8	1.3	0.7	0.61	
Saw Cutter		2	6.8	10.3	1.4	0.9	0.83	
Total			Unmitigated Mitigated	<b>26.80</b> 25.46	<b>57.31</b> 54.44	<b>5.06</b> 4.80	<b>3.11</b> 2.95	<b>2.77</b> 2.63
<b>Offsite Emissions</b>								
Offsite Haul Trucks (Roundtrips)	50	12	2.3	1.3	0.5	0.1	0.12	
Offsite Delivery Trucks (Roundtrips)								
Offsite Trash Trucks (Roundtrips)								
Truck Trip Total			2.27	1.30	0.49	0.12	0.12	
Worker Trips (Phase 1 and 2)	30	150	12.8	11.6	1.4	0.3	0.26	
Worker Trips (Phase 3)								
Worker Trips - Calculated Total			12.77	11.63	1.41	0.26	0.26	
Asphalt (acres per month)								
Fugitive Dust (acres per day) - Normal								
Fugitive Dust (yd3 per day)								
Fugitive Dust (acres per day) - Max		4				87.1	18.29	
Fugitive Dust (square footage per month) - Demol							0.00	
<b>Fugitive Dust Total</b>			Unmitigated Mitigated			<b>87.1</b> 55.7	<b>18.3</b> 11.7	
<b>Off-site Total</b>			Unmitigated Mitigated	<b>15.04</b> 15.04	<b>12.93</b> 12.93	<b>1.90</b> 1.90	<b>0.39</b> 0.39	
<b>On-site Total</b>			Unmitigated Mitigated	<b>26.80</b> 25.46	<b>57.31</b> 54.44	<b>5.06</b> 4.80	<b>90.20</b> 58.69	
<b>Regional Total</b>			Unmitigated Mitigated	<b>41.83</b> 40.49	<b>70.24</b> 67.37	<b>6.96</b> 6.70	<b>90.59</b> 59.08	
							<b>21.44</b> 14.72	

**Summary Table**

Maximum Daily Emissions	CO	NOx	VOC	PM10	PM2.5
<b>Unmitigated</b>					
On-site	27	57	5	90	21
Off-site	15	13	2	0	0
Total	<b>42</b>	<b>70</b>	<b>7</b>	<b>91</b>	<b>21</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	508	30	68	59	34
Exceed Threshold?	No	No	No	No	No
<b>Mitigated</b>					
On-site	25	54	5	59	14
Off-site	15	13	2	0	0
Total	<b>40</b>	<b>67</b>	<b>7</b>	<b>59</b>	<b>15</b>
SCAQMD Regional Significance Threshold	550	100	75	150	55
Over/Under	510	33	68	91	40
Exceed Threshold?	No	No	No	No	No

## **SCAQMD Rule 403**



(Adopted May 7, 1976) (Amended November 6, 1992)  
(Amended July 9, 1993) (Amended February 14, 1997)  
(Amended December 11, 1998)(Amended April 2, 2004)

**RULE 403. FUGITIVE DUST**

(a) Purpose

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this Rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

- (1) ACTIVE OPERATIONS means any source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement.
- (2) AGGREGATE-RELATED PLANTS are defined as facilities that produce and / or mix sand and gravel and crushed stone.
- (3) AGRICULTURAL HANDBOOK means the region-specific guidance document that has been approved by the Governing Board or hereafter approved by the Executive Officer and the U.S. EPA. For the South Coast Air Basin, the Board-approved region-specific guidance document is the Rule 403 Agricultural Handbook dated December 1998. For the Coachella Valley, the Board-approved region-specific guidance document is the Rule 403 Coachella Valley Agricultural Handbook dated April 2, 2004.
- (4) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook.
- (5) BEST AVAILABLE CONTROL MEASURES means fugitive dust control actions that are set forth in Table 1 of this Rule.

- (6) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.
- (7) CEMENT MANUFACTURING FACILITY is any facility that has a cement kiln at the facility.
- (8) CHEMICAL STABILIZERS are any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation. The chemical stabilizers shall meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.
- (9) CONSTRUCTION/DEMOLITION ACTIVITIES means any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities: grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.
- (10) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.
- (11) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:
  - (A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;
  - (B) been paved or otherwise covered by a permanent structure; or
  - (C) sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.
- (12) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

- (13) EARTH-MOVING ACTIVITIES means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, weed abatement through disking, and soil mulching.
- (14) DUST CONTROL SUPERVISOR means a person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.
- (15) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.
- (16) HIGH WIND CONDITIONS means that instantaneous wind speeds exceed 25 miles per hour.
- (17) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of 20 consecutive days.
- (18) LARGE OPERATIONS means any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards) or more three times during the most recent 365-day period.
- (19) OPEN STORAGE PILE is any accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.
- (20) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.
- (21) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

- (22) PM<sub>10</sub> means particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.
- (23) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.
- (24) RULE 403 IMPLEMENTATION HANDBOOK means a guidance document that has been approved by the Governing Board on April 2, 2004 or hereafter approved by the Executive Officer and the U.S. EPA.
- (25) SERVICE ROADS are paved or unpaved roads that are used by one or more public agencies for inspection or maintenance of infrastructure and which are not typically used for construction-related activity.
- (26) SIMULTANEOUS SAMPLING means the operation of two PM<sub>10</sub> samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.
- (27) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.
- (28) STABILIZED SURFACE means any previously disturbed surface area or open storage pile which, through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind-driven fugitive dust and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the Rule 403 Implementation Handbook.
- (29) TRACK-OUT means any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

- (30) TYPICAL ROADWAY MATERIALS means concrete, asphaltic concrete, recycled asphalt, asphalt, or any other material of equivalent performance as determined by the Executive Officer, and the U.S. EPA.
  - (31) UNPAVED ROADS means any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by federal, state, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.
  - (32) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.
  - (33) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.
  - (34) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.
- (d) Requirements
- (1) No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:
    - (A) the dust remains visible in the atmosphere beyond the property line of the emission source; or
    - (B) the dust emission exceeds 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook), if the dust emission is the result of movement of a motorized vehicle.
  - (2) No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of this Rule to minimize fugitive dust emissions from each fugitive dust source type within the active operation.
  - (3) No person shall cause or allow PM<sub>10</sub> levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent



method for PM<sub>10</sub> monitoring. If sampling is conducted, samplers shall be:

- (A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM<sub>10</sub>.
  - (B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.
- (4) No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.
- (5) After January 1, 2005, no person shall conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the measures listed in subparagraphs (d)(5)(A) through (d)(5)(E) at each vehicle egress from the site to a paved public road.
- (A) Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.
  - (B) Pave the surface extending at least 100 feet and at least 20 feet wide.
  - (C) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
  - (D) Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
  - (E) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the actions specified in subparagraphs (d)(5)(A) through (d)(5)(D).

(e) Additional Requirements for Large Operations

- (1) Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards can not be met through use of Table 2 actions; and shall:
  - (A) submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;
  - (B) include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;
  - (C) maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;
  - (D) after January 1, 2005, install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;
  - (E) after January 1, 2005, identify a dust control supervisor that:
    - (i) is employed by or contracted with the property owner or developer;
    - (ii) is on the site or available on-site within 30 minutes during working hours;
    - (iii) has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;
    - (iv) has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and
  - (F) notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).

(2) Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).

(f) Compliance Schedule

The newly amended provisions of this Rule shall become effective upon adoption. Pursuant to subdivision (e), any existing site that qualifies as a large operation will have 60 days from the date of Rule adoption to comply with the notification and recordkeeping requirements for large operations. Any Large Operation Notification or AQMD-approved dust control plan which has been accepted prior to the date of adoption of these amendments shall remain in effect and the Large Operation Notification or AQMD-approved dust control plan annual resubmittal date shall be one year from adoption of this Rule amendment.

(g) Exemptions

(1) The provisions of this Rule shall not apply to:

(A) Agricultural operations directly related to the raising of fowls or animals and agricultural operations, provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(B) Agricultural operations within the South Coast Air Basin, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation practices contained in the Rule 403 Agricultural Handbook;

- (ii) completes and maintains the self-monitoring form documenting sufficient conservation practices, as described in the Rule 403 Agricultural Handbook; and
  - (iii) makes the completed self-monitoring form available to the Executive Officer upon request.
- (C) Agricultural operations outside the South Coast Air Basin, until January 1, 2005, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:
  - (i) voluntarily implements the conservation practices contained in the Rule 403 Coachella Valley Agricultural Handbook; and
  - (ii) completes and maintains the self-monitoring form documenting sufficient conservation practices, as described in the Rule 403 Coachella Valley Agricultural Handbook; and
  - (iii) makes the completed self-monitoring form available to the Executive Officer upon request.
- (D) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.
- (E) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.
- (F) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.
- (G) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.
- (H) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

- (i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; and
  - (ii) any discing or similar operation which cuts into and disturbs the soil, where watering is used prior to initiation of these activities and a determination is made by the agency issuing the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (g)(1)(H)(i). The provisions this clause shall not exempt the owner of any property from stabilizing, in accordance with paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions.
- (I) sandblasting operations.
- (2) The provisions of paragraphs (d)(1) and (d)(3) shall not apply:
- (A) When wind gusts exceed 25 miles per hour, provided that:
    - (i) The required Table 3 contingency measures in this Rule are implemented for each applicable fugitive dust source type, and;
    - (ii) records are maintained in accordance with subparagraph (e)(1)(C).
  - (B) To unpaved roads, provided such roads:
    - (i) are used solely for the maintenance of wind-generating equipment; or
    - (ii) are unpaved public alleys as defined in Rule 1186; or
    - (iii) are service roads that meet all of the following criteria:
      - (a) are less than 50 feet in width at all points along the road;
      - (b) are within 25 feet of the property line; and
      - (c) have a traffic volume less than 20 vehicle-trips per day.
  - (C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act, as determined in writing by the State or federal agency responsible for making such determinations.

- (3) The provisions of (d)(2) shall not apply to any aggregate-related plant or cement manufacturing facility that implements the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards of paragraphs (d)(1) and (d)(3) can not be met through use of Table 2 actions.
- (4) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to:
  - (A) Blasting operations which have been permitted by the California Division of Industrial Safety; and
  - (B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.
- (5) The provisions of paragraph (d)(3) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for each applicable fugitive dust source type. To qualify for this exemption, a person must maintain records in accordance with subparagraph (e)(1)(C).
- (6) The provisions of paragraph (d)(4) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles provided that such roadway is closed to through traffic and visible roadway dust is removed within one day following the cessation of activities.
- (7) The provisions of subdivision (e) shall not apply to:
  - (A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks.
  - (B) any large operation which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance.
  - (C) any large operation subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.
- (8) The provisions of subparagraph (e)(1)(A) through (e)(1)(C) shall not apply to any large operation with an AQMD-approved fugitive dust control plan

provided that there is no change to the sources and controls as identified in the AQMD-approved fugitive dust control plan.

(h) Fees

Any person conducting active operations for which the Executive Officer conducts upwind/downwind monitoring for PM<sub>10</sub> pursuant to paragraph (d)(3) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(3) or meets the requirements of paragraph (d)(3).

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
 (Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	<ul style="list-style-type: none"> <li>✓ Mix backfill soil with water prior to moving</li> <li>✓ Dedicate water truck or high capacity hose to backfilling equipment</li> <li>✓ Empty loader bucket slowly so that no dust plumes are generated</li> <li>✓ Minimize drop height from loader bucket</li> </ul>
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	<ul style="list-style-type: none"> <li>✓ Maintain live perennial vegetation where possible</li> <li>✓ Apply water in sufficient quantity to prevent generation of dust plumes</li> </ul>
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	<ul style="list-style-type: none"> <li>✓ Use of high pressure air to clear forms may cause exceedance of Rule requirements</li> </ul>
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	<ul style="list-style-type: none"> <li>✓ Follow permit conditions for crushing equipment</li> <li>✓ Pre-water material prior to loading into crusher</li> <li>✓ Monitor crusher emissions opacity</li> <li>✓ Apply water to crushed material to prevent dust plumes</li> </ul>



**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
 (Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	<ul style="list-style-type: none"> <li>✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration</li> <li>✓ Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts</li> </ul>
Demolition – mechanical/manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	<ul style="list-style-type: none"> <li>✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes</li> </ul>
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	<ul style="list-style-type: none"> <li>✓ Limit vehicular traffic and disturbances on soils where possible</li> <li>✓ If interior block walls are planned, install as early as possible</li> <li>✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes</li> </ul>
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	<ul style="list-style-type: none"> <li>✓ Grade each project phase separately, timed to coincide with construction phase</li> <li>✓ Upwind fencing can prevent material movement on site</li> <li>✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
 (Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	<ul style="list-style-type: none"> <li>✓ Use tarps or other suitable enclosures on haul trucks</li> <li>✓ Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage</li> <li>✓ Comply with track-out prevention/mitigation requirements</li> <li>✓ Provide water while loading and unloading to reduce visible dust plumes</li> </ul>
Landscaping	10-1 Stabilize soils, materials, slopes	<ul style="list-style-type: none"> <li>✓ Apply water to materials to stabilize</li> <li>✓ Maintain materials in a crusted condition</li> <li>✓ Maintain effective cover over materials</li> <li>✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes</li> <li>✓ Hydroseed prior to rain season</li> </ul>
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	<ul style="list-style-type: none"> <li>✓ Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs</li> <li>✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
 (Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	<ul style="list-style-type: none"> <li>✓ Dedicate water truck or high capacity hose to screening operation</li> <li>✓ Drop material through the screen slowly and minimize drop height</li> <li>✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point</li> </ul>
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	<ul style="list-style-type: none"> <li>✓ Limit size of staging area</li> <li>✓ Limit vehicle speeds to 15 miles per hour</li> <li>✓ Limit number and size of staging area entrances/exists</li> </ul>
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	<ul style="list-style-type: none"> <li>✓ Add or remove material from the downwind portion of the storage pile</li> <li>✓ Maintain storage piles to avoid steep sides or faces</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
 (Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	<ul style="list-style-type: none"> <li>✓ Apply gravel/paving to all haul routes as soon as possible to all future roadway areas</li> <li>✓ Barriers can be used to ensure vehicles are only used on established parking areas/haul routes</li> </ul>
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	<ul style="list-style-type: none"> <li>✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching</li> <li>✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment</li> </ul>
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114)	<ul style="list-style-type: none"> <li>✓ Empty loader bucket such that no visible dust plumes are created</li> <li>✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading</li> </ul>
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	<ul style="list-style-type: none"> <li>✓ Haul waste material immediately off-site</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
 (Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Unpaved roads/parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

**TABLE 2**  
**DUST CONTROL MEASURES FOR LARGE OPERATIONS**

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Earth-moving (except construction cutting and filling areas, and mining operations)</b>	<p>(1a) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR</p> <p>(1a-1) For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.</p>
<b>Earth-moving: Construction fill areas:</b>	<p>(1b) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.</p>

TABLE 2 (Continued)

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Earth-moving: Construction cut areas and mining operations:</b>	(1c) Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
<b>Disturbed surface areas (except completed grading areas)</b>	(2a/b) Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
<b>Disturbed surface areas: Completed grading areas</b>	(2c) Apply chemical stabilizers within five working days of grading completion; OR  (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
<b>Inactive disturbed surface areas</b>	(3a) Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR  (3b) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR  (3c) Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR  (3d) Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

TABLE 2 (Continued)

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Unpaved Roads</b>	(4a) Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR (4b) Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR (4c) Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
<b>Open storage piles</b>	(5a) Apply chemical stabilizers; OR (5b) Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR (5c) Install temporary coverings; OR (5d) Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.
<b>All Categories</b>	(6a) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.



TABLE 3

## CONTINGENCY CONTROL MEASURES FOR LARGE OPERATIONS

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL MEASURES</b>
<b>Earth-moving</b>	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
<b>Disturbed surface areas</b>	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
<b>Unpaved roads</b>	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
<b>Open storage piles</b>	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
<b>Paved road track-out</b>	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
<b>All Categories</b>	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

## **A-2 Transportation Conformity Working Group Project Documentation**



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**TCWG Review of Qualitative Analyses**

**Qualitative PM Hot Spot Analysis Review**

**July 2010**

**Determination**

[LA000512 \(Final version\)](#)

[Analysis deemed acceptable for NEPA circulation](#)



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TRANSPORTATION CONFORMITY WORKING GROUP  
of the  
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

July 27, 2010  
Minutes

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THE FOLLOWING MINUTES ARE A SUMMARY OF THE MEETING OF THE TRANSPORTATION CONFORMITY WORKING GROUP. AN AUDIOCASSETTE TAPE OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Meeting of the Transportation Conformity Working Group was held at the SCAG office in Los Angeles.

**In Attendance:**

Castro, Fernando	Caltrans, District 7
Peterson, Gary	Parsons Corporation
Poe, Lisa	SANBAG

**SCAG**

Gutierrez, Pablo  
Mann, Betty  
Nadler, Jonathan  
Sangkapichai, Mana  
Sherwood, Arnie

**Via Teleconference:**

Alvarez, Grace	RCTC
Behmanesh, Nasrin	Parsons Corporation
Behtash, Arman	Caltrans, District 12
Brady, Mike	Caltrans Headquarters
Cacatian, Ben	VCAPCD
Chang, Paul	Caltrans, District 12
Cooper, Keith	ICF International
Kratovil, Amie	FHWA
Drummonds, Eyvonne	SCAQMD
Gallo, Ilene	Caltrans Headquarters
Malisos, Achilles	RBF Consulting
Sonnenberg, Stew	FHWA
O'Bannon, Joe	Chambers Group
O'Connor, Karina	U.S. EPA, Region 9
Walecka, Carla	Transportation Corridor Agencies
Yoon, Andrew	Caltrans, District 7



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TRANSPORTATION CONFORMITY WORKING GROUP  
of the  
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

July 27, 2010  
Minutes

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1.0 **CALL TO ORDER**

Lisa Poe, SANBAG, called the meeting to order at 10:05 a.m.

2.0 **PUBLIC COMMENT PERIOD**

There were no comments.

3.0 **CONSENT CALENDAR**

3.1 **Approval Item**

3.1.1 **TCWG June 22, 2010 Meeting Minutes**  
The minutes were approved.

4.0 **INFORMATION ITEMS**

4.1 **Review of PM Hot Spot Interagency Review Forms**

1) IMP100606

It was determined that this was not a POAQC.

2) LA990351

It was determined that this was not a POAQC.

3) LA996347

It was determined that this was not a POAQC.

4) ORA020115

It was determined that this was not a POAQC.

5) ORA120522

It was determined that this was not a POAQC.

6) SBD\_4351

It was determined that this was not a POAQC.

*(Caltrans, EPA, and FHWA concurrences were received after the meeting).*

7) SR-18/Apple Valley Road intersection Improvement

It was determined that this was not a POAQC.





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TRANSPORTATION CONFORMITY WORKING GROUP  
of the  
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

July 27, 2010  
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4.2 Review of PM Hot Spot Qualitative Analyses

1) LA000512

The analysis deemed acceptable for NEPA circulation.

*(Caltrans, EPA, and FHWA concurrences were received after the meeting).*

4.3 RTIP Update

Pablo Gutierrez, SCAG, reported the following:

- 2008 RTIP Amendment #44 was under public review until August 4.
- Administrative Amendment # 49 submittal was due to SCAG by July 30.
- SCAG staff conducted three public hearings for the draft 2011 FTIP in the last two weeks and the public comment period would conclude on August 2.

4.4 RTP Update

Jonathan Nadler, SCAG, reported the following:

- SCAG received a request for the 4<sup>th</sup> amendment to the 2008 RTP, and staff has started work on the amendment.

4.5 SB 375 Update

Jonathan Nadler, SCAG, reported the following:

- ARB staff released the preliminary draft 2020 regional GHG emission reduction target range and the placeholder for the preliminary draft 2035 target range.
- The final ARB staff proposal would be released in August and the ARB Board will consider adoption of final regional targets in September.

4.6 Conformity Update

Jonathan Nadler, SCAG, reported the following:

- OCTA BRT TCM Substitution Update: SCAG Regional Council adopted the TCM substitution on July 1 and the TCM substitution has been forwarded to ARB and EPA for concurrence.
- 2008 RTP/RTIP Conformity Re-determination for 2006 PM2.5 NAAQS Update: SCAG Regional Council approved the conformity re-determination on July 1 and the conformity re-determination had been submitted to FHWA and FTA for approval.
- SR60 HOV Lane Conversion TCM Substitution Update: The 30-day public review for the draft TCM substitution report concluded on July 24 and only one comment was received. The comment corrected a typo in the location of the



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**TRANSPORTATION CONFORMITY WORKING GROUP  
of the  
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS**

**July 27, 2010  
Minutes**

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project in the report. The substitution will be presented to SCAG's EEC for approval and SCAG's RC for adoption in September. Upon RC adoption, the TCM substitution will be forwarded to ARB and EPA for concurrence.

4.7 ARB UPDATE  
None

- 4.8 EPA Update  
Karina O'Connor, EPA, reported the following:
- EPA had already received some comments on the Draft PM Quantitative Hot-Spot Analysis Guidance and expected to receive more toward the end of the public comment period.

- 4.9 Air Districts Update  
Ben Cacatian, VCAPCD, reported the following:
- The VCTC's Call for Projects will be based on the anticipated extension of the current SAFETEA-LU program funding. A Subcommittee had looked at screening criteria and the consideration process was expected to start in October.

5.0 INFORMATION SHARING

6.0 ADJOURNMENT

Lisa Poe adjourned the meeting at 11:00 a.m.

The next Transportation Conformity Working Group meeting will be held on August 24, 2010 at the SCAG office in Los Angeles.



**Qualitative Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>) Hot Spot Assessment  
for Gerald Desmond Bridge Replacement Project**

**Ocean Boulevard from SR-47 to the Los Angeles River  
City of Long Beach, Los Angeles County**

Prepared by:



100 West Walnut Street, Pasadena, CA 91124

July 2010

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## 1. INTRODUCTION

This project-level particulate matter impact assessment for the Gerald Desmond Bridge Replacement Project responds to the United States Environmental Protection Agency's (EPA) requirement for particulate matter [ $PM_{10}$  (particulate matter of diameter less than or equal to 10 microns) and  $PM_{2.5}$  (particulate matter of diameter less than or equal to 2.5 microns)] hot-spot analysis, as specified in its March 10, 2006 *Final Transportation Conformity Rule* (71 FR 12468). The analysis was conducted following the procedures and methodology provided in the document *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in  $PM_{2.5}$  and  $PM_{10}$  Nonattainment and Maintenance Areas* (Guidance) [EPA, 2006a], developed by the EPA and the Federal Highway Administration (FHWA).

This  $PM_{2.5}$  and  $PM_{10}$  analysis addresses the construction of the proposed project, including the following components identified in the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP) Amendment #44:

*Project ID:* LA000512;

*Description:* Ocean Boulevard, from the Los Angeles River over UPRR and Back Channel, to 0.1 mile E of State Route 47, replace existing 5 lane Gerald Desmond Bridge with new 6 lane bridge (3 lane in each direction); other improvements include construction of relocated approach structures and roads, reconstruction of existing horseshoe interchange ramp connectors, reconstruction of the existing connectors to SR-710, and reconstruction of two ramp connections to Pico Avenue.

## 2. PROJECT DESCRIPTION

### *Project Location and Purpose*

The Gerald Desmond Bridge constructed in 1966 and seismically upgraded in 1995. It provides four through travel lanes (i.e., two in each direction). On the uphill segments, climbing lanes were added to accommodate container trucks and improve level of service (LOS) on the bridge. This improvement results in three ascending lanes and two descending lanes in each travel direction. Each climbing lane ends at the crest of the bridge. The bridge consists of a tied arch truss structure, in which the horizontal forces of the arch are borne by the bridge deck, rather than the ground or the bridge foundations. The bridge has a 409.5 ft-wide (124.8-m-wide) suspended span that crosses the deep-water navigable channel connecting the middle and inner harbors of the Port of Long Beach (POLB or Port).

As the fifth largest seaport complex in the world, more than 30 percent of U.S. waterborne container cargo is transported through the Ports (POLB, 2006b). The bridge is a vital link as the westerly extension of Route 710, which is the primary access route for the Ports and carries approximately 15 percent of all U.S. port-related container traffic.

The proposed project would either replace the existing functionally and seismically deficient Gerald Desmond Bridge with a new bridge that will meet the transportation needs of the Port and the region or the existing bridge would be seismically retrofitted to current standards. The bridge replacement alternatives would also include reconfiguration of adjacent arterial and freeway interchanges for consistency with the new or upgraded bridge. Bridge replacement would be completed prior to demolition of the existing bridge, to maintain traffic service. For the



rehabilitation alternative, any lane closures for deck replacement would be planned to occur during nighttime. Replacement of the existing bridge would also require relocation of the SCE transmission lines crossing Cerritos Channel north of the bridge.

The project site is located in the southwest portion of the City of Long Beach at the southern end of the Route 710 (SR-710)<sup>1</sup> freeway in Los Angeles County. The project corridor is in the Back Channel area of the Port, centered along Ocean Boulevard, and extends from the intersection of the Terminal Island Freeway at the western end to the easterly end of the bridge over the Los Angeles River. The southerly limit of the project is located on Pico Avenue approximately 660 feet (ft) south of the Ocean Boulevard interchange. The northerly limit of the project is along Route 710, approximately ½ mile (2,630 ft) north of Ocean Boulevard, which crosses the Back Channel over the Gerald Desmond Bridge. The Ocean Boulevard/Gerald Desmond Bridge portion of the project is located in the Port's Middle Harbor and Terminal Island Planning Districts, and the Route 710 portion is located in the Northeast Harbor Planning District. The Gerald Desmond Bridge is one of the three bridges that connect surface highways to Terminal Island in the harbor area. Figure 1 shows the project location in both a regional and local context.

The existing bridge consists of a tied arch truss structure with a 409.5-ft wide (124.8-m) suspended span (Parsons HNTB, 2002). The trusses form vertical sides to the bridge that are connected to one another by transverse beams, and by stringers and other components that support the deck. The existing vertical clearance of the main span is 156 ft (47.5 m) above mean high water line (MHWL) (local MHWL is 4.6 ft).

The project area is within a heavily urbanized portion of southern California. The immediate vicinity of the project is Port-related industrial uses. The combined ports of Long Beach and Los Angeles are the fifth largest container port in the world. The topography of the study area is flat and has been extensively modified through port and roadway development over the last 80 years.

### ***Project Alternatives***

In addition to the “no Action” alternative, two primary new alignments for the replacement alternative were studied and evaluated for the project. The location of the replacement alternative would be immediately north or south of the existing bridge. In addition, a rehabilitation alternative was also studied for the project. Based on the potential effects of the project on the environment, project benefits and after consideration of public comments on the Draft EIR/EA, the North-side Alignment Alternative was identified as the preferred alternative. A brief description of each alternative is presented below.

#### ***No Action Alternative***

Under the No Action Alternative, the Gerald Desmond Bridge would not be replaced or rehabilitated. The bridge would maintain its existing deteriorated condition and would continue to provide insufficient roadway capacity to accommodate projected car and truck traffic volumes, and inadequate channel clearance for safe passage of some existing and new-generation container ships.

---

<sup>1</sup> Highway 710 is designated by FHWA as Interstate System within the National Highway System (NHS) as high-priority corridor, in accordance with Section 1105 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The Route is I-710 north of Pacific Coast Highway (PCH) and SR-710, south of PCH

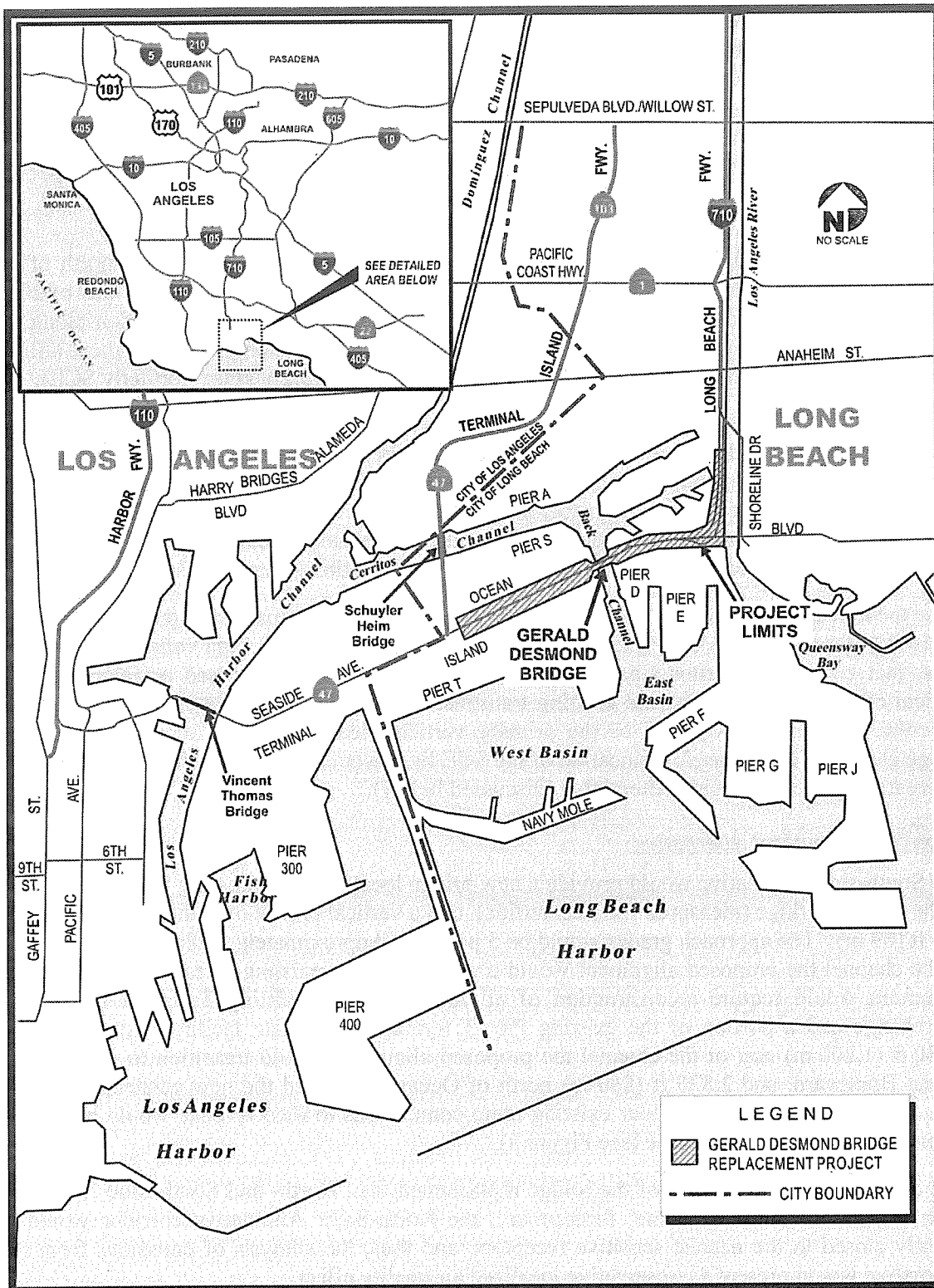


Figure 1  
Gerald Desmond Bridge Replacement Project Vicinity and Project Location Map

Under this alternative the Bridge would remain the sole direct connection between Route 710, the City of Long Beach, and Terminal Island. Currently used measures to protect against failing structural elements would need to be enhanced as the bridge continues to deteriorate, and related safety issues would increase in severity. With this alternative, seismic safety of the channel crossing would not be enhanced with a new or rehabilitated bridge meeting current seismic standards. Increasing traffic volumes would result in steadily deteriorating levels of service.

#### North-Side Alignment Alternative

This Alternative would provide a new bridge located approximately 120 ft (37 m) north of the existing bridge (measured from centerline), and a vertical profile over the Back Channel of 200ft (61 m). This alternative alignment would provide three travel lanes in each direction along the new bridge structure, and approach grades of 5 percent in both directions. This alignment utilizes the land between the existing bridge and the Long Beach Generating Station (formerly SCE).

Approximately 3,280 ft (1,000 m) west of the channel the proposed alignment would transition to join existing Ocean Boulevard. This alternative would reconstruct all ramps for the existing Terminal Island East interchange. Approximately 3,280 ft (1,000 m) east of the channel the proposed alignment would transition to join existing Ocean Boulevard, and 2,630 ft (801 m) north of Ocean Boulevard the new connections would join existing Route 710. The four existing ramp connections to Pico Avenue would be reconstructed for this alternative (see Figure 2).

Since the new bridge would be 200 ft (61 m) above the MHWL, in contrast to the existing bridge at 156 ft (47.4 m) above MHWL, the project also requires that the SCE high voltage transmission lines, that cross the Cerritos Channel north of the bridge be either raised or relocated. The vertical clearance afforded by the existing transmission lines is approximately 153 ft (46.6 m); therefore, the SCE lines would be the primary vertical clearance hazard to navigation if the bridge clearance is increased. Relocation of the SCE lines would occur with either the North-side Alternative or the South-side Alternative (discussed below).

#### South-Side Alignment Alternative

The South-side Alternative would provide a new bridge located approximately 56 ft (17 m) south of the existing bridge (measured from centerline), and a vertical profile over the Back Channel of 230 ft (69 m). The approach grades would be 5 percent. Approximately 3,280 ft (1,000 m) west of the channel the proposed alignment would transition to join existing Ocean Boulevard. This alignment would require reconstruction of all ramps for the existing Terminal Island East interchange and a portion of the existing Pier T terminal main gate facility. Approximately 3,940 ft (1,200 m) east of the channel the proposed alignment would transition to join existing Ocean Boulevard, and 2,820 ft (860 m) north of Ocean Boulevard the new connections would join existing Route 710. The four existing ramp connections to Pico Avenue would have to be reconstructed for this alternative (see Figure 3).

The operations and emissions of the bridge replacement, i.e., North- and South-Side Alignment Alternatives would be the same; furthermore, the North-Side Alternative corridor would be slightly closed to the nearest sensitive receptors, and thus, the analysis of emissions from this alternative would present a conservative localized air quality effect.

Figure 2 North-side Alignment Alternative

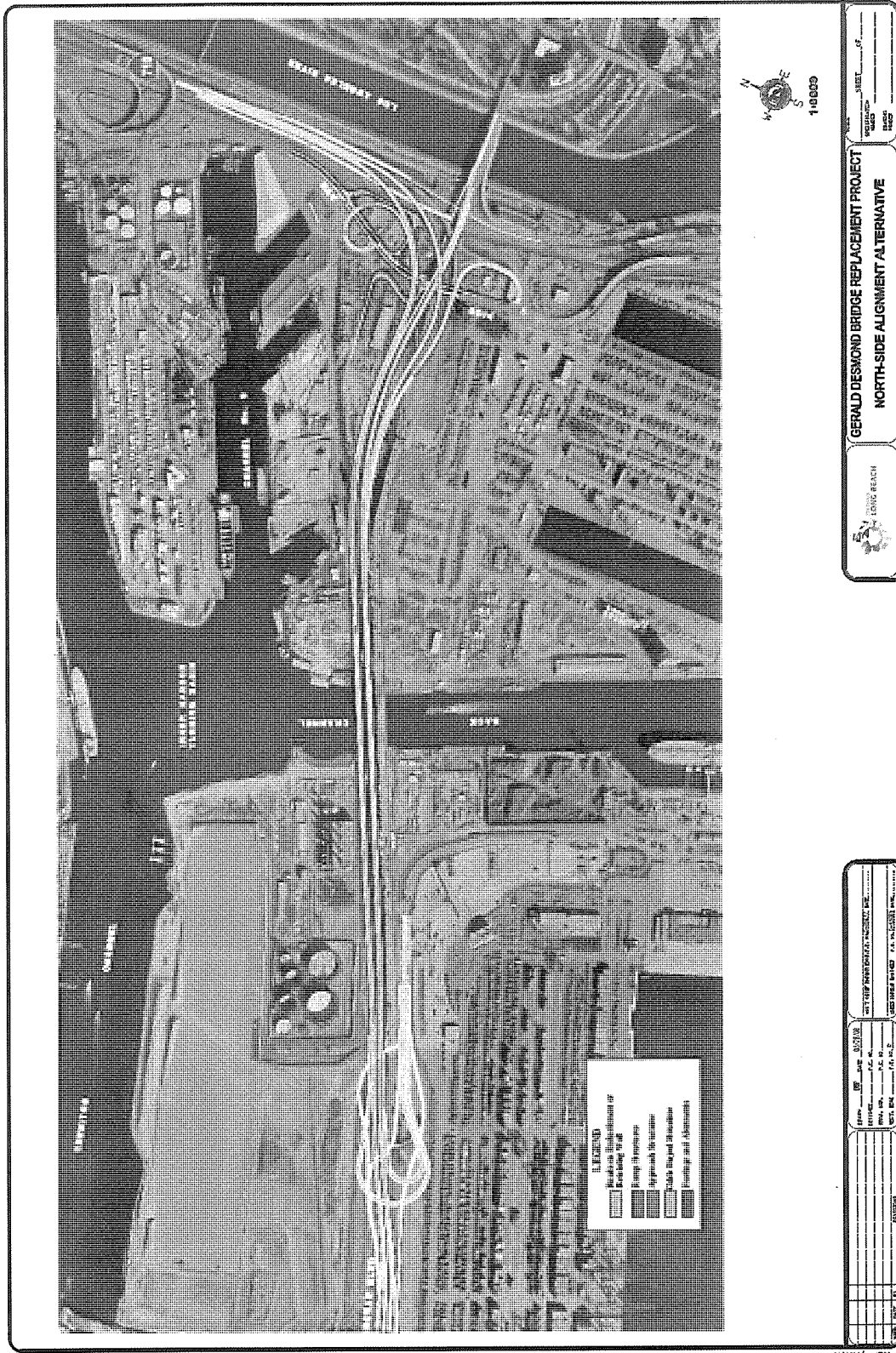
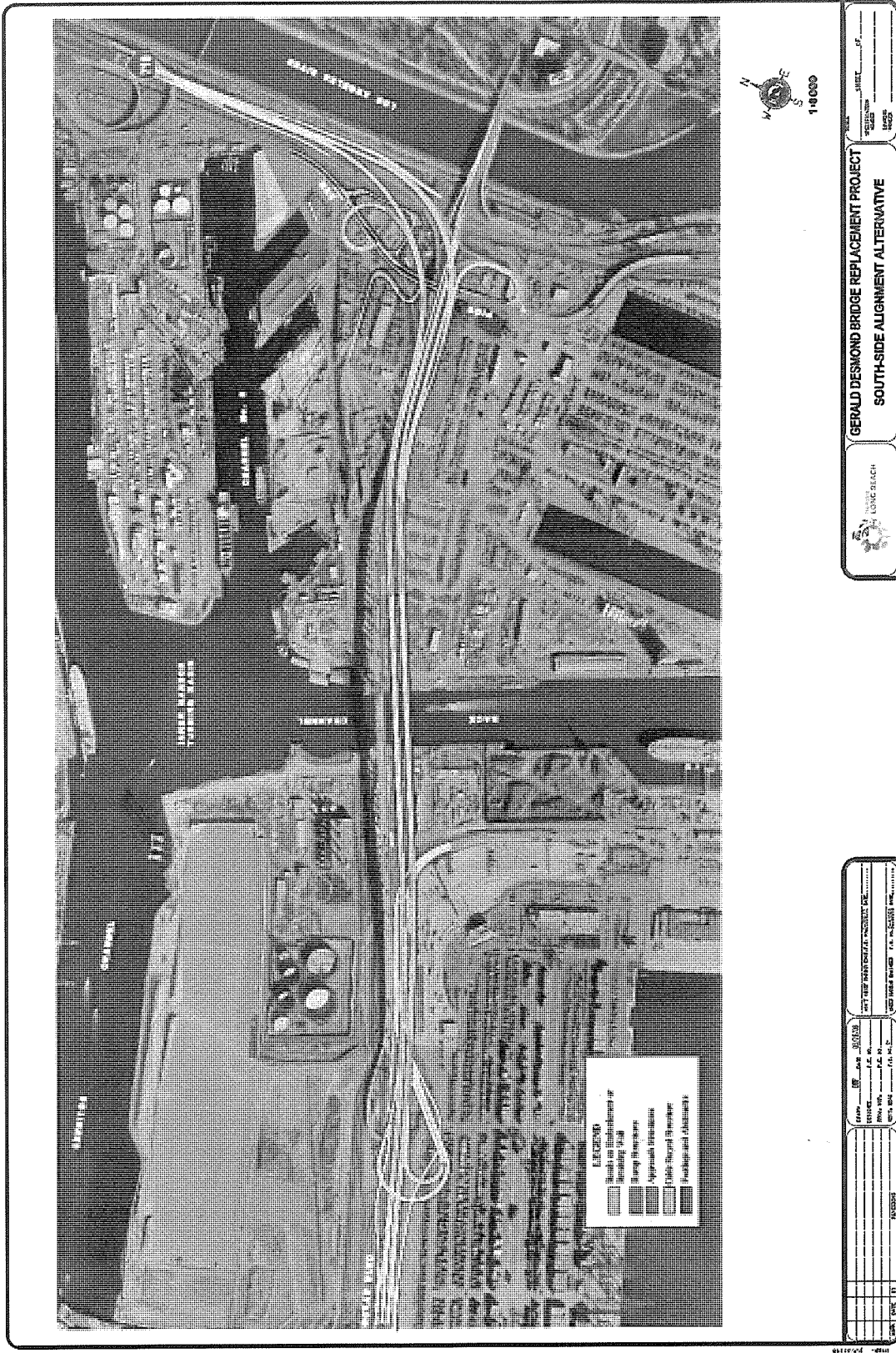


Figure 3 South-side Alignment Alternative



### Rehabilitation Alternative

The existing bridge underwent a seismic retrofit study in the early 1990s, followed by a seismic retrofit to improve its seismic performance. Partial steel column casings were added at select columns to support the main steel truss span. However, to comply with current seismic detailing standards, the lap splices at the base of the columns would need to be eliminated and the amount of confinement reinforcement increased. With this alternative, the existing bridge would be rehabilitated to improve its seismic performance and to extend its operational life span. No new traffic lanes would be added, and the height of the bridge would remain at 156 ft (47.5 m) above the MHWL. To comply with current seismic detailing standards for new bridges, the lap splices at the base of the columns would need to be eliminated and the amount of confinement reinforcement increased. Because there are no practical means to accomplish this, the best solution would be to add steel casings at all columns. Lacking a detailed seismic performance study, it is assumed that the casings would be placed along the full height of the columns. These retrofit measures would allow for the level of deformation needed for the bridge to withstand a major earthquake and to comply with Caltrans SDC requirements for capacity protection of column foundations and bent caps.

Main span trussed arch members would likely require strengthening and connection retrofit to meet current requirements.

In summary, to bring the existing Gerald Desmond Bridge up to current AASHTO standards and to mitigate continuous bridge deterioration would require the following measures:

- replacement of the bridge deck;
- replacement of expansion joints;
- replacement of the sway bracings for the main span;
- painting of all steel members; and
- seismic retrofit of foundations, columns, bent caps, abutments, and superstructure.

The bridge rehabilitation activities would occur within the footprint of the existing bridge. This alternative would not require demolition of any structures on adjacent properties and would also not require any modifications to the SCE towers. The estimated cost for these corrective measures is approximately \$289.3 million.

All of the above measures would be consistent with the level of retrofit undergone by major bridges in California, where retrofit measures were designed for a “No Collapse” design criteria. The “No Collapse” criteria imply that the bridge would survive the maximum credible earthquake (MCE) without collapse and loss of life, but it would have a high probability of being condemned after an extreme seismic event such as the MCE. Thus, even with implementation of the above seismic retrofit measures, the existing bridge seismic performance would not be on par with the proposed new bridge. The new bridge would be designed to withstand the MCE with only repairable damage allowed and an ability to be in service within days after the MCE event. Although seismic safety of the channel crossing would be enhanced with a rehabilitated bridge, forecasted increases in future traffic volumes would still result in steadily deteriorating levels of service.



The Rehabilitation Alternative would include retrofit activities only and would be operationally equivalent to the No Action Alternative. Operational analysis for the Rehabilitation Alternative would be the same as the No Action Alternative; thus it would not result in any operational air quality effects.

### 3. REGULATORY BACKGROUND

Because this project involves Federal funding and approval actions, it falls under the conformity provisions of the Federal Clean Air Act (CAA). The CAA amendments of 1990, as further amended by Federal transportation program authorizations since then, require that transportation plans, programs, and projects that are funded by or approved under Title 23 United States Code (U.S.C.) or the Federal Transit Act, conform to state or federal air quality plans for achieving NAAQS. "Conformity" is defined under section 176(c) of CAA as conforming to the purpose of the State Implementation Plan (SIP) to ensure that transportation plans, programs, and projects do not: 1) produce new air quality violations; 2) worsen existing violations; or 3) delay timely attainment of NAAQS. The CAA requirements are implemented through U.S. EPA regulations at Title 40 CFR Parts 93 and 51. Since 1997, most requirements have been in Part 93.

In determining whether a project conforms with an approved air quality plan, agencies must use current emission estimates based on the most recent population, employment, travel, and congestion estimates determined by an area's metropolitan planning organization (MPO). MPOs develop and maintain long- and short-range plans and programs, such as 20-year Regional Transportation Plans (RTP) and 4-year (or longer) Regional Transportation Improvement Programs (RTIP) that set out transportation policies and programs for the region. A regional conformity determination demonstrates that the total emissions projected for a plan or TIP are within the emissions limits (budgets) established by the SIP, and that transportation control measures (TCMs) in approved SIPs are implemented in a timely fashion to achieve the NAAQS.

In March of 2006, the Transportation Conformity Rule was revised by the EPA to provide specific "hot spot" analysis requirements for projects in  $PM_{10}$  and  $PM_{2.5}$  nonattainment and maintenance areas. The EPA and the FHWA issued a guidance document for implementing this rule, "*Transportation Conformity Guidance for Qualitative Hot-spot Analyses in  $PM_{2.5}$  and  $PM_{10}$  nonattainment and Maintenance Areas*". The EPA has released draft guidance for  $PM_{10}$  and  $PM_{2.5}$  quantitative hot spot analysis, but has not yet finalized the guidance; once finalized, the guidance will replace the 2006 guidance for purposes of  $PM_{10}$  and  $PM_{2.5}$  conformity-related hot spot analysis.

#### Standards and Conformity Conditions

$PM_{2.5}$  nonattainment and maintenance areas are required to attain and maintain following standards:

- 24-hour standards:  $35 \mu\text{g}/\text{m}^3$  (established in 2006) and  $65 \mu\text{g}/\text{m}^3$  (established in 1997). The South Coast air basin was designated nonattainment for the 1997 standard in 2004 and for the 2006 standard in 2008. Regional emission budgets are contained in  $PM_{10}$  and  $PM_{2.5}$  State Implementation Plan (SIP) revisions submitted in 2003 and 2007, respectively and are presently used as "interim" emission tests for regional conformity for the 2006 standard. A SIP revision is due to EPA by April 2013 demonstrating attainment of the 2006  $PM_{2.5}$  standard by April 2015 with a possible extension to March 2020. Project-level  $PM_{2.5}$  conformity is based on localized trend analysis and is applicable to both the current 24-hour

PM<sub>2.5</sub> standard and the previous 24-hour standard of 65 µg/m<sup>3</sup>. Additionally, the 2008 RTP and 2008 RTIP conformity determination for PM<sub>2.5</sub> were based on the previous 24-hour standard of 65 µg/m<sup>3</sup>. Therefore, PM<sub>2.5</sub> conformity for the proposed project is based on the 24-hour standard of 65 µg/m<sup>3</sup>.

- Annual standard: 15.0 µg/m<sup>3</sup>

The 24-hour PM<sub>2.5</sub> standard is based on 3-year average of the 98<sup>th</sup> percentile of 24-hour recorded concentrations; the annual standard is based on 3-year average of the annual arithmetic mean PM<sub>2.5</sub> recorded at the monitoring station. A PM<sub>2.5</sub> hot-spot analysis must consider both standards, unless it is determined for a given area that meeting the controlling standard would ensure that CAA requirements are met for both standards. The interagency consultation process should be used to discuss how the qualitative PM<sub>2.5</sub> hot-spot analysis meets statutory and regulatory requirements for both standards, depending on the factors that are evaluated for a given project.

PM<sub>10</sub> nonattainment and maintenance areas are required to attain and maintain the 24-hour standard of 150 µg/m<sup>3</sup>.

The 24-hour PM<sub>10</sub> standard is attained when the average number of exceedances in the previous three calendar years is less than or equal to one. An exceedance occurs when a 24-hour average concentration of greater than 150 µg/m<sup>3</sup> is measured at a monitoring site. The annual PM<sub>10</sub> standard of 50 µg/m<sup>3</sup> is no longer used for determining the federal attainment status. The interagency consultation process should be used to discuss how the qualitative PM<sub>10</sub> hot-spot analysis meets statutory and regulatory requirements for PM<sub>10</sub> standard, depending on the factors that are evaluated for a given project.

## 4. PROJECT IMPACT ANALYSIS

### 4.1 Project Compliance with CFR 93.116 and 93.123

Section 93.116 (a) of 40 CFR states that an FHWA/Federal Transit Authority (FTA) project must not cause or contribute to any new localized PM<sub>2.5</sub> violations or increase the frequency or severity of any existing PM<sub>10</sub> or PM<sub>2.5</sub> violations in nonattainment or maintenance areas. The regulations further state that projects may satisfy this requirement without an analysis of their potential to create particulate matter hot spots, provided that they do not meet the criteria set forth in Section 93.123 (b) for “projects of air quality concern (POAQC).”

A project may be considered to have one of three types of status: (1) Exempt; (2) Not be exempt but not be a POAQC based on the specific parameters established in the regulations; and (3) It may be a POAQC, which requires that a qualitative hot-spot analysis be conducted. *The Gerald Desmond Bridge Replacement project does not meet the definition of an exempt project under Section 93.126 or 93.128.*

The 2006 Final Transportation Conformity Rule defines a POAQC that requires PM<sub>10</sub> and PM<sub>2.5</sub> hot-spot analysis in 40 CFR 93.123(b)(1) as:

- (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- (ii) Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;



- (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- (v) Projects in or affecting locations, areas, or categories of sites that are identified in the PM<sub>2.5</sub> and PM<sub>10</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project falls within the category of new or expanded highway projects with a significant number of diesel vehicles, and would be affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles (see Tables 3 and 4 in the following sections). The project would be considered as a POAQC based on the criteria listed in the final conformity rule (40 CFR 93.123(b)(1)). Therefore, a qualitative project-level hot-spot analysis was conducted to assess whether the project would cause or contribute to any new localized PM<sub>10</sub> or PM<sub>2.5</sub> violations, or increase the frequency or severity of any existing violations, or delay timely attainment of the PM<sub>10</sub> or PM<sub>2.5</sub> NAAQS.

#### **4.2 Project-Level PM Conformity Analysis**

A hot-spot analysis is defined in Section 93.101 of 40 CFR as an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A hot-spot analysis assesses the air quality impacts on a project-level – a scale smaller than an entire nonattainment or maintenance area, such as for congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets the federal CAA conformity requirements to support state and local air quality goals with respect to achieving the attainment status in a timely manner. When a hot-spot analysis is required, it is included within the project-level conformity determination that is made by FHWA or FTA.

#### **4.3 Analysis Methodology and Types of Emissions Considered**

The EPA in its *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas* (EPA 2006a) has established the following two methods for completing a PM<sub>2.5</sub> and PM<sub>10</sub> hot-spot analysis:

- a. Comparison to another location with similar characteristics – (pollutant trend within the air basin)
- b. Air quality studies for the proposed project location – (ambient PM trend analysis in the project area)

This analysis uses a combined approach to demonstrate that the proposed Gerald Desmond Bridge Replacement Project would not result in a new or worsened PM<sub>2.5</sub> or PM<sub>10</sub> violation. Method A was used to establish that the proposed project area will meet the national ambient air quality standards (NAAQS). Method B was used to demonstrate that implementation of the proposed project would not delay attainment of the NAAQS.

The proposed project is located in the South Coast Air Basin (SCAB), which is designated as nonattainment for the federal PM<sub>10</sub> and PM<sub>2.5</sub> standards. In order to implement the hot-spot

analysis requirements of the March 10, 2006 final rule, the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas* (Guidance) [EPA420-B-06-902, March 2006] was used to perform this Qualitative Hot Spot Analysis.

The analysis was based on directly emitted PM<sub>2.5</sub> and PM<sub>10</sub> emissions, including tailpipe, brake wear, and tire wear. Secondary particles formed through PM precursors take several hours to form in the atmosphere; thus, they would be dispersed beyond the immediate project vicinity and are not considered in a hot-spot analysis. Secondary emissions are included in the regional emission analysis prepared for the conforming RTP and TIP. Vehicles cause dust from paved and unpaved roads to be re-entrained or resuspended in the atmosphere. Re-entrained PM road dust are also included in this qualitative analysis, since the analysis addresses both PM<sub>10</sub>, for which re-entrained dust must be considered, and PM<sub>2.5</sub> for which the California Air Resources Board (CARB) has determined that re-entrained road dust is a significant contributor to ambient PM concentrations<sup>2</sup>.

Construction of the proposed project would last less 5 years; therefore, temporary construction emissions are not considered in this analysis as provided in 40 CFR 93.123(b)(5).

### 4.3 Air Quality Trend Analysis

For performing the trend analysis, PM<sub>10</sub> and PM<sub>2.5</sub> ambient air quality data from monitoring stations within the proposed project area were utilized. This data was compared with PM<sub>10</sub> and PM<sub>2.5</sub> NAAQS and also examined for trends to predict future conditions in the project vicinity. In the following sections, the project impacts, as well as the likelihood of these impacts interfering with the ambient PM<sub>2.5</sub> and PM<sub>10</sub> levels to cause hot spots, are discussed. The opening year (2015), as well as the horizon year of 2030, were considered for the analysis.

#### ***Data Consideration***

##### ***Particulate Levels in the Project Area***

SCAQMD maintains a network of air quality monitoring stations located throughout the SCAB and has divided the Basin into 27 source/receptor areas (SRAs). The project is located in SRA number 4, South Coastal Los Angeles County. The nearest SCAQMD air monitoring station to the project site is the North Long Beach Monitoring Station (Station No. 072), which is located at 3648 Long Beach Boulevard, approximately 4 miles northeast of the project site.

The Ports of Long Beach (POLB) and Los Angeles (POLA), have recently initiated air monitoring studies to collect representative ambient pollutants and meteorological data within the Ports' operational region of influence (ROI). The special study programs include monitoring concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> to determine ambient levels of these pollutants within the Ports area.

The POLB air monitoring stations are located in two areas at the Port: one in the Inner Harbor area, near West Long Beach, and a second in the Outer Harbor area, near the breakwater. These monitoring stations were developed to expand upon regional air monitoring efforts conducted by the California Air Resources Board and the South Coast Air Quality Management District. The data gathered at the POLB stations are available for the period starting in September 2006 (POLB, 2010). These data are considered in context with the North Long Beach monitoring

<sup>2</sup> South Coast Air Quality Management District PM<sub>2.5</sub> SIP, submitted to EPA by ARB; "baseline" emission budgets based on SIP including re-entrained road dust found adequate by U.S. EPA effective 5/30/2008

station for comparison purposes, and to ensure the use of representative ambient data. However, it should be noted that according to the POLB Website, all available monitoring data from these stations is preliminary and therefore, would not be reliable for a trend analysis. In addition, since the Ports' data do not cover a 5 or more year period, they are not suitable for analysis meeting typical SIP standards. Table 1-b presents the maximum pollutant concentrations measured at these stations for the past three years (i.e., 2007 to 2009).

For purpose of trend analysis, the recorded data at the North Long Beach Stations were used in this report, since the station include the most comprehensive monitoring in the local area. The recorded recent data available from this station include data for the years 2001 to 2008. Table 1-a and Figure 4 show the particulate concentrations and their historical trend (both PM<sub>10</sub> and PM<sub>2.5</sub>), as recorded at this Monitoring Station. Table 1 provides the measured concentrations and the number of days that the applicable NAAQS was exceeded. Figure 4 includes normalized concentrations and shows the trend of the pollutant changes in the area. Normalized concentrations represent the ratio of the highest measured concentrations in a given year to the applicable national standard. Therefore, normalized concentrations lower than one indicate that the measured concentrations were lower than the ambient air quality standard. The monitored data show the following trends:

- **Respirable Particulate Matter (PM<sub>10</sub>)** – During the recorded period of 2001 to 2008, the 24-hour maximum monitored data were well below the NAAQS. It should be noted that data reported for 2007 represent the second high value. The first high value measured at the station (232 µg/m<sup>3</sup>), is flagged as “exceptional event” and occurred on October 21, 2007 which coincides with southern California wildfires in 2007. With the exclusion of the flagged data, the highest recorded 24-hour concentration during the period of 2001 to 2008 was 91 µg/m<sup>3</sup>, recorded in 2001. The NAAQS were not exceeded at any time during the last 8 years at this monitoring station.
- **Fine Particulate Matter (PM<sub>2.5</sub>)** – During the recorded period of 2001 to 2008, the 24-hour 98<sup>th</sup> percentile concentration, averaged over 3 years, ranged from 49 to 41 µg/m<sup>3</sup>. These recorded levels are below the 1997 NAAQS (between 75 percent and 63 percent of the 65 µg/m<sup>3</sup> standard level). The 2006 24-hour NAAQS of 35 µg/m<sup>3</sup> was exceeded during the reported period, but the overall declining rate is not changed. Furthermore, Table V-2-16 in the 2007 AQMP provides the projected 2015 24-hour PM<sub>2.5</sub> concentration at the Long Beach Station. The estimated design value range between 31.2 µg/m<sup>3</sup> and 41.9 µg/m<sup>3</sup>, depending on the methodologies used to project the future background concentrations. The projected values are consistent with a declining trend of PM<sub>2.5</sub> ambient concentration within the project area.

The annual mean PM<sub>2.5</sub> concentration exceeded the NAAQS every year except 2006 and 2008; however, the data show a declining trend. Specifically, from 2001 to 2003 the annual average concentrations show an approximate 8.5 percent reduction rate, with very little change from 2003 to 2004, and a higher reduction rate of approximately 12 percent from 2004 to 2005 (17.9 µg/m<sup>3</sup> to 15.9 µg/m<sup>3</sup>) concentrations. Table V-2-15c in the 2007 AQMP with the California Air Resources Board (CARB) emission reduction plan and the SCAQMD emission reduction overlay, the annual PM<sub>2.5</sub> concentration at the Long Beach Station is projected to be 12.7 µg/m<sup>3</sup> in 2014. This concentration is below the federal annual standard of 15 µg/m<sup>3</sup>. The data indicate a general declining trend for the ambient PM<sub>2.5</sub> concentrations in the project area.

**Table 1-a. Ambient Particulate Matter Data Summary  
(North Long Beach Monitoring Station)**

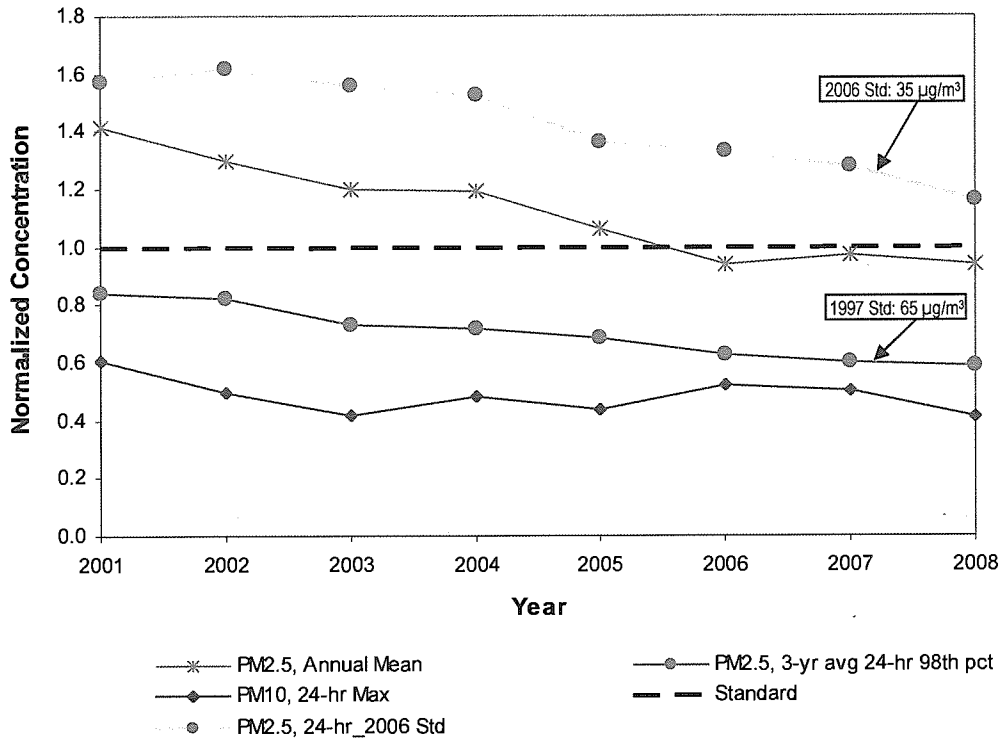
Pollutant	Standard ( $\mu\text{g}/\text{m}^3$ )	Recorded Concentrations ( $\mu\text{g}/\text{m}^3$ )							
		2001	2002	2003	2004	2005	2006	2007	2008
Respirable Particulate Matter ( $\text{PM}_{10}$ )	(24-Hour) 1 <sup>st</sup> Maximum Concentration ( $\mu\text{g}/\text{m}^3$ )	91	74	63	72	66	78	75 <sup>a</sup>	62
	Days > NAAQS ( $150 \mu\text{g}/\text{m}^3$ )	0	0	0	0	0	0	0	0
Fine Particulate Matter ( $\text{PM}_{2.5}$ )	(24-Hour) 1 <sup>st</sup> Maximum Concentration ( $\mu\text{g}/\text{m}^3$ )	73	63	115	67	54	59	83	57
	98 <sup>th</sup> Percentile of 24-hr Concentration	49	47	47	46	41	50	41	50
	Days > NAAQS ( $65 \mu\text{g}/\text{m}^3$ )	0	0	0	0	0	0	0	0
	3-year Average 98 <sup>th</sup> Percentile ( $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>	55	53	48	47	45	41	45	41
	(Annual) Annual Arithmetic Mean ( $15 \mu\text{g}/\text{m}^3$ )	<b>21.2</b>	<b>19.5</b>	<b>18.0</b>	<b>17.9</b>	<b>15.9</b>	14.1	<b>15.9</b>	14.1

<sup>a</sup> The data reported for 2007 represent the second high value. The first high value measured at the station ( $232 \mu\text{g}/\text{m}^3$ ), is flagged as "exceptional event" and occurred on October 21, 2007 which coincides with southern California wildfires in 2007.

<sup>b</sup> Attainment condition for  $\text{PM}_{2.5}$  is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard, which was  $65 \mu\text{g}/\text{m}^3$  during the reported period. The new 2-hour standard of  $35 \mu\text{g}/\text{m}^3$  became effective in December of 2006. Annual exceedances are shown in bold type.

Source: CARB, 2010.

**Figure 4. Normalized Monitored PM Concentrations – 2001 to 2008  
North Long Beach Monitoring Station**



**Table 1-b. Maximum PM Concentrations Measured at POLB Air Monitoring Stations from 2007 to 2009\*\***

Pollutant (Concentration unit)	Averaging Period	National Standard	State Standard	Inner Port Station Data			Outer Port Station Data		
				2007	2008	2009	2007	2008	2009
PM <sub>10</sub> (µg/m <sup>3</sup> )	24-hour	150	50	<b>175<sup>a,**</sup></b>	<b>161</b>	<b>579<sup>a,**</sup></b>	<b>119<sup>a,**</sup></b>	<b>133</b>	<b>201<sup>a,**</sup></b>
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	24-hour	35 <sup>b</sup>	—	<b>60<sup>a,**</sup></b>	56	<b>105<sup>a,**</sup></b>	<b>61<sup>**</sup></b>	67	66

*Exceedances shown in bold*

**\*\*** According to the POLB monitoring Website *all data is preliminary* (accessed July 8, 2010).

**a** Excludes elevated values that were recorded during wildfires.

**b** Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM<sub>2.5</sub> from the previous level of 65µg/m<sup>3</sup>. The updated area designation will become effective in October 2009.

Source: POLB, 2010.

### Surrounding Land Use and Future Trends

The land use surrounding the project site is mostly built out and consists primarily of industrial and Port-related uses. The climate and meteorology at the project site are typical of coastal areas, with variable winds during the day that facilitate the dispersion of pollutants better than in the inland areas. Therefore, the future air quality is expected to improve as per the trend shown in Table 1 and Figure 2 and also in the SIP. Figure 5 shows the location of nearest air quality sensitive receptors and the representative air quality monitoring station. The residential area closest to the project corridor is located on the east of Los Angeles River, approximately 0.3 mile (485 m) northeast of project's eastern boundary. Schools nearest to the project corridor include Cesar Chavez Elementary School (730 W 3rd St), and Edison Elementary School (625 Main Avenue), both located approximately 0.3 mile (485 m) east of the project site. The nearest daycare is the Childtime Learning Center (1 World Trade Center), 0.5 mile east of the project site. The nearest medical facility is the St Mary Medical Center (432 E 10th Street) approximately 1.3 mile northeast of the project eastern limit. Some residents, elementary schools and daycare centers in southeast Wilmington are also in proximity to the project site. As shown in Figure 5, the proposed replacement alignments would not move the project corridor closer to the nearest sensitive receptors.

The proposed project is included in the RTP; thus, it is included in the SCAB air quality modeling efforts for the region, as provided in the 2007 AQMP.

### Basin Trends

SCAQMD's 2007 AQMP includes modeled estimates of future air quality levels within the SCAB. The modeling results that are reported in the 2007 AQMP indicate that emissions of particulate matters (PM<sub>10</sub> and PM<sub>2.5</sub>), and other criteria pollutants have decreased significantly with implementation of new air quality standards and more stringent rules and regulations. Additionally, comparisons with recent year projections show that the air quality is improving at a greater rate than what was projected by the models.

Table 2, which was derived from Chapter 10 (Looking Beyond Current Requirements) of the 2007 AQMP, provides a comparison of the monitored 2005 PM levels to the model predicted values for 2015 and 2021. As shown, the projected data indicates a trend of decreasing ambient PM concentrations from 2005 through 2021.

The monitored PM ambient concentrations at the Long Beach Station, shown in Table 1-a, support the model predicted trends, as the recorded PM<sub>10</sub> and PM<sub>2.5</sub> levels at the monitoring station between the years 2001 and 2008 for both the 24-hour levels and average annual values show a general declining trend.

Figure 5. Sensitive Receptors and Monitoring Station Locations



**Table 2. Comparison of Particulate Matter Ambient Concentrations (SCAB)**

Pollutant (Averaging Time)	Standard ( $\mu\text{g}/\text{m}^3$ )	2005		2015 <sup>a</sup>		2021 <sup>a</sup>		
		Observed Max Value ( $\mu\text{g}/\text{m}^3$ )	% Above Standard	Projected Max Value ( $\mu\text{g}/\text{m}^3$ )	% Above Standard	Projected Max Value ( $\mu\text{g}/\text{m}^3$ )	% Above Standard	
PM <sub>10</sub> (24-hour)	150	131	Met	117	Met	111	Met	
PM <sub>2.5</sub> (Annual)	15.0	21.0	40	15.0	Met	<15.0	Met	
PM <sub>2.5</sub> (24-hour)	1997 Std	65	133	104	57	Met	52	Met
	2006 Std	35	133	279	57	63	52	49

<sup>a</sup> Projected data include the 2007 Control Strategies.

Source: SCAQMD, 2007 AQMP, Chapter 10.

### ***Project Traffic Impacts***

The proposed project would replace the existing physically and functionally deficient Gerald Desmond Bridge with a new structure that would be able to carry the projected traffic volume increase in the area. In addition, the project includes the reconfiguration of freeway interchanges within the project limit and some arterial street intersections. Therefore, the project would improve traffic operations along segments of Ocean Boulevard, the Gerald Desmond Bridge, and freeway ramps and interchanges, as well as intersections within the project corridor.

### ***Roadway Segments***

The existing bridge, in each direction has two travel lanes, with a truck-climbing lane of six percent approach grade at the ascending direction up to the crest of the bridge where they merge back to the two-lane configuration. The need for the truck climbing lanes, coupled with the traffic congestion during the morning and afternoon peak operation hours, have led to a higher than statewide average accident rate on this facility. The Gerald Desmond Bridge Replacement Project would accommodate current car and truck traffic volumes and meet future needs by providing three travel lanes in each direction, thus eliminating the current merging movement, at the transition to two-lane configuration; the project would also reduce the approach grades. In addition, the project would include roadway and circulation improvements, which would reduce non-recurring congestion in the project area. Non-recurring congestion is traffic congestion related to automobile crashes, disabled vehicles, work zones, adverse weather events, and planned special events (FHWA, 2006). The addition of a 9.8 ft (3 m) outside shoulder and an 11.8 ft (3.6 m) inside shoulder at the approaches of the new bridge would provide room for emergency response vehicles, roadway maintenance personnel and disabled automobiles without causing major congestion/roadway closures to occur. These improvements in access would reduce delays in traffic thereby providing the benefit of improved air quality in the project area. Furthermore, the proposed improved 5% approach grade would help reduce emissions of pollutants from faster moving trucks in comparison to the emissions from the slower truck traffic and higher RPM trucks to climb uphill on the existing steep grade of the truck climbing lane.

Tables 3 and 4 present a comparison of average daily traffic conditions for the No Build and Build Alternatives in opening year 2015 and horizon year 2030, respectively. As shown, although the average daily traffic of Build alternative compared to the No Action condition increases along all segments of project corridor, the percent of heavy trucks are projected to

**Table 3. Comparison of Roadway Segments Traffic Conditions  
for the No Build and Build Alternatives (Opening Year 2015)**

Roadway Segment	AADT (All Vehicles)			Truck AADT and Percentage				
	No Build	Build	% AADT Change	No Build		Build		% AADT Change
				AADT	% Trucks	AADT	% Trucks	
<b>Ocean Boulevard</b>								
<i>Navy Way to Pier S Avenue</i>								
Eastbound	41,910	43,910	3.7	12,810	30.6	12,860	29.6	0.4
Westbound	37,910	38,980	2.8	11,400	30.1	11,530	29.6	1.1
<i>Pier S Avenue to Terminal Island Freeway</i>								
Eastbound	32,030	35,660	11.3	7,900	24.7	8,660	24.2	9.6
Westbound	30,750	32,200	4.7	5,650	18.4	5,960	18.5	5.5
<i>Terminal Island Fwy to Horseshoe Ramps</i>								
Eastbound	37,780	42,260	11.9	10,130	26.8	11,440	27.1	12.9
Westbound	33,700	36,690	8.9	7,380	21.9	9,170	25.0	24.3
<i>SR-710 Connector Ramps to Downtown</i>								
Eastbound	9,040	10,248	13.4	96	1.1	120	1.2	25.0
Westbound	12,196	12,712	4.2	2,084	17.1	2,148	16.9	3.1
<b>Gerald Desmond Bridge</b>								
Eastbound	40,870	46,070	12.7	12,240	29.9	14,000	30.4	14.4
Westbound	36,200	40,660	12.3	10,550	29.1	12,100	29.8	14.7
<b>Northbound I-710 Connector Ramp</b>	14,092	20,480	45.3	8,472	60.1	9,792	47.8	15.6
<b>Southbound I-710 Connector Ramp</b>	12,840	17,880	39.3	8,844	68.9	11,796	66.0	33.4

AADT – average annual daily traffic

Source: Iteris, 2009.

**Table 4. Comparison of Roadway Segments Traffic Conditions  
for the No Build and Build Alternatives (Horizon Year 2030)**

Roadway Segment	AADT (All Vehicles)			Truck AADT and Percentage				
	No Build	Build	% AADT Change	No Build		Build		% AADT Change
				AADT	% Trucks	AADT	% Trucks	
<b>Ocean Boulevard</b>								
<i>Navy Way to Pier S Avenue</i>								
Eastbound	59,540	62,410	4.8	22,020	37.0	22,220	35.6	0.9
Westbound	57,720	59,620	3.3	22,650	39.2	22,580	37.9	-0.3
<i>Pier S Avenue to Terminal Island Freeway</i>								
Eastbound	48,310	51,210	6	15,540	32.2	21,960	42.9	41.3
Westbound	49,230	51,820	5.3	16,730	34.0	17,470	33.7	4.4
<i>Terminal Island Fwy to Horseshoe Ramps</i>								
Eastbound	54,350	58,830	8.2	19,840	36.5	21,840	37.1	10.1
Westbound	56,030	58,340	4.1	21,300	38.0	19,130	32.8	-10.2
<i>SR-710 Connector Ramps to Downtown</i>								
Eastbound	9,912	11,824	19.3	104	1.0	116	1.0	11.5
Westbound	12,956	13,948	7.7	2,104	16.2	2,124	15.2	1
<b>Gerald Desmond Bridge</b>								
Eastbound	62,170	68,850	10.7	26,280	42.3	29,120	42.3	10.8
Westbound	62,500	67,080	7.3	28,080	44.9	30,610	45.6	9
<b>Northbound I-710 Connector Ramp</b>	18,300	21,056	15.1	9,944	54.3	12,300	58.4	23.7
<b>Southbound I-710 Connector Ramp</b>	14,040	19,136	36.3	10,424	74.2	14,200	74.2	36.2

AADT – average annual daily traffic

Source: Iteris, 2009.



increase along some segments and decrease along some other segments of the project corridor. Furthermore, the maximum truck ADT increase, which occurs in 2030 along the segment of Ocean Boulevard between Pier S Avenue and Terminal Island Freeway, is projected to be 7,160 which is below the 10,000 truck increase criterion for potential PM hot-spot generation.

It is worth mentioning that the bridge replacement alternatives (North- and South-Side Alignment Alternatives) would have a beneficial impact on the cumulative traffic in the project vicinity as presented in Table 5. The studied Project vicinity is the area approximately bounded by I-110 on the west, I-405 on the north, I-710 on the east, and the water on the south (Iteris, 2009). The data in Table 5 also indicate that with replacement of the Gerald Desmond Bridge, the average vehicle travel speed would slightly increase in the project vicinity area (lower daily VHT compared with the No Action conditions). These effects would translate into a decrease in vehicle emissions within the project vicinity (see Table 9).

**Table 5. Forecasted Daily VMT and VHT in the Project Vicinity**

Vehicle Type	No Project/ Rehabilitation Alternative	Bridge Replacement Alternatives	Increase/ (Decrease)	No Project/ Rehabilitation Alternative	Bridge Replacement Alternatives	Increase/ (Decrease)
	<b>2015 VMT</b>			<b>2030 VMT</b>		
Total Autos	4,475,415	4,466,876	(8,539)	4,950,124	4,937,966	(12,157)
Total Trucks	850,846	847,881	(2,964)	1,144,522	1,138,963	(5,560)
Total All Vehicles	5,326,260	5,314,757	(11,503)	6,094,646	6,076,929	(17,717)
	<b>2015 VHT</b>			<b>2030 VHT</b>		
Total Autos	113,604	112,817	(787)	148,869	147,273	(1,596)
Total Trucks	17,685	17,404	(281)	31,687	30,909	(778)
Total All Vehicles	131,289	130,221	(1,068)	180,556	178,182	(2,374)

*Project vicinity encompasses the area approximately bounded by I-110 on the west, I-405 on the north, I-710 on the east, and the water on the south.*

*Source: Iteris, 2009.*

### Intersections

As a result of the proposed project, delays due to traffic congestion at the project intersections would be greatly reduced, and the average vehicle travel speed would slightly increase. Both of these effects would translate into a decrease in vehicle emissions. In 2030, the LOS at the intersections within the project area would be improved by implementing the Build Alternative. Tables 6 and 7 compare the peak-hour intersection conditions of the No Build Alternative to the Build Alternative for 2015 and 2030, respectively. Among the 13 intersections that were analyzed, the LOS of the Build Alternative would improve at 10 intersections compared to the No Build Alternative. As shown, at the intersection of Navy Way and Seaside Avenue, either a peak-hour LOS would decline (MD peak hour during 2015) or the LOS would be the same but the v/c ratio would increase by 2 percent or more. The intersection of Ocean Boulevard and Magnolia Avenue would be affected during morning peak hour in 2015 (increase in v/c) and during AM, mid-day, and PM peak hours in 2030 (decline in LOS) by the proposed project. The intersection of Ocean Boulevard and Golden Shore Street is projected to be affected only during PM peak hour in 2030 (LOS decline).

An emissions increase of PM would occur when the project results in a significant increase in ADT and VMT in the project area and at locations where there are more traffic delays. Traffic delays would occur at the intersections where vehicles are accumulating and idling. It is unlikely

**Table 6. Comparison of Intersection Traffic Conditions for the No-Action/Rehabilitation and Build Alternatives (Opening Year 2015)**

Intersection	Peak Hour	Year 2005			Horizon Year – 2030					
		Existing or Baseline			No-Action/ Rehabilitation			Build Alternatives		
		LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle
Terminal Island Interchange Ramps / Ocean Boulevard	AM	C	0.792	-	B	0.661	-	B	0.648	-
	MD	D	0.833	-	E	0.966	-	D	0.899	-
	PM	E	0.912	-	D	0.865	-	D	0.813	-
Pier S Avenue / Ocean Boulevard	AM	C	0.709	-	B	0.681	-	B	0.679	-
	MD	C	0.700	-	C	0.761	-	B	0.656	-
	PM	D	0.824	-	B	0.650	-	A	0.597	-
Pier S Avenue / New Dock Street	AM	A	0.327	-	A	0.328	-	A	0.352	-
	MD	A	0.350	-	A	0.420	-	A	0.432	-
	PM	A	0.356	-	A	0.337	-	A	0.337	-
Navy Way / Seaside Avenue	AM	A	0.474	-	C	0.735	-	C	0.776	-
	MD	A	0.414	-	C	0.753	-	D	0.768	-
	PM	A	0.581	-	E	0.914	-	E	0.935	-
Pico Avenue _Pier B Street / 9th Street	AM	A	0.428	-	B	0.606	-	A	0.594	-
	MD	A	0.455	-	A	0.594	-	B	0.613	-
	PM	A	0.494	-	A	0.575	-	A	0.588	-
Pico Avenue / Pier C Street	AM	A	0.309	-	A	0.376	-	A	0.378	-
	MD	A	0.340	-	A	0.309	-	A	0.306	-
	PM	A	0.343	-	A	0.306	-	A	0.308	-
Pico Avenue / Pier D Street	AM	B	-	10.1	C	-	23.3	A	0.492	-
	MD	B	-	11.3	C	-	19.2	A	0.432	-
	PM	B	-	10.7	C	-	15.5	A	0.399	-
Pico Avenue / Pier E Street	AM	A	-	9.9	B	-	12.4	A	0.331	-
	MD	B	-	11.8	B	-	14.0	A	0.410	-
	PM	B	-	11.3	C	-	18.9	A	0.582	-
Terminal Island Freeway SB Off-Ramp / New Dock Street	AM	B	-	10.8	B	-	12.2	B	-	10.8
	MD	A	-	9.1	B	-	13.3	B	-	12.1
	PM	A	-	9.3	B	-	10.5	B	-	10.3
Terminal Island Freeway NB On-Ramp / New Dock Street	AM	A	-	7.4	A	-	9.1	A	-	8.9
	MD	A	-	7.6	B	-	11.9	B	-	11.1
	PM	A	-	7.9	B	-	10.8	B	-	10.1
Pico Avenue / Broadway	AM	B	-	10.6	B	-	10.6	B	-	10.3
	MD	B	-	11.2	A	-	9.8	A	-	9.9
	PM	B	-	10.5	A	-	9.3	A	-	10.0
Ocean Boulevard/ Golden Shore Street	AM	A	0.570	-	B	0.628	-	B	0.637	-
	MD	A	0.569	-	B	0.691	-	C	0.708	-
	PM	A	0.593	-	B	0.693	-	C	0.719	-
Ocean Boulevard/ Magnolia Avenue	AM	B	0.693	-	E	0.907	-	E	0.929	-
	MD	A	0.575	-	C	0.741	-	C	0.785	-
	PM	B	0.601	-	C	0.771	-	C	0.765	-

Notes: SB – southbound; NB – northbound; v/c – Vehicle to capacity ratio, presents traffic conditions for signalized intersections; Delay/Vehicle - delay per vehicle in seconds, presents traffic conditions for unsignalized intersections. LOS of intersections that are not improved by the proposed project are shown in **bold type**.

Source: Iteris, 2009.

**Table 7. Comparison of Intersection Traffic Conditions  
for the No-Action/Rehabilitation and Build Alternatives (Horizon Year 2030)**

Intersection	Peak Hour	Year 2005			Horizon Year – 2030					
		Existing or Baseline			No-Action/ Rehabilitation			Build Alternatives		
		LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle	LOS	v/c	Delay/ Vehicle
Terminal Island Interchange Ramps / Ocean Boulevard	AM	C	0.792	-	F	1.255	-	F	1.130	-
	MD	D	0.833	-	F	1.471	-	F	1.304	-
	PM	E	0.912	-	F	1.181	-	F	1.170	-
Pier S Avenue / Ocean Boulevard	AM	C	0.709	-	F	1.110	-	F	1.008	-
	MD	C	0.700	-	F	1.274	-	F	1.202	-
	PM	D	0.824	-	F	1.114	-	F	1.011	-
Pier S Avenue / New Dock Street	AM	A	0.327	-	B	0.678	-	A	0.591	-
	MD	A	0.350	-	D	0.843	-	C	0.739	-
	PM	A	0.356	-	B	0.684	-	A	0.588	-
Navy Way / Seaside Avenue	AM	A	0.474	-	E	0.904	-	E	0.931	-
	MD	A	0.414	-	D	0.854	-	D	0.875	-
	PM	A	0.581	-	F	1.091	-	F	1.125	-
Pico Avenue _Pier B Street / 9th Street	AM	A	0.428	-	C	0.766	-	C	0.708	-
	MD	A	0.455	-	D	0.897	-	B	0.640	-
	PM	A	0.494	-	B	0.688	-	B	0.625	-
Pico Avenue / Pier C Street	AM	A	0.309	-	A	0.442	-	A	0.446	-
	MD	A	0.340	-	A	0.385	-	A	0.381	-
	PM	A	0.343	-	A	0.402	-	A	0.402	-
Pico Avenue / Pier D Street	AM	B	-	10.1	F	-	55.1	B	0.630	-
	MD	B	-	11.3	E	-	42.0	A	0.529	-
	PM	B	-	10.7	E	-	36.8	A	0.543	-
Pico Avenue / Pier E Street	AM	A	-	9.9	C	-	18.7	A	0.465	-
	MD	B	-	11.8	C	-	23.9	A	0.559	-
	PM	B	-	11.3	E	-	47.6	C	0.782	-
Terminal Island Freeway SB Off-Ramp / New Dock Street	AM	B	-	10.8	F	-	95.1	E	-	48.2
	MD	A	-	9.1	E	-	47.3	D	-	29.6
	PM	A	-	9.3	C	-	15.4	C	-	15.3
Terminal Island Freeway NB On-Ramp / New Dock Street	AM	A	-	7.4	C	-	15.9	B	-	13.9
	MD	A	-	7.6	D	-	30.6	C	-	22.5
	PM	A	-	7.9	D	-	32.7	C	-	21.7
Pico Avenue / Broadway	AM	B	-	10.6	B	-	11.9	B	-	11.9
	MD	B	-	11.2	B	-	10.7	B	-	11.3
	PM	B	-	10.5	B	-	10.3	B	-	11.4
Ocean Boulevard/ Golden Shore Street	AM	A	0.570	-	B	0.658	-	B	0.670	-
	MD	A	0.569	-	C	0.733	-	C	0.735	-
	PM	A	0.593	-	C	0.739	-	D	0.801	-
Ocean Boulevard/ Magnolia Avenue	AM	B	0.693	-	E	0.982	-	F	1.099	-
	MD	A	0.575	-	D	0.869	-	E	0.912	-
	PM	B	0.601	-	D	0.865	-	E	0.930	-

Notes: SB – southbound; NB – northbound; v/c – Vehicle to capacity ratio, presents traffic conditions for signalized intersections; Delay/Vehicle - delay per vehicle in seconds, presents traffic conditions for unsignalized intersections. LOS of intersections that are not improved by the proposed project are shown in **bold** type.

Source: Iteis, 2009.

that PM hot spots would be associated with the proposed project because local accumulation and delay of vehicles would be reduced by the project. For all intersections except three, either LOS or v/c ratio would improve with the build alternatives when compared to the No Build alternative. Potential localized PM increases associated with the 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 an adverse effect with respect to localized concentrations of PM<sub>2.5</sub> or PM<sub>10</sub>, at any nearby sensitive receptor.

### ***Direct Operational Emissions from Vehicles Traffic***

The primary source of air pollutants emissions generated by the proposed project would be from motor vehicles traveling within the project corridor. To determine the project direct operational impact, the roadway traffic emissions along the segments of the project corridor were estimated for the base year 2005, opening year 2015, and horizon year 2030. The peak-hour VMT data and projected average vehicle speeds along each roadway segment were provided by the project Traffic Study (Iteris, 2009). Vehicle emission factors at the average travel speeds were obtained using EMFAC2007 model (CARB, 2007a). The re-entrained road dust emission factor computed using the equation provided in the fifth edition of EPA's AP-42 document.<sup>3</sup> The results of particulate matter operational emissions analysis are summarized in Table 8

Although Table 8 indicates an increase of emissions from year 2015 to 2030, the emissions would likely be lower than the presented levels as a result of EPA's national control programs that are projected to reduce mobile source emissions. These control measures include retrofit measures that help reduce the future emissions, decreasing trend in background concentrations. These measures will help offset any increase in VMT-related emissions in the future years. Furthermore, the CARB has adopted a Diesel Risk Reduction Plan (DRRP) with control measures that would reduce the overall diesel PM emissions by about 85% from 2000 to 2020.

Additionally, in a joint action to improve the air quality in the SCAB, the ports of Lon Beach and Los Angeles have adopted the San Pedro Bay Ports Clean Air Action Plan (*Ports, 2006*), a comprehensive plan aimed at significantly reducing the health risks posed by air pollution from port-related ships, trains, trucks, terminal equipment and harbor craft. Under the Plan, the ports propose to eliminate "dirty" diesel trucks from San Pedro Bay cargo terminals within five years by helping to finance a new generation of clean or retrofitted vehicles.

It should be noted that as described above, the emission results are obtained using the emission factors generated from EMFAC2007 model run (with the exception of re-entrained road dust emission factors). The model was released in November of 2006 and, as such, only the control and mitigation measures that were approved by that time were incorporated in the development of the available version of the model. However, after 2007, the Port truck fleet has begun experiencing changes due to the implementation of the Ports Clean Air Action Plan (CAAP), and specifically the Port Clean Truck Program (CTP), with the goal of eliminating "dirty trucks" from the fleet and regional roadways. Specific commitments of the Port CTP were not incorporated into the project truck fleet profiles to capture these important improvements in the project build-out years 2015 and 2030.

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<sup>3</sup> The AP-42 emission factor assumes that road dust emissions are proportional to VMT, roadway silt loading, and average vehicle weight.

Table 8. Summary of Project Daily PM<sub>10</sub> and PM<sub>2.5</sub> Operational Emissions

Scenario Roadway Segment	PM <sub>10</sub>			PM <sub>2.5</sub>		
	Exhaust + Tire Wear + Brake Wear	Road Dust	Total	Exhaust + Tire Wear + Brake Wear	Road Dust	Total
<b>Year 2015, Opening Year – No Action/Rehabilitation Alternative</b>						
Ocean Boulevard Navy Way to Pier S Avenue	7	14	21	5	2	7
Pier S Avenue to Terminal Island Freeway	6	15	21	5	2	7
Terminal Island Freeway to Horseshoe Ramps	4	7	11	3	1	4
Gerald Desmond Bridge	16	32	48	13	4	17
NB SR 710 Connector Ramp	5	7	12	4	1	5
SB SR 710 Connector Ramp	2	4	6	2	0	2
Ocean Boulevard Connector Ramps to Downtown	1	7	8	0.5	1.5	2
<b>Total Year 2015 – No Action/Rehabilitation</b>	<b>41</b>	<b>86</b>	<b>127</b>	<b>32</b>	<b>13</b>	<b>45</b>
<b>Year 2015, Opening Year – Bridge Replacement Alternatives</b>						
Ocean Boulevard Navy Way to Pier S Avenue	6	15	21	5	2	7
Pier S Avenue to Terminal Island Freeway	7	18	25	5	3	8
Terminal Island Freeway to Horseshoe Ramps	4	6	10	3	1	4
Gerald Desmond Bridge	18	37	55	14	5	19
NB SR 710 Connector Ramp	6	8	14	4	2	6
SB SR 710 Connector Ramp	4	6	10	3	1	4
Ocean Boulevard Connector Ramps to Downtown	2	9	11	1	2	3
<b>Total Year 2015 – Bridge Replacement Alternatives</b>	<b>46</b>	<b>101</b>	<b>147</b>	<b>36</b>	<b>15</b>	<b>51</b>
<b>Net Change from No Action Alternative</b>	<b>5</b>	<b>15</b>	<b>20</b>	<b>4</b>	<b>2</b>	<b>6</b>
<b>Horizon Year 2030 – No Action/Rehabilitation Alternative</b>						
Ocean Boulevard Navy Way to Pier S Avenue	5	17	22	3	3	6
Pier S Avenue to Terminal Island Freeway	4	16	20	3	2	5
Terminal Island Freeway to Horseshoe Ramps	3	8	11	2	1	3
New Bridge	11	33	44	7	5	12
NB SR 710 Connector Ramp	3	8	11	2	1	3
SB SR 710 Connector Ramp	2	3	5	1	1	2
Ocean Boulevard Connector Ramps to Downtown	1	7	8	0.5	1.5	2
<b>Total Year 2030 – No Action/Rehabilitation Alternative</b>	<b>28</b>	<b>93</b>	<b>121</b>	<b>19</b>	<b>14</b>	<b>33</b>
<b>Horizon Year 2030 – Bridge Replacement Alternatives</b>						
Ocean Boulevard Navy Way to Pier S Avenue	5	18	23	3	3	6
Pier S Avenue to Terminal Island Freeway	5	19	24	4	2	6
Terminal Island Freeway to Horseshoe Ramps	2	7	9	1	2	3
Gerald Desmond Bridge	12	41	53	8	6	14
NB SR 710 Connector Ramp	4	9	13	3	1	4
SB SR 710 Connector Ramp	3	6	9	2	1	3
Ocean Boulevard Connector Ramps to Downtown	2	10	12	1	1	2
<b>Total Year 2030 – Bridge Replacement Alternatives</b>	<b>33</b>	<b>110</b>	<b>143</b>	<b>22</b>	<b>17</b>	<b>39</b>
<b>Net Change from No Action Alternative</b>	<b>5</b>	<b>17</b>	<b>22</b>	<b>3</b>	<b>3</b>	<b>6</b>

**Table 8. Summary of Project Daily PM<sub>10</sub> and PM<sub>2.5</sub> Operational Emissions**

Scenario Roadway Segment	PM <sub>10</sub>			PM <sub>2.5</sub>		
	Exhaust + Tire Wear + Brake Wear	Road Dust	Total	Exhaust + Tire Wear + Brake Wear	Road Dust	Total
<p>— Emissions are calculated using emission factors from EMFAC2007, at the projected average speed, and VMT of each roadway segment within the study area (from Traffic Study).</p> <p>— Estimates of directly emitted PM emissions include tailpipe, tire wear, brake wear, and the contribution from road dust emissions. The Paved Road Dust emission factor was calculated using EPA’s empirical equation (AP-42):</p> $E = k \left( \frac{sL}{2} \right)^{0.65} \times \left( \frac{W}{3} \right)^{1.5} \times \left( 1 - \frac{P}{4N} \right)$ <p>Where, E= particulate emission factor; k=particle size multiplier; sL=road surface silt loading; W=average weight of vehicles traveling the road (tons); P=number of days per year with &gt;0.01 inch rain; N=days per period (365 days/year).</p> <p>— The emissions data are rounded to the nearest integer number; thus, the “total” values in table may differ 1 unit from the added numbers as presented.</p> <p>— Calculation worksheets are provided in Attachment.</p>						

Source: Parsons, 2010.

The proposed project would not induce development in the area, but would accommodate the projected growth and development by improving the mobility of operation of roadway network in the Port area. Table 9 presents the estimated daily emissions of PM in the project vicinity (the area approximately bounded by I-110 on the west, I-405 on the north, I-710 on the east, and the water on the south). As shown, the cumulative impact of project in the project vicinity is beneficial and improves the air quality in the project area.

**Table 9. Estimated Daily PM<sub>10</sub> and PM<sub>2.5</sub> in the Project Vicinity**

Vehicle Type	No Project/ Rehabilitation Alternative	Bridge Replacement Alternatives	Increase/ (Decrease)	No Project/ Rehabilitation Alternative	Bridge Replacement Alternatives	Increase/ (Decrease)
	2015 PM <sub>10</sub> Emissions (lbs/day)			2030 PM <sub>10</sub> Emissions (lbs/day)		
Total Autos	3,825	3,818	(7)	4,252	4,242	(10)
Total Trucks	1,143	1,139	(4)	1,238	1,232	(6)
Total All Vehicles	4,968	4,957	(11)	5,490	5,474	(16)
	2015 PM <sub>2.5</sub> Emissions (lbs/day)			2030 PM <sub>2.5</sub> Emissions (lbs/day)		
Total Autos	670	669	(1)	763	761	(2)
Total Trucks	484	482	(2)	376	274	(2)
Total All Vehicles	1,154	1,151	(3)	1,139	1,135	(4)

Project vicinity encompasses the area approximately bounded by I-110 on the west, I-405 on the north, I-710 on the east, and the water on the south.

**Indirect Operational Emissions Impacts**

The existing bridge is located over the main federal navigation channel (Back Channel) that serves the Port. It provides a vertical clearance of 156 ft (47.5 m) above mean high water level (MHWL), which has proven to be insufficient for the clearance of some existing container ships, as well as new vessels currently being constructed. The Gerald Desmond Bridge is one of the lowest bridges in any large commercial port in the world. The proposed bridge would provide a higher vertical clearance of 200 ft (61 m), which would allow the passage of larger, taller vessels; as such, the

project would have potential indirect impacts on air quality by affecting the marine traffic. However, as the Port's Transportation Growth Inducement Analysis concluded, the bridge height would not cause substantial change in marine traffic of larger vessels for the following reasons.

- Given the current plans for Piers A and S, both facilities are constrained by the size of their container storage yard. That is, the berths can accommodate more cargo than the container storage yards can handle. Furthermore, Pier S would be one of the smallest container terminals in San Pedro Bay; thus, it is expected that ships in the largest category would not call at Pier S. Pier A is a better candidate for hosting the largest forecasted marine vessels.
- The Gerald Desmond Bridge height is not the only navigational constraint for Piers A and S. Most significant is the Back Channel depth under the bridge. Navigational safety concerns would require the Port to widen the channel to 315 ft (96 m) at a maximum water depth of 52 ft (16 m) at mean lower low water. However, even with these improvements, the largest ship would not be able to navigate the channel safely. Vessels would require a wider channel and deeper water, which are not considered feasible or cost effective for the foreseeable future.

Based on these results, it can be concluded that the potential growth inducement associated with the proposed project would not be significant, and it is not expected to result in considerable emissions of air pollutants. As such, the impact of indirect emissions would be less than significant and thus, was not considered for further analysis in this report.

## 5. CONCLUSION

The project purpose is to replace the existing physically and functionally deficient Gerald Desmond Bridge with a structurally sound and seismically resistant structure that would meet vehicular and shipping needs for its planned 100-year design life. *The proposed project improvements would also improve local traffic conditions and access to the Port area.*

Historical meteorological and climatic data indicate that the regional and local meteorological and climatic conditions have been relatively consistent within the last 30 years and likely consistency is anticipated until the horizon year of 2030. In addition, no significant changes to the current general terrain and geographic characteristics of the project area in relation to the coastal SCAB areas are anticipated.

The air quality data, recorded at the closest local monitoring station, shows a declining trend of background particulate ( $PM_{10}$  and  $PM_{2.5}$ ) concentrations within the project area. The monitoring data indicate that the NAAQS for the 24-hour  $PM_{10}$  level and for the annual  $PM_{10}$  concentration has not been exceeded during the last seven years. For  $PM_{2.5}$ , the 24-hour recorded concentrations were below the previous NAAQS of  $65 \mu\text{g}/\text{m}^3$ , and exceed the new standard of  $35 \mu\text{g}/\text{m}^3$ , but the ambient concentration trend is declining. Similarly, the annual  $PM_{2.5}$  concentration level exceeded the NAAQS up to 2005 and was below the standard since 2006. Overall, *the monitored data show an overall trend of declining background concentrations for both  $PM_{2.5}$  and  $PM_{10}$  within project area (see Table 1-a and Figure 4). Based on the current trend and the adopted strategies to reduce port-wide air pollutants emissions, the ambient concentrations of  $PM_{10}$  and  $PM_{2.5}$  (24-hour as well as the annual average concentrations) would likely decrease further by years 2015 and 2030.*

The proposed project would not induce development in the area, but would accommodate the projected growth and development by improving the mobility of operation of roadway network in the Port area. Total vehicle traffic and truck traffic daily VMT and VHT within the project

vicinity (the area bounded by I-110 on the west, I-405 on the north, I-710 on the east, and the water on the south) are projected to decrease with the Bridge Replacement Alternative as compared with the No Action/ Rehabilitation alternative (see Table 5), thereby, the PM emissions in the project vicinity will also decrease (see Table 9). *This indicates that although the ADT and PM emissions along the project corridor increase slightly for the proposed replacement alternatives compared with the No Action scenario, the cumulative impact of the project is beneficial within the project area, due to redirection and shortening of trips in the project vicinity.* Furthermore, as described earlier and depicted in Figure 5, the proposed replacement alternatives would not move emissions closer to the nearest sensitive receptors. An emissions increase of PM would occur when the project results in a significant increase in ADT and VMT in the project area and/or an increase in traffic congestion and delays. Based on the presented discussion, implementation of the proposed project would improve LOS, decrease delay at the project area intersections, and would increase the average vehicle speed, all of which are indication of reduced congestion and idling of vehicles. The proposed project would not result in substantial increase in diesel truck percentages in the project area. Thus the project is not expected to cause any concern with respect to localized concentrations of PM<sub>10</sub> or PM<sub>2.5</sub>.

The above discussions demonstrate that future new or worsened PM<sub>10</sub> or PM<sub>2.5</sub> NAAQS violations are not anticipated, and therefore, the proposed project meets the conformity requirements in 40 CFR 93.123(b)(1)(i) to support state and local air quality goals with respect to potential localized air quality impacts.



## 6. REFERENCES

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**ATTACHMENT**  
**PM<sub>2.5</sub> and PM<sub>10</sub> Emission Calculations**

Gerald Desmond Bridge Replacement Project  
Particulate Matter Emissions \_ Summary calculations

Project Scenario/ Roadway Segments	PM Emissions (lbs/day)			
	PM <sub>10</sub>		PM <sub>2.5</sub>	
	Road Dust	Total	Road Dust	Total
	sL=0.02, W=2.4			
<b>Year 2015 – No Project</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	14	21	2	7
Pier S Avenue to Terminal Island Freeway	15	21	2	7
Terminal Island Fwy to Horseshoe Ramps	7	11	1	4
Gerald Desmond Bridge	32	48	4	17
NB I-710 Connector Ramp	7	12	1	5
SB I-710 Connector Ramp	4	6	0	2
Ocean Blvd. Connector Ramps to Downtown	7	8	2	2
<b>Total Year 2015 – No Action</b>	<b>86</b>	<b>127</b>	<b>13</b>	<b>45</b>
<b>Year 2015 – With Project – Opening Year</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	15	21	2	7
Pier S Avenue to Terminal Island Freeway	18	25	3	8
Terminal Island Fwy to Horseshoe Ramps	6	10	1	4
Gerald Desmond Bridge	37	55	5	19
NB I-710 Connector Ramp	8	14	2	6
SB I-710 Connector Ramp	6	10	1	4
Ocean Blvd. Connector Ramps to Downtown	9	11	2	3
<b>Total Roadway Traffic Emissions</b>	<b>101</b>	<b>147</b>	<b>15</b>	<b>51</b>
<b>Net Change from No-Action Scenario</b>	<b>15</b>	<b>20</b>	<b>2</b>	<b>6</b>
<b>Horizon Year 2030 – No Project</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	17	22	3	6
Pier S Avenue to Terminal Island Freeway	16	20	2	5
Terminal Island Fwy to Horseshoe Ramps	8	11	1	3
Gerald Desmond Bridge	33	44	5	12
NB I-710 Connector Ramp	8	11	1	3
SB I-710 Connector Ramp	3	5	1	2
Ocean Blvd. Connector Ramps to Downtown	7	8	2	2
<b>Total Year 2030 – No Action</b>	<b>93</b>	<b>121</b>	<b>14</b>	<b>33</b>
<b>Horizon Year 2030 – With Project</b>				
Ocean Boulevard				
Navy Way to Pier S Avenue	18	23	3	6
Pier S Avenue to Terminal Island Freeway	19	24	2	6
Terminal Island Fwy to Horseshoe Ramps	7	9	2	3
Gerald Desmond Bridge	41	53	6	14
NB I-710 Connector Ramp	9	13	1	4
SB I-710 Connector Ramp	6	9	1	3
Ocean Blvd. Connector Ramps to Downtown	10	12	1	2
<b>Total Year 2030 – With Project</b>	<b>110</b>	<b>143</b>	<b>17</b>	<b>39</b>
<b>Net Change from No-Action Scenario</b>	<b>17</b>	<b>22</b>	<b>3</b>	<b>6</b>

Roadway Peak Hr	Segment	Traffic Direction	Segment Length (mile)		Opening Year				Horizon Year								
			No-Action	Build	2015 - No Project		2015 with Project		2030 No Project		2030 with Project						
					Traffic Volume (vehicles/hr)	Avg Speed (mph)	Traffic Volume (vehicles/hr)	Avg Speed (mph)	Traffic Volume (vehicles/hr)	Avg Speed (mph)	Traffic Volume (vehicles/hr)	Avg Speed (mph)					
Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck						
Ocean Blvd	Navy Way to Pier S Avenue	EB	0.38	0.38	2,031	778	55	2,165	774	55	1,890	1,325	2,123	1,329	55		
		WB	0.37	0.37	1,838	1,040	54	1,897	1,046	49	1,951	1,429	2,015	1,431	49		
	AM	Pier S Avenue to Terminal Island Fwy	EB	0.67	0.68	1,424	473	54	1,621	501	54	1,231	697	1,392	781	55	
			WB	0.57	0.65	1,184	651	53	1,233	672	50	1,117	820	1,224	862	52	
		Terminal Island Fwy to Hooshoor ramps	EB	0.16	0.16	1,388	630	54	1,602	692	53	1,191	817	1,352	947	54	
			WB	0.35	0.26	1,353	759	53	1,298	860	19	1,471	963	1,295	1,011	18	
	MD	Navy Way to Pier S Avenue	EB	0.38	0.38	1,472	1,246	55	1,550	1,253	55	1,452	1,669	1,566	1,873	55	
			WB	0.37	0.37	1,070	1,117	52	1,142	1,121	50	1,146	1,560	1,247	1,541	50	
			Pier S Avenue to Terminal Island Fwy	EB	0.67	0.68	970	589	54	1,055	719	54	934	642	1,073	802	56
				WB	0.57	0.65	803	553	49	858	610	52	786	751	829	778	51
			Terminal Island Fwy to Hooshoor ramps	EB	0.16	0.16	1,178	848	55	1,283	964	54	1,142	910	1,284	1,140	55
				WB	0.35	0.26	1,061	869	14	979	921	16	1,112	1,069	1,2	953	1,079
PM	Navy Way to Pier S Avenue	EB	0.38	0.38	2,653	930	55	2,752	939	55	2,851	1,361	3,051	1,394	54		
		WB	0.37	0.37	2,062	627	56	2,125	628	51	2,248	843	2,384	846	49		
		Pier S Avenue to Terminal Island Fwy	EB	0.67	0.68	1,724	515	54	1,929	600	53	1,731	649	2,037	781	54	
			WB	0.57	0.65	1,499	369	52	1,584	373	52	1,513	485	1,559	507	52	
	Terminal Island Fwy to Hooshoor ramps	EB	0.16	0.16	1,966	636	53	2,187	731	53	1,982	768	2,295	913	52		
		WB	0.35	0.26	1,908	563	52	1,685	566	52	2,131	670	1,720	698	51		
Gerald Desmond Bridge	Upgrade to Crest	EB	0.63	0.53	1,448	782	38	1,673	864	42	1,227	995	1,410	1,183	36		
		EB	0.45	0.54	1,448	782	44	1,673	864	50	1,227	995	1,410	1,183	48		
		WB	0.45	0.53	1,232	922	20	1,353	1,087	48	1,241	1,057	1,360	1,281	47		
		WB	0.54	0.54	1,232	922	50	1,353	1,087	53	1,241	1,057	1,360	1,281	53		
	MD		EB	0.63	0.53	1,217	1,044	27	1,314	1,202	38	1,178	1,118	1,334	1,417	34	
			EB	0.45	0.54	1,217	1,044	40	1,314	1,202	48	1,178	1,118	1,334	1,417	47	
	PM	Upgrade to Crest	WB	0.45	0.53	902	1,011	18	1,015	1,162	47	867	1,170	978	1,393	44	
			WB	0.54	0.54	902	1,011	49	1,015	1,162	53	867	1,170	978	1,393	53	
			Terminal Island Fwy to Hooshoor ramps	EB	0.63	0.53	2,079	811	38	2,326	951	41	2,065	966	2,435	1,142	37
				EB	0.45	0.54	2,079	811	43	2,326	951	49	2,065	966	2,435	1,142	48
			WB	0.45	0.53	1,562	686	23	1,749	721	49	1,554	805	1,809	913	48	
			WB	0.54	0.54	1,562	686	51	1,749	721	53	1,554	805	1,809	913	53	
NB I-710 Connector Ramp		-	0.75	0.76	788	669	54	933	745	57	590	862	558	1,040	57		
		-	0.75	0.76	834	849	55	821	980	57	731	885	56	772	1,164	58	
		-	0.75	0.76	844	600	55	918	723	57	768	739	839	891	57		
		-	0.52	0.61	282	733	55	444	989	57	315	855	396	1,170	57		
SB I-710 Connector Ramp		-	0.52	0.61	243	553	55	359	829	55	190	699	55	287	1,066	57	
		-	0.52	0.61	474	435	54	920	625	55	399	565	55	1,050	820	56	
		-	0.63	0.83	527	0	54	591	0	53	560	0	742	0	53		
		-	0.46	0.63	942	103	55	1,009	108	54	1,052	97	54	1,189	111	54	
MD		EB	0.63	0.83	382	3	55	471	7	54	416	6	481	4	54		
		WB	0.46	0.63	653	324	54	727	333	55	693	342	54	809	327	54	
PM		EB	0.63	0.83	1,327	21	54	1,470	23	53	1,476	20	54	1,704	25		
		WB	0.46	0.63	933	94	54	905	96	54	968	87	54	958	93		



PROGRAMS

- Compass Blueprint
- Environment
- Air Quality
- Energy
- Environmental Impact Reports
- Environmental Justice
- Intergovernmental Review
- Regional Comprehensive Plan
- Solid & Hazardous Waste Management
- Water
- Housing
- Legislative
- Transportation

RESOURCES

- Data Center
- Integrated Growth Forecast
- Mapping & GIS
- Modeling
- Publications & Reports

SERVICES

- Find Your Representative
- Photo Gallery
- Press Room
- Tools For Local Planners

## TCWG Review of Qualitative Analyses

### Qualitative PM Hot Spot Analysis Review

February 2007	Determination
<a href="#">LA000512 &amp; LA0F011</a> Gerald Desmond Bridge Replacement and Ocean Boulevard from SR-47 to the Los Angeles River	Analysis deemed acceptable for NEPA circulation
<a href="#">Final Draft (March 9, 2007)</a>	

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**TRANSPORTATION CONFORMITY WORKING GROUP  
of the  
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS'**

**February 27, 2007  
Minutes**

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**THE FOLLOWING MINUTES ARE A SUMMARY OF ACTIONS TAKEN BY THE TRANSPORTATION CONFORMITY WORKING GROUP. AN AUDIOCASSETTE TAPE OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.**

The Transportation Conformity Working Group held its meeting at the SCAG office in Los Angeles.

**In Attendance:**

Naresh Amatya	SCAG
John Asuncion	SCAG
Rosemary Ayala	SCAG
Nasrin Behmanesh	Parsons
Scott Cohen	West Coast Environmental
Sheryll Del Rosario	SCAG
Kevin Haboian	Parsons
Gary Hansen	City of Westlake Village
Lori Huddleston	MTA/Metro
Shawn Kuk	SCAG
Michael Litschi	OCTA
Betty Mann	SCAG
Brad McAllester	MTA/Metro
Shirley Medina	RCTC
Jonathan Nadler	SCAG
Arnie Sherwood	ITS UC Berkley/SCAG
Carla Walecka	TCA

**Via Teleconference:**

Arman Behtash	Caltrans District 12
Ron Bloomberg	CH2MHill, Riverside County
Mike Brady	Caltrans Headquarters
Ben Cacatian	Ventura County APCD
Andrew Yoon	Caltrans District 7
Paul Fagan	Caltrans District 8
Eileen Gallo	Caltrans Headquarters
Carol Gomez	South Coast AQMD
Sandy Johnson	Caltrans District 11

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**TRANSPORTATION CONFORMITY WORKING GROUP  
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July and the other was likely to occur prior to that. Page 5 of the Staff Report reflects that the Projects are expected to be operational by mid-2007.

4.4 AQMP Update

Carol Gomez, South Coast AQMD, informed the Working Group that there was a meeting between upper management and staff from AQMD and the California Air Resources Board (CARB) in Sacramento, which was intended to resolve certain issues. Ms. Gomez did not have the details of the meeting. AQMD plans to release the modifications to the Draft 2007 AQMP on its website by the end of the week. The public workshops will be held March 13 and 15 in the four counties.

4.5 Review of Qualitative PM Hot Spot Analysis

Jean Mazur, inquired if the project sponsor had been able to find an existing monitor that would be representative of the proposed project.

Andrew Yoon, Caltrans District 7, responded on behalf of the project sponsor, the Port of Long Beach. Mr. Yoon verified that the corridor is near the port, which has high heavy-duty diesel truck traffic, such that there are not many monitoring stations that are representative. The monitor used in the analysis is in north Long Beach, which is the most representative. There are a couple of MATES monitoring stations in Wilmington and on Pacific Coast Highway, which were installed for the short-term MATES study, limiting the amount of historical data available.

Mr. Nadler stated that the ports have started, or will start, to do their own air quality monitoring. Mr. Nadler also pointed out that since there would generally not be a perfect monitoring station, we still need to move forward with the analysis and conclusions using the best available data. Mr. Nadler stated that the project sponsor should include additional data if available and relevant. It is assumed that such data will not change the conclusions. Otherwise, the TCWG would need to review once again.

The TCWG concluded that they would conditionally approve the current draft analysis subject to EPA and FHWA concurrence which would presumably take place at a sub-group meeting next week. Staff will set the date and setup a conference call for those who wish to participate.





## **A-3 2008 RTIP and RTP Project Listings**



SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS



2008

**REGIONAL TRANSPORTATION PLAN**

*Making the Connections*

**Project List**



LOS ANGELES COUNTY RTP PROJECTS

SYS-TEM*	RTP ID	ROUTE	DESCRIPTION	PROJECT COST (\$1,000'S)
S	LA0D194	405	GARVEE DEBT SERVICE PAYMENTS: IN LOS ANGELES ON ROUTE 405/101 CONNECTOR GAP CLOSURE (2001 CFP 7248, 2001 CFP 8347) (EA# 20120K, PPNO 2336), (BOTH RIP & IIP)	\$30,787
S	LA0D332	405	IN LOS ANGELES: FROM LA TIJERA BLVD TO JEFFERSON BLVD; ADD AUXILIARY LANE PPNO: 3348 EA: 24130	\$38,711
S	LA0D77	405	CITY OF L.A.-AT ROUTE 405 & US 101 INTERCHANGE. CONSTRUCT FREEWAY CONNECTOR FROM SB RTE 405 TO NB&SB US 101 & ADD AUX LANE FROM BURBANK TO NB 101 CONNECTOR (EA# 199610, PPNO 2787)	\$246,180
S	LAE0574	605	STUDY - CONSTRUCT I-605 INTERCHANGE CAPACITY IMPROVEMENTS IN IRWINDALE	\$1,920
S	2009	710	NEAR SOUTH PASADENA FROM ROUTE 10 TO ROUTE 210 - PARTIAL RIGHT OF WAY FOR NEW 6 LANE FREEWAY WITH 2 HOV LANES (EA# 020090, PPNO 0219M) (PROPERTY MANAGEMENT)	\$4,185
S	18790	710	RTE 10 TO DEL MAR BLVD OVERCROSSING FOR THE 710 FWY - WORK ON ENVIRONMENTAL CLEARANCE ISSUES & FUND INITIAL DESIGN. (EA# 187901, PPNO# 2215) (IIP) SAFETEA #2193	\$15,352
S	LA0B952	710	ROUTE 710 EXPANSION BETWEEN THE PORTS IN THE CITY OF LONG BEACH TO CESAR CHAVEZ O/C IN EAST LOS ANGELES (EA 24990 PPNO 3612)	\$40,500
S	LA996143	710	RTE 710 PCH TO DOWNTOWN L.B., PAVEMENT RECON, MEDIAN, LANDSCAPING IMPROVE (EA 2203U, 23640, PPNO: 2945,3248)	\$6,600
S	LA996347	710	I-710/FIRESTONE BLVD.OVER LA RIVER BRIDGE WIDEN ON-RAMP MOD. & SNDWALL ALONG I-710 FROM FIRESTONE BLVD. TO SOUTH-ERN AVE. PHASE IV (HBRR: 53C1972) WIDEN FROM 4.7M TO 6.4M.	\$19,000
S	LAE3773	710	RECONSTRUCT I-710 INTERCHANGES AS PART I-710 CORRIDOR IMPRVMTNT PRGRM PROPOSING 4-TRUCK LNS (PORTS- RAIL YARDS), 10 GENERAL LNS (PORTS- SR60), & ARTERIAL IMPRVMTNS	\$6,875
L	LA000373	0	AVIATION BLVD FROM MANHATTAN BEACH BLVD TO ARBOR VITAE WIDEN FROM 4 TO 6 LANES (ISTEA, 102-240, 1991)	\$13,984
L	LA000389	0	DEL AMO BLVD FROM MADRONA AVE TO CRENSHAW BLVD CONSTRUCT 0 TO 4 LANES NEW GRADE SEPARATION (CFP 6361, 4314; PPNO 2371).	\$30,084
L	LA000512	0	GERALD DESMOND BRIDGE REPLACEMENT (SAFETEA-LU PNRS #14 - SEC 1301B) (ALSO LA0F011)	\$824,000
L	LA000720	0	ROSECRANS/AVIATION INTERSECTION (AVIATION WIDEN TO 3 LANES IN EACH DIRECTION) RAILROAD BRIDGE WIDENING (C-I:44419) SAFETEA-LU # 3799 AND # 563	\$12,553
L	LA000800	0	HBRR LOCAL BRIDGE LUMP SUM FOR 2004/2005 - (PROJECTS ARE CONSISTENT WITH 40 CFR PART 93.126;127,128, EXEMPT TABLES 2 & 3)	\$394,000
L	LA002738	0	BIKEWAY/PEDESTRIAN BRIDGE OVER LA R RIVER AT TAYLOR YARD CLASS I (CFP 738, 2077) (PPNO# 3156)	\$5,000
L	LA0B100	0	LUMP SUM TRANSPORTATION ENHANCEMENT ACTIVITIES (EXCLUDING CATEGORY 7) (PROJECTS ARE CONSISTENT WITH 40 CFR PART 93.126;127,128, EXEMPT TABLES 2 & 3)	\$84,273

LOS ANGELES COUNTY RTP PROJECTS

SYS-TEM*	RTP ID	ROUTE	DESCRIPTION	PROJECT COST (\$1,000'S)
L	LA0F003	0	LOS ANGELES STREET, OVER BIG DALTON WASH, 0.5 MI S IRWINDALE AVE. WIDEN 2-LANE BRIDGE TO 4-LANE BRIDGE, ADD SHOULDERS, UPGRADE BRIDGE RAILING (# 53C0676)	\$11,649
L	LA0F004	0	DELL AVE, OVER CARROLL CANAL, 0.2 KM S OF VENICE BLVD. REHABILITATE 1 LANE BRIDGE AND WIDEN TO 2 LANE BRIDGE, ADD SIDEWALKS, UPGRADE BRIDGE RAILINGS. (# 53C1688)	\$3,500
L	LA0F005	0	DELL AVENUE, OVER LINNIE CANAL, 0.25 KM S OF VENICE BLVD. REHABILITATE 1 LANE BRIDGE & WIDEN TO 2 LANE BRIDGE, ADD SIDEWALKS, UPGRADE BRIDGE RAILINGS (# 53C1689)	\$4,000
L	LA0F006	0	DELL AVENUE, OVER SHERMAN CANAL, 0.25 MI S VENICE BLVD. REHABILITATE 1 LANE BRIDGE & WIDEN TO 2 LANE BRIDGE ADD SIDEWALKS, UPGRADE BRIDGE RAILINGS. (# 53C1691)	\$4,000
L	LA0F007	0	HYPERION AVE. OVER GLENDALE BL SB, LA RIVER, SOUTHBOUND GLENDALE. SEISMIC RETROFIT & RECONFIGURE SIDEWALKS, RESTORE HISTORIC BRIDGE RAILINGS (NO BRIDGE WIDENING) (# 53C1881)	\$12,719
L	LA0F008	0	GLENDALE BLVD. OVER L-A RIVER, REHABILITATE 2 LANE BRIDGE & WIDEN TO INCLUDE SHOULDERS, SIDEWALKS, AND RESTORE HISTORIC BRIDGE RAILINGS (NON CAPACITY) # 53C1883)	\$12,000
L	LA0F009	0	GLENDALE BLVD. - OVER LA RIVER. REHABILITATE 2 LANE BRIDGE & WIDEN TO INCLUDE SHOULDERS, SIDEWALKS, RESTORE HISTORIC RAILINGS (NON-CAPACITY PROJECT) (# 53C1884)	\$10,000
L	LA0F010	0	OLD ROAD, OVER SANTA CLARA RIVER, 1/4 MI N MAGIC MTN PKWY. REPLACE 4 LANE BRIDGE W/ 6 LANE BRIDGE (HBRPP PAY FOR 4 LANE, & NEWHALL LAND & FARMING PAYS FOR 2 ADDIT. LANES) (# 53C0327)	\$21,500
L	LA0F011	0	OCEAN BLVD. OVER ENTRANCE CHANNEL, UP RR, 1.0 MI E STATE ROUTE 47. REPLACE EXISTING 5 LANE GERALD DESMOND BRIDGE WITH NEW 6 LANE BRIDGE (BRIDGE #53C0013) (ALSO LA000512)	\$26,500
L	LA0F016	0	PURCHASE, INSTALL, AND INTEGRATE OPTICOM PRIORITY CONTROL SYSTEM TO EXISTING TRAFFIC CONTROLLERS AT VARIOUS LOCATIONS WITHIN CITY LIMITS. (SAFETEA-LU#2345)	\$217
L	LA0F019	0	PURCHASE OF BUS BENCHES, TRASH CANS, AND SMALL SHELTERS FOR VARIOUS TRANSIT STOPS THROUGHOUT CITY OF LAKEWOOD.	\$493
L	LA0F020	0	LOWER ARROYO SECO TRAIL AND TRAIL HEAD IMPROVEMENT PROJECT (GRANT FROM RECREATIONAL TRAILS PROGRAM)	\$258
L	LA0F030	0	I-110 FREEWAY/ C' STREET INTERCHANGE IMPROVEMENTS- MODIFICATION OF EXISTING INTERCHANGE	\$24,798
L	LA0F033	0	PLANNING SERVICES ARROYO SECO PARKWAY SCENIC CORRIDOR & IMPLEMENTATION OF CORRIDOR MGMT PLAN. SCENIC BYWAY ORGN & VISTOR INTERPRETATION & MARKETING PLAN.FHWA PRJ SB-2004-CA-51312	\$372
L	LA0F038	0	IMPROVEMENTS TO THIS INTERSECTION INCLUDE DURATHERM DECORATIVE CROSSWALKS AND RESURFACING ON WESTERN AVE.	\$151



Local Highway

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source	
LA0D448	Los Angeles	SCAB	L421	LA0D448	CAN76				L	NON-EXEMPT	0	2008	
<b>MAJOR ARTERIAL GAP CLOSURES. AVENUE J, 36TH TO 32ND WEST, LANCASTER BLVD TO NEWGROVE ST, 20TH STREET EAST, AVENUE J-4 OT J-8</b>													
Fund		ENG			Prior		2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
LOCAL TRANS FUNDS		457	45	2,400	2,902		120	225	2,557				2,902
LA0D448 Total		457	45	2,400	2,902		120	225	2,557				2,902
ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source	
LA0D449	Los Angeles	SCAB	L422	LA0D449	CAR75				L	NON-EXEMPT	0	2008	
<b>AVENUE M AND SR14 OVERCROSSING IMPROVEMENTS. WIDENING AVENUE M FROM 2 TO 7 LANES FROM 10TH STREET WEST TO 15TH STREET WEST.</b>													
Fund		ENG			Prior		2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
LOCAL TRANS FUNDS		1,750	400	2,150	2,150				250				2,150
LA0D449 Total		1,750	400	2,150	2,150				250				2,150
ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source	
LA9708289	Los Angeles	MDAB	L363	LA9708289	CAR63				L	NON-EXEMPT	0	2008	
<b>AVE G, FROM RT 14 TO 25TH ST WEST WIDEN FROM 2 TO 6 LANES (0.2 MIMM) (TOTAL 6 LANES BOTH DIR). INCLUDES INTER CHANGE IMPROVEMENTS.</b>													
Fund		ENG			Prior		2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
LOCAL TRANS FUNDS		1,700	290	9,000	10,700		500		10,200				10,700
LA9708289 Total		1,700	290	9,000	10,700		500		10,200				10,700
ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source	
LAE2906	Los Angeles	SCAB	L423	LAE2906	CAR63				L	NON-EXEMPT	0	2008	
<b>Inglewood Ave/Marine Ave intersection improvement. Purchase ROW for widening; add 1 thru NB lane Inglewood Ave (2 lane existing) &amp; 1 thru WB lane Marine Ave (1 lane existing); Add lighting, signals, sidewalk.</b>													
Fund		ENG			Prior		2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
DEMO-SAFETEA-LU		476	362	1,762	2,600		476	362	1,762				2,600
CITY FUNDS				487	487			487					487
PROP "C20" FUNDS		119	290	409	409		119	290					409
PROP "C25" FUNDS				1,019	1,019			1,019					1,019
LAE2906 Total		595	652	3,268	4,515		595	2,158	1,762				4,515
ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source	
LA000512	Los Angeles	SCAB	L248	LA000512	CAR60				L	NON-EXEMPT	0	2008	
<b>GERALD DESMOND BRIDGE REPLACEMENT (SAFETEA-LU PNRS #14 - SEC 1301B)REPLACE EXISTING 5 LANE GERALD DESMOND BRIDGE WITH NEW 6 LANE BRIDGE. OCEAN BLVD. OVER ENTRANCE CHANNEL, UP RR, 1.0 MI E STATE ROUTE 47. REPLACE EXISTING 5 LANE GERALD DESMOND BRIDGE WITH</b>													
Fund		ENG			Prior		2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
BRIDGE - LOCAL		10,000	26,736	156,875	193,611	10,000					183,611		193,611
PROJECTS OF NATIONAL AND REGIONAL SIGNIFICANCE				100,000	100,000			35,000	50,000	15,000			100,000
SURFACE TRANS PROG		1,240			1,240								1,240
PROP "C25" FUNDS		5,998	3,464	55,704	65,166	7,925	5,735	20,220	18,235	8,340	4,711		65,166
PORT FUNDS													

*Appendix B*  
*Title VI Policy Statement*





**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!*

August 25, 2009

**TITLE VI  
POLICY STATEMENT**

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in blue ink that reads "Randell H. Iwasaki".

RANDELL H. IWASAKI

Director



*Appendix C*  
*SHPO Concurrence Letter*



**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@mail2.quiknet.com



July 21, 2003

REPLY TO: FHWA030703B

Gary N. Hamby, Division Administrator  
Federal Highway Administration  
Region Nine, California Division  
980 Ninth Street, Suite 400  
SACRAMENTO CA 95814-2724

Re: Replacement of the Gerald Desmond Bridge, Port of Long Beach, Long Beach,  
Los Angeles County.

Dear Mr. Hamby:

Thank you for submitting to our office your June 30, 2003 letter and Historic Properties Survey Report (HPSR) regarding the proposed replacement of the Gerald Desmond Bridge, a structure located at the Port of Long Beach in Long Beach, Los Angeles County. The Gerald Desmond Bridge has been determined, by consensus, to be ineligible for inclusion on the National Register of Historic Places (NRHP). The proposed undertaking will replace the physically and functionally deficient bridge with a seismically resistant structure that will meet vehicular and shipping needs for its planned 100-year design life. The undertaking will also involve construction of two new high-voltage transmission towers adjacent to the existing towers, which will be left standing. The undertaking will also necessitate reconfiguration of adjacent freeway and arterial interchanges. The Area of Potential Effects (APE) for the proposed undertaking appears adequate and meets the definition set forth in 36 CFR 800.16(d). An archeological resources record search conducted at the South Central Coastal Information Center, California State University, Fullerton and a field reconnaissance survey of the project area by qualified archeologists in October 2002 revealed no known archeological resources.

FHWA is seeking my comments on its determination of the eligibility of five (5) pre-1957 architectural and engineering properties for inclusion on the NRHP in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act. Eight (8) post-1957 architectural and engineering properties were also identified within the project APE. I concur with FHWA's determination that these post-1957 properties are ineligible for inclusion on the NRHP. FHWA is also seeking my comments on its determination of the effects the proposed undertaking will have on historic properties in accordance with 36 CFR 800. A review of the HPSR leads me to concur with FHWA on the following:

- The Long Beach Generating Station is eligible for inclusion on the NRHP under Criteria A and D as defined in 36 CFR 60.4. The property has strong associations with the industrial development of the Long Beach Harbor and the Los Angeles area and has retained sufficient and continuing use of technology built to early 20<sup>th</sup> century specifications. This functioning

7/23

technology affords an opportunity to study and understand early engineering techniques as they relate to early power plant development and operation.

- The four (4) remaining pre-1957 properties evaluated in the HPSR are not eligible for inclusion on the NRHP under any of the criteria established by 36 CFR 60.4. The properties have no strong associations with significant historical events or persons, and are not examples of outstanding architectural or engineering design or function.
- On the basis of the above comments, I can now concur with FHWA's determination that the proposed undertaking, as described, will have no adverse effect on historic properties.

Thank you again for seeking my comments on this undertaking. If you have any questions, please contact staff historian Clarence Caesar by phone at (916) 653-8902, or by e-mail at [ccaes@ohp.parks.ca.gov](mailto:ccaes@ohp.parks.ca.gov).

Sincerely,



Dr. Knox Mellon  
State Historic Preservation Officer

*Appendix D*  
*AQMD/CDFG Coordination Letters*







# South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4182  
(909) 396-2000 • [www.aqmd.gov](http://www.aqmd.gov)

**FAXED: JULY 25, 2006**

July 25, 2006

Robert Kanter, Ph.D.  
Port of Long Beach  
Planning Division  
925 Harbor Plaza  
Long Beach, CA 90801

Dear Dr. Kanter:

**Reissued Notice of Preparation for the Gerald Desmond Bridge  
Replacement Project and Air Quality Analysis Protocol for the Gerald Desmond  
Bridge Replacement Project**

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned documents. The SCAQMD staff apologizes for not submitting comments earlier and appreciates the additional time that the Port of Long Beach has allowed. The Gerald Desmond Bridge Replacement Project is an important part of the Ports future expansion plans as this bridge is the primary route between the Port of Long Beach and the Port of Los Angeles and the 710 Freeway. In addition, the Gerald Desmond Bridge Replacement Project will be expanded from four to six lanes accommodating future car and truck traffic volume, and will provide vertical clearance for larger marine vessels.

The SCAQMD staff strongly recommends that the lead agency use the 10 in a million cancer risk threshold to determine project and cumulative significance. Using a percent increase in toxic emissions to determine if a Health Risk Assessment is needed or if the project is cumulatively significant is not an appropriate methodology. The Port of Long Beach's proposed approach is based on a Basin-wide average risk and does not account for many of the key variables that will determine the maximum individual cancer risk such as meteorological conditions, distance to the receptor, exposure duration, and potency of the toxic air contaminant. The SCAQMD staff is concerned that the project may pose a health risk that exceeds the 10 in a million significance threshold, however, the emissions are below the Port of Long Beach's recommended average screening emissions.

In calculating the health risk, the lead agency should account for all new impacts associated with implementation of the proposed project. If the Desmond Gerald Bridge

will be placed in a different location that will affect existing traffic routes, the SCAQMD staff would view these as new localized impacts and the health risk should be appropriately quantified from all mobile sources on the bridge, bridge approaches, and from traffic routes associated with the bridge. In addition, localized impacts from the larger ships that would be able to pass under the taller proposed bridge should also be considered as this is an anticipated activity associated with the proposed project. The SCAQMD staff recognizes that the methodology for estimating regional and localized impacts may be different. The methodology for estimating regional emissions should assess the incremental increase in emissions on a regional basis that are associated with the proposed project.

In February 2006, the SCAQMD staff provided comments to the Port of Long Beach on their *Draft Air Quality and Risk Assessment Protocol for Proposed Projects at the Port of Long Beach Dated October 17, 2005*. SCAQMD staff comments on the Air Quality and Risk Assessment Protocol are incorporated by reference. Please find additional, more detailed comments on the Gerald Desmond Bridge Project-Specific Air Protocol in Attachment I.

The SCAQMD staff appreciates the opportunity to work with the Port of Long Beach to ensure that project-related emissions are accurately identified, categorized and evaluated. Please call me at 909 396-3105 if you have any questions regarding this letter.

Sincerely,

Susan Nakamura  
Planning & Rules Manager

**Attachment I****General Comments**

1. The Protocol should reference recent South Coast Air Quality Management District (AQMD) Guidance – The following two guidance documents developed recently by AQMD staff should be referenced and followed in the protocol:
  - a. *Supplemental Guidelines for Preparing Risk Assessments to Comply with the Air Toxics “Hot Spots” Information and Assessment Act (AB2588)*. The document is available at:  
[http://www.aqmd.gov/prdas/AB2588/pdf/AB2588\\_Guidelines.pdf](http://www.aqmd.gov/prdas/AB2588/pdf/AB2588_Guidelines.pdf). This document is a supplement to OEHHA’s document entitled, “Air Toxics Hot Spots Program Risk Assessment Guidelines” (referred to as the OEHHA Guidelines). Facilities required to submit risk assessments to the AQMD must follow the OEHHA Guidelines. While the information provided in the OEHHA Guidelines is complete, there are several areas in which the user is referred to their local air districts for specific or additional requirements. This supplemental guidance addresses those and other issues that have arisen during the implementation of the AB2588 Program and various AQMD toxic rules.
  - b. *Health Risk Assessment Guidance for Railyards and Intermodal Facilities*. The document is contained in the October Board package for Rule 3503 (agenda item #27). The document provides dispersion modeling and health risk assessment guidance for railyard and intermodal facilities. (Includes methodology for analyzing mobile sources)
  - c. Guidance for performing a mobile source health risk assessment (“Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis”) which can be found at the following SCAQMD website:  
[www.aqmd.gov/ceqa/handbook/mobile\\_toxic/mobile\\_toxic.html](http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html).
2. The SCAQMD staff has developed a methodology to quantify localized emissions impacts from PM<sub>10</sub>, CO, and NO<sub>x</sub> emissions. Please refer to the SCAQMD’s website for the methodology and localized significance thresholds for PM<sub>10</sub>, CO, and NO<sub>x</sub>.
3. PM<sub>2.5</sub> Impacts – The criteria pollutant, PM<sub>2.5</sub>, is not considered in the protocol. The protocol must address PM<sub>2.5</sub> emissions and impacts. As you are aware, the SCAQMD staff is in the process of developing PM<sub>2.5</sub> CEQA significance thresholds for both regional and localized impact analyses. Staff intends to bring the recommendation to the Governing Board in October 2006.
4. Mitigation Measures - If air quality or health risk impacts are found to be significant, the Port must require implementation of mitigation measures by all applicable sources unless substantial evidence supports a finding that implementation of a measure is not feasible. (Cal. Pub. Res. Code §§21081, 21081.5). The following documents contain feasible mitigation measures that the Port must consider for projects with significant

air quality impacts. In addition, the AQMD staff will identify additional mitigation measures during the review of a specific proposed project.

SCAQMD's "Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis". March 28, 2003. [http://www.aqmd.gov/ceqa/handbook/mobile\\_toxic/mobile\\_toxic.html](http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html)  
Riverside Air Quality Task Force "Good Neighbor Guidelines", September 12, 2005. <http://www.wrcog.cog.ca.us/publications/Good+Neighbor+Policies+Final-091205.pdf>

California Environmental Protection Agency, "Draft Emission Reduction Plan for Ports and International Goods Movement in California", December 1, 2005. [http://www.arb.ca.gov/planning/gmerp/dec1plan/cover\\_toc.doc](http://www.arb.ca.gov/planning/gmerp/dec1plan/cover_toc.doc)

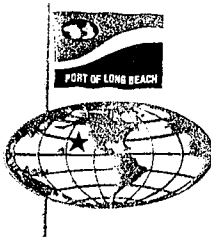
- Chapter 11 of the SCAQMD CEQA Air Quality Handbook has sample air quality mitigation measures.

SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be accessed at the following internet address: [www.aqmd.gov/prdas/aqguide/aqguide.html](http://www.aqmd.gov/prdas/aqguide/aqguide.html).

In addition, pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be addressed.

5. Project Emissions - Quantification of project emissions for the air quality analysis for CEQA documents should include project related emissions for both indirect and direct sources that affect California. For example, if the proposed project will create an increase in truck trips where deliveries would be outside of the SCAB, the emissions from the increase in truck trips from the project site to the edge of California should be included in the air quality analysis. Emission estimates for the HRA would be limited to those emissions that occur within the proposed project boundaries.
6. Peak Daily Emissions – The protocol states on page 7, that “to calculate the worst-case interim emission, the air emissions associated with each of these phases will be calculated separately.” It would seem that there is the potential for overlapping phases, for example the demolition of the existing bridge and operation of the new bridge. The emissions from each phase and overlapping of phases should be calculated to estimate the peak daily construction and demolition emissions.
7. Future Mobile Source Regulations - For rules adopted or amended after the EMFAC2002 model was developed, the effect of future requirements can be accounted for in the future emission estimates provided the methodology and assumptions used is reviewed and approved by the local and state air quality agencies. This is to ensure that there is not a discrepancy regarding how future emission reductions are accounted and that there is potential double counting of emission reductions. In addition, it should be clear the SCAQMD CEQA guidance allows project to take credit for future year emission reductions from adopted rules and regulations only. Adjustments for proposed rules and regulations are not allowed.

8. Off-road Emissions - Emission factors from ARB's OFFROAD model for the years of interest represent model year emission factors, not fleet averages for the specified year. It appears that the authors are aware that the OFFROAD model is for model year engines and not fleet averages, but it should be made clearer in the discussion. CARB can provide emission factors that are representative of the overall fleet-mix for a specific equipment type and size category, or the Port use OFFROAD emission factors representative of their specific fleet for a specific equipment type and size category and model year. The second approach will allow the Port to tailor the fleet of equipment used in a specific project based on the useful life of each piece of equipment used at the Port.
9. Ocean-going vessels (OGVs) – OGVs can be treated as a series of point, area, or volume sources. The subject protocol is considering either a point or volume source treatment. Either treatment is acceptable. However, ARB's concurrence should be sought since ARB uses an area source treatment for OGVs in their report titled, *Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach*. In addition, if OGVs are treated as a series of point sources, then the approach must address potential building downwash effects.
10. Modeling Domain – Typically, SCAQMD staff requires impacts to be evaluated beginning from the fence line. It is not clear from the protocol where project impacts would begin to be evaluated. This issue should be discussed in the protocol.
11. Time Domain for the Quantitative HRA – It is not clear from the protocol what the time domain for the quantitative HRA is. Would the HRA include emissions from the interim years or would the build-out emissions be assumed for the HRA?
12. Wilmington meteorological site is preferable for a Port of Long Beach impact assessment. It was used by ARB in their Port HRA and is proposed for use by the Port of Los Angeles for their expansion projects. In addition it is more current and proximate to the proposed project than SCAQMD's North Long Beach site.
13. Exposure assumption – The SCAQMD staff recommends that the exposure duration for schools and day care facilities assume 70 years, if the SCAQMD's significance threshold is used.
14. OEHHA Reference – The date for the OEHHA reference should be August 2003. SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at 909 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's website: [www.aqmd.gov](http://www.aqmd.gov).



# The Port of Long Beach

P. O. BOX 570 · LONG BEACH, CA 90801-0570 · TELEPHONE (562) 437-0041 · FAX (562) 901-1725

July 5, 2006

Ms. Susan Nakamura  
South Coast Air Quality Management District  
Planning and Rules Manager  
21865 Copely Drive  
Diamond Bar, CA 91765

Subject: Gerald Desmond Bridge Project Specific Air Protocol

Dear Ms. Nakamura:

On December 3, 2005, we sent you a revised Notice of Preparation and a Project-Specific Air Protocol (PSAP) for the Gerald Desmond Bridge Replacement Project. Since that time, Ms. Stacey Crouch of my staff has attempted to contact you both by telephone and by e-mail to determine if the South Coast Air Quality Management District (SCAQMD) had any comments or questions regarding the PSAP, and if so, if you would like to meet to discuss them. To date, we have had no response from the SCAQMD.

The California Environmental Quality Act (CEQA) anticipates that the EIR preparation and certification process should be accomplished within a year's time frame, per CEQA Guideline 15108. This is a high priority project to the Port of Long Beach. Accordingly, if we do not hear from you by July 17, 2006, we will assume that the SCAQMD does not have comments or questions on the PSAP. You will have an opportunity to comment on the revised draft Environmental Impact Report/Environmental Assessment when it is released later this year.

If you have any questions or comments or would like to schedule a meeting to discuss the PSAP please contact Ms. Crouch at (562) 590-4160.

Sincerely,

Robert Kanter, Ph.D.  
Director of Planning  
and Environmental Affairs

SEC:s

cc: E. Chang, SCAQMD  
M. Bogner, Engineering  
K. Haboian, Parsons





# The Port of Long Beach

P. O. BOX 570 · LONG BEACH, CA 90801-0570 · TELEPHONE (562) 437-0041 · FAX (562) 901-1725

December 3, 2005

Ms. Susan Nakamura  
South Coast Air Quality Management District  
Planning and Rules Manager  
21865 Copley Drive  
Diamond Bar, CA 91765

Subject: Gerald Desmond Bridge Project-Specific Air Protocol

Dear Ms. Nakamura:

The Port of Long Beach (Port) is proposing to replace the aging Gerald Desmond Bridge joining Terminal Island to downtown Long Beach. The existing bridge is a tied-arch truss bridge which was constructed in 1968 and seismically upgraded in 1997, and it currently provides two through traffic lanes and one climbing lane in each direction.

The purpose of the proposed project is to replace the existing Gerald Desmond Bridge with a bridge that would:

- Provide sufficient roadway capacity to accommodate current car and truck traffic volumes and meet future needs;
- Reduce approach grades;
- Be structurally sound and seismically resistant; and
- Provide vertical clearance that would allow for safer passage of some existing container ships and new-generation vessels currently being constructed.

The Port in cooperation with Caltrans/Federal Highways Administration is preparing an Environmental Impact Report/Environmental Assessment (EIR/EA). The Lead Agencies originally issued an NOP on October 24, 2002. Following issuance of the original NOP, a draft EIR/EA was released on June 14, 2004, for public review. Subsequent to the public comment period for the draft EIR/EA, the Port elected to add a Toll-Operation Alternative and to expand the limits of the proposed project study area. The proposed project may result in potentially significant impacts on air quality associated with construction and operations activities. The EIR/EA will include air quality analyses prepared using the methodology described in the *Draft Air Quality and Risk Assessment Analysis Protocol for Proposed Projects at the Port of Long Beach* dated October 17, 2005 and incorporated by reference herein, and project specific protocol – *Air Quality*





S. Nakamura  
Page 2  
December 3, 2005

*Analysis Protocol for the Gerald Desmond Bridge Replacement Project* dated November 2005 (attached).

Also attached is a Reissued Notice of Preparation for the revised draft Environmental Impact Report/Environmental Assessment (EIR/EA). The Ports anticipates the revised draft EIR/EA will be available for public review and comment in the summer of 2006. Per California Environmental Quality Act requirements, your agency will be provided a copy of the revised draft EIR/EA for review at that time.

If you have any questions regarding the proposed project or the air quality protocol we are proposing, please contact Stacey Crouch, of my staff, at (562) 590-4160.

Sincerely,



Robert Kanter, Ph.D.  
Director of Planning and  
Environmental Affairs

Attachments

cc: M. Bogner, Engineering  
K. Haboian, Parsons

**AIR QUALITY ANALYSIS PROTOCOL FOR THE  
GERALD DESMOND BRIDGE REPLACEMENT PROJECT**

**December 2005**

The methodology in this protocol describes the general procedures to be followed in the Environmental Impact Report (EIR)/Environmental Assessment (EA) process, including describing existing conditions, environmental consequences, and mitigation. The following sections describe the methodologies to be followed in documenting ambient air quality, source characterization, emissions development, significance thresholds, modeling analyses, cumulative analyses, and mitigation.

## **SECTION 2: BASELINE AIR QUALITY**

### **2.1 *Criteria Air Pollutants***

Ambient air quality data from the following representative air monitoring sites, operated and validated by SCAQMD or the California Air Resources Board (CARB), will be used:

- Wilmington (Mahar Avenue) [ARB Site No. 70996] – approximately 2.2 miles northwest of the Gerald Desmond Bridge
- Long Beach (East Pacific Coast Highway) [ARB Site No. 70110] – approximately 3.6 miles northeast of the Gerald Desmond Bridge
- North Long Beach Station [ARB Site No. 70072] – approximately 4.4 miles north of the Gerald Desmond Bridge
- South Coastal Los Angeles County 2 [SCAQMD Station No. 077] – approximately 4.4 miles north of the Gerald Desmond Bridge.

The most recent 3 years of monitoring data are required for documenting background ambient air quality. The North Long Beach Station will be the primary data source for documenting background ambient air quality for the Gerald Desmond Bridge project since it has complete data for the most recent 3 years from 2002 to 2004. The Wilmington monitoring station at Mahar Avenue has only sulfur dioxide (SO<sub>2</sub>) data from 2002. The air monitoring station at East Pacific Coast Highway monitors particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) only and began operation in 2003. The South Coastal Los Angeles County 2 station monitors particulate matter and lead (Pb) only, and it began operation in 2004. Monitoring data from the East Pacific Coast Highway and South Coastal Los Angeles County 2 stations will be used in conjunction with the North Long Beach Station's monitoring data to determine the highest background levels of particulate matter and Pb in the area.

The established criteria air pollutants – those air pollutants with the National Ambient Air Quality Standards (NAAQS) or the California Ambient Air Quality Standards (CAAQS) will be analyzed. Criteria air pollutants consist of carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), SO<sub>2</sub>, particulate matter less than 10 micrometers in aerodynamic diameter (PM<sub>10</sub>), particulate matter less than 2.5 micrometers in aerodynamic diameter (PM<sub>2.5</sub>), and Pb (CARB, 2005).

## **SECTION 3: SOURCE DEFINITION**

Sources to be evaluated are defined as equipment or operations having the ability to emit one or more pollutants into the atmosphere potentially causing air quality degradation. These sources can be either directly related to a proposed project or indirectly affected by a proposed project.

Direct emission sources are those located within the project boundary that are essential to the operation of the proposed project. In the context of the Gerald Desmond Bridge, direct emissions are those associated with vehicular traffic using the bridge. Direct emissions are also associated with the construction and demolition activities necessary to develop the overall project. These can include construction and demolition equipment and other mobile sources, such as haul/debris trucks and personal cars used by construction workers.

Indirect sources are defined in the SCAQMD *CEQA Air Quality Handbook* as facilities, buildings, structures, installations, real properties, roads, or highways that attract, or may attract, mobile sources of pollution (SCAQMD, 1993). The indirect source would be those roads and highways that would receive additional traffic (mobile sources) that is diverted from using the new bridge, possibly due to implementation of a Toll-Operation Alternative.

### **3.1 Construction**

Typically, construction emissions occur from combustion sources and from fugitive sources. Combustion sources, whether they are direct or indirect sources, emit NO<sub>x</sub>, CO, PM<sub>10</sub>, SO<sub>x</sub>, VOCs, and various air toxics. Sources include construction and demolition equipment, haul/debris trucks, and worker traffic. Fugitive construction emissions (generally PM<sub>10</sub>) are primarily due to traveling over unpaved roads and site preparation.

### **3.2 Operation**

Direct sources related to the operation of the Gerald Desmond Bridge typically would consist of mobile sources composed of personal passenger cars, light trucks, heavy-duty gas and diesel trucks, buses, and motorcycles. Air emissions of VOCs, CO, NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub> will be the primary air pollutants released from the vehicles that will be calculated. Air toxics are anticipated to be released mostly from heavy-duty diesel truck engines and will be calculated if there would be a 0.8 percent or more increase of TAC as a direct result of the operation of the new bridge (see previous discussion).

## **SECTION 4: Project Emission Quantification**

Project emissions will be estimated for both direct and indirect sources that affect the SCAB. Operational emissions from mobile sources using the Gerald Desmond Bridge will be calculated based on the length of the bridge and the emission factors of the specific vehicle mix using the bridge. An estimate of No Build emissions of mobile sources will also be calculated using the same methodology. The net increase of the Build and No Build emissions will be

When the demolition of the bridge takes place, SCAQMD's Rule 1403 would be followed. The purpose of the rule is to specify work practice requirements to limit asbestos emissions from demolition activities, including the removal and associated disturbance of asbestos-containing materials (ACM).

### **4.3 TAC Emissions**

If an HRA is needed, TAC will be identified, as defined in the latest SCAQMD-adopted iteration of Rule 1401. PM<sub>10</sub> emissions will be used as a surrogate for DPM from all diesel internal combustion engines to estimate potential cancer and chronic health effects. The latest version of the EMFAC2002 model will be used to estimate diesel truck traffic PM<sub>10</sub> emissions as DPM.

## **SECTION 5.0: Significance Thresholds and Analysis**

Table 5-1 presents the thresholds of significance for air quality in terms of mass daily thresholds for criteria air pollutants.

### **5.1 Criteria Air Pollutants**

The mass daily thresholds presented in Table 5-1 are emissions-based thresholds representing the first tier of a potential two-tier process for assessing the potential significance of criteria air pollutants on the regional level. There are two categories of mass daily thresholds: "construction" and "operational." The construction thresholds are set at higher levels for NO<sub>x</sub> and VOCs, in recognition of the short-term nature of construction versus operational emissions. The operational emissions thresholds are tied to thresholds contained in SCAQMD Rule 1304 for permitting proposed new emission sources within SCAQMD's jurisdiction. The maximum daily emissions of criteria air pollutants from the project's emission sources will be estimated for the period between the CEQA baseline and the horizon year of 2030. The CEQA baseline is the existing environmental setting or baseline physical conditions before a project commences.

The project will be implemented in three phases. The construction phase includes construction of the new bridge, partial demolition of the existing bridge, and the continual operation of the existing bridge. This scenario would end with completion of construction and opening of the new bridge. The operational phase includes the operation of the new bridge, along with simultaneous demolition of the old bridge. Demolition activities would end with the complete removal of the old bridge. Finally, the operational phase will continue to reach the maximum capacity over time until 2030. To calculate the worst-case interim emission, the air emissions associated with each of these phases will be calculated separately. The emissions analyzed will be for the identified worst-case interim year (as defined in Section 4), the project build year of approximately 2011 or 2012, and the project build-out year of 2030.

## **SECTION 6.0: Local Scale Air Quality and TAC Hot Spot Analysis**

Due to the nature of this project, only CO and PM<sub>10</sub> hot spot analysis is required under the transportation conformity rules. The CO hot spot analysis will be conducted quantitatively, and the PM<sub>10</sub> local scale analysis will be conducted qualitatively. TAC hot spot analysis may also need to be performed if the TAC emissions would increase by 0.8 percent or more as a result of the proposed project.

### **6.1 CO Hot Spot Quantitative Analysis**

The CO hot spots will be selected in the vicinity of the bridge and will include the new bridge itself. The worst-case intersections will be selected based on the traffic analysis. Three impacted intersections with the worst level of service (LOS) and three impacted intersections with the highest traffic volumes will be selected for the CO hot spot analysis. These selected intersections may be the same (i.e., worst LOS and highest volumes). The analysis will follow the guidelines from the *Transportation Project Level Carbon Monoxide Protocol*, which was prepared by the University of California at Davis for Caltrans. Both screening and detailed analysis may be done for the selected intersections.

### **6.2 PM<sub>10</sub> Qualitative Analysis**

A qualitative analysis of PM<sub>10</sub> will be conducted following FHWA guidance. This analysis deals primarily with project operational emissions. It is typically necessary to address construction-stage PM<sub>10</sub> emissions from projects for CEQA purposes, since practically all of California is nonattainment for PM<sub>10</sub> under State standards. However, construction activities lasting 5 years or less are considered temporary impacts under the Transportation Conformity Rule, and PM<sub>10</sub> hot-spot analysis during the construction period is generally not required.

### **6.3 TAC Analysis**

If required (see Section 7.2), the Hotspots Analysis and Reporting Program (HARP) is a tool that assists with the requirements of the CARB Air Toxics "Hot Spots" Program. HARP is a computer software package that combines the tool of emission inventory database, facility prioritization calculation, air dispersion modeling, and risk assessment analysis. All of these components are tied to a single database, allowing information to be shared and utilized. The results obtained from HARP would be compared with the criteria of the TAC listed in Table 5-1.

## **SECTION 7: MODEL METHODOLOGIES**

The following section describes the basis for the modeling analysis, including the model selection, emission source parameters, meteorological data, receptor locations, and calculation of impacts for CO and TAC hot spot modeling.

which recommends the use of the midpoint between the mean (65<sup>th</sup> percentile for the inhalation pathway) and high-end (95<sup>th</sup> percentile) values (i.e., the 80<sup>th</sup> percentile) as the minimum exposure level for risk management decisions where a single cancer risk value must be used for a residential receptor (CARB, 2004).

In the HRA, the estimated excess cancer risks would be considered to be additive, without taking into account any difference in cancer target, or any antagonistic or synergistic effects. Likewise, for conservative purposes, the Hazard Quotient (HQ) for all non-cancer substances are assumed to be additive to calculate an overall Hazard Index (HI), regardless of target organ systems for individual substances. If the calculated HI would be above 1.0, the risks based on target organ systems would be segregated.

### **7.2.1 Emission Source Characteristics**

Emission sources would be identified by specific locations using a referenced Cartesian grid system. Typically, the Universal Transverse Mercator (UTM) system is utilized. Although it is not essential, this system allows easier reference to outside maps, electronic terrain systems, and comparison with other regulatory systems within the SCAB. The emission source is the heavy-duty diesel trucks traveling on the bridge, and it will be characterized as volume sources for both ISCST3 and HARP. The size of the volume source will be determined by the width of the roadway, and the height of the volume source will be 4 meters.

### **7.2.2 Meteorological Data**

SCAQMD conducted an extensive 1-year meteorological monitoring and validation program throughout the SCAB to develop hourly meteorological data sets for use in regulatory modeling within the region. The North Long Beach Monitoring Station data will be used to characterize conditions in the Gerald Desmond Bridge area; SCAQMD has approved this station for use in numerous previous Port projects. This dataset will be used to calculate TAC exposure concentrations.

### **7.2.3 Receptor Locations**

Modeling receptor locations are essential in the evaluation of potential impacts. In most applications, a system of regularly spaced intervals sufficient to capture the maximum concentration location is required. Typically, 100-meter receptor spacing will be used out to a distance of 1,000 meters, followed by 250-meter spacing out to 2,500 meters, and then 500-meter spacing to a distance of 5,000 meters. If the maximum is predicted beyond the 100-meter grid system, secondary modeling will be conducted with a 100-meter spacing around the identified maximum location to better define the prediction. Because of the limitations of the HARP software, only one grid can be modeled at a time. The approach to defining receptor locations in the risk assessment will be to use a coarse grid to identify the general area in which impacts are highest, and then to use refined grids to locate the MEI.

Rules 1401 and 212 will be used in this assessment to evaluate the significance of non-cancer impacts and the population cancer burden calculated for nearby populations. The risk thresholds are presented in Table 5-1:

In accordance with OEHHA guidelines, the HRA would present the potential acute non-cancer, chronic non-cancer, and incremental cancer health impacts at the point of maximum offsite impact, at the maximum exposed individual resident, at the maximum exposed individual worker, and at specified sensitive receptor locations. The HRA would also present an estimate of population exposure for potential incremental cancer burden.

The HARP model allows the calculation of risk for several exposure scenarios. The OEHHA 70-year exposure scenario assumes that a residential receptor will be present at one location for 24 hours per day, 365 days per year, for 70 years. This scenario represents an upper-bound exposure to TAC emissions. In addition, the HARP model allows the calculation of a 30-year residential scenario (the Environmental Protection Agency's [EPA] recommended upper-bound residential scenario), a 9-year adult residential scenario (EPA's recommended average residence time for adults), a 9-year child residential scenario, and a worker exposure scenario. The HARP program also allows calculation of an upper-bound, 80<sup>th</sup> percentile (for inhalation pathway only, as discussed in Section 7.2), and average risk for each of these exposure scenarios. This allows the Gerald Desmond Bridge project to place the 70-year exposure scenario into perspective and provides a comparative analysis of potential upper-bound versus average risks.

### ***Uncertainty Analysis***

If an HRA is required for the proposed project, the risk characterization would also include a discussion of uncertainties in the risk assessment process. These uncertainties arise from the assumptions made in the risk assessment process, including assumptions regarding emission estimates, mitigation measures to be employed, source characterization, exposure scenarios, and toxicity factors. In general, the process, as dictated by OEHHA guidelines and SCAQMD requirements does not allow for decisions to be made regarding the exposure scenarios or toxicity factors. However, there are uncertainties involving emission factors and emission estimation techniques, mitigation measures, and source characterization that may require additional consideration. The following discussion addresses some of these individual issues further:

### **Emission Estimation Techniques**

Emissions are estimated using the best available emission factors for the various emission sources. Emission factors are periodically updated or may be augmented with actual test data from testing of equipment, vehicles, marine vessels, and other project-related sources. Furthermore, there may be new developments in emission estimation software (such as the CARB OFFROAD emission factor software and the EMFAC model) that must be taken into account



MATES II study is currently being updated by SCAQMD and will be released as MATES III. The Gerald Desmond Bridge HRA would take into account the results of the updated study when they become available.

## **MITIGATION MEASURES**

### **Criteria Air Pollutants**

When the significance threshold emission criterion of a criteria pollutant is exceeded by emissions associated with the project or any alternatives, mitigation measures would be identified. The mitigation measures developed for the Gerald Desmond Bridge project would be consistent with CEQA requirements and the latest version of the SCAQMD *CEQA Air Quality Handbook*. To the extent possible, quantification of the emission reductions from each mitigation measure (or set of mitigation measures) would be estimated. The environmental document preparer would document each mitigation measure, the effectiveness of the control, and the basis for emission quantification. The evaluation for significant impacts (after mitigation) would be conducted in the identical manner as described for the unmitigated emissions, and any significant impacts would be identified.

### **TAC**

In similar fashion, mitigation measures would be identified if there would be an exceedance of TAC significance thresholds for the project or any of the alternatives. The latest version of the SCAQMD *Air Toxics Control Plan (ATCP)* provides a summary of proposed air toxics control measures and also provides an evaluation of the potential risk reductions in the SCAB due to implementation of control measures. For each mitigation measure, effective emission reductions would be estimated consistent with the ATCP. As with criteria pollutants, an evaluation of the resultant risks from the project (or alternative) emissions, after mitigation, would be assessed for significant impacts. The environmental document preparer would identify all significant impacts remaining after mitigation is applied.

## REISSUED NOTICE OF PREPARATION

Date December 5, 2005 SCH #2002101141  
To: Responsible and Trustee Agencies and Interested Parties  
From: Robert Kanter, Director of Planning and Environmental Affairs  
Subject: Gerald Desmond Bridge Replacement Project

The Port of Long Beach (Port) in cooperation with the California Department of Transportation and Federal Highways Administration (Caltrans/FHWA) will act as the lead agencies for the subject in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act, respectively. The Port and Caltrans/FHWA will prepare a combined Environmental Impact Report (EIR) and Environmental Assessment (EA) for the project described below.

The Port and Caltrans/FHWA originally issued a Notice of Preparation (NOP) on October 24, 2002. Following issuance of the original NOP/Notice of Intent, a draft EIR/EA was released for public review on June 14, 2004, for a 60-day review period. Subsequent to the public comment period for the draft EIR/EA, the Port elected to add a Toll-Operation Alternative and to expand the limits of the proposed project study area. The project study area was expanded to assess the impacts associated with adding a toll district. The revised draft EIR/EA will incorporate quantitative analysis to assess the project's potential to cause growth-inducement within the Port and in surrounding communities.

As a result of the added Toll-Operation Alternative and the expanded project study area, the Port has reissued this NOP to afford responsible and trustee agencies the opportunity to provide comments and input on the revisions to the proposed project.

This reissued NOP is also to inform you that the following additional environmental factors are being considered to have potentially significant impacts and will be reanalyzed accordingly: light and glare, air quality, noise, traffic, and growth inducement.

***If you submitted comments in response to the October 2002 NOP, we have addressed those comment in the June 2004 draft EIR/EA and will also address them in the revised draft EIR/EA. Accordingly, we ask that you provide any additional comments, you may have on this NOP, at this time.*** We need to know the applicable permit and environmental review requirements of your agency and the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. This is important if your agency will need to use the EIR/EA when considering permits or approval for the project by your agency.

Along with a No-Build Alternative, a North-side Alignment Alternative and a Toll-Operation Alternative will be analyzed in the revised draft document as follows: 1) North-side Alignment Alternative (same as the North-side Alignment Alternative described in the June 2004 draft EIR/EA; and 2) Toll-Operation Alternative [either as part of a toll district scenario involving the

Gerald Desmond, Vincent Thomas, and Schuyler Heim bridges, or tolling only at the Gerald Desmond Bridge (same footprint as the North-side Alignment Alternative)].

The North-side Alignment Alternative assumes that the proposed new Bridge would operate similar to a freeway. The new bridge would be relinquished to Caltrans and would become part of Route 710.

The Toll-operation Alternative is assumed to have automatic License Plate Recognition (LPR) technology, and would operate without toll booths. Except for the toll element, the bridge design features would be the same as that of the previously analyzed alternatives.

The proposed project limits (i.e., bridge alignment alternatives and project improvements footprint) remain the same as that presented in the previously released draft EIR/EA. However, the project study area has been revised and expanded as follows: Willow/Sepulveda to the north, I-110 to the west, and the Los Angeles River to the east. The south end of the project study area has not changed, being located south of Ocean Boulevard. The Gerald Desmond Bridge/Ocean Boulevard portion of the project is located in the Middle Harbor and Terminal Island planning districts of the Port, and the I-710 portion is located in the Northeast Harbor Planning District. The Gerald Desmond Bridge is one of three bridges connecting surface highways to Terminal Island (see attached figure). The EIR/EA will consider whether the Toll-Operation alternative would cause traffic diversion in the study area.

**Project Title:** Gerald Desmond Bridge Replacement Project

**Project Location:** Back Channel, Port of Long Beach, Los Angeles County, California

**Project Description:** The proposed project consists of replacement of the aging four-lane Gerald Desmond Bridge with a six-lane bridge that would be a landmark in the Port and City of Long Beach. For further information about the project, see the attached "Additional Project Information."

Your input on the proposed project at this stage in the CEQA process is one of the mechanisms to ensure that the concerns of your agency are brought forth to the Port early in the process. Please send your response as early as possible but ***no later than January 5, 2006.***

In addition, please send your response and the name of a contact person in your agency, as well as any comments or questions regarding the proposed project to Robert Kanter, Ph.D., Port of Long Beach, Planning Division, 925 Harbor Plaza, Long Beach, CA 90802



Robert Kanter, Ph.D.  
Director of Planning and  
Environmental Affairs

SEC:s

Attachments

## **Additional Project Information**

### **Purpose and Need of Project**

The purpose of the proposed project is to replace the aging 156-foot vertical clearance, four-lane Gerald Desmond Bridge, constructed in 1968 with a higher six-lane bridge that would be an engineering landmark within the Port and the City of Long Beach. The new cable-stayed bridge would have two additional lanes and a 200-foot vertical clearance over the Back Channel. It has a planned 100-year design life. In addition, it would enable the Port to remove the existing, physically deteriorated structure from service, accommodate projected increases in vehicular traffic on the bridge, and allow for the increased size in container ships in the future. The new bridge with a higher vertical clearance would meet maritime demand by accommodating larger ships.

The Gerald Desmond Bridge is one of only three bridges that provide access to Terminal Island. The current structure has a steel superstructure (truss and girder) that supports a reinforced concrete deck, all supported by reinforced concrete substructures. In 1997, the structure underwent seismic retrofit and fatigue retrofit; it continues to deteriorate.

### **Alternatives Evaluated**

There are two build alternatives being considered for the project: 1) a new bridge on the north side of the current structure with a 200-foot vertical clearance over the Back Channel, called the North-side Alignment Alternative and 2) a Toll-Operation Alternative (same footprint as the North-side Alignment Alternative) with two scenarios. One scenario is part of a study for a tolling district for all three bridges on Terminal Island; Gerald Desmond, Vincent Thomas, and Schuyler Heim. The other is a stand alone toll facility on the Gerald Desmond Bridge. An alternative to locate the new bridge on the south side of the existing bridge was evaluated in the June 2004 draft EIR/EA and found to be non-viable primarily due to unacceptable impacts on the Port's new Pier T container terminal south of Ocean Boulevard. An option to upgrade rather than replace the existing structure was also considered; this was not a viable alternative, as the bridge would be closed for an extended period of time causing major diversion of traffic to local arterials and severely impacting those facilities. The viability of constructing a tunnel to replace the bridge was considered, but it was found to be infeasible due to the high costs and the challenges associated with its constructability. Finally, different types of bridge design options were analyzed, which included Single Mast Tower, H-Tower with Vertical Legs, H-Tower with Slanted Legs, and Delta Tower.

### **Environmental Setting**

The Gerald Desmond Bridge is located in an industrialized area in the Port. The area is highly disturbed and includes land uses such as lumber terminals, a liquid bulk terminal, a scrap metal terminal, a container terminal, and oil production facilities.

### **Methodology**

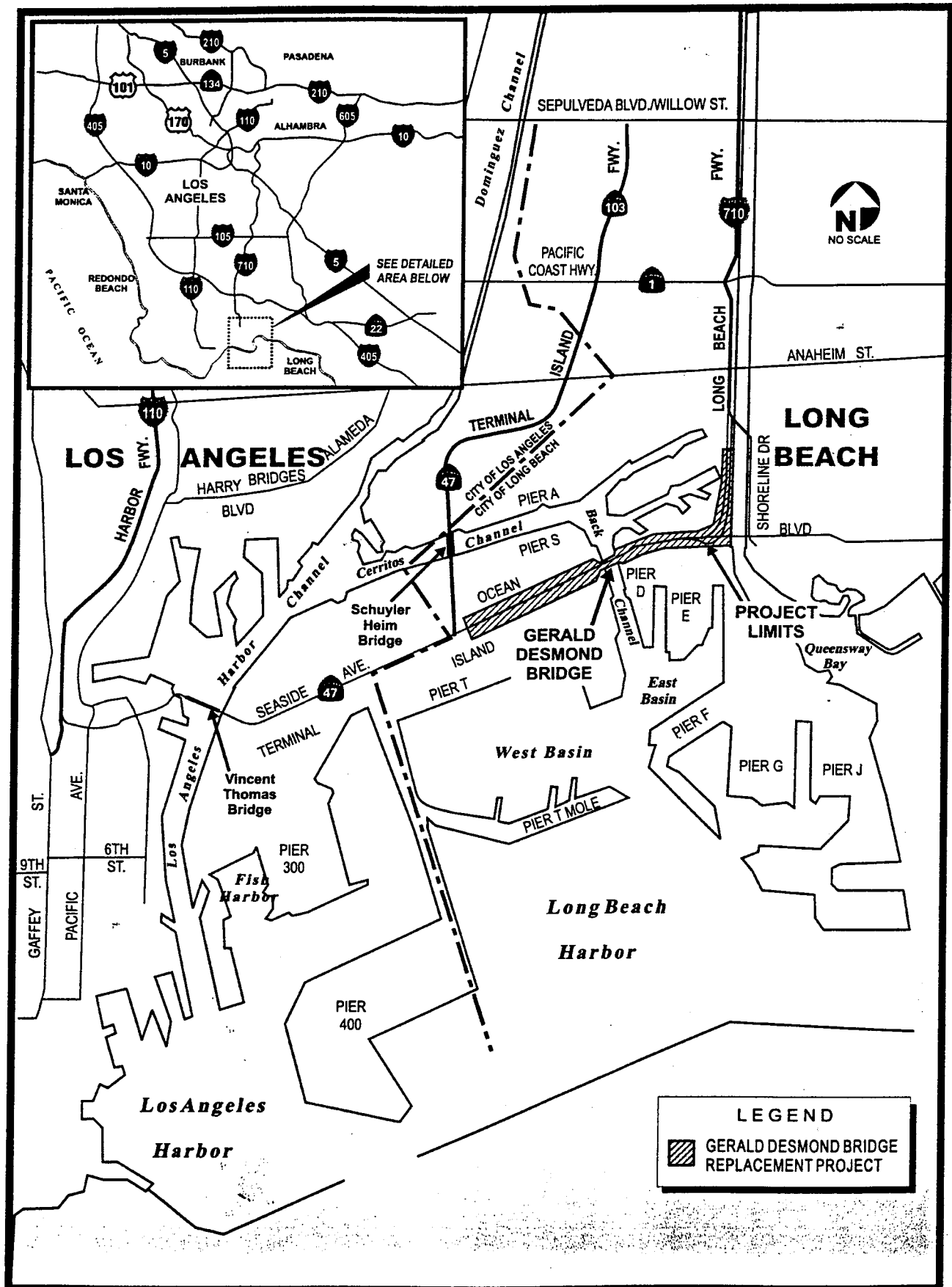
The technical studies to support the revised draft EIR/EA are being prepared in accordance with various Port Protocols and other applicable laws and procedures, and they are outlined in the following table

## METHODOLOGIES

Technical Study	Port Guidance Procedural Guide	Applicable Laws, Procedures, and Agencies
Air Quality Technical Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.	UC Davis Transportation Project-Level Carbon Monoxide Protocol, Revised December 1997  FHWA Guidance for Qualitative Project Level "Hot Spot" Analysis in PM-10 Nonattainment and Maintenance Areas, September 2001
Energy Technical Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.	California Energy Commission On-road & Rail Transportation Energy Demand Forecasts for California, April 1999
Geologic Resources Technical Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.	State Mining and Geology Board Guidelines for Evaluating and Mitigating Seismic Hazards in California Special Publication 117, 1997
Historic Properties Survey Report	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  City of Long Beach Green Building Policy for Municipal Buildings, 2003.  City of Long Beach Municipal Code Public Facilities and Historical Landmarks (Chapter 16.04), 1982.	US Department of the Interior National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, 1995.  Caltrans Environmental Handbook Volume 2: Cultural Resources, January 2004.
Initial Site Assessment	N/A	California Department of Toxic Substance Control (DTSC), 2005.  National Council for Science and the Environment (NCSE), 2005.  Summaries of Environmental Laws Administered by the EPA, 2005.  ASTM E1527-00, Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process, 2005.
Land Use Technical Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  Port of Long Beach Master Plan, 1999.	Caltrans Environmental Handbook Volume 4: Community Impact Assessment, June 1997.
Natural Environment Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  Ports of Long Beach and Los Angeles Year 2000 Biological Study of San Pedro Bay, 2002.	Caltrans Environmental Handbook Volume 3: Biological Resources, January 2000.
Noise Technical Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  City of Long Beach Municipal Code Noise (Chapter 8.80), 1982	Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, October 1998.
Socioeconomic Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  A White Paper on Environmental Justice: Opportunities in Port of	Caltrans Environmental Handbook Volume 4: Community Impact Assessment, June 1997.  Environmental Justice Executive Order 12898, 1994.

Technical Study	Port Guidance Procedural Guide	Applicable Laws, Procedures, and Agencies
	Long Beach Projects, 2005.	
Traffic Analysis Report	Environmental Protocol Environmental Impact Report Standards and Practices, 2005. Port Terminal Throughput Final White Paper, 2005.	Highway Capacity Manual (HCM 2000) prepared by the Transportation Research Board (TRB) Committee.
Utilities Study	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  Utility and Service Systems, 2005.	N/A
Water Resources	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.  City of Long Beach Municipal Code NPDES & SUSMP Regulations (Chapter 18.95), 1982.	Caltrans Storm Water Quality Handbook, Construction Site Best Management Practices (BMPs) Manual, September 2002.  Caltrans Statewide Storm Water Management Plan, May 2003.
Visual Impact Assessment	Environmental Protocol Environmental Impact Report Standards and Practices, 2005.	FHWA Visual Assessment for Highway Projects, March 1981.

Figure - Vicinity and Study Area Map





DEPARTMENT OF FISH AND GAME

<http://www.dfg.ca.gov>

Marine Region

20 Lower Ragsdale Drive, Suite 100

Monterey, CA 93940



February 2, 2006

Dr. Robert Kanter  
Director of Planning and Environmental Affairs  
Port of Long Beach  
P.O. Box 570  
Long Beach, CA 90801-0570

Dear Dr. Kanter:

The Department of Fish and Game (Department) has reviewed the Port of Long Beach's (POLB) Draft Gerald Desmond Bridge Replacement Project Bat Monitoring and Mitigation Plan, received January 17, 2006. The POLB is proposing to demolish and reconstruct the aging Gerald Desmond Bridge, a site currently utilized by bats. The monitoring and mitigation plan is intended to reduce impacts to bats during demolition and construction activities.

The Department has the following comments on the bat monitoring and mitigation plan.

Section 1: Project Introduction

Existing Conditions: last sentence:

We also need to know "When" the bats are roosting.

Section 2: Project Impacts and Potential Mitigation

Construction Impacts:

Does this mean that the new bat roosts will be available on the new bridge prior to the demolition of the old bridge?

Mitigation Measures:

Item 3. Create roosting opportunities on the new bridge should be in place prior to Item 2., *Preclude access to the existing bridge prior to its demolition.*

Measure 1. Species Identification:

- Surveys should be conducted evening/night...usually up until midnight/1 AM depending on activity.
- It will take more than one day to survey the entire existing bridge—you may want to say "survey period"
- Surveys should be scheduled to get a June survey date.



- Surveys need to be conducted during appropriate weather and lunar conditions.
- If possible, the biologist should start collecting guano to "rub" into the new bridges roosting areas.
- In the established roost areas, a temperature probe should be used to ascertain roost temperature during use. So temperature can be monitored in the new roost site. Bats utilize areas based on Temperature.

Measure 2. Precluding Bat Access:

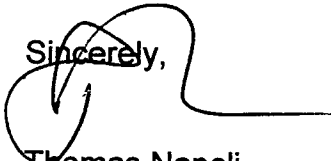
- A biological monitor will need to monitor the mesh to ensure bats don't get tangled in the mesh and expire.

Measure 3. Creation of Roosting Opportunities:

- Another opportunity for roosting habitat is to remove the foam/felt in the hinges of the new deck that are used when pouring the concrete.

As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. To arrange for a discussion please contact Ms. Marilyn Fluharty, Environmental Scientist, California Department of Fish and Game, 4949 Viewridge Avenue, San Diego, CA 92123, telephone (858) 467-4231.

Sincerely,



Thomas Napoli  
Staff Environmental Scientist  
Marine Region

cc: Betty Courtney  
Department of Fish and Game  
Region 5, San Diego

Marilyn Fluharty  
Department of Fish and Game  
4949 Viewridge Avenue  
San Diego, CA 92123

*Appendix E*  
*Glossary of Engineering Terms*



### Glossary of Engineering Terms

1. **Abutment:** *Part of a bridge substructure. Refers to the first and last supports of a bridge.*
2. **Anchor arm spans:** *Located at the outermost end, it counterbalances the arm of span extending in the opposite direction from a major point of support. Often attached to an abutment.*
3. **Approaches:** *Part of bridge or bridges leading up to the main span.*
4. **Arch:** *A structural form utilizing a semi-circular substructure.*
5. **Beam:** *A horizontal structure member supporting vertical loads by resisting bending.*
6. **Bent:** *Part of a bridge substructure. A single or multi-column frame commonly made of reinforced concrete or steel that supports a vertical load and is placed transverse to the length of a structure. Bents are commonly used to support beams and girders.*
7. **Bent cap:** *Refers to the horizontal element of a bent.*
8. **Bored tunnel:** *A tunnel constructed with a boring machine excavating and advancing automatically underground.*
9. **Bulb-tee girder:** *A type of precast concrete girder, where the cross section resembles a capital T with an extra "bulb" at the bottom of the stem.*
10. **Cable-stayed:** *A variation of suspension bridge in which the tension members extend from one or more towers at varying angles to carry the deck. Allowing much more freedom in design form, this type does not use cables draped over towers, nor the anchorages at each end, as in a traditional suspension bridge.*
11. **Cantilever arm:** *A structural member that projects beyond a supporting column or wall and is counterbalanced and/or supported at only one end.*
12. **Cast-in-place concrete girder:** *A concrete girder poured in the field in its final position.*
13. **Columns:** *Vertical supporting elements of a bridge.*
14. **Composite deck:** *A deck positively connected to the supporting beams or girders at regular intervals ensuring that the two behave as one, thereby increasing the overall carrying capacity.*
15. **Concrete box girder:** *A hollow concrete girder.*
16. **Concrete immersed tube tunnel:** *Tunnel made of pre-fabricated segments, sunk and connected at the bottom of a body of water.*
17. **Concrete segmental box girder:** *A concrete box girder built of small segments, bonded and pre-stressed together to form one long concrete box girder. Each segment can be either pre-cast or cast-in-place.*
18. **Deck:** *The portion of the superstructure in contact with vehicle tires.*
19. **Deck overlay:** *usually a thin application (in the order of 1 to 2") of new material across the deck of a bridge.*
20. **Functionally obsolete:** *A structure including substandard components, such as older railing or sidewalk and having a roadway geometry that does not meet today's standards. A functionally obsolete bridge may be structurally sufficient, but unable to handle its current volume of traffic.*
21. **Girder:** *A girder is a larger beam.*
22. **Main span:** *Refers to the longest span of a bridge structure (usually significantly longer than other spans). Also refers to the portion of the structure spanning the longest distance.*
23. **Overstressed:** *Stressed beyond acceptable range for a given material.*
24. **Piles:** *Long vertical steel or concrete elements drilled or driven deep into the ground to form part of a foundation. Piles are typically used in groups.*
25. **Pile Caps:** *A rectangular concrete element built on top of a group of piles. A column can be built above a pile cap.*
26. **Precast concrete girder:** *A concrete girder poured offsite, then transported to the construction site and lifted in place at a later time.*
27. **Seismically resistant:** *Characteristic of a structure designed to withstand earthquake loading.*
28. **Self-anchored suspension bridge:** *A suspension bridge where the main cables anchor in the superstructure itself instead of at the abutments.*

29. **Structurally deficient:** *A structure having a deck, superstructure, or substructure with a structural condition rating of 4 or less (poor or worse condition). This is a very low load rating and would require structural strengthening or bridge replacement.*
30. **Steel box girder:** *A hollow steel girder.*
31. **Steel casings:** *Steel pipe placed around another element for various applications.*
32. **Steel I-girder:** *A steel girder where the cross section resembles a capital I.*
33. **Steel plate girder:** *A steel girder built up with steel plates welded together.*
34. **Steel tied arch:** *Bridge built with a semicircular member over the deck, using the deck as a tie. This bridge usually involves cables connecting the deck to the arch.*
35. **Steel truss:** *Bridge built with steel truss members as main carrying elements.*
36. **Stringers:** *Secondary beams designed to support the deck.*
37. **Substructure:** *Any portion of a bridge structure below the superstructure, including abutments, columns, walls, and foundations that support the superstructure.*
38. **Superstructure:** *The portion of a bridge structure that carries the traffic load and transfers it to the substructure.*
39. **Suspension bridge:** *A bridge that carries its deck with many tension members attached to main cables draped over tower piers and anchored at each abutment.*
40. **Sway bracing:** *Additional cross-members aimed at minimizing load-carrying member lateral sway, which could induce instability.*
41. **Tie-in:** *Location where approaches and main span meet.*
42. **Truss:** *A structural form that is used in the same way as a beam, but because it is made of a web-like assembly of smaller members, it can be made longer, deeper, and therefore, stronger than a **beam** or **girder** while being lighter than a beam of similar dimensions.*

*Appendix F*  
*Visual Plume Analysis*



# GERALD DESMOND BRIDGE/LONG BEACH GENERATING PLANT VISIBLE PLUME ANALYSIS

**WILLIAM WALTERS, P.E., ASPEN ENVIRONMENTAL GROUP**

## INTRODUCTION

The following provides the assessment of the Long Beach Generating Plant (Long Beach) turbine exhaust stack visible plumes. A modeling analysis for the turbines was completed based on information provided for full-load and part-load operating conditions. This analysis was completed to determine if the visible plumes would be expected to impact motorists on the adjacent Gerald Desmond Bridge. This modeling analysis and its conclusions are based on the modeling inputs used; if any of these inputs (meteorological data, exhaust data, modeling input data) are inaccurate, they could affect the results of this analysis.

## SITE DESCRIPTION

The Long Beach plant includes seven separate Brown Boveri-Sulzer Model 11D gas turbines. These turbines are air cooled and equipped with steam/water injection. The steam/water injection, which is used for emissions control, is always operational. The turbines are operated in a combined cycle mode, with two steam turbines. The 7 turbine exhausts are sent to four 235.3-ft-high (71.7-m-high) stacks, with Units 1 and 2, Units 3 and 4, and Units 6 and 7 sharing exhaust stacks and Unit 5 having its own exhaust stack. Table 1 provides the exhaust parameters provided for modeling, which include full-load and one partial-load condition.

**Table 1 – Turbine Exhaust Parameters**

Parameter	HRSG Exhaust Parameters			
Stack Height	235.3 feet – All Stacks			
Stack Diameter	20 feet – All Stacks, except Unit 5 Stack at 15 feet			
Stack	Moisture Content (% by Volume)	Moisture Content (% by Weight)	Exhaust Flow Rate (klb/hr) <sup>a</sup>	Exhaust Temp (°F)
<b>Full-Load Conditions</b>				
Unit 1 & 2	13.95	8.93	5,049	343
Unit 3 & 4	12.81	8.19	4,791	347
Unit 5	14.29	9.15	2,609	336
Unit 6 & 7	13.14	8.41	4,976	333
<b>Partial-Load Conditions<sup>b</sup></b>				
Unit 1 & 2	11.80	7.54	3,828	337
Unit 3 & 4	11.58	7.40	3,798	345
Unit 5	10.70	6.82	2,009	345
Unit 6 & 7	12.40	7.93	3,683	332

Source: Parsons, 2003.

Notes:

<sup>a</sup> Values estimated based on exhaust flow rates, exhaust temperatures, and moisture contents.

<sup>b</sup> Partial load conditions range from 75% to 81.7% load.

The Long Beach plant stacks parallel the Gerald Desmond Bridge and are located approximately 100 ft (30.5 m) from the bridge. The stack height is more than 15 ft (4.5 m) higher than the bridge deck height at its highest point, which is some distance



east northeast from the Long Beach plant. The bridge deck height directly adjacent to the exhaust stacks ranges approximately 35 to 50 ft (10.6 to 15.25 m) below the height of the exhaust stacks.

## METEOROLOGICAL DATA

The meteorological data used in the plume frequency modeling analysis is 1990 to 1995 HUSWO data available for Long Beach that was obtained from the National Climatic Data Center (NCDC, 2001). This HUSWO data set does not have complete data for hours from 11:00 p.m. to 5:00 a.m. daily. The data provided for these incomplete data hours is limited to dry bulb temperature readings. An attempt to include this incomplete data has been made based on a statistical identification of potential plume hours.

The meteorological data used to determine plume impact potential to the bridge deck is 1981 Long Beach meteorological data obtained from the South Coast Air Quality Management District (SCAQMD) website. This data has all of the meteorological parameters necessary to run the ISCST3 model.

## VISIBLE PLUME MODELING ANALYSIS

Staff modeled the turbine exhaust plumes using the CSVP model with a 6-year meteorological data set from Long Beach. Table 2 provides the CSVP model visible plume frequency results.

**Table 2 – Predicted Hours with Turbine Exhaust Steam Plumes  
Long Beach 1990-1995 Meteorological Data**

Exhaust Stack	Modeled Plumes (hrs)	Percent
<b>Full Load</b>		
Units 1 & 2	21	0.050
Units 3 & 4	6	0.014
Unit 5	50	0.120
Units 6 & 7	13	0.031
<b>Partial Load</b>		
Units 1 & 2	1	0.002
Units 3 & 4	0	0
Unit 5	0	0
Units 6 & 7	6	0.014

\*A total of 41,617 hours were modeled.

The predicted visible plume frequencies are very low, but they are higher than might be expected for the given turbine exhaust temperatures. The reason that any visible plumes are predicted is due to the fact that water/steam injection is used for nitrogen oxide (NO<sub>x</sub>) emissions control, and that elevates the exhaust moisture content enough to predict plume formation under the most severe meteorological conditions. The partial-load operating conditions have lower exhaust moisture contents without substantially lower exhaust temperatures; therefore, the plume frequencies at partial load were predicted to be lower than at full-load operation. For the 1990 to 1995 meteorological data set modeled, the maximum temperature where a visible plume is predicted is

46.9 degrees Fahrenheit (°F) when the relative humidity is 100%, and the minimum relative humidity where a plume is predicted is 53% when the ambient temperature is 28.9°F.

The modeled meteorological data had 897 hours where the temperature was at or below 46.9°F. The incomplete meteorological data in this data set had a total of 716 hours where the temperature was at or below 46.9°F. Therefore, the maximum plume potential for Turbine 5 (worst-case turbine), assuming a similar distribution of relative humidity, would be 90 hours for the entire 1990 to 1995 period (52,583 hours), or approximately a 0.17% frequency.

The meteorological data from the CSVP modeling analysis indicates the Turbine 5 wind direction would be towards the bridge for 21 out of the 50 hours (42%) when plumes were predicted to occur. Twenty-two of the 50 hours (44%) were noted as calm wind conditions. Additionally, out of the 21 plume hours where the wind was directed towards the bridge, 10 of these (48%) were during hours where fog or rain was indicated to occur in that hour, and 6 of these (29%) were during hours where visibility was indicated to be less than 0.1-mile.

## **CONCENTRATION MODELING ANALYSIS**

The CSVP modeling analysis data indicates that plumes could form under the worst-case meteorological conditions when the stack exhaust has diluted to between 13.4 to 6.8 g/m<sup>3</sup>. These concentrations refer to the worst-case initial condensation point and end condensation point on the saturation curve. This means that when the initial stack concentration of 70.9 g/m<sup>3</sup> (Turbine 5) has been diluted to 13.4 g/m<sup>3</sup>, it has the appropriate temperature and moisture content to begin condensation, and when the stack exhaust has diluted to less than 6.8 g/m<sup>3</sup>, then the moisture content will be less than is necessary for condensation. For simplification, the intersection points with the saturation curve are used to describe when the plume will begin forming droplets and become visible and when the plume will stop forming droplets and no longer be visible. The Long Beach plant exhaust stacks were modeled using ISCST3 model using 1 year of Long Beach meteorological data obtained from the SCAQMD website. The base modeling input variables were obtained from existing ISCST3 modeling files (Parsons, 2003). This modeling analysis was performed to determine the worst-case modeled exhaust concentrations on the bridge deck.

This modeling analysis is considered to be conservative because the actual temperature and relative humidity of the hours modeled are not being considered in the determination of the worst-case concentrations. The plume height, and consequentially the determined concentration, is a function of ambient temperature; given the same exhaust conditions, the plume heights are higher when the ambient temperatures are lower. Additionally, ISCST3 has certain simplifying assumptions that allow very near field concentrations from a single large-diameter stack or from multiple stacks to be modeled at a higher concentration than their initial exhaust concentration (i.e., in violation of thermodynamic laws). Therefore, this modeling analysis is expected to result in a conservative estimate of the potential for visible plume occurrence on the bridge deck.

This ISCST3 modeling analysis indicates that the worst-case 1-hour moisture concentration on the bridge deck would be approximately 0.04 g/m<sup>3</sup>, which would be much lower than the exhaust concentration necessary for a visible plume to occur. However, it should be noted that plumes, like odors, are more of an instantaneous phenomena. Using Turner's 1/5<sup>th</sup> power law adjustment, the worst-case instantaneous

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concentration, defined for these purposes as the maximum one second concentration, would be 5.14 times the maximum 1-hour concentration. This would mean that the instantaneous maximum bridge deck concentration would be on the order of  $0.2 \text{ g/m}^3$ , which is still well below exhaust concentration necessary for a visible plume to occur.

A model run with receptors located approximately 110 ft (33.5 m) above maximum bridge deck height (receptor height 100 m, 33 m above the bridge deck) indicates that the 1-hour worst-case plume concentration would be approximately  $0.2 \text{ g/m}^3$  (instantaneous maximum  $1.1 \text{ g/m}^3$ ). A model run with receptors located approximately 270 ft (82 m) above the bridge deck height (receptor height 150 m, 83 m above the bridge deck) indicates that the 1-hour worst-case plume concentration would be approximately  $1.3 \text{ g/m}^3$  (instantaneous maximum  $6.8 \text{ g/m}^3$ ). Finally, a model run with receptors located approximately 435 ft (132.5 m) above the bridge deck height (receptor height 200 m) indicates that the 1-hour worst-case plume concentration would be approximately  $9.8 \text{ g/m}^3$  (instantaneous maximum  $50.5 \text{ g/m}^3$ ). Therefore, the modeling indicates that visible plumes may be expected to begin to occur at approximately 270 ft (83 m) or higher above the bridge deck, but not on the bridge deck or even 110 ft (33 m) above the bridge deck.

This finding is consistent with the stack design of the power plant, which minimizes stack downwash, and the relatively high temperature and velocity of the exhausts that would cause significant plume rise.

## CONCLUSIONS

Visible plumes from the Long Beach power plant are predicted to occur, but very infrequently. However, the visible plume heights are predicted to be well above the bridge deck and are not expected to interfere with bridge traffic visibility.

## REFERENCES

NCDC (National Climatic Data Center). 2001. Hourly United States Weather Observations 1990-1995. Received from NCDC 2001.

Parsons. 2003. Full Load and Partial Load Turbine Exhaust Data and ISCST3 modeling input files. August 2003.

SCAQMD (South Coast Air Quality Management District). 2003. 1981 Long Beach Meteorological Data. <http://www.aqmd.gov/metdata/>. Downloaded 2003.

*Appendix G*  
*Traffic Study Methodology*



### **Traffic Forecasting Model Methodology**

In addition to the existing/baseline condition (year 2005), a level of service (LOS) analysis was conducted for the year 2015, which is the year in which the proposed project is scheduled to be open to traffic, and year 2030, which is the design horizon year for the proposed project. To complete this analysis, a traffic forecasting model was developed as part of the study to forecast future traffic volumes with and without the project in the years 2015 and 2030.

The model was based upon the travel demand forecasting model (Port Model) developed for the Ports of Long Beach/Los Angeles Transportation Study (2001). That Port Model, completed in 2000, is based on the Southern California Association of Governments' (SCAG) Regional Travel Demand Forecasting Model. Elements of the SCAG Heavy-Duty Truck (HDT) model were used, as well as input data from the City of Long Beach model and the City of Los Angeles Transportation Improvement Mitigation Program (TIMP) models for Wilmington and San Pedro. TRANPLAN is the software platform used for modeling. Special model features include the following:

#### Network Coverage

The roadway network used for traffic assignment in the SCAG model was augmented in the area of the ports to include all of the public roadways. Outside the area of the ports, the SCAG 2000 and 2030 roadway networks were used. The future networks include planned and programmed highway improvements included in SCAG's Destination 2030: 2004 Regional Transportation Plan (RTP), which is the current plan for the region in which the project is located. The future year networks do not include truck lanes or other widening on the State Route (SR) 710 freeway nor improvements to the SR 47 Expressway or Schuyler Heim Bridge on SR 47; however, a sensitivity analysis was performed with these improvements in place.

#### Traffic Analysis Zone Disaggregation

The traffic analysis zones (TAZs) used for trip generation in the SCAG model were disaggregated into more refined zones within the area of the ports. A TAZ was provided for each of the ports' container terminals.

#### Coding of Highway Grades and Reduced Capacities

An important feature of the model, which was explicitly accounted for and coded to the network, are locations of steep uphill and downhill grades.

These include the Gerald Desmond Bridge, Schuyler Heim Bridge, and Ocean Boulevard/SR 710 connector ramps.

#### Implementation of Truck Passenger Car Equivalencies (PCEs)

The presence of vehicles other than passenger cars in the traffic stream affects traffic flow in two ways: (1) these vehicles, which are much larger than passenger cars, occupy more roadway space (and capacity) than individual passenger cars, (2) the operational capabilities of these vehicles, including acceleration, deceleration, and maintenance of speed, are generally inferior to passenger cars and result in the formation of large gaps in the traffic stream that reduce highway capacity. On long sustained grades, and segments with impaired capacities where trucks operate considerably slower, formation of these large gaps can have a profound impact on the traffic stream. The above characteristics are also accounted for in the model as discussed below.

#### Grades and Passenger Car Equivalent

Grades are coded in the TRANPLAN network as they are in the field to an accuracy of one percent. The grade is coded in directly, and then TRANPLAN has a specialized PCE procedure that converts assigned truck traffic to PCEs. It is not impedance; it is simply a conversion to PCEs. In this way, the effect of the truck volume is accounted for in the analysis using PCEs. The PCE factors are the same as those used in the Southern California HDT Model, which was based on the 1997 Highway Capacity Manual (HCM) PCE factors. They were developed by SCAG for the HDT model, and they include a sliding scale of PCE factors that takes into account the grade, the length of grade, and the percent of truck traffic.

While the SCAG PCE factors were used in the assignment of forecast traffic to the roadway network, they were not used in the assessment of roadway LOS. HCM vehicle density calculations were used to determine LOS. To adhere to the HCM procedures more closely, HCM PCE factors were used in LOS analysis. A standardized set of port-provided PCE factors for all trucks based on the HCM factors was utilized in the LOS analysis. The PCE factors for each vehicle type used in the LOS analysis are:

- 1.0 for motorcycles, cars, pickup trucks, sport-utility vehicles (SUVs), and vans;
- 1.1 for bobtails (tractor trailer combinations operated without a trailer);

- 2.0 for buses, 2-axle trucks, and 3-axle trucks; and
- 2.0 for container trucks, chassis trucks, and all other 4-axle or larger trucks.

#### Trips from Other Non-Port Zones

Trips generated by major developments within the area of the ports for which specific trip generation rates were not included in the Port Model were added to the model at the TAZ locations. Those developments include, but are not limited to, Queensway Bay, Cabrillo Marina, and the Port of Los Angeles Industrial Center.

#### Port Area Trip Distribution

Distribution of port trips was accomplished predominantly through information developed in the Ports Transportation Study, including results of user surveys and traffic counts. The port trip tables were allocated to known locations for major destinations, including off-dock rail yards, warehouse/industrial facilities, and other intermodal transfer facilities. The locations of these facilities by TAZ were identified, and they were explicitly coded into the trip tables. These port trips are not part of the gravity model distribution process. Both trips internal to the ports and with one trip end internal to the ports were addressed using this methodology.

#### 2015 and 2030 Port Trip Tables

The port trip tables were developed in two parts. First, the port model zone trip tables were developed in a similar manner to those used in the Ports Transportation Study and model. Those trip tables were developed based on a detailed port area zone system and specialized trip generation rates for autos and trucks in the port. Second, special trip generation rates for autos were developed for the port studies and applied to 2015 and 2030 TEU forecasts. Truck trip generation for container terminals was developed using the QuickTrip model, which is discussed below.

#### 2030 Regional Trip Tables

The 2030 regional trip tables for the Port Model were developed using the SCAG 2030 trip tables. Regional person-trip productions and attractions on a zonal level were obtained from SCAG for the entire SCAG modeling area for year 2030. For the traffic zones within the ports, trip productions and attractions were disaggregated to the more refined zones described above. The port and regional person productions and attractions were then converted into vehicle trips based on SCAG's socio-economic data (SED), trip distribution

model, mode-split factors, and average auto-occupancy tables. Trips included in the model are drive alone, high-occupancy vehicle (HOV), HOV 3+, port autos, light heavy-duty trucks, medium heavy-duty trucks, heavy heavy-duty trucks, bobtails, chassis, and container trucks. Consistent with the SCAG model, the year 2030 trip tables reflect the throughput of 42 million TEUs at the ports.

#### Traffic Assignment

The total daily trips for all types of land uses in the region were allocated into SCAG's AM, MD, PM, and off-peak periods. Since the Port Model analyzes conditions for the AM, MD, and PM peak hours, the SCAG model data were converted to peak-hour values. This was accomplished by the application of conversion factors developed in cooperation with SCAG. SCAG previously applied similar factors to perform peak-hour analysis in other areas of the region. The factors were applied and calibrated as part of the original Port Model development in 1999 and have been consistently used since then. The resulting models include unique hourly trip tables for the peak activity hours of the ports. The trip tables contain peak-hour trip generation estimates that were developed specifically for the port zones. The hours for which trip tables have been developed are 8:00 AM to 9:00 AM, 2:00 PM to 3:00 PM, and 4:00 PM to 5:00 PM, representing the AM peak hour, MD peak hour, and PM peak hour, respectively. The TRANPLAN model uses an Equilibrium Traffic Assignment method, which is an iterative process. After each of the model iterations, the roadway volume/capacity ratios are calculated, and traffic is then reassigned to the shortest route until a predefined systemwide "closure" is achieved between two consecutive iterations. Equilibrium-type multi-class assignments are used.

#### QuickTrip Model

The QuickTrip model is well documented in the *Ports of Long Beach and Los Angeles Transportation Study* (2001). It is a spreadsheet model for truck trip generation analysis that was developed in a collaborative effort between the staff of both ports and a team of consultants. The model builds upon a gate trip generation model that was previously developed, with considerable refinements. It includes detailed input variables, such as mode split (rail versus truck moves), time of day factoring, weekend moves, empty return factors, and other characteristics that affect the numbers of trucks through the gates. The end product is a forecast of truck trip generation, by

type of truck trip, for each hour of the day, by direction. The model was carefully validated against gate counts at each container terminal gate, and it was found to replicate within 2 to 12 percent overall, depending on the peak hour.

#### Post-Processing of Model Assignment Results

Model volume post processing is a procedure that is applied to remove any model validation differences and make the future roadway, ramp, and intersection forecasts more accurate at the intersection and link levels. The intersection turning movement volumes and the link volumes on roadway segments from the year 2005 model were compared to actual turning movement and link volumes from ground counts. Based on that comparison, adjustment factors (the difference in volumes by traffic movement) are developed for the model volumes so that they match the ground counts. That same adjustment factor is then carried forward to the future 2030 model. For example, if the model underestimates a given intersection traffic movement by 50 vehicles, then an adjustment of 50 added vehicles is made to the model output for that movement's volume for model runs of forecast years. In this way, the localized micro-level inaccuracies in the model are accounted for and corrected at the intersection level.

#### Forecasting Model Validation (Base Year 2005)

Within the port area, the model has been validated for individual roadway links. Model validation concentrated on Ocean Boulevard/Seaside Avenue, from the vicinity of SR-710/downtown Long Beach (in the POLB) to Navy Way (in the POLA). Traffic ground counts were previously collected in August and September 2005 on two consecutive weekdays. Count locations are shown in **Table G-1**. The port area travel demand model was updated from 1999 base year conditions to 2005 base year conditions. To develop regional background trips, the SCAG trip regional tables were interpolated between the 1999 model trip tables and the 2030 model trip tables. This accounted for trips outside of the port area. For Port-area trips, the QuickTrip truck generation model was utilized to estimate 2005 truck trips. Year 2005 port area auto trips were estimated using auto trip generation rates developed for the Port of Long Beach and Los Angeles Transportation Study. For 2005, the following TEU throughput totals were used to develop the QuickTrip model truck trip generation forecasts: 6.8 million TEUs per year (616,330 per month) for the POLB, and 7.5 million TEUs per year (681,100 per month) for the POLA.

The goal of model validation was to adjust model parameters so that the model will most closely match ground counts, within acceptable thresholds. Typically, subregional travel demand models are validated at the screenline level and on major facilities. For this project, however, a screenline approach was not appropriate since the focus area consists of Ocean Boulevard and the bridge facility and nearby ramp systems; therefore, the validation focused on the specific roadways themselves. Based on the National Cooperative Highway Research Program (NCHRP) Report 255 "Highway Traffic Data for Urbanized Area Project Planning and Design," typical "acceptable deviation" for individual roadway links with volumes of 50,000 vehicles per day or less (Ocean Boulevard carries an ADT of just under 60,000 vehicles currently) is 20 percent (NCHRP Report 255, page 41, Figure A-3).

Ground counts are known to vary by 10 to 20 percent depending on the prevailing conditions on the days that the counts were collected; therefore, a model that replicates counts to within that threshold for major facilities is considered to be accurately estimating travel patterns. This is also consistent with the NCHRP report, as noted in the prior paragraph. For individual lower volume links, such as on- and off-ramps, validation to those thresholds is not feasible, as they carry very low volumes and are subject to significant fluctuation in daily ground counts; therefore, the focus of model validation was on Ocean Boulevard itself, although every ramp was also reviewed during the validation process.

The validation results at the link level indicate that the model is replicating existing/baseline volumes to within 10 to 25 percent for nearly all link locations along Ocean Boulevard/Seaside Avenue at the highest volume locations. During the AM peak hour, 8 locations have model volumes within 10 percent of ground counts, and during the PM peak hour, 8 locations are within 25 percent. Truck validation differences are somewhat larger than auto or total vehicles in percentage terms. This is to be expected, as truck volumes are only 30 to 35 percent of auto volumes at most locations. Lower-volume facilities, including ramps, tend to have somewhat higher differences between ground counts and the model; however, many of those locations carry very few trips (less than 50 to 100 trips in many locations). For lower-volume streets and ramps, validation is based on parameters contained in the NCHRP Report 255.



**Table G-1  
Count Locations and Specifications Summary**

Location	Type of Count	Time Period
Terminal Island Freeway and Ocean Boulevard intersection	Manual	6-9 AM, 2-6 PM
Pier S Avenue and Ocean Boulevard intersection	Manual	6-9 AM, 2-6 PM
Terminal Island Freeway SB Off-Ramp and New Dock Street intersection	Manual	6-9AM; 2-6 PM
Terminal Island Freeway NB On-Ramp and New Dock Street Intersection	Manual	6-9 AM, 2-6 PM
Pier S Avenue and New Dock Street intersection	Manual	6-9 AM, 2-6 PM
Navy Way and Seaside Avenue intersection	Manual	6-9 AM, 2-6 PM
Pico Avenue / Pier B Street and 9th Street intersection	Manual	6-9 AM, 2-6 PM
Pico Avenue and Pier C Street intersection	Manual	6-9 AM, 2-6 PM
Pico Avenue and Pier D Street intersection	Manual	6-9 AM, 2-6 PM
Pico Avenue and Broadway intersection	Manual	6-9 AM, 2-6 PM
Pico Avenue and Pier E Street intersection	Manual	6-9 AM, 2-6 PM
Pico Avenue WB Off-Ramp from Ocean Boulevard (one-lane)	24-Hour Machine	24-hour
Pico Avenue WB On-Ramp to Ocean Boulevard (one-lane)	24-Hour Machine	24-hour
Pico Avenue EB Off-Ramps from Ocean Boulevard (one-lane)	24-Hour Machine	24-hour
Pico Avenue. EB on-ramp to Ocean Boulevard (one-lane)	24-Hour Machine	24-hour
Gate 5 / Pier T Avenue WB Off-Ramp (one-lane)	24-Hour Machine	24-hour
SB SR 710 Connector Ramp to WB Ocean Boulevard (two-lane ramp)	24-Hour Machine	24-hour
NB SR 710 Connector Ramp from EB Ocean Boulevard (two-lane ramp)	24-Hour Machine	24-hour
Ocean Boulevard east of the Pico Avenue ramps, but west of the Harbor Scenic Drive On-Ramp	24-Hour Machine	24-hour

Source: Iteris, 2008.

To achieve acceptable validation results, multiple model runs were made for each peak hour, and a series of model adjustments were made. The adjustments included the following:

- Increasing or decreasing facility speeds and capacities on a segment-by-segment basis where assigned volumes were either too high or too low, with different adjustments made by peak hour as appropriate;
- Correcting the model network where errors in coding were detected;
- Adjusting the TAZ loading points to provide more accurate representation of travel patterns from local streets to the arterial system; and
- Refining the regional peak-hour trip tables to achieve the proper level of background traffic.

Year 2015 Model Development

A key task during development of the 2015 model for both ports was to generate 2015 trip ends based on SCAG's regional trip tables. Regional production and attraction of "person trips" and regional HDT trip tables were obtained from

SCAG for 2005 and 2030. Use of the regional 2030 trip tables ensures that cumulative traffic from planned growth region wide is included in the model forecasts. The SCAG regional trip table for 2015 was interpolated between 2005 and 2030. The person trips were aggregated to the current Port Model's trip purposes and zone system. The trip distribution models were then run. Next, the person trips were converted to vehicle trips using the SCAG mode choice model. Time-of-day trip tables were generated using the SCAG peak period and peak-hour adjustment factors.

A second key task was development of port-specific trip tables for 2015 trips to and from port zones themselves. Use of the 2015 forecast trip tables ensures that cumulative traffic from planned growth in the vicinity of the ports and not included in the SCAG regional projections is included in the model forecasts. The port area peak-hour auto, bobtail, chassis, and container trip tables were generated based on the 2015 TEUs using the Quick Trip model. The total estimated TEU throughput for both ports for 2015 is approximately 27 million TEUs. For the peak month, this equates to approximately 2.5 million TEUs. The TEU throughput for each terminal was

provided by the POLB. **Table G-2** summarizes the 2015 TEU throughput by terminal and the resultant truck and auto trips. Truck trips are disaggregated into bobtail, chassis, and container truck trips, representing the major types of truck trips in the ports. For both ports, the combined forecast 2015 trip generation totals for container terminals accounts for approximately 90 percent of port truck trips.

A third key task was to develop model roadway networks for the project conditions with and without the proposed bridge. New links were added to the network, and new lane configurations were coded in the model network based on the configuration with each condition. Finally, the full model, including post-processing, was run and traffic volume forecasts were generated.

#### Year 2030 Model Development

The first task during development of the 2030 model for both ports was to generate 2030 trip ends based on SCAG's regional trip tables. Regional production and attraction of "person trips" and regional HDT trip tables were obtained from SCAG for 2030. The person trips were aggregated to the current Port Model's trip purposes and zone system. The trip distribution models were then run. Next, the person trips were converted to vehicle trips, and time-of-day trip tables were generated.

The second task was development of port-specific trip tables for 2030 trips to and from port zones themselves. The port area peak-hour auto, bobtail, chassis, and container trip tables were generated based on the 2030 TEUs using the Quick Trip model. The total estimated TEU throughput for both ports for 2030 is approximately 42 million TEUs. For the peak month, this equates to approximately 3.8 million TEUs. The TEU throughput for each terminal was provided by the POLB. **Table G-3** summarizes the 2030 TEU throughput by terminal and the resultant truck and auto trips. Truck trips are disaggregated into bobtail, chassis, and container truck trips, representing the major types of truck trips in the ports. For both ports, the combined forecast 2030 trip generation totals for container terminals accounts for approximately 90 percent of port truck trips.

The third task was to develop model roadway networks for the project conditions with and without the proposed bridge. New links were added to the network, and new lane configurations were coded in the model network based on the configuration with each condition. Finally, the full model, including post-processing, was run, and traffic volume forecasts were generated.

**Table G-2**  
**2015 Peak Month Container Terminal Trip Generation Estimates**

Year 2015		AM Peak Hour (8:00AM - 9:00AM)													
Terminal	TEU	Autos		Bobtail		Chassis		Container		Total Trucks			Total Vehicles		
		In	Out	In	Out	In	Out	In	Out	In	Out	Total	In	Out	Total
Pier A	166,252	135	135	85	56	26	13	120	94	232	163	395	367	298	664
Pier C	38,886	31	31	26	17	14	5	32	28	72	50	122	103	82	185
Pier DEF	200,420	162	162	82	49	11	9	129	86	221	144	365	383	307	690
Pier GJ	184,557	149	149	101	57	38	14	137	95	276	166	442	426	315	741
Pier J South	237,335	192	192	110	65	23	14	166	111	300	190	489	492	382	874
Pier S	91,664	74	74	46	30	13	7	66	51	124	88	213	199	163	361
Pier T	266,845	216	216	142	80	50	19	196	134	388	233	621	604	449	1,053
Total POLB	1,185,959	961	961	592	355	175	81	846	599	1,613	1,034	2,648	2,574	1,995	4,569
YML	213,496	173	173	116	69	43	17	158	115	317	200	517	490	373	863
Trapac	139,428	113	113	76	46	28	11	104	76	208	133	341	321	246	567
SSAT	57,641	47	47	39	26	21	8	47	42	106	76	183	153	123	276
TI East	149,922	121	121	69	42	14	9	104	72	188	123	310	309	244	553
TI West	186,948	151	151	96	57	30	13	135	96	260	165	426	412	317	729
Pier 300	197,156	160	160	82	49	7	9	133	86	221	144	365	381	304	685
Pier 400	329,755	267	267	136	79	10	14	221	139	367	233	600	634	500	1,134
Total POLA	1,274,346	1,032	1,032	613	368	152	81	903	626	1,668	1,075	2,742	2,700	2,107	4,807
Total Ports	2,460,305	1,993	1,993	1,205	722	327	162	1,749	1,225	3,281	2,109	5,390	5,274	4,102	9,376

Year 2015		MD Peak Hour (2:00PM - 3:00PM)													
Terminal	TEU	Autos		Bobtail		Chassis		Container		Total Trucks			Total Vehicles		
		In	Out	In	Out	In	Out	In	Out	In	Out	Total	In	Out	Total
Pier A	166,252	50	85	99	95	31	22	140	160	269	277	546	319	362	680
Pier C	38,886	12	20	30	30	16	9	37	49	83	88	171	95	107	202
Pier DEF	200,420	60	102	95	94	12	18	150	164	256	276	532	316	378	694
Pier GJ	184,557	55	94	117	112	44	27	159	187	320	327	647	376	421	797
Pier J South	237,335	71	121	128	121	27	25	192	207	347	353	700	418	474	892
Pier S	91,664	27	47	53	52	15	12	76	88	144	152	296	172	199	371
Pier T	266,845	80	136	165	156	58	37	228	260	450	453	903	530	589	1,119
Total POLB	1,185,959	356	605	687	660	203	151	981	1,114	1,870	1,925	3,795	2,226	2,529	4,756
YML	213,496	64	109	134	130	49	32	183	216	367	377	745	431	486	917
Trapac	139,428	42	71	88	86	33	21	120	144	241	252	493	283	323	606
SSAT	57,641	17	29	45	45	24	13	55	72	123	130	253	141	159	300
TI East	149,922	45	76	80	77	16	16	121	133	217	227	444	262	303	566
TI West	186,948	56	95	111	111	34	26	157	187	302	324	626	358	419	777
Pier 300	197,156	59	101	95	94	8	17	154	165	256	276	532	316	376	692
Pier 400	329,755	99	168	157	154	12	28	257	271	426	454	880	525	622	1,147
Total POLA	1,274,346	382	650	711	698	176	153	1,047	1,188	1,933	2,038	3,972	2,316	2,688	5,004
Total Ports	2,460,305	738	1,255	1,397	1,357	379	303	2,028	2,302	3,804	3,963	7,766	4,542	5,218	9,759

Year 2015		PM Peak Hour (4:00PM - 5:00PM)													
Terminal	TEU	Autos		Bobtail		Chassis		Container		Total Trucks			Total Vehicles		
		In	Out	In	Out	In	Out	In	Out	In	Out	Total	In	Out	Total
Pier A	166,252	125	243	53	78	17	18	76	132	146	229	374	270	471	742
Pier C	38,886	29	57	16	21	9	6	20	34	45	61	106	74	117	192
Pier DEF	200,420	150	293	51	66	7	13	81	115	139	194	333	289	487	776
Pier GJ	184,557	138	269	64	96	24	24	86	160	174	280	453	312	549	861
Pier J South	237,335	178	347	69	107	15	23	104	183	188	313	501	366	659	1,026
Pier S	91,664	69	134	29	36	8	8	41	61	78	105	183	147	239	386
Pier T	266,845	200	390	89	142	31	34	123	238	244	414	658	444	804	1,248
Total POLB	1,185,959	889	1,732	372	547	110	125	532	923	1,014	1,595	2,609	1,903	3,327	5,230
YML	213,496	160	312	73	108	27	26	99	180	199	314	513	359	625	984
Trapac	139,428	105	204	48	66	18	16	65	109	131	192	322	235	395	630
SSAT	57,641	43	84	24	31	13	9	30	50	67	89	156	110	174	284
TI East	149,922	112	219	43	60	9	13	66	103	118	176	294	230	395	625
TI West	186,948	140	273	60	78	19	18	85	132	164	228	392	304	501	805
Pier 300	197,156	148	288	51	66	4	12	83	116	139	194	333	287	482	769
Pier 400	329,755	247	481	85	111	6	20	139	194	231	325	556	478	806	1,285
Total POLA	1,274,346	956	1,861	385	519	95	114	567	884	1,048	1,518	2,565	2,004	3,378	5,382
Total Ports	2,460,305	1,845	3,592	757	1,066	205	239	1,099	1,807	2,062	3,113	5,175	3,907	6,705	10,612

Source: Iteris, 2008.

Table G-3

2030 Peak Month Container Terminal Trip Generation

Year 2030		AM Peak Hour (8:00AM - 9:00AM)													
Terminal	TEU	Autos		Bobtail		Chassis		Container		Total Trucks			Total Vehicles		
		In	Out	In	Out	In	Out	In	Out	In	Out	Total	In	Out	Total
Pier A	289,471	234	234	143	120	51	29	197	201	390	350	740	625	585	1,209
Pier C	52,962	43	43	33	26	17	7	40	41	90	75	165	133	118	251
Pier DEF	302,120	245	245	125	102	29	22	186	175	340	299	639	585	544	1,129
Pier GJ	293,839	238	238	160	138	70	35	208	226	438	399	837	676	637	1,313
Pier J South	385,840	313	313	152	124	17	24	242	217	410	364	775	723	677	1,400
Pier S	121,940	99	99	63	49	25	12	84	81	172	142	314	270	241	511
Pier T	402,402	326	326	215	177	91	45	282	291	589	513	1,102	915	839	1,754
Total POLB	1,848,574	1,497	1,497	890	736	301	174	1,238	1,233	2,429	2,143	4,572	3,926	3,640	7,566
YML	339,721	275	275	137	115	47	29	188	193	372	337	709	648	612	1,260
Trapac	205,005	166	166	82	66	28	16	113	110	223	192	416	389	358	748
SSAT	100,901	82	82	55	45	32	14	64	71	150	130	280	232	212	444
TI East	213,158	173	173	95	75	41	20	122	125	258	220	478	430	393	823
TI West	290,472	235	235	119	102	43	26	161	171	323	299	623	559	535	1,093
Pier 300	268,077	217	217	110	88	40	22	149	148	298	258	556	515	475	990
Pier 400	560,196	454	454	229	188	83	47	311	316	623	551	1,175	1,077	1,005	2,082
Total POLA	1,977,530	1,602	1,602	827	680	312	174	1,110	1,134	2,249	1,988	4,237	3,851	3,590	7,440
Total Ports	3,826,104	3,099	3,099	1,717	1,416	613	348	2,348	2,366	4,678	4,131	8,808	7,777	7,230	15,006

Year 2030		MD Peak Hour (2:00PM - 3:00PM)													
Terminal	TEU	Autos		Bobtail		Chassis		Container		Total Trucks			Total Vehicles		
		In	Out	In	Out	In	Out	In	Out	In	Out	Total	In	Out	Total
Pier A	289,471	87	148	166	164	59	39	228	274	452	478	930	539	626	1,165
Pier C	52,962	16	27	38	38	20	11	46	61	105	110	215	121	137	258
Pier DEF	302,120	91	154	145	138	34	30	215	235	394	403	797	485	557	1,042
Pier GJ	293,839	88	150	185	182	81	47	241	299	507	528	1,035	595	678	1,273
Pier J South	385,840	116	197	176	163	20	31	280	285	476	479	954	591	676	1,267
Pier S	121,940	37	62	73	73	28	18	98	121	199	213	411	235	275	510
Pier T	402,402	121	205	249	234	106	60	327	385	683	679	1,361	803	884	1,687
Total POLB	1,848,574	555	943	1,032	992	348	236	1,435	1,662	2,816	2,889	5,705	3,370	3,832	7,202
YML	339,721	102	173	159	155	54	39	218	259	432	453	885	534	627	1,160
Trapac	205,005	62	105	95	95	32	24	131	159	259	277	536	320	382	702
SSAT	100,901	30	51	64	64	37	20	74	102	174	185	360	205	237	441
TI East	213,158	64	109	110	110	47	29	142	181	299	320	619	363	429	792
TI West	290,472	87	148	138	138	50	34	187	231	375	403	778	462	551	1,013
Pier 300	268,077	80	137	127	121	46	30	173	202	346	353	698	426	489	916
Pier 400	560,196	168	286	266	250	96	62	361	418	723	730	1,453	891	1,016	1,907
Total POLA	1,977,530	593	1,009	959	931	362	238	1,287	1,552	2,607	2,722	5,329	3,200	3,730	6,930
Total Ports	3,826,104	1,148	1,951	1,990	1,923	710	474	2,722	3,213	5,423	5,611	11,033	6,570	7,562	14,132

Year 2030		PM Peak Hour (4:00PM - 5:00PM)													
Terminal	TEU	Autos		Bobtail		Chassis		Container		Total Trucks			Total Vehicles		
		In	Out	In	Out	In	Out	In	Out	In	Out	Total	In	Out	Total
Pier A	289,471	217	423	90	118	32	28	124	198	245	345	590	462	767	1,230
Pier C	52,962	40	77	21	26	11	8	25	42	57	76	133	96	154	250
Pier DEF	302,120	227	441	79	118	18	26	117	202	214	346	560	440	787	1,228
Pier GJ	293,839	220	429	100	139	44	36	130	229	275	404	679	495	833	1,328
Pier J South	385,840	289	563	95	151	11	29	152	264	258	444	701	547	1,007	1,554
Pier S	121,940	91	178	39	51	15	13	53	84	108	148	256	199	326	525
Pier T	402,402	302	588	135	223	57	57	177	368	370	649	1,019	672	1,236	1,908
Total POLB	1,848,574	1,386	2,699	559	828	189	196	778	1,388	1,526	2,412	3,938	2,912	5,111	8,023
YML	339,721	255	496	86	115	29	29	118	192	234	336	570	489	832	1,321
Trapac	205,005	154	299	52	67	17	17	71	113	140	196	337	294	496	790
SSAT	100,901	76	147	34	44	20	14	40	71	94	129	223	170	276	446
TI East	213,158	160	311	59	77	26	20	77	127	162	225	387	322	536	858
TI West	290,472	218	424	75	97	27	24	101	163	203	284	487	421	708	1,129
Pier 300	268,077	201	391	69	105	25	26	94	176	187	307	494	389	698	1,087
Pier 400	560,196	420	818	144	226	52	57	196	378	392	661	1,053	812	1,479	2,291
Total POLA	1,977,530	1,483	2,887	520	732	196	187	697	1,220	1,413	2,138	3,551	2,896	5,025	7,922
Total Ports	3,826,104	2,870	5,586	1,079	1,560	385	382	1,475	2,608	2,939	4,550	7,489	5,809	10,136	15,945

Source: Iteris, 2008

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*Appendix H*  
*Minimization/Mitigation*  
*Monitoring Program*



**MINIMIZATION AND MITIGATION SUMMARY  
GERALD DESMOND BRIDGE REPLACEMENT PROJECT**

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
<b>TRAFFIC AND CIRCULATION: North- and South-side Alignment Alternatives</b>						
<b>TC-1</b>	<p>Prior to the start of construction Stage 2, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stage 2:</p> <ul style="list-style-type: none"> <li>▪ Add dual northbound (NB) right-turn lanes;</li> <li>▪ Restripe eastbound (EB) through/right lane to a right-turn lane;</li> <li>▪ Provide one (1) EB through lane; and</li> <li>▪ Continue two (2) State Route (SR) 710 southbound (SB) off-ramp lanes to Pico Avenue.</li> </ul>	POLB/Contractor	Prior to construction Stage 2		Traffic Study EIR/EA	
<b>TC-2</b>	<p>Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4:</p> <ul style="list-style-type: none"> <li>▪ Remove NB-SB split-signal phasing;</li> <li>▪ Restripe NB through lane to a NB left-turn lane;</li> <li>▪ Widen SB approach and provide two (2) left-turn lanes and one (1) through lane; and</li> <li>▪ Continue two (2) on-ramp lanes to NB SR 710.</li> </ul>	POLB/Contractor	Prior to construction Stages 3 and 4		Traffic Study EIR/EA	
<b>TC-3</b>	<p>Prior to the start of construction Stage 2, a traffic signal will be installed at the intersection of Pico Avenue and Pier D Street to mitigate the project's temporary adverse effect during construction at that intersection during Stage 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative.</p>	POLB/Contractor	Prior to construction Stage 2		Traffic Study EIR/EA	



ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
TC-4	<p>Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue and Pier E Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4:</p> <ul style="list-style-type: none"> <li>▪ Permanently signalize the intersection (the signal will not be removed after completion of construction of a Bridge Replacement Alternative);</li> <li>▪ Restripe NB through lane to a NB right-turn lane, providing a single NB through lane;</li> <li>▪ Add dual free-flow westbound (WB) right-turn lanes; and</li> <li>▪ Continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue.</li> </ul> <p>The <i>Middle Harbor Redevelopment Project Draft Environmental Impact Statement (DEIS)/Draft Environmental Impact Report (DEIR) and Application Summary Report (ASR)</i> prepared for the Port and United States Army Corps of Engineers (USACE) includes signalization of the Pico Avenue/ Pier D Street and Pico Avenue/ Pier E Street intersections. If these signals are implemented as part of that project prior to the start of construction Stage 2 for the Pico Avenue/Pier D Street intersection and construction Stage 3 for the Pico Avenue/Pier E Street intersection, then that would remove the need for the signalization component of the proposed mitigations under TC-3 and TC-4, respectively.</p>	POLB/Contractor	Prior to construction Stages 3 and 4		Traffic Study EIR/EA	
TC-5	<p>During the design phase of a Bridge Replacement Alternative, the Port shall add a third NB left-turn lane to mitigate the project effect at the Navy Way/Seaside Avenue intersection.</p> <p>POLA is currently considering two potential projects at the Navy Way/Seaside Avenue intersection. One project would provide grade separation of left turns and the other would implement a centerline barrier on Seaside Avenue that would eliminate left turns. Either project would remove the signal at the intersection, thereby eliminating the adverse effect of the proposed Bridge Replacement Alternatives at the intersection. If either of these projects or any other comparable project is implemented prior to construction of the Bridge Replacement Alternatives, then the adverse effect of the Bridge Replacement Alternatives at the intersection would be removed and the proposed mitigation measure would not be required.</p>	POLB/Contractor	During Design		Traffic Study EIR/EA	

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
TC-6	The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection.	POLB	Prior to initiation of construction		Traffic Study EIR/EA	
<b>HAZARDOUS WASTE AND MATERIALS: North- and South-side Bridge Replacement and Rehabilitation Alternatives</b>						
HM-1	A Phase II Site Investigation shall be performed in construction areas where excavation will exceed 5 feet (ft) (1.5 meters [m]) below ground surface (bgs), where groundwater may be encountered and in areas where underground storage tanks (USTs) were removed without closure. The results of the Phase II investigation would be incorporated into the Safety Plan to protect construction workers against known contamination in construction areas. A Hazardous Waste Management Plan based on the results of the Phase II investigation will also be incorporated into the Final Design to ensure proper disposal of contaminated materials and contaminated groundwater found in the construction areas.	POLB/Contractor	Prior to final design		Initial Site Assessment, EIR/EA	
HM-2	A risk assessment shall be performed prior to construction to determine how construction activities will impact the water-bearing levels and, as applicable, to determine health risks to construction workers.	POLB/Contractor	Prior to final design		Initial Site Assessment, EIR/EA	
HM-3	To minimize cross-contamination of the water-bearing zones, the construction contractor shall employ construction techniques to minimize the need for dewatering.	POLB/Contractor	Construction		Initial Site Assessment, EIR/EA	
HM-4	The Port shall conduct a survey to screen for asbestos-containing materials (ACMs) and lead-based paint (LBP) in all affected buildings and the bridge prior to any demolition activities. Identification of locations of buildings or structures containing ACMs and LBP will be clearly identified on the construction plans and incorporated into the project safety plan and hazardous waste management plan. Any disturbance/demolition structures containing ACM or LBP will be completed in accordance with the contract specifications and all federal, state, and local laws and regulations.	POLB/Contractor	Prior to building or bridge demolition		Initial Site Assessment, EIR/EA	

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
<b>HM-5</b>	Prior to construction, the Port shall test areas within the proposed project corridor where soil may be disturbed for aerially deposited lead (ADL). If ADL levels meet or exceed the action level set forth by the hazardous waste management plan for the project, then ADL-contaminated soils shall be removed in accordance with federal, state, and local regulations	POLB/Contractor	Prior to construction		Initial Site Assessment, EIR/EA	
<b>HM-6</b>	A Safety Plan will be required to address any exposure to hazardous materials. The Safety Plan will include proper personal protective equipment (PPE) work requirements, soil and air space monitoring requirements, documentation and reporting requirements, and action levels.	Contractor	Prior to construction		Initial Site Assessment, EIR/EA	
<b>HM-7</b>	The contractor shall prepare a Lead Compliance Plan in accordance with California Code of Regulations (CCR) Title 8 Section 1532.1. The Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene	Contractor	Prior to construction		Initial Site Assessment, EIR/EA	
<b>HM-8</b>	If it is determined that the project would require the removal or disturbance of any existing yellow thermoplastic traffic lane striping in the project area, then Caltrans standard measures shall be implemented to ensure the proper removal, storage, and disposal of the material, as applicable.	Contractor	Prior to final design		Initial Site Assessment, EIR/EA	
<b>PUBLIC HEALTH AND SAFETY</b>						
<b>HS-1</b>	An Accident and Terrorist Vulnerability assessment of the build alternative shall be completed and all recommendations incorporated into the project during final design. The assessment will analyze and consider applicable protection measures for the construction and operational phases of the proposed project.	POLB	Prior to final design		EIR/EA	
<b>HS-2</b>	A bridge construction and demolition schedule shall be submitted to the Long Beach Police and Fire Departments, United States Coast Guard (USCG), and Caltrans at least 2 weeks prior to initiation of work to provide adequate time for the agencies to plan for alternate routes in case of emergencies.	POLB	Prior to construction		EIR/EA	

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
HS-3	Prior to initiation of construction activities, all businesses, tenants, and utility companies (i.e., Southern California Edison [SCE], gas, water, oil, and telecommunications) within the area of the proposed construction/demolition or rehabilitation shall be notified of the schedules and associated roadway and ramp closures related to the proposed project.	POLB	Prior to construction		EIR/EA	
HS-4	All marine transportation and recreational boating companies shall be notified 2 weeks prior to initiation of planned construction/demolition or rehabilitation activities potentially affecting normal operations within the Back Channel.	POLB	Prior to and during construction		EIR/EA	
HS-5	The USCG and all POLB tenants shall be regularly notified of scheduled work over the Back Channel during the construction and demolition phases of the project.	POLB	Prior to and during construction		EIR/EA	
HS-6	An emergency response and health and safety plan shall be prepared in accordance with all applicable federal, state, and OSHA standards. The plan should address potential emergency situations and assure the safety and health of workers by setting and enforcing standards to reduce occupational injuries and accidents. POLB will review and approve the plans prior to initiation of construction activities.	Contractor, POLB	Prior to and during construction		EIR/EA	
<b>AIR QUALITY: North- and South-side Alignment Alternatives</b>						
AQ-C1	Construction processes shall adhere to all applicable South Coast Air Quality Management District (SCAQMD) rules and regulations concerning the operation of construction equipment and dust control.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
AQ-C2	Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.	POLB/Contractors	Prior to and during construction		Air Quality Technical Study EIR/EA	
AQ-C3	During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
<b>AQ-C4</b>	To the extent feasible, use electricity from power poles rather than temporary diesel or gasoline power generators.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
<b>AQ-C5</b>	As part of the Port's commitment to promote the Green Port Policy and implement the Clean Air Action Plan (CAAP), the proposed project construction would employ all applicable control measures included in the CAAP and relevant clean air technologies. Project heavy-duty construction equipment would use clean fuels, such as ultra-low sulfur fuel, or compressed natural gas and oxidation catalysts.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
<b>AQ-C6</b>	Construction activities that affect traffic flow on the arterial roadways shall be scheduled to off-peak hours to the extent possible. Additionally, construction trucks shall be directed away from congested streets or sensitive receptor areas.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
<b>AQ-C7</b>	During the construction period, temporary traffic controls, such as flaggers and improved signal flow for synchronization to maintain smooth traffic flow, shall be provided.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
<b>AQ-C8</b>	Trucks used for construction prior to 2015 shall use engines with the lowest certified NO <sub>x</sub> emission levels, but not greater than the 2007 NO <sub>x</sub> emission standards.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
<b>AQ-C9</b>	Where feasible, construction equipment shall meet the EPA Tier 4 non-road engine standards. The equipment with Tier 4 engine standards becomes available starting in year 2011.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
<b>CEQA (AQ-1)</b>	Cumulative Air Quality Impact Reduction Program. To help reduce cumulative air quality impacts associated with the Gerald Desmond Bridge Replacement Project, the Port will require the project to contribute \$2 million in support of the Schools and Related Sites Guidelines for the Port of Long Beach Grant Programs (\$1 million) and Healthcare and Seniors Facility Program Guidelines for the Port of Long Beach Grant Programs(\$1 million). The distribution of these funds to potential applicants and projects will be determined through a public evaluation process	POLB	Prior to Construction		Air Quality Technical Study EIR/EA	

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
<b>BIOLOGICAL RESOURCES: Bridge Replacement Alternatives</b>						
<b>BR-1</b>	Artificial Nest Boxes (Peregrine Falcon): A minimum of two nesting ledges with artificial nest boxes will be installed on the new bridge in different locations prior to demolition of the existing bridge. The boxes will be available prior to the nesting season. The new nest locations will be approved by the California Department of Fish and Game (CDFG) and will be selected to minimize disturbance to the extent feasible. Should the peregrine falcons not use the new bridge for nesting despite the nest boxes, alternate suitable nesting sites are available in the project vicinity (e.g., hotels, silos, bridges, Long Beach City Hall).	POLB/Contractor	Construction		Natural Environment Study/, EIR/EA	
<b>BR-2</b>	Precluding Nesting on the Existing Bridge (Peregrine Falcon): Once the nest boxes are in place on the new bridge, and a minimum of 2 months prior to initiation of demolition activities within 500 ft (152 m) of the existing nesting locations, measures and/or structures approved by CDFG to discourage nesting at the previously used nest sites would be implemented under the supervision of a CDFG-approved raptor biologist. If existing nest sites are occupied, then exclusion activities could not occur until 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first (see No Work Zone under BR-3 Monitoring Program).	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
<b>BR-3</b>	Monitoring Program (Peregrine Falcon): The proposed monitoring program is based on measures from the Peregrine Falcon Monitoring and Mitigation Program (PFMMP) for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP as proposed for the North- and South-side Alignment Alternatives are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of	POLB/Contractor	Preconstruction/ Construction/ Postconstruction		Natural Environment Study, EIR/EA	

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
	<p>construction activities.</p> <ul style="list-style-type: none"> <li><i>Timing of Monitoring:</i> A raptor biologist will initiate monitoring at least 1-year prior to the beginning of construction and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing and new bridge and begin prior to the placement of artificial nest boxes on the new bridge and prior to attempts to preclude nesting at the existing bridge. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first.</li> <li>Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the new bridge.</li> <li><i>Biological Monitor:</i> A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring.</li> <li><i>Monitoring Effort:</i> All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the existing and new bridge. Monitoring during construction will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting on the old bridge, or if they have relocated to an alternate nesting site.</li> </ul> <p>If peregrines attempt to nest on the existing bridge while construction activities are occurring, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods as</p>					

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	<p>approved by CDFG would be implemented at the nesting locations. If nest abandonment occurs, then the Port, in coordination with CDFG, will determine the feasibility of creating temporary nesting ledges at alternate locations in areas with less intense construction activities.</p> <p>Nesting on the new structures shall be discouraged until construction of the new bridge is completed. The Port, in coordination with CDFG, will develop measures to be implemented by a raptor biologist, where feasible, or under the direction of a raptor biologist, where precluded by construction site safety concerns, to discourage nesting. Such measures may include continued removal of nesting materials or installation of CDFG-approved exclusion devices.</p> <ul style="list-style-type: none"> <li>• <i>No Work Zone</i>: During construction of the new bridge and prior to exclusion efforts for bridge demolition activities, the existing nest ledges and boxes would be available for nesting. If a nesting attempt is made on the new bridge while under construction, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting on the areas under construction.</li> </ul> <p>Prior to exclusion activities on the existing bridge, nesting ledges on the new bridge will be available for use. During demolition, if falcons attempt to nest on the existing bridge, despite efforts to deter nesting, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to further exclude nesting on the Gerald Desmond Bridge during demolition activities.</p> <p>Should a nest be successfully established within the construction area during construction of the new bridge or demolition of the Gerald Desmond Bridge, the Port will instruct construction crews to adhere to a "No Work Zone" around the nest site. The Port will coordinate with the United States Fish and Wildlife Service (USFWS) and CDFG to obtain permission to remove the nest in accordance with the Migratory Bird Treaty Act (MBTA). This "No Work Zone" will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized – 30 days after the last young leaves the nest or until nest abandonment, whichever</p>					



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BR-4	<p>occurs first. Demolition activities can continue at other locations outside of the "No Work Area."</p> <ul style="list-style-type: none"> <li><i>Reporting:</i> Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during construction of the new bridge. During demolition, post-construction monitoring reports will be prepared to provide details on placement of artificial nest boxes and exclusion activities and use of the nesting ledges on the new bridge. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.</li> </ul> <p>Placement of Bat Boxes: Bat roosting boxes on the new bridge will be made available a minimum of 2 months prior to demolition activities within 500 ft (152 m) of active roosts at the existing bridge. Bat roosting boxes will be designed and built during construction of the new bridge, which is scheduled to occur before demolition of the existing bridge, to be ready for placement once the under-bridge structures are complete. The location and design of artificial roosts will also consider the temperature measured at roosts on the existing bridge during the preconstruction period. A variety of designs and recommendations are available (Langenstein <i>et al.</i>, 1998; Keeley and Tuttle, 1999).</p> <p>In addition to, or in lieu of, bat roosting boxes, the new bridge may be designed to incorporate potential roosts as part of the structure (Exhibit 2.3.5-5), or such structures may be designed and added to the new bridge post-construction (Exhibit 2.3.5-6). Bats prefer roosting sites with crevices 0.5- to 1.25 inches (in.) (1.27 to 3.175 centimeters [cm]) wide (Keeley and Tuttle, 2000). Bats also use soffits if they are left open; therefore, bridge design could also include soffits that could be left open without damaging the bridge or hindering access for maintenance or other ongoing bridge work. One such type of artificial roost is the Texas bat-abode, which has an external panel on either side and 1- by 2-in. (2.5- by 5.1-cm) wooden spacers sandwiched between 0.5- to 0.75-in. (1.2- to 1.9-cm) plywood partitions (Exhibit 2.3.5-6). The internal partitions will be designed to provide crevices 0.75-in. (1.9 cm) wide and at least 12 in. (31 cm) deep. Smooth roost surfaces need to be textured to provide footholds for bats on one or both sides of each plywood partition, creating irregularities at least every 0.125-in. (0.3-cm).</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	

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BR-5	<p>Footholds for bats are constructed of rough-sided paneling, or panels coated with polyurethane or epoxy paint sprinkled with rough grit; or attaching plastic mesh with silicone caulk or rust-resistant staples.</p> <p>Precluding Roosting on the Existing Bridge: Prior to demolition, bats must be excluded from the existing bridge. Methods for excluding bats include use of a chemical repellent (i.e., naphthalene), use of floodlights, high-frequency noise, and placement of physical barriers such as nets to prevent bats from using roost sites (Greenhall, 1982). The exclusion method will be approved by the Port, Caltrans, and CDFG. The mechanical exclusion device is considered the safest and the most reliable (Exhibits 2.3.5-2 through 2.3.5-4). These barriers are commonly screens of mesh, hardware cloth, or wire, with mesh openings no greater than 0.25-in. (0.64-cm). The best time for bat proofing is November through March, after juvenile bats have learned to fly (Bat Conservation and Management, Inc., 2005). Exclusion work will be performed by contractors approved by Caltrans as experienced with excluding bats on bridges. This exclusion process may require 1 to 2 weeks, or potentially longer, given the size of the existing bridge.</p> <p>Bat exclusion via netting is accomplished by first affixing mesh netting over known entry points using I-bolts, which allows bats to exit the bridge but not return. Bats returning to the bridge would first return to their normal point of entry, and then they would seek new roosts once they have determined that it is not possible to return to their old roosting site. This process will be monitored by a CDFG-approved bat biologist each night for at least 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that bats do not discover and use new roosts on the existing bridge and that no bats become entangled in netting. If any new roosts are discovered on the existing bridge, they will be covered with mesh according to the above procedure. Very small crevices or fissures in the bridge may be sealed using caulk or a similar filling agent. Should numerous bats still be observed exiting the bridge at night after installation of exclusion cloth, it may be necessary to add another exclusion method, such as floodlights illuminating access points or crevices used by attract bats (bats will not roost in a well-lit area).</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	

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BR-6	<p><b>Bat Monitoring Program:</b> A monitoring program will be implemented throughout the construction phases of the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/ survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification, locations of bat roosts, and documentation of roost characteristics based on Fenton (2003) and O'Shea <i>et al.</i> (2003). If CDFG species of special concern are identified, the Port will coordinate with CDFG and incorporate additional monitoring/protection measures as applicable.</p> <p>Timing of Monitoring: Bat preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of construction. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season). Each survey will include daytime and nighttime surveys (see Monitoring Effort) focused on identifying specific locations of bat roosts and roost access points.</p> <p>One month prior to the initiation of demolition of the existing bridge, the frequency of preconstruction surveys at the existing bridge and new bridge will increase to once weekly. This will coincide with placement of bat roosts on the new bridge. Quarterly construction monitoring will be completed. If CDFG sensitive bat species are identified during the preconstruction surveys or during quarterly surveys, then monthly monitoring during the bat breeding season will be completed and will focus on construction effects on bats. If it is determined that construction disturbance is affecting CDFG sensitive species, then the Port will coordinate with CDFG to incorporate additional protection measures, as applicable.</p> <p>Monitoring during the demolition phase will focus on ensuring that all bats have been excluded after installing the bat boxes on the new bridge and prior to initiating demolition activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, exclusion netting will be installed, and the monitoring</p>	POLB/Contractor	Pre-construction/ Construction/ Post construction		Natural Environment Study, EIR/EA	

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	<p>process will continue until bats have been excluded from the bridge.</p> <p>Post-construction monitoring will be conducted quarterly for 3 years and will document use of new bat roosts.</p> <ul style="list-style-type: none"> <li>• <i>Biological Monitor:</i> A qualified bat biologist thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port will conduct all bat monitoring and supervise the design and placement of new bat roosts and bat exclusion methods and devices.</li> <li>• <i>Monitoring Effort:</i> The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices on the existing bridge.</li> </ul> <p>During the quarterly preconstruction surveys, once the specific locations of bat roosts are determined, temperatures of existing roosting sites will be recorded so that selection of the location and type of artificial roosts on the new bridge can ensure duplication to the extent feasible of the thermal regime at existing bat roosts.</p> <p>Monitoring during construction and demolition will focus on whether construction activities are disturbing bats at the existing and new bridge. If disturbances to bats are documented, and monitoring has identified the presence of maternity roosts or CDFG sensitive species, then the Port will coordinate with CDFG to identify measures to minimize effects on the maternity roosts and sensitive species.</p> <ul style="list-style-type: none"> <li>• <i>Reporting:</i> Quarterly reports summarizing the monitoring efforts and observations at the new and existing bridge will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, the type of artificial bat roosts used at the new bridge, and exclusion devices at the</li> </ul>					

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	existing bridge. The final report will also include photos and detailed observations, and a conclusions and recommendations section for agency use in future projects.					
<b>BR-7</b>	Initial construction activities for the new transmission towers/ lines shall not begin during the nesting season (April through August) if double-crested cormorants have active nests on the transmission towers. Construction activities associated with the transmission tower/lines will be initiated prior to or after the breeding season or after the young have fledged.	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
<b>BR-8</b>	Construction and operational bridge lighting during and following construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting types known to minimize adverse effects (i.e., low-pressure sodium lights, high-pressure sodium lights, or light-emitting diode [LED] lights) will be used, and lighting types known to be disruptive to migrating wildlife, such as mercury vapor lamps (Jones, 2000), will be avoided. Additionally, lighting will be shielded to ensure that light is focused where it is needed, focusing lighting inward and minimizing the amount of lighting used to the maximum extent possible.	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
<b>BIOLOGICAL RESOURCES: Bridge Rehabilitation Alternative</b>						
<b>BR-1b</b>	<b>Artificial Nest Boxes:</b> Prior to the final design phase, the Port, in coordination with CDFG, will select temporary locations for alternate nesting sites on the Gerald Desmond Bridge that would minimize the amount of disturbance within 250 ft (76 m) of new perch locations. Construction will be phased to complete adjacent seismic retrofit activities and painting operations at the new nesting locations outside of the nest site selection and breeding periods. Subsequent to completing the adjacent seismic retrofit activities, the temporary nesting ledges will be installed, and be continually available for use.	POLB/Contractor	Construction		Natural Environment Study/, EIR/EA	

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BR-2b	<p><b>Precluding Nesting on the Existing Bridge:</b> To ensure no mortality of peregrines due to construction-related mishaps associated with bridge deck replacement, CDFG-approved exclusion methods will be installed at existing nest sites under the supervision of a CDFG-approved raptor biologist before initiating rehabilitation activities. Exclusion will occur prior to the nest site selection or after the breeding season. Due to the proximity of the bridge deck replacement activities to the existing nest sites, exclusion devices will remain until completion of the rehabilitation activities.</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
BR-3b	<p><b>Monitoring Program:</b> The proposed monitoring program is based on measures from the PFMMP for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP, as proposed for the Rehabilitation Alternative, are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of rehabilitation activities.</p> <ul style="list-style-type: none"> <li><b>Timing of Monitoring:</b> A raptor biologist will initiate monitoring at least 1-year prior to the beginning of rehabilitation and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing nesting locations and at the alternate nesting locations after placement of artificial nest boxes. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first.</li> </ul> <p>Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the existing sites.</p> <ul style="list-style-type: none"> <li><b>Biological Monitor:</b> A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring.</li> <li><b>Monitoring Effort:</b> All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the bridge. Monitoring during</li> </ul>	POLB/Contractor	Preconstruction/ Construction/ Postconstruction		Natural Environment Study, EIR/EA	

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	<p>bridge rehabilitation will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting at the temporary locations, or if they have relocated to an alternate nesting site.</p> <p>If peregrines attempt to nest at the temporary nesting locations during rehabilitation activities, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods approved by CDFG would be implemented at the nesting locations.</p> <p>Nesting on the Gerald Desmond Bridge in locations other than the temporary nesting locations shall be discouraged until rehabilitation activities are complete. The Port, in coordination with CDFG, will develop measures to be implemented by a raptor biologist. where feasible. or under the direction of a raptor biologist. where precluded by construction site safety concerns. to discourage nesting within areas under construction. Such measures may include continued removal of nesting materials or installation of additional CDFG-approved exclusion devices.</p> <ul style="list-style-type: none"> <li>• <i>No Work Zone:</i> During bridge rehabilitation activities, alternate nest ledges and boxes will be available for nesting. If a nesting attempt is made at a new location that would be under construction during the nesting season, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting at the new location.</li> </ul> <p>Should a nest be successfully established within the construction area during bridge rehabilitation, the Port will instruct construction crews to adhere to a "No Work Zone" around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the MBTA. This "No Work Zone" will extend around the</p>					

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	<p>nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized or 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first. Rehabilitation activities can continue at other locations outside of the "No Work Area."</p> <ul style="list-style-type: none"> <li> <b>Reporting:</b> Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during bridge rehabilitation activities. During post-construction monitoring, quarterly reports will provide details on nesting attempts, breeding behavior, and reproductive success. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.                 </li> </ul>					
<b>BR-5b</b>	<p><b>Precluding Roosting on the Existing Bridge:</b> Prior to beginning construction activities on each section of the bridge, bats will need to be excluded from that section. Bat proofing will occur outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly. Bat exclusion will be staged to ensure that roosting sites in areas not currently under construction will be available at all times during the project to minimize the potential effects on bats. Exclusion methods for the Rehabilitation Alternative will be the same as discussed under BR-5.</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
<b>BR-6b</b>	<p><b>Bat Monitoring Program:</b> A monitoring program will be implemented throughout the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification and locations of bat roosts and access points. If CDFG species of special concern are identified during preconstruction surveys, then the Port will coordinate with CDFG and incorporate additional monitoring and protection measures, as applicable. During exclusion activities, monitoring of the exclusion devices will occur to ensure that entanglement of bats is not occurring. Monitoring will continue as long as bats are observed exiting the existing bridge. Subsequent to exclusion, monitoring during bridge rehabilitation activities will continue, focusing on locations where additional exclusion may be required. Post-construction monitoring will document re-colonization of the bridge</p>	POLB/Contractor	Pre-construction/ Construction/ Post construction		Natural Environment Study, EIR/EA	



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	<p>and former roost areas.</p> <ul style="list-style-type: none"> <li><i>Timing of Monitoring:</i> Preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of bridge rehabilitation activities. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season). One month prior to rehabilitation activities, surveys will increase to weekly and consist of daytime and nighttime surveys (see Monitoring Effort) focused on species identification, identifying specific locations of bat roosts, access points, and roost characteristics.</li> </ul> <p>Monitoring during the bat exclusion phase will focus on ensuring that all bats have been excluded prior to initiating bridge rehabilitation activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, then exclusion netting will be installed, and the monitoring process will continue until bats have been excluded from the bridge.</p> <p>Post-construction monitoring will be conducted quarterly for 3 years to document the post-construction bat re-colonization of the bridge.</p> <ul style="list-style-type: none"> <li><i>Biological Monitor:</i> A qualified bat biologist, thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port, will conduct all bat monitoring and supervise the design and placement of bat exclusion methods and devices.</li> </ul> <p><i>Monitoring Effort:</i> The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion</p>					

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	<p>devices for the bridge. Monitoring during construction will focus on the presence of bats in the bridge area and to identify areas that would require further exclusion.</p> <ul style="list-style-type: none"> <li><i>Reporting:</i> Quarterly reports summarizing the monitoring efforts and observations will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, and exclusion devices used. The final report will also include photos and detailed observations, and conclusions and recommendations for agency use in future projects.</li> </ul>					
<b>BR-8b</b>	Bridge lighting during construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting will be shielded to ensure that light is focused inward on the construction area and minimize spillover that could affect migratory birds.	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
<b>BIOLOGICAL RESOURCES: North- and South-side Alignment and Bridge Rehabilitation Alternatives</b>						
<b>BR-9</b>	Project landscaping will be limited to slopes near the bridge ramps and will follow the provisions set forth in Executive Order (EO) 13112, which mandates preventing the introduction of and controlling the spread of invasive plant species on highway rights-of-way (ROWs). No invasive species listed in the National Invasive Species Management Plan or the State of California Noxious Weed List shall be used in the landscaping plans for the proposed project.	POLB/Contractor	Final design		Natural Environment Study, EIR/EA	
<b>Climate Change: North- and South-side Alignment Alternatives</b>						
<b>CEQA (GHG)-1</b>	Greenhouse Gas Emission Reduction Program Guidelines (GHG Program). To partially address the cumulative GHG impacts of the Gerald Desmond Bridge Replacement Project, the Port will require this project to contribute \$400,000 to the GHG Program. This contribution will be used to pay for measures pursuant to the GHG Emission Reduction Program Guidelines, which include, but are not limited to, generation of green power from renewable energy sources, ship electrification, goods movement efficiency measures, cool roofs to reduce building cooling loads and the urban heat island effect, building upgrades for operational efficiency, tree planting for biological sequestration of carbon dioxide (CO <sub>2</sub> ), energy-saving lighting, and purchase of renewable energy.	POLB	Prior to Construction		Air Quality Technical Study EIR/EA	

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	<p>certificates (RECs).</p> <p>The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication. At the project level, there are common measures that have the potential to reduce GHG emissions. These measures include using reclaimed water, landscaping, energy-efficient lighting, and idling restrictions.</p>					

*Appendix I*  
*Draft Transmission Towers and*  
*Lines Relocation Options at the*  
*Port of Long Beach*



# Gerald Desmond Bridge Replacement Project



## Transmission Towers & Lines Relocation Options at the Port of Long Beach

December 2008

*Prepared by*

**PARSONS**

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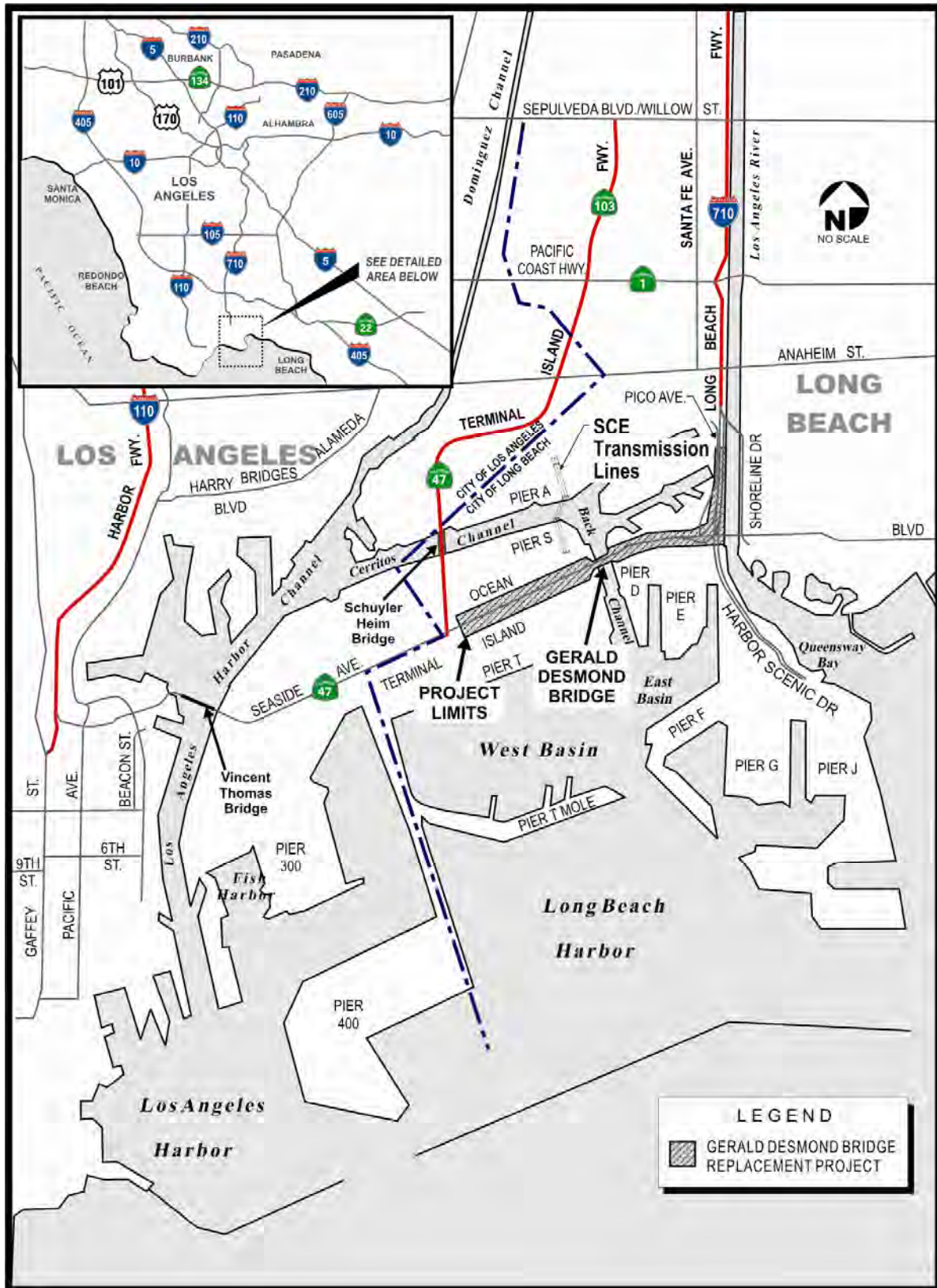
## ***Introduction***

The Gerald Desmond Bridge is a steel tied-arch truss bridge that connects downtown Long Beach to Terminal Island (Figure 1). The North- and South-side Alignment Alternatives (Bridge Replacement Alternatives) for the proposed Gerald Desmond Bridge Replacement Project would provide a new bridge with 200 feet [ft] (61 meters [m]) of vertical clearance above mean high water level (MHWL) within the Back Channel that could accommodate the larger container vessels currently in service and planned for the future. However, the vertical clearance afforded by the existing transmission and power lines that cross the Cerritos Channel from Piers S and A is approximately 153 feet [ft] (46.6 meters [m]) above MHWL and would be a potential hazard to navigation. The resulting navigational hazard will require raising or otherwise relocating the transmission and power lines. The information presented in this document summarizes the analysis and different options considered for relocating the Southern California Edison (SCE) lines.

## ***History***

Southern California Edison's (SCE) high-voltage transmission and power lines cross the Cerritos Channel from Long Beach Generation (also referred to as the Long Beach Generating Station [LBGS]) to Pier A via three 200-foot high steel lattice power transmission towers constructed in 1912 and 1924. The towers were erected in order to carry the high tension lines from the plant to the Edison distribution system discussed below. The existing vertical clearance was based on the need to clear the masts of sailing ships. This clearance is now insufficient to accommodate the larger container vessels currently in service and planned for the future. The transmission towers were evaluated by Parsons for eligibility on the National Register of Historic Places (NRHP). The State Historic Preservation Officer (SHPO) concurred with Parson's findings that the transmission towers are eligible for listing on the NRHP (Parsons, 2003).

The SCE Long Beach Substation, located on Terminal Island, was built in the 1920s as a networking point for SCE facilities. Initially, SCE owned not only the switchgear station but also an adjacent tank farm and power plant. The power plant had multiple generators, and the output of these generators was transformed to supply both of the 66-kV power lines, which then supplied energy to the adjacent switchgear station, and to the 220-kV transmission lines. The 220-kV lines then transported energy to either of SCE's main distribution hubs, Hinson Substation or Lightipe Substation, both north of the Cerritos Channel. The Hinson Substation is located just south of Interstate 405 (I-405). The Lightipe Substation is located north of State Route 91 (SR-91) near Interstate I-710. SCE has divested ownership of the tank farm and the power plant. NRG Energy, Inc., has taken ownership of the power plant, and Pacific Pipeline System, LLC, has taken ownership of the tank farm.





The power plant was taken out of service for lack of a power sale contract and decommissioned in 2005. In response to record electricity demand in summer 2006, regulators encouraged SCE to pursue power generation projects that could be available by summer 2007. In response to SCE's request for new generating capacity by independent operators, NRG Energy, Inc. submitted their application for a Harbor Development Permit to re-commission four of the seven gas turbine generators at the existing LBGS in November, 2006 for a peaking plant. A peaking power plant is a power plant that generally runs only when there is a high demand, known as peak demand, for electricity. This typically occurs in the afternoon, especially during the summer months when the air conditioning load is high. Construction began in April 2007 and the plant was operational by August 2007. The peaking plant is operating under a 10-year power purchase agreement with SCE

### ***Existing Conditions***

The SCE high-voltage transmission, power and distribution lines cross the Cerritos Channel from LBGS to Pier A. Transmission lines operate at or above 200 kV, power lines between 50 and 200 kV and distribution lines operate under 50-kV (PUC, 1994). The vertical clearance afforded by these lines, approximately 153 ft (46.6 m) above the mean high water level (MHWL), is 3 ft (1-m) less than vertical clearance afforded by the Gerald Desmond Bridge. This existing vertical clearance currently limits the air draft of vessels transiting to Piers A and S. Pier A is located to the north of Cerritos Channel and Pier S is located on Terminal Island to the south of Cerritos Channel.

The proposed Bridge Replacement Alternatives would provide approximately 200 ft (61 m) of air draft to accommodate the larger container vessels currently in service and planned for the future. The SCE lines would be a potential hazard to navigation; therefore, it would be necessary to raise or otherwise relocate the SCE lines. This relocation would be done in accordance with the applicable laws and regulations governing power and transmission lines over navigable waters. It is important to note that the existing Gerald Desmond Bridge is one of the lowest bridges in any large commercial port in the world.

Currently, there are 12 sets of cables (7 circuits) on 3 sets of towers that cross the Cerritos Channel (see Figure 2).

The switchgear station, as originally constructed, functioned as a junction point for connecting multiple circuits from north of the Cerritos Channel with the multiple generation facilities at the power plant. It also provided three additional circuits to supply power requirements on Terminal Island. The multiple generator connections are no longer in service, and the remaining circuits are as follows:



Figure 2  
Existing Electrical Placement

Supplying Terminal Island:

1. 66-kV Circuit to Dock Substation with connection to Fuel Substation
2. 66-kV Circuit to Dock Substation with connection to APL Substation
3. 66-kV Circuit to Dike Substation

Supplying the Main Land - Towers Crossing the Cerritos Channel:

1. 66-kV Bundled Circuit (two sets of cables) to Hinson Substation (main source near I-405 with connection to State Substation in North Long Beach)
2. 66-kV Bundled Circuit to Seabright Substation (near Cesar Chavez Park)
3. 66-kV Bundled Circuit to Bowl Substation (in North Long Beach)
4. 66-kV Bundled Circuit to Pico Substation (branching off at Anaheim Street on the north boundary of the Harbor District)
5. 66-kV Bundled Circuit to Hinson Substation
6. 66-kV Circuit to Harbor Cogen Substation (north of Pier A) with connection to Hanjin (Pier A) Substation
7. 12.5-kV Circuit from Dike Substation on Terminal Island to Harbor Cogen Substation

Separate from the above power circuits, SCE has two transmission circuits with separate towers that were built to carry the 220-kV output of the power plant from Long Beach Substation to Hinson Substation and Lightipe Substation.

### ***Regulatory Compliance***

This analysis would require compliance with Federal Aviation Administration (FAA) regulations, the Public Utilities Commission of the State of California (PUC) General Order 131-D, PUC General Order 128, the United States Army Corps of Engineers (USACE) regulations, the California Coastal Commission (CCC) regulations and, the United States Coast Guard (USCG). The preceding regulatory requirements are examples of some responsible agencies; compliance with other agencies and/or regulatory requirements may be necessary. These would be identified through the preferred option and during the design and permitting processes.

Per FAA regulations, all proposed construction and/or alteration of objects that may affect the navigable space are required to file a notice. Overhead transmission lines, as well as the height of supporting structures that are 200 ft (61 m) or greater, are required to file this notice with FAA (FAA, 2000a).

Also, FAA regulations require any obstruction to navigable space to have marking and lighting to reduce navigational hazards. This FAA standard was established using the criteria in Title 14, Part 77 of the *Code of Federal Regulations* (CFR) (FAA, 2000b).

PUC General Order 131-D requires that any new, upgraded, or relocated power lines or substations that are designed for immediate or eventual operation at any voltage between 50-kV and 200-kV require review under the California

Environmental Quality Act during the project planning phase and the relocation plan approval stage (PUC, 1994).

PUC General Order 128 sets uniform requirements for underground electrical supply and communication systems, the application of which will ensure adequate service and secure safety to all persons engaged in the construction, maintenance, operation, or use of underground systems and to the public in general (PUC, 1998).

The USACE is responsible for implementing Section 10 of the Rivers and Harbors Act of 1899. Section 10 of the Rivers and Harbors Act establishes permit requirements to prevent unauthorized obstruction or alteration of any navigable water of the United States. A Section 10 permit for modification of the SCE lines crossing Cerritos Channel will be obtained through coordination with the USACE as applicable (USACE, 2008a).

As part of the requirements of the CCC, the 1999 Port Master Plan establishes regulatory compliance with the Coastal Zone Management Act (CZMA). Specifically, the Port designates land uses and water uses where known throughout the Port area (Port, 1999).

The USCG monitors compliance with the Maritime Transportation and Security Act of 2002, which requires U.S. port facilities to establish and implement detailed security plans and procedures (Port, 2006). The Prevention Department of the USCG focuses on gaining compliance with regulatory standards, and design and maintenance of waterway systems to prevent incidents.

### ***Options to Relocate and/or Raise Transmission Towers and Lines***

Analysis of four relocation options for raising and/or relocating the SCE lines crossing the Cerritos Channel, as well as the advantages and disadvantages of each option, both from a project and operational standpoint are summarized below.

#### ***Option 1***

Option 1 would relocate all lines (12.5-, 66- and 220-kV lines) from over the Cerritos Channel to beneath the Cerritos Channel. Figure 3 shows the proposed configuration for Option 1.

##### **Pros**

Relocating all of the lines under the Cerritos Channel would free up air space for ships to traverse the channel, thereby, reducing navigational hazards. Reducing navigational hazards along the Cerritos Channel would prevent service interruption to ships utilizing the Back Channel. The existing towers would be left in place and would not require additional coordination with the State Historic Preservation Officer (SHPO). The SHPO has concurred that by leaving the existing towers in place the project would not have an adverse

affect on the eligible NRHP resource and therefore would not affect the project schedule.

### **Cons**

Relocating the lines under the Cerritos Channel would require specialized protective steel poles. The lead time for manufacturing these custom-made steel poles and specialized cables would require a minimum of 1-year.

While underground facilities are not as susceptible to wind and debris-blown damage, they are more susceptible to water intrusion and local flood damage, which can make repairs more time consuming and costly. Damage and corrosion of underground electrical systems often show up days or even months later, causing additional outages and inconvenience to customers (FPL, 2006). Additionally, all SCE lines produce heat; therefore, they have a limit on the amount of power that they can carry to prevent overheating. Underground lines cannot dissipate heat as well as overhead lines. Factors, such as the type of soil, surrounding soil conditions, adjacent underground utilities, and the depth of installation, all affect the ability of the wire to dissipate heat (ATC, 2006)

The estimated cost of placing the 12.5-kV distribution line and 66-kV power lines below the Cerritos Channel is approximately \$12 million (Port, 2005). Placing lines underground can be 5 to 15 times more costly than an overhead transmission line (FPL, 2006). Additionally it is assumed that to effectively dissipate the heat, placing the 220-kV transmissions lines beneath the channel may require the lines to be divided into multiple lines, further increasing the cost to relocate the lines beneath the Cerritos channel.

### **Further Analysis**

Further analysis to determine approximately how many miles of transmission cables would be required to reroute the lines under the Cerritos Channel. This would determine the approximate cost, and would be done during the preliminary design stage of the project.





Figure 3  
Under the Cerritos Channel

## **Option 2**

Option 2 would raise the existing towers to accommodate a 200-ft (61-m) vertical clearance for all lines (12.5-, 66- and 220-kV lines). Figure 4 shows the proposed configuration for Option 2.

### **Pros**

Raising the existing towers would enable taller ships to traverse the Cerritos Channel. Reducing navigational hazards along the Cerritos Channel would prevent service interruption to ships utilizing the Back Channel.

### **Cons**

The original design of the tower foundations may not be adequate to support the additional height and weight of steel required to raise the towers. Additionally, the existing transmission towers on Piers S and A, were determined to be eligible for listing in the NRHP. Raising these towers would require modification of the NRHP eligible resource and necessitate further coordination and concurrence from the SHPO. This effort would require additional time to be added to the project schedule.

### **Further Analysis**

A cost-benefit analysis would be required to determine the overall cost of raising the existing towers. Additionally, further analysis is required to determine the height of the new towers to accommodate a 200-ft (61-m) vertical clearance above the MHWL. This would be done during the preliminary design stage.







### **Option 3**

Option 3 would construct new towers adjacent to the existing towers on Piers S and A to accommodate a 200-ft (61-m) clearance. Subsequent to construction of the new towers, all SCE lines (12.5-, 66- and 220-kV lines) would be relocated to the new towers. Figure 5 shows the proposed configuration for Option 3.

#### **Pros**

Relocating the lines to the new towers at a higher elevation would enable taller ships to traverse the Cerritos Channel. Reducing navigational hazards along the Cerritos Channel would prevent service interruption to ships utilizing the Back Channel. The existing towers would be left in place. Building the new towers adjacent to the existing towers would not require additional coordination with the SHPO. The SHPO has concurred that by leaving the existing towers in place the project would not have an adverse affect on the eligible NRHP resource and therefore would not affect the project schedule.

#### **Cons**

The construction of the new towers on Piers S and A would require coordination with the tenants at these respective piers. Depending if there are parallel construction activities by these tenants, this may affect the schedule for the construction of the new towers.

#### **Further Analysis**

A cost-benefit analysis would be needed to determine the overall cost of constructing new towers. Similar to Option 2, further analysis is needed to determine the height of the new towers to accommodate a 200-ft (61-m) vertical clearance above the MHWL. This would be done during the preliminary design stage.



Option 3

Figure 5  
New Towers

## **Option 4**

Option 4 would remove all lines from over the Cerritos Channel via the towers on Pier S and on Pier A, up to just north of the Pier A Substation. New lines would then be routed overhead along the western Harbor Department boundary and across the Cerritos Channel to Terminal Island adjacent to the proposed Schuyler Heim Bridge. The 66- and 12.5-kV lines would then be connected to the Dock Substation and the 220-kV line would be routed across Pier S to the LBGS. Figure 6 shows the proposed configuration for Option 4.

### **Pros**

Relocating the lines adjacent to the Schuler Heim Bridge would enable taller ships to traverse the Cerritos Channel. Reducing navigational hazards along the Cerritos Channel would prevent service interruption to ships utilizing the Back Channel. The existing towers would be left in place and would not require additional coordination with the SHPO. The SHPO has concurred that by leaving the existing towers in place the project would not have an adverse affect on the eligible NRHP resource and therefore would not affect the project schedule.

### **Cons**

Option 4 will require acquisition of additional right-of-way that may impact the facilities located outside of the Harbor Department boundary south of Anaheim Street. Additionally, relocating the lines via the Schuyler Heim Bridge requires coordination with the Alameda Corridor Transportation Authority (ACTA) and the California Department of Transportation (Caltrans). Since the Schuyler Heim Bridge is proposed to be replaced, integrating the steel pole adjacent to the new project would be necessary to facilitate the construction process.

### **Further Analysis**

A cost-benefit analysis would be needed to determine the overall cost of rerouting the lines and right-of-way requirements.

## **Conclusions/Recommendations**

Based on the above analysis, Option 3 is recommended for further study and coordination with SCE. Option 3 is likely the most economical, feasible and, with the exception of the new towers, utilizes existing SCE power infrastructure and right-of-way while eliminating the navigational hazard for ships traversing the Cerritos Channel.





Option 4

Figure 6  
Via Schuyler Heim Bridge

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*Appendix J*  
*Draft EIR/EA*  
*Public Notice/Public Outreach*





The Port of  
**LONG BEACH**  
The Green Port

**DATE:** February 4, 2010

**TO:** Agencies, Organizations, and Interested Parties

**FROM:** Richard Cameron, Director of Environmental Planning

**SUBJECT:** Revised Draft Environmental Impact Report/Environmental Assessment and Application Summary Report (EIR/EA) for the Port of Long Beach Gerald Desmond Bridge Replacement Project

The Port of Long Beach (Port) and California Department of Transportation, District 7 (Caltrans) are the Lead Agencies under the California Environmental Quality Act and the National Environmental Policy Act, respectively, in the preparation of a joint EIR/EA for the Port of Long Beach Gerald Desmond Bridge Replacement Project. The Port and Caltrans are soliciting input from members of the public, organizations, and government agencies on the proposed project.

**Document Availability:** The revised draft EIR/EA is available for public review at the locations listed below:

- [http://www.polb.com/environment/environmental\\_documents.asp](http://www.polb.com/environment/environmental_documents.asp)
- <http://www.dot.ca.gov/dist07/resources/envdocs/>
- Port of Long Beach Administration Building, 925 Harbor Plaza, Long Beach
- Caltrans District 7 Office, 100 S. Main Street, Los Angeles
- The City of Long Beach, City Hall, 333 W. Ocean Blvd., Long Beach
- Long Beach Main Library, 101 Pacific Avenue, Long Beach
- San Pedro Regional Branch Library, 931 Gaffey Street, San Pedro
- Wilmington Branch Library, 1300 N. Avalon Boulevard, Wilmington

If you would like to request a hard copy of the document or if you need additional information, please contact Stacey Crouch at (562) 590-4160.

**Public Comment Period:** The 45-day public review period for this project begins on February 4, 2010, and ends on March 18, 2010. Please send your comments at the earliest possible date, but no later than March 18, 2010. Please address your comments to:

Richard D. Cameron  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

**Public Hearings:** Two public hearings will be held for the revised draft EIR/EA (Spanish and sign language translation services provided). The first meeting will be held in the City Council Chamber, Long Beach City Hall, 333 W. Ocean Blvd., Long Beach, California on February 17, 2010, at 6:00 p.m. A second meeting will be held at Silverado Park, 1545 W. 31 Street, Long Beach, California on February 24, 2010, at 6:00 p.m.

Richard D. Cameron  
Director of Environmental Planning





**Notice of Availability/ Announcement of a Public Hearing  
Gerald Desmond Bridge Replacement Project**



**WHAT IS BEING PLANNED?**

The Port of Long Beach (Port) in cooperation with the California Department of Transportation (Caltrans), proposes the replacement of the existing Gerald Desmond Bridge, connecting Route 710 to Terminal Island, in order to: 1) provide a structurally sound seismically resistant bridge; 2) reduce approach grades; 3) provide sufficient roadway capacity to handle current and forecasted car and truck volumes; and 4) increase the vertical clearance to afford safe passage for current and new generation container ships. A bridge rehabilitation alternative and two alternative alignments are being considered, which also include integrating the new bridge with the Terminal Island East interchange and the Route 710 interchange.

**WHY THIS AD?**

The Port and Caltrans have studied the effects this project may have on the environment. The studies show that significant impacts pursuant to the California Environmental Quality Act could occur as a result of the proposed project. A Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) has been prepared to describe these and all other potential impacts of the project. This notice is to inform you of the preparation of the Revised Draft EIR/EA, and of its availability for you to read and comment on. A hearing will be held to give you an opportunity to learn about and comment on the project with Port and Caltrans staff.

**WHAT IS AVAILABLE?**

The Revised Draft EIR/EA and other project information are available at the Port of Long Beach located at 925 Harbor Plaza, Long Beach, CA 90802 or online at <http://www.polb.com/environment/docs.asp>; call or e-mail Stacey Crouch at (562) 590-4160 [crouch@polb.com](mailto:crouch@polb.com). The document is also available for review at the Caltrans District 7 office located at 100 S. Main Street, Los Angeles, CA 90012 or online at <http://www.dot.ca.gov/district7/resources/envdocs/>; call or e-mail Karl Price at (213) 897-1839 [Karl.Price@dot.ca.gov](mailto:Karl.Price@dot.ca.gov). The document is also available at the City of Long Beach at 333 W. Ocean Blvd., Long Beach, CA 90802; the City of Long Beach Main Library located at 101 Pacific Ave., Long Beach, CA 90802; San Pedro Regional Branch Library, 331 S. Gaffley Street, San Pedro, CA 90731 and Wilmington Branch Library, 1300 N. Avalon Boulevard, Wilmington, CA 90744.

**WHEN AND WHERE?**

Two public hearings will be held for the revised draft EIR/EA (Spanish and sign language translation services will be provided). The first meeting will be held in the City Council Chamber, Long Beach City hall, 333 W. Ocean Blvd., Long Beach, California on February 17, 2010, at 6:00 p.m. A second meeting will be held at Silverado Park, 1545 W. 31 Street, Long Beach, California on February 24, 2010, at 6:00 p.m. Individuals who require special accommodation (accessible seating, documentation in alternate formats, etc.) are requested to contact the Port of Long Beach at (562) 590-4160 at least 7 days prior to the scheduled meeting date.



**CONTACT**

Please send your comments in writing no later than March 18, 2010 to:  
Richard D. Cameron  
Director of Environmental Planning  
Port of Long Beach  
925 Harbor Plaza  
Long Beach, CA 90802

## Crouch, Stacey

---

**From:** Port of Long Beach [reply-50228@up0.net]  
**Sent:** Thursday, February 04, 2010 9:06 AM  
**To:** Crouch, Stacey  
**Subject:** Hearings Set for Gerald Desmond Bridge Environmental Report



## News Release

### **Hearings Set for Bridge Environmental Report Public invited to comment on plan to replace aging Gerald Desmond**

February 4, 2010

The Port of Long Beach today released the revised draft environmental impact report for public comment on its next major improvement proposal -- replacing the aging Gerald Desmond Bridge.



The Gerald Desmond Bridge is an important transportation link both for the local seaports and for the commuters of Southern California. However, the 40-year-old bridge is obsolete and deteriorating. The revised draft environmental impact report, or EIR, outlines the Port's plans to increase safety and improve navigation with a replacement bridge.

With three traffic lanes plus emergency lanes in both directions, the new bridge would be safer and better able to accommodate cars and trucks on a major Southern California commuting route. The new bridge would be higher to allow for the newest generation of green cargo ships to pass underneath.

Replacement of the Gerald Desmond Bridge is an important part of the ongoing modernization of the Port of Long Beach. In addition, the \$1.1 billion project would generate about \$2.8 billion in economic activity and support, on average, 4,000 jobs a year during five years of construction.

The revised draft environmental impact report will be available for public review and comment for 45 days. The Port will host two public hearings to allow for comment on the proposal:

- Wednesday, Feb. 17, 6 p.m. (presentations begin at 6:30 p.m.) at Long Beach City Hall Council Chambers, 333 W. Ocean Blvd.
- Wednesday, Feb. 24, 6 p.m. (presentations begin at 6:30 p.m.) at Silverado Park, 1545 W. 31st St.

At each hearing, Port staff will make a presentation explaining the project and draft

EIR, and then invite members of the public to comment. The Port is also accepting written comments on the EIR, sent to Richard Cameron, Director of Environmental Planning, Port of Long Beach, 925 Harbor Plaza, Long Beach, CA 90802, or by e-mail to [Cameron@polb.com](mailto:Cameron@polb.com). Comments are due by 4:30 p.m., March 18, 2010.

For a project overview and links to the fact sheet, Q&A and the complete draft EIR, please visit [www.polb.com/bridge](http://www.polb.com/bridge).

**Contact:** Art Wong, Port of Long Beach Assistant Director of Communications/Public Information Officer, (562) 590-4123, (562) 619-5665 (cell), or [wong@polb.com](mailto:wong@polb.com).

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## Crouch, Stacey

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**From:** Port of Long Beach [reply-50228@up0.net]  
**Sent:** Wednesday, February 17, 2010 12:28 PM  
**To:** Crouch, Stacey  
**Subject:** Reminder: Hearing Tonight for Gerald Desmond Bridge Environmental Report



## News Release

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### **Reminder: Hearing Tonight on Bridge Report Public invited to comment on plan to replace aging Gerald Desmond**

February 17, 2010

The Port of Long Beach tonight, February 17, will hold the first of two public hearings on the revised draft environmental impact report on a plan to replace the aging Gerald Desmond Bridge. The meeting is at 6 tonight, with presentations to start at 6:30, at Long Beach City Hall Council Chambers, 333 W. Ocean Blvd.



The Gerald Desmond Bridge is an important transportation link both for the local seaports and for the commuters of Southern California. However, the 40-year-old bridge is obsolete and deteriorating. The revised draft environmental impact report, or EIR, outlines the Port's plans to increase safety and improve navigation with a replacement bridge.

With three traffic lanes plus emergency lanes in both directions, the new bridge would be safer and better able to accommodate cars and trucks on a major Southern California commuting route. The new bridge would be higher to allow for the newest generation of green cargo ships to pass underneath.

Replacement of the Gerald Desmond Bridge is an important part of the ongoing modernization of the Port of Long Beach. In addition, the \$1.1 billion project would generate about \$2.8 billion in economic activity and support, on average, 4,000 jobs a year during five years of construction.

The revised draft environmental impact report will be available for public review and comment for 45 days. The Port's second public hearing is scheduled for Wednesday, February 24, 6 p.m. (presentations begin at 6:30 p.m.) at Silverado Park, 1545 W. 31st St.

At each hearing, Port staff will make a presentation explaining the project and draft EIR, and then invite members of the public to comment. The Port is also accepting written comments on the EIR, sent to Richard Cameron, Director of Environmental Planning, Port of Long Beach, 925 Harbor Plaza, Long Beach, CA 90802, or by e-mail to

## Crouch, Stacey

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**From:** Port of Long Beach [reply-50228@up0.net]  
**Sent:** Tuesday, February 23, 2010 1:45 PM  
**To:** Crouch, Stacey  
**Subject:** Hearing Wednesday on Bridge Replacement



## News Release

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### **Hearing Wednesday on Bridge Replacement Port hosts Feb. 24 public meeting at Silverado Park**

The Port of Long Beach on Wednesday, February 24, will hold a public hearing on the revised draft environmental impact report on a plan to replace the aging Gerald Desmond Bridge. The meeting is at 6 p.m. with presentations to start at 6:30 p.m., at Silverado Park, 1545 W. 31st St.



The Gerald Desmond Bridge is an important transportation link both for the local seaports and for the commuters of Southern California. However, the 40-year-old bridge is obsolete and deteriorating. The revised draft environmental impact report, or EIR, outlines the Port's plans to increase safety and improve navigation with a replacement bridge.

With three traffic lanes plus emergency lanes in both directions, the new bridge would be safer and better able to accommodate cars and trucks on a major Southern California commuting route. The new bridge would be higher to allow for the newest generation of green cargo ships to pass underneath.

Replacement of the Gerald Desmond Bridge is an important part of the ongoing modernization of the Port of Long Beach. In addition, the \$1.1 billion project would generate about \$2.8 billion in economic activity and support, on average, 4,000 jobs a year during five years of construction.

At the hearing Wednesday, Port staff will make a presentation explaining the project and draft EIR, and then invite members of the public to comment. The Port is also accepting written comments on the EIR, sent to Richard Cameron, Director of Environmental Planning, Port of Long Beach, 925 Harbor Plaza, Long Beach, CA 90802, or by e-mail to [Cameron@polb.com](mailto:Cameron@polb.com). Comments are due by 4:30 p.m., March 22, 2010.

For a project overview and links to the fact sheet, Q&A and the complete draft EIR, please visit [www.polb.com/bridge](http://www.polb.com/bridge).

**Contact:** Art Wong, Port of Long Beach Assistant Director of Communications/Public Information Officer, (562) 590-4121, (562) 619-5665 (cell), or [wong@polb.com](mailto:wong@polb.com).



A Community Newsletter from the Port of Long Beach

# re:port



Port of  
**LONG BEACH**  
The Green Port

Winter 2010



## Future Span

A proposed six-year project to replace the aging Gerald Desmond Bridge would improve traffic flow, increase safety and provide thousands of construction jobs. Find out more, page 4.

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Clean-air target reached nearly two years early

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The Port's community partnerships

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# A Stronger Connection



**F**or more than 40 years the Gerald Desmond Bridge has linked downtown Long Beach with Terminal Island and major port facilities. The bridge serves as a crucial commuter access route for downtown and surrounding communities. It's also a vital part of the national infrastructure, with nearly 15 percent of the nation's waterborne cargo traveling across the bridge.

But the Gerald Desmond is now obsolete and deteriorating. The bridge is near the end of its lifespan and has far exceeded its intended traffic capacity.

And though the bridge is safe for commuters, it faces critical long-term maintenance issues. The Port has had to install netting below the bridge to catch falling pieces of concrete before they hit the ground and waterways below. The California Department of Transportation, which regularly inspects the bridge, has determined that it warrants replacement.

For these reasons and more, the Port of Long Beach is proposing to replace the Gerald Desmond with a new, elegant, cable-stayed bridge that would improve traffic flow and increase safety – for the commuters and cargo

## Find Out More

The Port will host two public hearings to collect comments on the proposed Gerald Desmond Bridge replacement project:

- **Feb. 17, 6 p.m.**, at Long Beach City Hall Council Chambers, 333 W. Ocean Blvd.
- **Feb. 24, 6 p.m.**, at Silverado Park, 1545 W. 31st St.

Visit [www.polb.com/bridge](http://www.polb.com/bridge) for more information.

trucks driving over it and for the ships passing beneath it. Earlier this month the Port released an Environmental Impact Report on the proposed project, and two public hearings are scheduled for February 17 and 24.

As proposed, construction of the new bridge would begin late this year and be completed in 2016. The estimated \$1.1 billion cost would be paid through a combination of Port revenue, state bond funding and federal funds.

“Even though the bridge isn’t unsafe for drivers, it’s old, deteriorating and needs to be replaced,” said Port Executive Director Richard D. Steinke. “A new bridge would be a major improvement to traffic and safety.”



## Plans are underway to replace the obsolete Gerald Desmond Bridge with a new, modern span



The proposed Gerald Desmond Bridge replacement would have three traffic lanes in each direction, plus dedicated emergency lanes to reduce traffic delays and safety hazards from accidents and truck breakdowns.

The new bridge would add a lane in each direction, for six lanes total. It would add emergency lanes on both sides, as well, to reduce traffic delays and safety hazards from accidents and truck breakdowns. With emergency lanes, accidents would no longer halt traffic for hours and send vehicles into surrounding neighborhoods, causing further traffic jams. The new bridge would also raise the vertical clearance to accommodate newer, “greener” vessels that can plug in to clean, electric shore power.

The \$1.1 billion in construction spending would generate economic activity of \$2.8 billion in Southern California and would support, on average, 4,000 jobs a year for five years. “It would be a huge boost to the local economy at a time when we need it most,” Steinke said.

The project would be constructed in phases to minimize the impact on traffic. The new bridge would be built next to the existing one, and once the new bridge is in use, the old bridge would be demolished.

“Even with costly maintenance, the existing bridge cannot be maintained long-term,” Steinke said. “The time is right to build a new, better and safer bridge.”



A worker repairs netting (known as a “diaper”) below the bridge that stops broken pieces of concrete from falling.





*Appendix K*  
*FHWA Project Conformity*  
*Determination*





U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Federal Highway Administration  
California Division**

August 10, 2010

650 Capitol Mall, Suite 4-100  
Sacramento CA 95814  
(916) 498-5001  
(916) 498-5008 fax

In Reply Refer To:  
HDA-CA  
EA 07-22830

Doug Failing, District Director  
California Department of Transportation  
District 7  
100 South Main Street, Suite 100  
Los Angeles, CA 90012-3606

Attention: Andrew Yoon, Senior Transportation Engineer

Dear Mr. Yoon:

**SUBJECT: PROJECT-LEVEL CONFORMITY DETERMINATION FOR THE  
GERALD DESMOND BRIDGE REPLACEMENT PROJECT, CITY  
OF LONG BEACH, LOS ANGELES COUNTY**

On June 30, 2010 the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a request for the project-level conformity determination for the Gerald Desmond Bridge Replacement Project in Los Angeles County pursuant to 23 U.S.C. 327(a)(2)(B)(ii)(1). The project is in an area that is designated nonattainment or maintenance for 8-hour ozone, coarse particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), carbon monoxide (CO), and nitrogen dioxide (NO<sub>2</sub>).

The project-level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 C.F.R. Part 93 have been met. The project is included in the Southern California Association of Government's (SCAG) currently conforming *2008 Regional Transportation Plan (RTP)*, and the *2008 Regional Transportation Improvement Program (RTIP)*. The latest conformity determinations for the RTP Amendment No. 3 and RTIP Amendment No. 34 were approved by FHWA and the Federal Transit Administration (FTA) on May 6, 2010. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

Based on the information provided, FHWA finds that the project-level conformity determination for the Gerald Desmond Bridge Replacement Project in Los Angeles County conforms to the State Implementation Plan (SIP) in accordance with 40 C.F.R. Part 93.



Doug Failing, District Director

August 10, 2010

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If you have any questions pertaining to this conformity finding, please contact Stew Sonnenberg, FHWA Air Quality Specialist, at (916) 498-5889.

Sincerely,

A handwritten signature in cursive script, appearing to read "Wade Hobbs".

For  
Walter C. Waidelich, Jr.  
Division Administrator

Enclosure

## **Attachment: Caltrans Errata Sheet**

### **Gerald Desmond Bridge Replacement Project Environmental Assessment**

*Section 2.2.5.3 (Pg. 2-264) Environmental Consequences-Air Quality Assessment Methodology; - the section on Construction Emissions has been modified as follows:*

The proposed project has an estimated construction schedule that extends into a fifth year if demolition of the existing bridge is included; therefore, it would qualify for quantitative analysis under that criterion. However, Caltrans, provides a qualitative as a matter of policy, does not provide quantitative construction impact analysis, except for projects proposed within the San Joaquin Valley, where it is required by regulation.

*Section 2.2.5.3 (Pg. 2-282) Environmental Consequences-Localized Particulate Matter (PM10 and PM2.5); - the following text has been added:*

The qualitative PM hot-spot analysis was submitted to the SCAG Transportation Conformity Working Group (TCWG) and was discussed among representatives at their meeting on February 27, 2007. There was a second submittal to the TCWG in July 2010 that is included in Appendix A. The TCWG determined that the “analysis [was] deemed acceptable for NEPA circulation.” A copy of the TCWG conformity determination (from the minutes of the work group meeting) is provided in Appendix A. The qualitative analysis is presented in this section. The FHWA conformity determination is included in Appendix K.

*Section 2.2.5.3 (Pg. 2-298) Environmental Consequences-Emission Sources; - the following paragraph has been deleted:*

~~For the determination of significance from a NEPA standpoint, this HRA determined the incremental increase in health effects values associated with the proposed project by estimating the net change in impacts between the proposed Build Alternatives and the No Action/Rehabilitation Alternative scenario (NEPA Baseline). These project increments (proposed Build Alternatives minus No Action Alternative) were compared with the SCAQMD thresholds to determine if an adverse effect on human health would occur.~~

*From the CEQA discussion in Chapter 3 (Pg. 3-8); - the following text has been deleted:*

~~Fourth, while all CEQA estimates for cancer risk, chronic hazard indices, and acute hazard indices for residential, occupational and sensitive receptor exposure show decreases when compared to the CEQA Baseline, there are small estimated increases, none of which rise above estimated thresholds of significance, when the project is compared to the NEPA Baseline/No Project condition.~~







