

APPENDIX B

PCAC Mitigation Measures/NNI

<i>Aesthetics Measures</i>							
Subcommittee Recommendation:	CEQA Criteria for Mitigation Measures						
	Does the Project have a significant physical impact in this area?	Is the recommendation a measure that can be implemented?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure proportional to the impact?	Does the Port have the authority to implement the measure?	Is the measure feasible in terms of technology and/or cost? (if not, why?)	
IMPACT: REDUCES AESTHETIC VALUE							
GENERAL							
A-2	No Negative impacts on Port Property - Remove or minimize or limit all negative impacts.	No	N/A	N/A	N/A	N/A	N/A
A-3	Greening of Port Property - Greening landscape, create open landscapes.	No	N/A	N/A	N/A	N/A	N/A
A-10	Beautification - Conduct beautification and aesthetic enhancement on and off Port property, including streetscape improvements and a replica of the Vincent Thomas Bridge.	No	N/A	N/A	N/A	N/A	N/A
A-6	Mature Trees - Plant mature trees and shrubs along the I-110 (Harbor) Freeway.	No	N/A	N/A	N/A	N/A	N/A
CRANES							
A-1	Alternate Cranes - Low profile, mobile.	No	N/A	N/A	N/A	N/A	N/A
A-11	Mobile Cranes - Use lower profile mobile cranes.	No	N/A	N/A	N/A	N/A	N/A
	Paint Cranes - Paint cranes light blue.	No	N/A	N/A	N/A	N/A	N/A
A-14	Aesthetic Improvements - Move cranes away from the bridge and use less of them.	No	N/A	N/A	N/A	N/A	N/A

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A-19	Mitigation for Cranes - Apply mitigation to avoid light and glare impacts to migrating birds. Cranes should be located further from the bridge.	No	N/A	N/A	N/A	N/A	N/A
BACKLANDS							
A-16	Reduce Backland - Scale back the 35-acre backland creation; leave water visible from the freeway and create a sandy beach "marine stadium" strip for dragon boat races, etc.	No	N/A	N/A	N/A	N/A	N/A
A-21	Inspection/Maintenance - Leases to provide for inspection program, maintenance for container storage facilities.	No	N/A	N/A	N/A	N/A	N/A
	Maintain Facilities - There should not be any peeling paint, debris, etc.	No	N/A	N/A	N/A	N/A	N/A
	Fencing - Prohibit chain link fencing; use decorative fencing	No	N/A	N/A	N/A	N/A	N/A
IMPACT: INCREASED LIGHT AND GLARE							
LIGHTING							
A-5	Lighting/Glare - International Dark Sky Association to consult on lighting/glare issues.	No	N/A	N/A	N/A	N/A	N/A

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A-8	Night Lights - Port to establish a plan to minimize the impact of night-light emitted by the Port. Turn off lights when not needed and employ motion detection lighting and infrared systems.	No	N/A	N/A	N/A	N/A	N/A
A-9	Reduced Lighting - use reduced lighting at facilities not in operation at night.	No	N/A	N/A	N/A	N/A	N/A
A-54	Lighting - Replace obsolete street lighting fixtures in San Pedro and Wilmington with state-of-the-art, full cutoff fixtures and undergrounding of power lines.	No	N/A	N/A	N/A	N/A	N/A
A-7	Sunlight Glare - Obscure sunlight glare from bright surfaces using dull paint or vegetation.	No	N/A	N/A	N/A	N/A	N/A
SPECIFIC PROJECTS							
A-22	Welcome Park - This proposal is for a Welcome Park to be built at the entrance to San Pedro at the southern terminus of the I-110 freeway. The project goal is to replace vacant land and existing blighted properties with an attractive Welcome Park.	No	N/A	N/A	N/A	N/A	N/A

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A-23	East Wilmington Greenbelt - This proposal is for land acquisition and improvements to the East Wilmington Greenbelt, a City of Los Angeles public park. The project goal is to replace vacant land and existing blighted properties with an expansion of the Greenbelt.	No	N/A	N/A	N/A	N/A	N/A
A-28	Northwest Harbor Beautification Project - Landscaping and beautification of two areas in the Northwest Harbor area of the Port of Los Angeles, in San Pedro. The areas to be improved, Area A and Area B, include two gateways to the Port: the area adjacent to the Channel Street on an off ramps from the 110 and 47 Freeways; and, the Harbor Boulevard on and off ramps from the 47 Freeway.	No	N/A	N/A	N/A	N/A	N/A
A-50	Linkages projects - Fund and implement projects under development by LA Harbor-Watts Economic Development Corporation and California Coastal Conservancy Small Business Grants/Loans - Provide loans/grants for small businesses in Wilmington and Pacific Avenue Corridor Redevelopment Project Area of San Pedro to rehabilitate, upgrade, and improve their properties	No	N/A	N/A	N/A	N/A	N/A
A-51		No	N/A	N/A	N/A	N/A	N/A

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A-52	Knoll Hill - Dedicate Knoll Hill in perpetuity as a public open space.	No	N/A	N/A	N/A	N/A	N/A
A-53	Public open space - Create open space/parks in Wilmington equal to Knoll Hill acreage.	No	N/A	N/A	N/A	N/A	N/A
Portion of A-13	North Gaffey – Create a river walk boardwalk along North Gaffey.	No	N/A	N/A	N/A	N/A	N/A
A-15	Pedestrian Walkway - Use boardwalk for light rail lines, walkways to cruise terminals, Harbor College, Wilmington, and streets.	No	N/A	N/A	N/A	N/A	N/A

Recreation Measures							
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IMPACT: REDUCED RECREATIONAL FACILITIES							
A-24	Wilmington Youth Sailing Center - This proposal calls for the construction and establishment of a Wilmington Youth Sailing Center at the Consolidated Slip within the Port of Los Angeles in the community of Wilmington. The Center is intended to serve primarily low-income and at-risk harbor area youth, ages 8-18, by providing after school and weekend recreational activities; maritime education, including boat and water safety, navigation aids and rules and acquainting youth with career opportunities in the maritime industry.	No	N/A	N/A	N/A	N/A	N/A
A-30	Cabrillo Lagoon and Recreational Area - The proposed Project encompasses Port land located between 22nd Street, Miner and Crescent Avenues. The Project proposes removing the last remaining warehouses on the property and creating the Cabrillo Lagoon, a sailing center, a fishing research and maritime study center.	No	N/A	N/A	N/A	N/A	N/A

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A-38	Los Angeles Maritime Museum - Improve the Los Angeles Maritime Museum located in San Pedro by creating an educational experience for its visitors by installing new, interactive exhibits pertaining to the history of the harbor area. Such improvements include a 25-foot topographical map detailing the changes in the harbor's landscape.	No	N/A	N/A	N/A	N/A	N/A
A-39	Twin Brigantine Tall Ships - TopSail Youth Program's Twin Brigantine tall ship construction project. The TopSail Youth Program of the Los Angeles Maritime Institute, located in San Pedro, provides for participants to become familiar with crewmates and the vessel and its dynamics through the real work needed to sail a large vessel.	No	N/A	N/A	N/A	N/A	N/A
A-49	Baseball Facilities and Programs - Improvements to the Harbor Community Development Corp. baseball facility, maintenance of a year round athletic program, and an expanded tutoring program.	No	N/A	N/A	N/A	N/A	N/A

Traffic Measures							
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IMPACT: INCREASED CONGESTION							
GENERAL							
T-3	Traffic Routing Plan - Establish a Port Vehicle Traffic Routing Plan, Parking Plan, and City Code Compliance Education Class.	No	N/A	N/A	N/A	N/A	N/A
T-16	Additional Police - Require the Port to hire additional Port police to protect the harbor community and enforce trucking restrictions.	No	N/A	N/A	N/A	N/A	N/A
T-12	Bridges for Emergency Vehicles - Ensure that there are a sufficient number of bridges over rail routes so emergency vehicles can drive around obstructions.	No	N/A	N/A	N/A	N/A	N/A
T-6	Implementation of Mitigation - Traffic mitigation proposals should include financing, scheduling considerations, implementation responsibilities, monitoring plans.	Yes	Yes, the Project proposes traffic mitigation.	Yes	Yes	Yes	Yes, responsibility and scheduling for traffic mitigation will be assigned in MMRP.
T-21	Traffic Mitigations - Re-phase improvements to Harbor Boulevard to occur under Phase 1 to mitigate for traffic impacts during Phase 1.	No	N/A	N/A	N/A	N/A	N/A

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T-5	Community Impact Assessment Study - Conduct a Portwide truck, train, container, ship, rail and bridge traffic Community Impact Assessment Study, including project specific and cumulative impacts.	Partial, Project will involve truck, train, and ship, traffic.	Partial, Portwide study is beyond the Project level.	No, studies are not considered mitigation.	No	Yes	Yes. Not recommended as Project mitigation. However, Port is developing a Transportation Master Plan with community involvement.
TRUCKS							
T-11	Off-Peak Traffic - Require a traffic demand management plan for all diesel trucks to direct truck traffic to off-peak hours.	Yes, Project results in traffic impacts during peak hours.	Partial, financial incentives are being applied in Port to shift trucking to off-peak hours.	Yes	Yes	Yes	Yes, at a Portwide level. Not recommended as Project mitigation because off-peak program in effect.
T-2b	Truckers Paid Hourly - Consider having truckers paid by the hour rather than by the job, in order to motivate shippers to more efficiently load cargo and deploy trucks.	No	N/A	N/A	N/A	N/A	N/A

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T-7	Ticket Trucks - Increase money to Port Police and LAPD monitors to ticket illegally parked trucks and those using routes not designated for trucks.	No	N/A	N/A	N/A	N/A	N/A
T-9	Trucking Restrictions - Restrict truck movements from residential neighborhoods.	No	N/A	N/A	N/A	N/A	N/A
T-19, short term only	Truck Routing - Require trucks to use only the C Street on and off ramps.	No	N/A	N/A	N/A	N/A	N/A
T-11, study further	Off-Peak Traffic - Require a traffic demand management plan for all trucks to direct truck traffic to off-peak hours.	Yes, Project results in traffic impacts during peak hours.	Partial, financial incentives are being applied in Port to shift trucking to off-peak hours.	Yes	Yes	Yes	Yes, at a Portwide level. Not recommended as Project mitigation because off-peak program in effect.
T-22	On-Port Truck Parking - Provide onsite areas for overnight truck parking to avoid parking in neighborhoods	No	N/A	N/A	N/A	N/A	N/A
BACKLANDS							
T-8	Routing - Improve routing to move cargo more efficiently.	No	N/A	N/A	N/A	N/A	N/A

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T-4	Lease Agreements - Establish lease agreements with conditions on truck traffic.	Yes, Project results in traffic impacts during peak hours.	No, trucks required for container transport.	No	No	Yes	No, container throughput requires container movement flexibility.
T-13	Backlands & Off-Peak Use - Require cargo be delivered or removed from backlands on a strict timetable. Extend Port hours of operation so that more throughput can be obtained from a single facility; have berths shared by one or more shippers.	No	N/A	N/A	N/A	N/A	N/A
T-24	Shared Facilities - Adopt shared facility use by multiple shippers to allow use of first available berth. (also could help reduce air emissions)	No	N/A	N/A	N/A	N/A	N/A
T-14	Integrated Traffic Demand System - Operate terminals as part of an integrated traffic demand system.	Yes	No, the Port is preparing a Transportation Master Plan to identify Portwide traffic system measures.	No	No	Partial, requires cooperation from terminal operators.	No, to be evaluated in light of the Port Transportation Master Plan.

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T-23	Computerized schedule - Use computerized scheduling and truck deployment to move cargo	Yes	Yes, if compatible with terminal operations	Partial	No	Partial, requires cooperation from terminal operators.	No, to be evaluated in light of the Port Transportation Master Plan.
RAIL							
T-10	Rail Incentive - Develop an incentive program for Port tenants to use rail rather than trucks.	No	N/A	N/A	N/A	N/A	N/A
T-17	Alameda Corridor - Maximize use of the Alameda Corridor and provide any needed improvements to the corridor.	No	N/A	N/A	N/A	N/A	N/A

Noise Measures							
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IMPACT: INCREASED NOISE							
N-1a	Community Noise Soundproofing - Require the Port to prepare a Community Noise Soundproofing Plan.	Yes	Yes, but on a Portwide basis.	Yes	No	Yes, but would require cooperation from private parties.	No, noise impacts would be limited.
N-1b	Fund the sound proofing of all residences, schools, businesses, parks, rest homes, hospitals, etc, in the LA Harbor area.	Yes, some significant noise impacts to limited residences.	Yes	Yes	No, noise impacts would not affect the whole LA Harbor area.	Yes, but would require cooperation from private parties.	No, as noise impacts would not affect the entire LA Harbor area.
N-3	Sound proof sensitive noise receptors.	Yes, during construction.	Yes	Yes	Yes, noise barriers for construction noise impacts would be temporary.	Yes, but would require cooperation from affected parties.	Yes, noise barriers included as project mitigation.
N-2	Noise Barriers - Place 8-foot noise barriers in areas where trains border residential areas to mitigate excessive noise.	No	N/A	N/A	N/A	N/A	N/A
	Require that vehicles and equipment be equipped with adequate mufflers and noise baffles	Yes, during construction.	Yes	Yes	Yes	Yes	Yes, included in Project mitigation (MM NOI-1).

Water Quality Measures							
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IMPACT: WATER QUALITY DEGRADATION							
WQ-1a	Recycle Rainwater - Establish a Port watershed rainwater capture plan to prevent polluted runoff from entering Port waters	No	N/A	N/A	N/A	N/A	N/A
WQ-1b	Recycle rainwater for landscaping or other uses (could also mitigate utility impact)	No	N/A	N/A	N/A	N/A	N/A
WQ-2	Lagoon - Replace loss of water views with a lagoon.	No, loss of water surface in Northwest Slip not significant for views.	N/A	N/A	N/A	N/A	N/A

Land Use and Planning Measures							
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IMPACT: INCOMPATIBLE LAND USE AND PLANNING							
TERMINAL							
LU-3	Storage Yard Permits - Require the Port to verify that any terminal operator, shipping company, or lease tenant that stores containers off Port property provide evidence that the storage yard has all proper permits or licenses and include this requirement in all lease contracts.	No	N/A	N/A	N/A	N/A	N/A
LU - 11	Limit Container Storage Time - Limit the time a container can stay at one storage location; achieve compliance through financial penalties.	No	N/A	N/A	N/A	N/A	N/A
LEASES/TENANT AGREEMENTS							
LU - 4, move to general section	Mitigation Measures in Lease Agreements - Mitigation measures must be included in lease provisions for the Project site. This shall include compliance with all laws and regulations.	No	N/A	N/A	N/A	N/A	N/A

Land Use and Planning Measures

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LU - 2	Environmentally Responsible Shippers - Establish business practices with shippers to reduce environmental problems and public health risks, including liability statements and bonds to ensure that shippers act responsibly and do not deliver invasive species.	No	N/A	N/A	N/A	N/A	N/A
LU - 10	Incentives to Port Tenants - Environmental Justice Offer incentives to Port tenants for placing off-Port business offices within the business communities of San Pedro and Wilmington.	No	N/A	N/A	N/A	N/A	N/A
LU - 13	Limit Lease Term - Limit the China Shipping Line Terminal lease to a maximum of 10 years. Do not renew all current leases for tenants that border San Pedro and Wilmington to allow time for the Harbor communities to research the possibility of establishing and implementing a San Pedro Bay Restoration Plan.	No	N/A	N/A	N/A	N/A	N/A

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PUBLIC OUTREACH							
LU - 7	Contact Information For Residents - Port to provide residences within 10 miles notification of its construction and Mitigation Master Plan. Construction plans must include means of contact 24/7.	No	N/A	N/A	N/A	N/A	N/A
MITIGATION MONITORING							
LU - 14	Monthly Monitoring Plan - Adopt a NEPA, CEQA, and Mitigation Plan monthly reporting and monitoring program that is designed to ensure compliance during and subsequent to the China Shipping construction project.	No	N/A	N/A	N/A	N/A	N/A
CONSTRUCTION							
LU - 9	Construction and Mitigation Plan - Publish and distribute a construction and mitigation plan.	No	N/A	N/A	N/A	N/A	N/A

Land Use and Planning Measures

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PORT-WIDE PLANNING							
LU - 5	Updated Master Plan - Prepare an updated Master Plan that codifies a time table for Port growth, pollution reduction, land use, business and management practices and new technology development and correlate new individual projects to the updated Master Plan to assess the comprehensive impacts caused by Port projects.	No	N/A	N/A	N/A	N/A	N/A
LU - 8	Port Master Greening Plan - Port to develop a master greening plan, including the planting of trees, shrubs, and flowers to re-oxygenate the air in nearby communities.	No	N/A	N/A	N/A	N/A	N/A
LU - 1	Moratorium on Port Growth - Sponsor a public conference to discuss and consider adopting a moratorium on Port growth. Hire an independent consultant to assess the feasibility of the moratorium and local public opinion.	No	N/A	N/A	N/A	N/A	N/A

Land Use and Planning Measures

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SPECIFIC PROJECTS							
LU - 6	Restoration Plan - Require the Port to sponsor a public conference to discuss and consider the possibility of developing a San Pedro Restoration Plan.	No	N/A	N/A	N/A	N/A	N/A
LU - 12	Community Parks and Gardens - Require the Port to designate land for community parks and botanical gardens within the Harbor communities.	No	N/A	N/A	N/A	N/A	N/A

Hazards Measures							
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IMPACT: INCREASED HAZARD RISK							
SAFETY PLANS							
H-1	Evacuation Plans - Develop full evacuation plans for the surrounding communities that identify routes and measures to facilitate evacuation	No	N/A	N/A	N/A	N/A	N/A
H-3	Risk Analysis - Risk analysis for the Vincent Thomas Bridge which accounts for the possibility of an explosion beneath the bridge in the backland area and determines the level of damage that could be caused to the bridge and the community.	No	N/A	N/A	N/A	N/A	N/A
H-4a	Port Risk Management Report - Re-evaluate the Port Risk Management Report for safety issues, considering that a portion of the China Shipping facility is located in the "blast zone" for the Kinder Morgan Energy Partners LPG facility.	No	N/A	N/A	N/A	N/A	N/A
H-7	Emergency Response - Provide additional emergency response equipment or infrastructure in order to achieve acceptable response times.	No	N/A	N/A	N/A	N/A	N/A

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HAZARDOUS WASTE							
H-2	Hazardous Waste Management Plan - Port to prepare a Construction Hazardous Waste Management Plan, including methods to eliminate or limit the use of high VOC and toxic chemical products. The plan should also address the proper handling and disposal of those items which contaminate soil, groundwater, and surface water.	No	N/A	N/A	N/A	N/A	N/A
BUFFER AREAS/PORT PLANNING							
H-4b	LPG Facility - Relocate the LPG facility to Pier 400 to avoid safety and hazard impacts.	No	N/A	N/A	N/A	N/A	N/A
H-5	Buffer Areas - Excluding trucks and containers from up to a 300-foot area at the base of the bridge must be considered.	No	N/A	N/A	N/A	N/A	N/A
H-6	Exclusion Area - Consider a 300-foot exclusion area for ships in Port similar to that included in plans for new cruise ship dock.	No	N/A	N/A	N/A	N/A	N/A
A-16	Reduce Backland - Scale back the 35-acre backland creation to allow for tall ship/small vessel traffic and emergency evacuation.	No	N/A	N/A	N/A	N/A	N/A

Biological Measures							
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IMPACT: HABITAT LOSS/DEGRADATION							
BR -1	Habitat Compensation - Compensation for direct impacts to fish and wildlife habitat would be proposed in the form of habitat replacement, restoration, or improvement.	Yes, soft bottom and water column habitat.	Yes, use of mitigation credits included in EIS/EIR (BIO-1).	Yes	Yes	Yes	Yes, Port has available mitigation credits.
BR-3	Restoration Plan - Require the Port to sponsor a public conference to discuss and consider the possibility of developing a San Pedro Restoration Plan. (from land use)	No	N/A	N/A	N/A	N/A	N/A
A-32	Freshwater Preservation/Habitat Restoration. Proposal is for open space, landscaping, beautification, and education. The objective is to replace weed infested and ornamental landscaping and riparian areas with native vegetation, enhance a natural freshwater source, connect a freshwater marsh to a saltwater marsh through habitat trail, and resurrect an ecosystem disrupted by Port operations.	No	N/A	N/A	N/A	N/A	N/A
IMPACT: SPECIES LOSS/HARM							
BR-2	Invasive Species - Require shippers to bond for costs of eradicating invasive species potentially introduced.	No	N/A	N/A	N/A	N/A	N/A

<i>Utilities and Services</i>							
Subcommittee Recommendation:	CEQA Criteria for Mitigation Measures						
	Does the Project have a significant physical impact in this area?	Is the recommendation a measure that can be implemented?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure proportional to the impact?	Does the Port have the authority to implement the measure?	Is the measure feasible in terms of technology and/or cost? (if not, why?)	
IMPACT: ENERGY CONSUMPTION							
A-4	Energy Conservation - Consultant to help energy conservation measures "Turn off some of the lights."	No	N/A	N/A	N/A	N/A	N/A
IMPACT: INCREASED HAZARDS TO SAFETY							
T-7	Ticket Trucks - Increase money to Port Police and LAPD monitors to ticket illegally parked trucks and those using routes not designated for trucks.	No	N/A	N/A	N/A	N/A	N/A
T-16	Additional Police - Require the Port to hire additional Port police to protect the harbor community.	No	N/A	N/A	N/A	N/A	N/A

The measures contained in the following table were developed by the No Net Increase Task Force to decrease net air emissions in the Port. Each mitigation measure is assessed in relation to the specific project as defined in the EIR. A mitigation measure is considered feasible if all categories are marked "Yes". If a mitigation is not found feasible, an explanation of why follows this chart.

NNI Air Quality Mitigation Measures									Mitigation Measure
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)		
OCEAN-GOING VESSELS									
OV1	New Engine Standards for Ships	IMO/EPA	NO _x , PM	Yes, air pollutant emissions.	Possible	Yes	No, EPA has responsibility.	Yes	No, however, new IMO engine standards have entered into force and will reduce unmitigated Project emissions of NO _x as new ships are added to the fleet.
OV2	Vessel Speed Reduction (VSR) MOU	Port	NO _x	Yes, air pollutant emissions.	Yes	Yes	Yes	Yes	Yes (AQ-2 and AQ-10)
OV3	Alternative Maritime Power (AMP)	Port	NO _x , PM, HC, SO _x and CO	Yes, air pollutant emissions.	Yes	Yes	Yes	Yes	Yes (AQ-6)
OV4	Auxiliary Engine Fuel Improvement Program	Port	PM, SO _x	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes	Yes	Yes (AQ-3 and AQ-12)
Engine Standards									
OV5	New Engine Standards for Category 3 Marine Engines	EPA	NO _x , PM	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	No, EPA has responsibility.	Yes	No, however, future EPA engine standards would reduce unmitigated Project emissions.

NNI Air Quality Mitigation Measures									
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)	Mitigation Measure	
OV6	Reroute Cleaner Ships	Port	NO _x	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes	Yes	Yes (AQ-15)
OV7	Low Emission Main Propulsion Engines	Port	NO _x	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes	Yes	No, this measure would be implemented on a Portwide basis and depends on the outcome of future technology demonstrations.
Fuel Requirements									
OV9	Cleaner Fuels for Ship Auxiliary Engines	ARB	NO _x , PM	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	No, ARB has responsibility.	No, no Port control.	No, however, future new ARB fuel standards would reduce unmitigated Project emissions more than MM AQ-3.
OV10	Main Engine Fuel Improvement Program	Port	PM, SO _x	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes	Yes	Yes (AQ-13)
OV11	Creation of a Sulfur Emission Control Area (SECA)	EPA and ARB	PM, SO _x	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	No, ARB and EPA have responsibility.	No, no Port control.	No, however, MM AQ-12 and AQ-13 would accomplish the same end result for the proposed Project.

NNI Air Quality Mitigation Measures									
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)	Mitigation Measure	
OV12	Expanded Auxiliary Engine Fuel Improvement Program	Port	NO _x , PM, SO _x	Yes, air pollutant emissions.	Possible, study underway.	Possible	Yes	Possible, feasibility study in process.	No, this program would be implemented Portwide and depends on the outcome of engine compatibility and fuel availability issues.
OV13	Expanded Main Engine Fuel Improvement Program	Port	PM, SO _x	Yes, air pollutant emissions.	Possible, study underway.	Possible	Yes	Possible, feasibility study in process.	No, this program would be implemented Portwide and depends on the outcome of engine compatibility and fuel availability issues.
Repower/Retrofit									
OV14	Additional Auxiliary Engine Reductions for Frequent Callers	ARB	NO _x , PM	Yes, air pollutant emissions.	Yes, for ship emissions.	Possible	No, ARB has responsibility.	No, no Port control.	Yes (AQ-16)
OV15	Retrofit/Repower Requirements for Infrequent Callers	ARB	NO _x , PM	Yes, air pollutant emissions.	Yes, to offset ship emissions.	Possible	No, ARB has responsibility.	No, no Port control, but is expected by 2015.	Yes (AQ-17)

NNI Air Quality Mitigation Measures									
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)	Mitigation Measure	
Operational Efficiencies or Improvements									
OV16	Expanded VSR Program	Port	NOx	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes	Yes	Yes (AQ-10)
OV17	Expanded AMP	Port	NO _x , PM, HC, SO _x and CO	Yes, air pollutant emissions.	Yes, for hoteling emissions.	Yes	Yes	Yes	Yes (AQ-11)
OV18	Additional In-Use Measures for Ships	EPA and ARB	NO _x , PM	Yes, air pollutant emissions.	Yes	Yes	No, ARB and EPA have responsibility.	No, no Port control.	No, however, future EPA or ARB regulations may reduce unmitigated Project emissions.
HARBOR CRAFT									
HC1	New Engine Standards for Harbor Craft	EPA	NO _x , PM, ROG, and CO	Yes	Yes	Yes	No, EPA has responsibility.	No, no Port control.	No, however, new EPA engine standards have been promulgated and will reduce unmitigated Project emissions as new harbor craft are added to the fleet.
HC2	Clean Fuels for Harbor Craft	ARB	NO _x , PM, SO _x	Yes	Yes	Yes	Yes	Yes	No, however, measure is assumed in baseline emissions calculations.

NNI Air Quality Mitigation Measures									
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)	Mitigation Measure	
HC3	Early Implementation of Ultra Low Sulfur Diesel (ULSD)	Port	NO _x , PM, SO _x	Yes	Yes	Yes	Yes	Yes	Yes (AQ-14)
HC4	Dredging Activities	Local Districts and ARB	PM	No	No	No	Yes	No, no impacts	No
HC5	Technical Advisory Committee (TAC) Harbor Craft Measures	Port	NO _x , PM						No, however, the Port's tugboat repowering program is being implemented on a Portwide basis and will reduce Project emissions.
Engine Standards									
HC6	New Engine Standards for Category 1 and 2 Marine Engines	EPA	NO _x , PM	No	No	No	No, EPA has responsibility.	No, no Port control.	No, however, future EPA engine standards may reduce unmitigated Project emissions.
Fuel Requirements									
HC7	Emulsified Fuels	Port	NO _x , PM	Yes	Yes	Yes	Yes	Possible, need to study first. Emulsified fuels may have limited potential in harbor craft.	No, pending outcome of further study.

NNI Air Quality Mitigation Measures									
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)	Mitigation Measure	
Repower/Retrofit									
HC8	In-Use Harbor Craft Emission Reduction Measure/Airborne Toxic Control Measure (ATCM)	ARB	NO _x , PM, ROG	Yes	Yes	Yes	No, ARB has responsibility.	No, no Port control.	No
HC9	Repower Existing Harbor Craft	Port	NO _x	Yes	Yes	Yes, but at a Portwide level.	Yes	Yes	Ongoing Portwide program, not listed as Project mitigation.
HC10	Retrofit Existing Harbor Craft	Port	NO _x , PM	Yes	Yes	Yes, but at a Portwide level.	Yes	Yes	No, would have to occur at a Portwide level.
Operational Efficiencies or Improvements									
HC11	AMP-Ready Staging Areas	Port	NO _x , PM	Yes	Possible	No	No	No, AMP not cost effective.	No
CARGO HANDLING EQUIPMENT									
CHE1	Emission Standards for Heavy-Duty Nonroad Diesel Engines	ARB and EPA	NO _x , PM, SO _x and CO	Yes	Yes	Yes	No, ARB and EPA have responsibility.	Yes, emission standards in effect.	No, however, measure is included in baseline emissions calculations.
CHE2	Yard Tractor Modernization and ULSD Programs	Port	NO _x , PM, SO _x	Yes	Yes	Yes	Yes	Yes	No, Project mitigation requires LPG instead of ULSD.
CHE3	Early Implementation of ULSD for CHE (Other than Yard Tractors)	Port	PM, SO _x	Yes	Yes	Yes	Yes	Yes	No, Project mitigation requires emulsified fuels instead.
CHE4	Alternative Fuel Yard Tractor Resolution	Port	NO _x , PM	Yes	Yes	Yes	Yes	Yes	Yes (AQ-7)

NNI Air Quality Mitigation Measures									Mitigation Measure
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)		
CHE5	Emulsified Fuels	Port	NO _x , PM	Yes	Yes	Yes	Yes	Yes	Yes (AQ-8 and AQ-9)
CHE6	Technical Advisory Committee (TAC) CHE Measures	Port	NO _x , PM	Yes	Yes	Partial	Partial	Yes	Yes, some measures include as Project mitigation.
Engine Standards									
CHE7	Expanded Yard Tractor Modernization	Port	NO _x , PM, SO _x	Yes	Yes	Yes	Yes	Yes	No, implemented LGP instead.
CHE8	Enhanced CHE Modernization	Port, ARB		Yes	Yes	Yes	Yes	Yes	Yes (AQ-20)
Repower/Retrofit									
CHE9	Cargo Handling Equipment at Ports and Intermodal Rail Yards	ARB	NO _x , PM, CO, HC	Yes	Yes	Yes	No, no Port control.	Yes	No
RAIL									
R1	Tier 0, 1, and 2 Engine Standards for New and Remanufactured Locomotives and Locomotive Engines	EPA	NO _x , PM, CO, HC, smoke	Yes	Yes	Yes	No, EPA has responsibility.	Yes	No, however, measure is included in baseline emissions calculations.
R2	ARB Diesel Fuel Used by Intrastate Locomotives	ARB	NO _x , PM, SO _x	Yes	Yes	Yes	No, ARB has responsibility.	Yes	No, however, measure is included in baseline emissions calculations.
R3	Federal Standards for Nonroad Diesel Fuel	EPA	NO _x , PM, SO _x	Yes	Yes	Yes	No, EPA has responsibility.	Yes	No, however measure is included in baseline emissions calculations.

NNI Air Quality Mitigation Measures									Mitigation Measure
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)		
R4	Memorandum of Understanding (MOU) in the South Coast Air Basin	ARB	NO _x	Yes	Yes	Yes	No, ARB has responsibility.	Yes	No, no Port control.
R5	PHL Switcher Locomotive Modernization and ULSD Programs	Port	NO _x , PM, SO _x	Yes	Yes	Yes	Yes	Yes	No, would be done on a Portwide basis.
Engine Standards									
R6	Ultra-Low Emission Switcher Locomotives: PHL	Port	NO _x , PM	Yes	Yes	Yes	Yes	Yes	No, would be done on a Portwide basis.
R7	Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1	Port	NO _x , PM	Yes	Yes	Yes	Yes	Yes	No, would be done on a Portwide basis.
R8	Tier 3 Engine Standards for New and Remanufactured Locomotives and Locomotive Engines	EPA	NO _x , PM	Yes	Yes	Yes	No, EPA has responsibility.	Yes	No, no Port control.
Fuel Requirements									
R10	ARB Diesel Fuel for Class 1 Railroad Locomotives	Port	NO _x , PM, SO _x	No	No	No	No	No, not applicable.	No
Repower/Retrofit									
R11	Idling Controls for Switcher and Line Haul Locomotives	Port	NO _x , PM	No	No	No	No	No, not applicable.	No
Operational Efficiencies or Improvements									
R12	Efficiency Improvements on In-Use Class 1 Rail Equipment	Port	NO _x , PM	No	No	No	No	No, not applicable.	No
R13	Electrification of Alameda Corridor and Alameda Corridor East	Port	NO _x , PM	No	No	No	No	No, not applicable.	No
HEAVY DUTY VEHICLES									
HDV1	2004 On-Road Standards for Heavy Duty Diesel Vehicles	EPA	NO _x , PM, NHMC	Yes	Yes	Yes	No, EPA has responsibility.	Yes	No, however, measure is included in baseline emission calculations.

NNI Air Quality Mitigation Measures									Mitigation Measure
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)		
HDV2	2007 On-Road Standards for Heavy-Duty Diesel Vehicles	EPA	NO _x , PM, NHMC	Yes	Yes	Yes	No, EPA has responsibility.	Yes	No, however measure is included in baseline emission calculations.
HDV3	Gateway Cities Truck Modernization Program	Port	NO _x , PM	Yes	Yes	Yes	Yes	Yes, ongoing Port program.	No, but this is an ongoing Port program.
HDV4	Engine Software Upgrade (or Low NO _x Software Upgrade)	ARB	NO _x	Yes	Yes	Yes	No, ARB has responsibility.	Possible	No, no Port control.
HDV5	Ultra Low Sulfur Diesel Fuel (15 ppm)	ARB	NO _x , PM	Yes	Yes	Yes	No, ARB has responsibility.	Yes	No, however, measure is included in baseline emission calculations.
HDV6	Heavy-Duty Vehicle Inspection	ARB	PM	Yes	Yes	Yes	No, ARB has responsibility.	Possible	No, no Port control.
HDV7	Periodic Smoke Inspection Program (PSIP)	ARB	PM	Yes	Yes	Yes	No, ARB has responsibility.	Possible	No, no Port control.
HDV8	Augment Truck and Bus Highway Inspections with Community-Based Inspections	ARB	PM and Opacity	Yes	Yes	Yes	No, ARB has responsibility.	Possible	No, no Port control.
HDV9	Reduced Truck Idling	ARB	NO _x , HC, PM	Yes	Yes	Yes	Yes	Yes	No, however, measure is included in baseline emission calculations.

NNI Air Quality Mitigation Measures									Mitigation Measure
Measure	Lead Agency	Pollutants Targeted	1. Does the Project have significant air emissions from the specific source?	2. Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact from the source?	3. Is the measure proportional to the impact?	4. (a) Does the Port have the authority to implement the measure?	4. (b) Is the measure feasible in terms of technology and/or cost? (If not, why?)		
Engine Standards									
HDV10	Expanded Truck Modernization Program	Port	NO _x , PM	Yes	Yes	Yes	Yes, at a Portwide level.	Yes	No, would be implemented at a Portwide level.
HDV11	California Heavy-Duty Diesel Vehicle Standards and Fleet Modernization for Mexican Trucks	ARB	NO _x , PM	No	No	No	No, ARB has responsibility.	No, no Mexican trucks in Port fleet.	No
Fuel Requirements									
HDV12	Early ULSD Implementation	Port	PM	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
Retrofit/Repower									
HDV13	Retrofit Heavy-Duty Diesel Vehicles with Diesel Oxidation Catalysts (DOC)	Port	PM	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV14	Retrofit Heavy-Duty Diesel Vehicles with Diesel Particulate Filters (DPF)	Port	PM	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV15	PM In-Use Emission Control	ARB	PM	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
Operational Efficiencies and Improvements									
HDV16	On-Board Diagnostics (OBD) for Heavy-Duty Trucks	ARB	NO _x , HC, PM, CO	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV17	Transportation Refrigeration Units (TRU)	ARB	PM	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV18	Electrified Truck Spaces	Port	NO _x PM	Yes	Yes	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV19	Idling Reduction Measures	Port	PM	Yes	Yes	Yes	Yes	Yes	Yes, AQ-18 & 19.

NNI Mitigation Measures

The control measures described below were originally developed as part of work undertaken by the No Net Increase (NNI) Task Force. A major accomplishment of the NNI Task Force was identification of a broad suite of potential emission control strategies for the various source categories of equipment used in Port operations. The task force identified at least 68 control measures that could be considered at least potentially technically feasible. As shown in the NNI Mitigation Table, each control measure is assessed in relation to the specific project as defined in the environmental impact statement/environmental impact report (EIS/EIR) through a standardized process. Using the control measure as a mitigation measures is considered feasible if all categories are marked "Yes" in the NNI Mitigation Table. This section expands on the NNI Mitigation Table, presenting a discussion on each measure and its feasibility for the proposed Berth 136-147 Container Terminal Project.

B.1 Ocean Going Vessels

This section discusses the feasibility of applying or adapting the Control Measures for Ocean Going Vessels (OGVs) as part of the EIS/EIR for Berths 136-147.

B.1.1 OGV1 – New Engine Standards for Ships

Description

The International Maritime Organization (IMO), the United Nations' specialized agency responsible for improving maritime safety and preventing pollution from ships, established limits for nitrogen oxide (NO_x) in Annex VI to the International Convention for the Prevention of Pollution from Ships in 1997. The limits apply to Category 3 diesel marine vessel engines (main engines) over 130 kilowatts (kW) installed on vessels constructed on or after January 2000. Although the NO_x limits became effective in May 2005 (the treaty has recently been ratified by the required 15 countries representing at least 50 percent of the gross tonnage of the world's merchant shipping), engine manufacturers have generally complied with it since 2000 because the standards are retroactive to that date. The measure applies only to diesel engines over 130 kW installed on vessels constructed on or after January 2000.

Feasibility

This measure is considered feasible from an agency standpoint because it has already been adopted and is being implemented by engine manufacturers for merchant shippers.

1 This measure has not been included as project mitigation in the EIS/EIR for Berths 136-
2 147, but has been included in the baseline emissions calculations in the document.

3 **B.1.2 OGV2 – Vessel Speed Reduction Memorandum of** 4 **Understanding**

5 **Description**

6 This measure would fully implement vessel speed reductions (VSRs) to 12 knots at a
7 distance of 20 miles from Point Fermin. An arriving or departing ship would travel at
8 12 knots for the 20-mile inbound or outbound transit and thus reduce the power
9 requirements of the propulsion engine. The VSR is currently tracked through the Marine
10 Exchange and operates under a Memorandum of Understanding (MOU) among the Port
11 of Los Angeles, Port of Long Beach, U.S. Environmental Protection Agency (USEPA),
12 California Air Resources Board (CARB), South Coast Air Quality Management District
13 (SCAQMD), Pacific Merchant Shipping Association, and the Marine Exchange of
14 Southern California.

15 **Feasibility**

16 For the TraPac Terminal, approximately 61.8 percent of the ships are complying with
17 VSR requirements (January through July 2005), which is included in the baseline air
18 quality calculations in the EIS/EIR for Berths 136-147. Expanding this measure to fully
19 implement VSR to achieve a 100 percent compliance rate for the TraPac Terminal is
20 considered feasible and, therefore, has been included in the EIS/EIR as a mitigation
21 measure.

22 **B.1.3 OGV3 – Alternative Maritime Power**

23 **Description**

24 This measure would utilize land-based facilities to supply electrical power to marine
25 vessels during hoteling to reduce or eliminate the use of on-board auxiliary diesel engines
26 and their associated emissions. This measure would implement alternative maritime
27 power (AMP) requirements. AMP will be used on 60 percent of TraPac ship calls from
28 January 1, 2005, to June 30, 2005; and on 70 percent of TraPac ship calls starting July 1,
29 2005.

30 **Feasibility**

31 For the TraPac Terminal, implementation of AMP in the percentages listed above is
32 considered feasible and is included in the EIS/EIR as mitigation.

33 **B.1.4 OGV4 – Auxiliary Engine Fuel Improvement Program**

34 **Description**

35 This measure would require the use of lower sulfur fuels in OGV auxiliary engines,
36 beginning at 40 nautical miles (nm) from Point Fermin. The program focuses on shifting
37 bunker-burning auxiliary engines to 1.5 percent sulfur fuels and cleaner fuels (most

1 commonly marine diesel oil [MDO]). Implementation of low sulfur fuels in auxiliary
2 engines will occur as follows:

- 3 • 100 percent of ship auxiliary engines shall use fuel with a maximum sulfur content of
4 1.5 percent starting in 2005
- 5 • 50 percent of ship auxiliary engines shall use MDO or marine gas oil (MGO) with a
6 maximum sulfur content of 0.2 percent starting in 2015
- 7 • 75 percent of ship auxiliary engines shall use MDO or MGO with a maximum sulfur
8 content of 0.2 percent starting in 2030

9 **Feasibility**

10 This measure is considered feasible and has been included in the EIS/EIR for Berths 136-
11 147. This measure will be phased in to the operation. MDO is currently available and
12 technically feasible but may require some ship retrofits to add separate auxiliary engine
13 fuel tanks and associated equipment. MGO, however, is not currently available in some
14 regions and may not be technically feasible in some ships. Demonstration projects to
15 address lubricity, viscosity, carbon buildup, and other operating concerns, therefore, will
16 likely be required. Because this measure has feasibility issues and will likely have cost
17 implications for merchant shippers, Port-led studies will be completed prior to full
18 implementation; and Port incentives will be created to ensure implementation.

19 Additionally, this measure exceeds the current low sulfur fuel rule approved (but not
20 ratified) by the CARB that would limit ship emissions from auxiliary engines. The
21 CARB rule includes a provision that excludes ships participating in shore-side power
22 programs.

23 **B.1.5 OGV5 – New Engine Standards for Category 3 Marine** 24 **Engines**

25 **Description**

26 This measure would consist of USEPA adoption of new cleaner emission standards
27 (Tier 2 standards) for Category 3 engines (large main engines) by April 2007 for
28 U.S.-flagged vessels. Implementation of the new standards is assumed to begin in 2010.

29 **Feasibility**

30 It is currently unclear whether the measure would require a 30 percent NO_x reduction
31 beyond IMO standards for U.S.-flagged ships, or if higher reduction standards will be
32 pursued. This measure is considered feasible from a federal agency perspective
33 (USEPA) because USEPA has authority to establish new marine engine standards, but it
34 is not considered feasible by the Port of Los Angeles because the Port does not have
35 authority to establish marine engine standards. If the new engine standards apply to
36 U.S.-flagged vessels only, minimal reductions in NO_x and particulate matter less than
37 10 micrometers in aerodynamic diameter (PM₁₀) would occur as part of the TraPac
38 Terminal because the TraPac fleet is not U.S. flagged. If the new engine standards apply
39 to domestic and foreign vessels, then the NO_x and PM₁₀ reductions could occur in the
40 Port area as the new standards are implemented, possibly starting in 2010.

B.1.6 OGV6 – Reroute Cleaner Ships

Description

This measure would require the TraPac Container Lines to reroute their clean ships (those ships meeting IMO MARPOL Annex VI emission limits) to the Port of Los Angeles.

Feasibility

This measure is considered feasible and has been required as a mitigation measure in the EIS/EIR for Berths 136-147. All TraPac ships that meet AMP requirements will be ships built in 2000 or later and, therefore, will meet IMO emission limits.

B.1.7 OGV7 – Low-Emission Main Propulsion Engines

Description

This measure would require or provide incentives for the use of “Blue Sky Series” Category 3 engines in ocean-going vessels visiting the Port of Los Angeles. The emissions from Blue-Sky-Series-compliant engines are approximately 80 percent below IMO standards. This measure would likely require the installation of after treatment technologies on new or existing engines.

Feasibility

Engines that meet the Blue-Sky-Series emission levels may require the use of technologies that are best designed and incorporated into new vessels. This may require early adoption with significant lead time to allow for shipping lines to plan for purchase of cleaner new vessels. In addition, cleaner fuels may be required in conjunction with control technologies to achieve the target levels. Although selective catalytic reduction (SCR) technology has been demonstrated on four new OGVs carrying scrap/steel between the Bay Area and Korea, the applicability of low-emissions technologies like SCR to large ocean-going vessels such as container ships needs to be further evaluated and demonstrated. Because it is currently unclear if container ships can meet Blue Skies Series emission levels, this measure is not included as a mitigation measure in the EIS/EIR for Berths 136-147.

B.1.8 OGV8 – Cleaner Fuels for Ship Auxiliary Engines

Description

Proposed regulations are currently being developed by the CARB to reduce NO_x and PM₁₀ emissions from ship auxiliary engines by requiring the use of distillate marine fuels. Specifically, low sulfur marine gas oil would be required in ship auxiliary engines while operating in California Coastal Waters and at dockside (0.2 percent in 2006 and 0.1 percent in 2008). The CARB anticipates adopting the regulations in mid-year 2006.

Feasibility

This measure is considered feasible and has been approved but not ratified by the CARB. This measure has not been included in the EIS/EIR for Berths 136-147. The current CARB rule includes a provision that would exclude ships that participate in AMP

1 programs from this rule. Because the proposed Project includes strong AMP
2 requirements and low sulfur MDO/MGO requirements, the Project will exceed proposed
3 CARB requirements.

4 **B.1.9 OGV9 – Main Engine Fuel Improvement Program**

5 **Description**

6 This measure would provide incentives for ships that use 1.5 percent fuels in their main
7 propulsion engines while within 40 nm of Point Fermin, specifically focusing on
8 containerships. Target participation rates are 15 percent by 2006, 25 percent by 2007,
9 50 percent by 2008, and 100 percent by 2010.

10 **Feasibility**

11 Changing the types of fuel a ship burns in main propulsion engines introduces several key
12 technical and logistical issues that are specific to each ship and shipping line. Existing
13 ships may need to be retrofitted with additional fuel tanks and delivery systems. Fuel
14 availability in Los Angeles and Asian ports may be an issue because the sulfur content of
15 residual fuels is, in part, a function of the crude oil source. Additional processing to
16 remove sulfur from residual fuels or blending with distillates to meet the sulfur
17 requirements may result in higher fuel costs. Although implementation and cost issues
18 have been identified, this measure is assumed to be feasible. This is because fuel
19 availability issues are not insurmountable and would not fundamentally result in the
20 conversion of residual to distillate fuels for main engines and because incentives can
21 facilitate vessel equipment retrofits. Consequently, this measure has been included as
22 mitigation in the EIS/EIR for Berths 136-147.

23 **B.1.10 OGV10 – Creation of a Sulfur Emission Control Area**

24 **Description**

25 USEPA is currently studying the proposal to create a sulfur emission control area
26 (SECA) covering all of North America. Under this measure, it is envisioned that a SECA
27 will be established to limit the sulfur content of marine fuels used throughout North
28 America to 1.5 percent.

29 **Feasibility**

30 This measure is considered feasible from a federal agency perspective (USEPA) because
31 USEPA has authority to establish a SECA, but it is not considered feasible by the Port of
32 Los Angeles because the Port does not have authority to establish a SECA. This measure
33 would be similar to OGV9 in that it would effectively result in the use of low-sulfur
34 residual fuels for main propulsion engines in U.S. Territorial waters. The technical and
35 logistical issues described under OGV9 would apply to this measure. Because the Port
36 does not have the authority to establish a SECA, this measure is not included in the
37 EIS/EIR for Berths 136-147 as mitigation. It should be noted, however, that this measure
38 would be implemented if USEPA establishes a SECA.

39 If USEPA determines that a SECA in North America is not feasible and will not be
40 established, then the measures under OGV9 would be implemented, which require the
41 use of low-sulfur fuel for main engine propulsion within 40 nm of Point Fermin.

1 Mitigation has been added to the EIS/EIR for Berths 136-147 that effectively would
2 accomplish the same goals as OGV10 in the Port area.

3 **B.1.11 OGV11 – Expanded Auxiliary Engine Fuel Improvement** 4 **Program**

5 **Description**

6 This measure would build on OGV4 by providing incentives to fully implement the use
7 of distillate fuels for auxiliary marine engines. This measure focuses on shifting auxiliary
8 engines to fuels of 0.2 percent sulfur content or lower in 2006 and 0.1 percent sulfur
9 content or lower in 2008. Target participation rates are 25 percent in 2006, 75 percent in
10 2007, and 100 percent in 2008.

11 **Feasibility**

12 Changing the type of fuel a ship auxiliary engine burns introduces several key technical
13 and logistical issues that are specific to each ship and shipping line, particularly for
14 converting bunker-burning auxiliary engines to burn distillates. Existing ships may have
15 to be retrofitted with additional fuel tanks, delivery systems, and lubricity amendments.
16 Fuel availability will likely be an issue, especially in Asian ports because the availability
17 of distillates less than 0.5 percent sulfur is limited currently. Fuel availability limitations
18 become more constrained as the sulfur percentage requirements decrease in the distillate
19 fuels. Phased implementation of low-sulfur distillate fuels for auxiliary engines appears
20 feasible, and mitigation has been added to the EIS/EIR for Berths 136-147.

21 Quantifications of emission reductions after implementation of this measure, however,
22 are not included in the EIS/EIR because the level of implementation cannot be gauged
23 accurately at this time.

24 **B.1.12 OGV12 – Expanded Main Engine Fuel Improvement** 25 **Program**

26 **Description**

27 This measure would provide incentives for ships using low-sulfur fuel (0.2 percent) in
28 their main engines within 40 nm of Point Fermin. Target participation rates are
29 50 percent by 2008 and 90 percent by 2010. Sulfur oxide (SO_x) and PM emissions would
30 be reduced as a result of this measure.

31 **Feasibility**

32 This measure has not been added to the proposed Project as a mitigation measure.
33 According to a report prepared for the Port of Los Angeles in 2005 entitled *Evaluation of*
34 *Low Sulfur Marine Fuel Availability: Pacific Rim*, there are remaining technical and fuel
35 availability issues. Currently, 0.2 percent sulfur fuel is not yet available fleetwide. The
36 fuel is available on request in some ports. Currently, depending on where the ship
37 originates, the ship may not be able to take on enough low-sulfur fuel to power the main
38 engine from 40 nm to the berth. TraPac ships will be coming primarily from Hong Kong,
39 Yantian, Shanghai, Xiamen, and Busan. Low-sulfur fuel (0.2 percent fuel) currently is
40 not readily available at these ports, or in quantities necessary to supply the ships. Low-
41 sulfur fuel also may not be technically feasible for certain ship engines. Older ships often

1 only have one main engine fuel tank. Use of lower-sulfur fuel in main engines is
2 currently not a well-established practice (99 percent of ships use residual fuels for the
3 main engines). Use of some lower-sulfur fuels, including 0.2 percent, might result in
4 engine damage and safety issues due to flash point and lubricity. Heavy fuel oil is heated
5 to 150 degrees due to its high viscosity. Low-sulfur fuel would be stored at ambient
6 temperature. Switching to a low-sulfur distillate fuel on main engines may cause the fuel
7 pumps to seize due to thermal contraction from the lower fuel temperature and a lack of
8 lubricity with the low-sulfur fuel. TraPac ships currently are not able to separately store
9 distillate fuels and switch over to 0.2 percent fuel in main engines from 40 nm from Point
10 Fermin. In addition, switching to low-sulfur distillate fuels could result in clogged fuel
11 filters due to the solvent effect of the diesel fuel on removing deposits from the fuel lines.
12 Other concerns include viscosity problems, wear of moving parts, and carbon buildup.

13 The Port is working with shipping companies and industry experts to increase fuel
14 availability and address technical issues of temperature, lubricity, and other operational
15 concerns. Over the span of the TraPac lease, these issues could be resolved; but the
16 timing is not yet known. The Port is expected to implement a Portwide measure based on
17 results of pilot projects designed to test implementation of low-sulfur fuels, identify and
18 resolve implementation constraints, and address industry concerns.

19 **B.1.13 OGV13 – Additional Auxiliary Engine Reductions for** 20 **Frequent Callers**

21 **Description**

22 Proposed regulations are currently being developed by the CARB to reduce NO_x and
23 PM₁₀ emissions from auxiliary engines on ships that frequently call at California ports.
24 This measure would require “frequent callers” (ships that annually call five or more times
25 at California ports) to reduce their auxiliary engine emissions beyond the cleaner fuel
26 requirements of OGV8. Ships that call at California ports five or more times in a
27 calendar year would be required to submit and implement a plan to reduce the PM and
28 NO_x emissions from their auxiliary engines by an additional 50 percent beyond the
29 requirements of OGV8.

30 **Feasibility**

31 Potential implementation issues may include technical issues with implementation of
32 retrofit control technology, enforcement of numerous unique control plans, and legal
33 challenges of state authority over vessels. AMP may be one means of compliance.
34 Although this measure falls under the purview of the CARB, the required plans to reduce
35 PM₁₀ and NO_x emissions would be prepared by the terminal operator and submitted to the
36 Port for review. Because of this, this measure has been included as mitigation in the
37 EIS/EIR for Berths 136-147. All TraPac ships that meet AMP requirements will be ships
38 built in 2000 or later, and this mitigation measure will apply to these frequent callers.

B.1.14 OGV14 – Retrofit/Repower Requirements for Infrequent Callers

Description

This measure will require the on-board auxiliary engines of vessels that call infrequently (two to four times annually) to the Port to be retrofitted or repowered to achieve at least a 50 percent reduction target from their baseline emissions. Retrofit options for on-board auxiliary engines may consist of retrofit and emission treatment technologies used for Category 1 and 2 marine engines such as SCR, diesel particulate filters (DPF), diesel oxidation catalysts (DOC), exhaust gas recirculation (EGR), water injection, and emulsified fuels. Targeted participation rates are 50 percent beginning in 2010 and 100 percent in 2015.

Feasibility

Limited technologies are currently available or demonstrated for OGV auxiliary engines. AMP is considered a method to meet the intent of this measure; therefore, this measure is considered feasible and has been included as mitigation in the EIS/EIR for Berths 136-147. Additionally, because of high AMP rates, the terminal is expected to receive calls only from frequent callers.

B.1.15 OGV15 – Expanded VSR Program

Description

This measure would convert the voluntary VSR program to a mandatory requirement and extend the VSR distance from 20 to 40 nm out from Point Fermin.

Feasibility

The voluntary compliance rate for TraPac vessels from January through July 2005 was approximately 61.8 percent. This measure is considered feasible because of the high compliance rate of the voluntary program. This measure has been included as mitigation in the EIS/EIR for Berths 136-147.

B.1.16 OGV16 – Expanded AMP

Description

This measure would build on OGV3 and require a higher percentage of ships calling at the TraPac Terminal to use AMP and shut off auxiliary on-board engines. This measure would use incentives to achieve a 90 percent AMP compliance level.

Feasibility

This measure is considered feasible. This measure has been included as mitigation in the EIS/EIR for Berths 136-147.

B.1.17 OGV17 – Additional In-use Measures for Ships (beyond OGV8, OGV10, and OGV13)

Description

In the “State and Federal Element” of the *South Coast State Implementation Plan for Ozone*, there is a “Long Term Advanced Technology Measure” that calls on USEPA (in cooperation with the CARB and the local air pollution control districts) to achieve a statewide 25 to 40 percent reduction in NO_x and PM from ocean-going ships by 2010 (NO_x is an ozone precursor). Measures OGV8, OGV10, and OGV13 described above may not completely fulfill the State Implementation Plan (SIP)-required emission reductions. This measure, therefore, has been proposed to achieve emissions reductions from vessels beyond the reductions gained from OGV8, OGV10, and OGV 13 to meet the required SIP reductions. Additional measures that may be utilized include a variety of in-use emission reduction strategies as outlined in the SIP, such as the use of operational controls (e.g., vessel-speed-reduction strategies or idling limits), cleaner fuels, economic incentive programs, cold ironing, and opacity (smoke) limits.

Feasibility

This measure is considered feasible from a federal agency perspective (USEPA) because USEPA (in consultation with CARB and the SCAQMD) has authority to establish additional emission-reduction requirements for ocean-going vessels, but it is not considered feasible by the Port of Los Angeles because the Port does not have such authority. Because of this, this measure is not included in the EIS/EIR for Berths 136-147 as mitigation. It should be noted, however, that if and when USEPA does develop the additional requirements, implementation of the requirements in the Port and as applicable to the TraPac fleet would result in additional emission reductions.

B.2 NNI Harbor Craft Measures

This section discusses the feasibility of applying or adapting the Control Measures for Harbor Craft (HC) as part of the EIS/EIR for Berths 136-147.

B.2.1 HC1 – New Engine Standards for Harbor Craft

Description

USEPA approved final exhaust emission standards for new diesel engines over 37 kW (50 horsepower [hp]) on December 29, 1999 (64 FR 73301). The standards apply primarily to commercial harbor craft with Category 1 and 2 engines, and implementation of the new standards began in 2005. This measure would reduce the level of NO_x, reactive organic gas (ROG), PM, and carbon monoxide (CO) emitted from harbor craft engines.

Feasibility

This measure is considered feasible from a federal agency perspective (USEPA) because USEPA has authority to establish emission standards for marine engines. It is not considered feasible by the Port of Los Angeles because the Port does not have authority to establish engine standards for harbor craft. Although this measure has not been

1 included as Project mitigation in the EIS/EIR for Berths 136-147, emission reductions
2 will occur on a Portwide basis as the new engine standards are implemented by various
3 harbor craft users in the Port area. To the extent that harbor craft that meet the new
4 engine standards provide vessel-assist services to the Berth 136-147 fleet, additional
5 reductions in Project emissions would occur.

6 **B.2.2 HC2 – Clean Fuels for Harbor Craft**

7 **Description**

8 Under this control measure, the CARB would require that diesel fuel sold, supplied, or
9 offered for sale to harbor craft operators in California meet the specifications for
10 vehicular diesel fuel, commonly referred to as CARB diesel fuel. Commercial Harbor
11 Craft include a wide variety of vessels such as tug/tow boats, commercial fishing vessels,
12 charter fishing vessels, pilot boats, work boats, crew/supply boats, ferry/excursion
13 vessels, and government vessels. This measure would reduce the level of NO_x, SO_x, and
14 PM emitted from harbor craft engines. This measure becomes effective in the South
15 Coast Air Basin in 2006 and statewide in 2007. CARB diesel fuel currently has a sulfur
16 limit of 500 parts per million (ppm); the sulfur limit will be reduced to 15 ppm (i.e., ultra-
17 low-sulfur diesel [ULSD]) by September 1, 2006, following the California Diesel Fuel
18 Regulations.

19 **Feasibility**

20 This measure is considered feasible from a state agency perspective (CARB) because the
21 CARB has authority to establish fuel requirements in California territorial waters. It is
22 not considered feasible by the Port of Los Angeles because the Port does not have such
23 authority. Although this measure has not been specifically included as Project mitigation
24 in the EIS/EIR for Berths 136-147, emission reductions from implementation of this
25 measure have been included in the document baseline emission calculations because the
26 measure will be effective at the time of Phases II and III operation.

27 **B.3.3 HC3 – Early Implementation of Ultra-Low-Sulfur Diesel**

28 **Description**

29 This measure would provide subsidies for the early implementation of ULSD fuels in
30 harbor craft that operate in and service the Port of Los Angeles. This measure would
31 reduce the level of NO_x, PM, and SO_x emissions from harbor craft 1 year early. This
32 measure started in 2005 and will end in 2006 when the new fuel standards (see HC2
33 above) take effect.

34 **Feasibility**

35 This measure is considered feasible because ULSD fuel is available and the Port of
36 Los Angeles has the authority to implement it. This measure, therefore, has been
37 included as Project mitigation in the EIS/EIR for Berths 136-147 and would apply to
38 ongoing Phase I operations. This measure would not apply to Phase II or Phase III
39 operations because those phases would become operational after 2006.

B.2.4 HC4 – Dredging Activities

Description

The CARB and SCAQMD have adopted regulations that require dredges that participate in the Statewide Portable Equipment Registration Program (PERP) to have all portable engines certified to Tier 1 or 2 USEPA/CARB nonroad engine standards, or equivalent, by January 2005. Dredges are also subject to the Airborne Toxic Control Measure (ATCM) for Diesel-Fueled Portable Engines, requiring dredges to be certified to Tier 1, 2, or 3 USEPA/CARB nonroad engine standards by 2010. After 2010, the ATCM requires fleets of portable engines to meet diesel PM emission averages that become increasingly more stringent in 2013, 2017, and 2020. By 2020, portable engines on dredges must be certified to Tier 4 emission standards for USEPA/CARB newly manufactured nonroad engines or be equipped with a Level 3 PM control technology or a combination of verified control technologies to achieve 85 percent reduction.

Feasibility

This measure is considered feasible from a state agency perspective because the CARB and the SCAQMD have authority to regulate dredging activities and engines. It is not considered feasible by the Port of Los Angeles because the Port does not have such authority. This measure has not been included as Project mitigation in the EIS/EIR for Berths 136-147.

B.2.5 HC5 – Technical Advisory Committee Harbor Craft Measures

Description

This ongoing measure is implementing various emission reduction strategies evaluated by the technical advisory committee (TAC). The harbor craft reductions focus on repowering or retrofitting primarily harbor craft main or auxiliary engines to reduce NO_x and PM emissions.

Feasibility

This measure is considered feasible because the Port has the authority to provide incentives for the retrofitting or repowering of harbor craft engines. This measure is not specifically included as Project mitigation in the EIS/EIR for Berths 136-147 because this is an ongoing Portwide program and because harbor craft (tugs) are not dedicated to particular shippers; rather, they provide service to multiple shippers.

B.2.6 HC6 – New Engine Standards for Category 1 and 2 Marine Engines

Description

USEPA is considering standards for new marine diesel engines with per-cylinder displacement below 30 liters modeled after the 2007/2010 clean highway and nonroad diesel engine program. The regulation would emphasize achieving large reductions in PM and NO_x emissions as early as possible through the use of advanced emission control

1 technology. The standards would apply to marine diesel engines used in all harbor craft
2 applications: commercial (excluding ocean vessels), recreational, and auxiliary. The
3 standards are planned for adoption and could apply as early as 2011.

4 **Feasibility**

5 This measure is considered feasible from a federal agency perspective because USEPA
6 has authority to regulate emission standards for marine engines. This measure is not
7 considered feasible by the Port of Los Angeles, however, because the Port does not have
8 such authority. Although this measure has not been included as Project mitigation in the
9 EIS/EIR for Berths 136-147, this measure will result in reduced emission levels from
10 harbor craft in the Port as it is implemented over time, in particular, as more efficient tugs
11 provide vessel-assist services to the project fleet.

12 **B.2.7 HC7 – Emulsified Fuels**

13 **Description**

14 This measure would require the use of emulsified fuel in Category 1 and 2 marine
15 engines in harbor craft that are in the Port area. This control strategy could be
16 implemented in 2006 starting with 80 percent of the harbor craft using emulsified fuels,
17 except for assist tugs and line-haul tugs. This 80 percent participation rate could then
18 apply to line-haul tugs beginning in 2008, with the condition that an on-board emulsifier
19 would be used to provide the fuel.

20 **Feasibility**

21 Emulsified diesel is considered available, as the fuel production capacity of
22 approximately 25 million gallons per year is currently underutilized. To fuel all harbor
23 craft in the Port of Los Angeles with emulsified diesel fuel would require approximately
24 5 million gallons per year. However, some marine engines in existing harbor craft,
25 especially older 2-stroke engines or those having certain Bosch fuel pumps, are known to
26 have problems with diesel emulsions, such as power loss. Due to the critical nature of
27 tug operations in ship maneuvering, potential engine power losses from the use of
28 emulsified diesel fuel are not acceptable. In addition, a demonstration project on a
29 Golden Gate ferry vessel using emulsified diesel has shown increases in NO_x and PM
30 emissions from main and auxiliary engines. Because of the potential for power loss and
31 increased emissions, this measure is not included as Project mitigation in the EIS/EIR for
32 Berths 136-147.

33 **B.2.8 HC8 – In-Use Harbor Craft Emission Reduction 34 Measure/Airborne Toxic Control Measure**

35 **Description**

36 The CARB is proposing to reduce NO_x, ROG, and PM emissions from existing "in-use"
37 harbor craft engines. This proposed measure includes a number of options to reduce
38 emissions, including the use of add-on control equipment and repowering, replacing or
39 retrofitting existing vessels and/or early introduction of new vessels. Due to the diversity
40 within the harbor craft category, specific emission reduction proposals may vary with the
41 type of vessels, industry, or other factors.

Feasibility

This measure is considered feasible from a state agency standpoint; however, several technical issues associated with this measure need to be addressed. There is a lack of CARB-verified control technologies, and some control technologies may prove problematic. Harbor craft may have space limitations for in-use vessel control technologies such as SCR and DPF, as well as safety concerns due to high temperature required for DPF regeneration. In addition, engine replacement and retrofit technologies are likely to have high implementation costs. For these reasons, and because the Port does not have authority over harbor craft engine emission standards, this measure is not included as mitigation in the EIS/EIR for Berths 136-147. It should be noted, however, that the Port is undertaking a harbor craft repowering and retrofitting incentive program (see HC5 above) to reduce NO_x and PM emissions in the Port area.

B.2.9 HC9 – Repower Existing Harbor Craft

Description

Under this measure, the Port would repower 250 harbor craft vessels with new engines that meet USEPA 2004 Category 1 and 2 marine engine standards to reduce NO_x and PM emissions. An additional 150 harbor craft have already been repowered under existing Port incentive programs. This measure would go beyond existing repowering incentives and would require the Port to directly facilitate repowering of the remaining harbor craft.

Feasibility

This measure is considered technically feasible, and the Port already has an ongoing program to repower existing harbor craft. Harbor craft such as tugs provide services to multiple shipping lines and are not exclusive to any particular shipping line container or transport vessels. Because harbor craft services are Portwide, this measure is not included as mitigation in the EIS/EIR for Berths 136-147. As more harbor craft are being repowered through the existing program, however, some emission reductions associated with Berth 136-147 operations would occur.

B.2.10 HC10 – Retrofit Existing Harbor Craft

Description

This measure would require existing harbor craft diesel engines (main and auxiliary) to be retrofitted with DPFs, DOC, and/or SCR devices to reduce NO_x and PM emissions.

Feasibility

This measure is considered technically feasible over time; however, demonstration projects will likely be required to address space limitation issues with in-use vessel control technologies such as SCR and DPF, as well as safety concerns due to high temperature associated with DPF regeneration. In addition, such retrofit systems for harbor craft engines do not currently exist as commercially available units; therefore, a time constraint may exist for implementation. The CARB is currently developing a statewide regulation for In-Use Harbor Craft (HC8) that is similar to that identified in this control measure. Because harbor craft services are Portwide rather than fleet specific, this measure is not included as Project-specific mitigation in the EIS/EIR for Berths 136-

1 147. Portwide implementation, however, would result in some emission reductions for
2 harbor craft such as tugs that would serve the Berth 136-147 fleet.

3 **B.2.11 HC11 – AMP-Ready Staging Areas for Vessel-Assist Tugs**

4 **Description**

5 This measure would establish staging areas for vessel-assist tugs to reduce emissions
6 associated with unnecessary trips back to home berths after tugs complete each ocean-
7 going vessel assist. In addition, the staging areas would be AMP-ready so that tug-boat
8 systems could be powered from land-based electrical facilities rather than auxiliary
9 engines.

10 **Feasibility**

11 This measure appears technically feasible; however, constraints related to locating the
12 staging areas and new AMP facilities may exist. Retrofitting tugs for AMP (to offset the
13 need for operating auxiliary engines on tugs) also may not result in the same emissions-
14 reduction benefits as implementing AMP for OGVs. This is due to the much smaller
15 displacement of harbor craft auxiliary engines compared to OGV auxiliary engines.
16 Because the feasibility of this measure is uncertain and because tugs provide Portwide
17 vessel-assist services to multiple fleets, this measure is not included as Project mitigation
18 in the EIS/EIR for Berths 136-147. Portwide implementation, however, would result in
19 some emission reductions for tugs that would serve the Berth 136-147 fleet.

20 **B.3 Cargo Handling Equipment**

21 This section discusses the feasibility of applying or adapting the Control Measures for
22 Cargo Handling Equipment (CHE) as part of the EIS/EIR for Berths 136-147.

23 **B.3.1 CHE1 – Emission Standards for Heavy-Duty Nonroad 24 Diesel Engines**

25 **Description**

26 Federal and state emissions standards for nonroad diesel engines have been adopted and
27 establish tiers of increasingly stricter emissions standards that have been and will
28 continue to be implemented to reduce hydrocarbons (HC), NO_x, PM, CO, and SO_x
29 emissions. In August 1998, USEPA adopted new emission standards for NO_x, HC, and
30 PM emission standards for nonroad compression ignition engines that would reduce NO_x
31 and PM emissions by 60 percent. In January 2000, the CARB adopted standards to
32 existing California emission standards to harmonize as closely as possible with the
33 federal program. These standards consist of a tiered structure of emission limits based on
34 engine power. The Tier 1 standards were implemented in 1996. In 2001, the process of
35 phasing in the Tier 2 standards began. The phasing in of the Tier 3 standards will begin
36 in 2006. The Tier 4 standards are based on the use of advanced after-treatment
37 technologies. These technologies will reduce PM and NO_x emissions from new engines
38 up to 95 percent when compared to previous emission requirements.

Feasibility

This measure is considered feasible from an agency standpoint because it has been adopted already and is being implemented by manufacturers of engines used in cargo handling equipment. This measure has been included in the baseline emissions calculations in the EIS/EIR for Berths 136-147.

B.3.2 CHE2 – Yard Tractor Modernization and ULSD Programs

Description

This measure would accelerate the replacement of existing yard tractors with the cleaner engines and accelerate use of ULSD fuels through a voluntary, incentive-based program to reduce NO_x and PM, and SO_x emissions. The NO_x emission standard is 2.0 grams (g) per brake horsepower per hour (bhp-hr). The PM emission standard is 0.015 g/bhp-hr. There are no engine emission standards for SO_x; rather, SO_x emissions are reduced by using lower sulfur. Implementation could include (1) replacement of existing yard tractors with tractors equipped with on-road engines, (2) replacement of existing yard tractors with tractors equipped with low-emission nonroad engines, and (3) replacement of existing yard tractors with a combination of on-road and nonroad tractors. This fuel neutral performance-based measure would be completed in years 2007 and 2008.

Feasibility

Meeting the emission-reduction standards for the identified pollutants would involve various technologies, including alternative fuel engines, use of emulsified fuel, use of on-road engines in off-road applications, and CARB-verified active DPFs that are currently verified for off-road applications. Although this measure is technically feasible, it has not been included as Project mitigation in the EIS/EIR for Berths 136-147 because mitigation requiring alternative-fueled yard tractors (see CHE4 below) has been required instead of this measure.

B.3.3 CHE3 – Early Implementation of ULSD for CHE (Other than Yard Tractors)

Description

This program would subsidize the incremental cost of using ULSD fuels in CHE (other than yard tractors) instead of current diesel fuels to reduce PM and SO_x emissions. This measure would convert the entire nonyard tractor CHE fleet to ULSD in 2006. This measure would provide short-term emission reductions because the California Diesel Fuel regulations will require ULSD in off-road equipment by September 1, 2006.

Feasibility

This measure is considered feasible and has been implemented at Port facilities since 2005. However, this measure has not been included as mitigation in the EIS/EIR for Berths 136-147 because mitigation requiring the use of emulsified fuels in CHE (see CHE5 below) has been required instead of ULSD fuels.

B.3.4 CHE4 – Alternative Fuel Yard Tractor Resolution

Description

In February 2003, the Board of Harbor Commissioners adopted Resolution 6164 to reduce NO_x and PM emissions from diesel yard tractors. The Resolution requires terminal operators to use alternative-fuel yard tractors, unless it is operationally infeasible, for new leases. For substantial renegotiations of existing leases, and for all future purchases or leases of yard tractors, the Resolution requires terminal operators to use alternative-fuel yard tractors, unless it is operationally infeasible. Resolution 6164 also requires terminal operators to retrofit all their existing diesel yard tractors and retrofit or purchase other CHE with either a CARB-verified DPF using ULSD or a CARB-verified DOC using emulsified fuel. Where alternative-fuel yard tractors are determined to be operationally infeasible, the Resolution requires the use of hybrid electric equipment, equipment operated with a DPF and ULSD, or equipment operated with a DOC and emulsified fuel.

Feasibility

There may be feasibility issues in the near term related to the procurement of local supplies of alternative fuel and installation of fueling infrastructure; however, these issues do not appear to be insurmountable. This measure, therefore, has been included as Project mitigation in the EIS/EIR for Berths 136-147. The mitigation measure in the EIS/EIR assumes the use of liquid petroleum gas (LPG) as an alternative CHE fuel.

B.3.5 CHE5 – Emulsified Fuels

Description

Under this existing Clean Air Program measure, the Port provides subsidies to CHE fleet operators for the use of emulsified fuels. This measure would continue the existing measure to reduce NO_x and PM emissions from CHE.

Feasibility

The CARB has confirmed that emulsified diesel provides 63 percent PM and 14 percent NO_x reductions compared with CARB diesel fuel, and that these reductions are not dependent on the fuel sulfur content. Because emissions reductions have been demonstrated, and because this measure is currently being implemented, it has been included as Project mitigation in the EIS/EIR for Berths 136-147.

B.3.6 CHE6 – Technical Advisory Committee CHE Measures

Description

As part of the TraPac settlement, the Port has committed to implementing various emission-reduction strategies as determined and evaluated by the TAC. Under the TAC CHE measures, NO_x and PM emissions would be reduced by converting yard tractors to liquefied natural gas (LNG), using oxygen (O₂) Diesel Fuel (proprietary ethanol-diesel blend) in selected nonroad equipment, in some cases, with an oxidation catalyst retrofit and repowering of selected CHE.

Feasibility

This measure is considered feasible because the Port has committed to its implementation. Some of the TAC measures are included as Project mitigation in the EIS/EIR for Berths 136-147, including alternative-fueled (LPG) yard tractors and oxidation catalyst retrofits on selected CHE.

B.3.7 CHE7 – Expanded Yard Tractor Modernization

Description

Under this measure, the Port will expand the yard tractor modernization program (CHE2) by providing incentives to CHE fleet owners to further modernize their yard tractor fleets to meet NO_x and PM standards that are based on the 2007 on-road engine standards. Implementation of this measure would occur in six phases starting in 2007:

- Phase 1 (2007): replace remaining 50 percent of Tier 1 (1996-2002 models) yard tractors (the first 50 percent were procured in 2006 in accordance with CHE2)
- Phase 2 (2008): replace all Tier 2 (2003-2004 models) yard tractors
- Phase 3 (2011): replace all yard tractors originally procured in 2005 (CHE2, Phase 1)
- Phase 4 (2012): replace all yard tractors originally procured in 2006 (CHE2, Phase 2)
- Phase 5 (2013): replace all yard tractors procured in 2007, under Phase 1
- Phase 6 (2014): replace all yard tractors procured in 2008, under Phase 2

Feasibility

Achieving these NO_x and PM standards would involve the use of various technologies, including alternative-fuel engines, use of emulsified fuel, use of on-road engines in off-road cargo handling equipment, and with CARB-verified active DPFs that are currently verified for off-road applications. This measure is considered technically feasible. This measure has not been included as Project mitigation in the EIS/EIR for Berths 136-147 because more stringent mitigation requiring LPG yard tractors has been required (see CHE4 above).

B.3.8 CHE8 – Enhanced CHE Modernization

Description

Under this measure, the Port would require that both new purchases and replacement or retrofit of existing CHE equipment (other than yard tractors, such as top picks, side picks, and rubber-tired gantry cranes) use alternative fuel, on-road engines, or Tier 3 and 4 nonroad engines. Implementation of this measure began in 2005 and will continue through 2014.

Feasibility

The CARB is currently developing a statewide regulation that is similar to the proposal under this control measure (CHE9). The more effective of the two measures (this measure or CHE9 below) would be implemented. Because this measure would reduce emissions from CHE through the use of alternative fuels or compliance with new engine

standards if alternative-fueled CHE are not acceptable, this measure is considered feasible for facilities with new leases and major renegotiations of existing facility leases. The EIS/EIR for Berths 136-147 includes Project mitigation requiring that new or replacement forklifts be electric where feasible, which partially implements this measure.

B.3.9 CHE9 – Cargo Handling Equipment at Ports and Intermodal Rail Yards

Description

The CARB is in the process of completing a regulation that requires a reduction in emissions from diesel-fueled, nonroad mobile equipment used for cargo handling at California ports and intermodal rail yards. Implementation of this regulation under this measure would result in emission reductions, most likely through the use of Best Available Control Technology (BACT). Implementation of the regulation will begin in 2007.

Feasibility

BACT for different categories of CHE may differ, pending availability of verified control devices, on-road engine availability, and resolution of retrofit issues for yard trucks. These issues, however, do not appear insurmountable; and this measure is considered feasible from a state perspective (CARB). This measure is not considered feasible from a Port standpoint because the Port does not have authority to regulate nonroad diesel equipment. This measure is not included in the EIS/EIR for Berths 136-147 as mitigation or in the baseline calculations because the CARB rule has not yet taken effect and could change before it takes its final form.

B.4 NNI Rail Measures

This section discusses the feasibility of applying or adopting the Control Measures for Rail (R) as part of the EIS/EIR for Berths 136-147.

B.4.1 R1 – Tier 0, 1, and 2 Engine Standards for New and Remanufactured Locomotives

Description

In 1998, USEPA adopted locomotive emission standards for NO_x, HC, CO, PM and smoke, which are applicable to newly manufactured and remanufactured railroad locomotives and locomotive engines. The rule took effect in the year 2000 and applies to locomotives originally manufactured during or after 1973, any time they are manufactured or remanufactured.

The first set of standards (Tier 0) applies to locomotives and locomotive engines originally manufactured from 1973 through 2001, or any time they are remanufactured. The second set of standards (Tier 1) applies to locomotives and locomotive engines originally manufactured from 2002 through 2004 or their subsequent remanufacture. The final set of standards (Tier 2) applies to locomotives and locomotive engines originally manufactured in 2005 and later. Tier 2 locomotives and locomotive engines will be

1 required to meet the applicable standards at the time of original manufacture and each
2 subsequent remanufacture.

3 **Feasibility**

4 This measure is considered feasible from a federal agency standpoint (USEPA) because it
5 has already been adopted and is being implemented by rail engine manufacturers. This
6 measure is not considered feasible from a Port of Los Angeles perspective because the
7 Port does not have the authority to establish rail engine emission standards. Because the
8 standards are in effect, however, this measure is included in the baseline calculations for
9 the EIS/EIR for Berths 136-147.

10 **B.4.2 R2 – CARB Diesel Fuel Used by Intrastate Locomotives**

11 **Description**

12 The control measure will reduce NO_x, PM, and SO_x emissions by requiring that diesel
13 fuel sold, supplied, or offered for sale to intrastate locomotive operators in California
14 meet the specifications for vehicular diesel fuel, commonly referred to as CARB diesel
15 fuel. The regulation becomes effective statewide in January 2007.

16 **Feasibility**

17 This measure is considered feasible from a state agency standpoint (CARB) because it
18 has already been adopted and will become effective in 2007. This measure is not
19 considered feasible from a Port perspective because the Port does not have the authority
20 to establish fuel requirements for intrastate locomotives. However, because this measure
21 has been finalized by the CARB, it is included in the baseline calculations in the EIS/EIR
22 for Berths 136-147.

23 **B.4.3 R3 – Federal Standards for Nonroad Diesel Fuel**

24 **Description**

25 Current federal nonroad diesel fuel standards require that sulfur levels for nonroad diesel
26 fuel be reduced from current uncontrolled levels ultimately to 15 ppm, with an interim
27 cap of 500 ppm. The rule applies to all locomotives and marine vessels. This measure
28 requires refiners to produce nonroad, locomotive, and marine diesel fuel that meets a
29 maximum sulfur level of 500 ppm beginning in 2007 and a maximum sulfur level of
30 15 ppm in 2012.

31 **Feasibility**

32 This measure is considered feasible from a federal agency standpoint (USEPA) because it
33 has already been adopted, but is not considered feasible from a Port perspective because
34 the Port does not have the authority to establish nonroad diesel fuel standards. Because
35 this USEPA requirement will be implemented, however, this measure is included in the
36 baseline calculations for the EIS/EIR for Berths 136-147.

B.4.4 R4 – Memorandum of Understanding in the South Coast Air Basin

Description

This measure would continue the voluntary implementation of the 1998 MOU (to reduce NO_x emissions in the South Coast Air Basin [SCAB]) established between the CARB and the two Class 1 freight railroads operating in California (Burlington Northern and Santa Fe [BNSF] and Union Pacific Railroad [UPRR]). The MOU establishes a locomotive fleet average emissions program with an emission reduction target for 2010. The intent is to accelerate introduction of newer, lower emitting locomotives in the SCAB. The locomotive fleet average emissions program is tied to the promulgation of the USEPA National Locomotive Rule and requires that fleet average emissions are equivalent to the USEPA 2005 locomotive NO_x standard (5.5 g/bhphr) by 2010.

Feasibility

This measure is considered feasible from a state agency standpoint (CARB) because the relevant parties have already agreed upon the MOU. This measure is not considered feasible from a Port perspective because the Port is not a party to the MOU. This measure has not been included as Project mitigation in the EIS/EIR for Berths 136-147 because federal law prohibits any state or local government from adopting or enforcing any standard or other requirement relating to the control of emissions from new locomotives and new engines used in locomotives. Because the MOU is in effect, however, this measure is included in the baseline calculations for the EIS/EIR for Berths 136-147.

B.4.5 R5 – PHL Switcher Locomotive Modernization and ULSD Programs

Description

This measure would require Pacific Harbor Line (PHL) to replace 16 switch engines with newer and substantially cleaner Tier 2 railroad locomotives engines (equipped with idling controls) by 2006 to reduce NO_x and PM emissions. This measure would also provide subsidies for the use of ULSD in the switch engines until state law mandates it in 2007.

Feasibility

This measure is considered feasible because the Port of Los Angeles Board of Harbor Commissioners has approved the funding for this modernization program. Carl Moyer grant funds have also been awarded to PHL for a portion of the fleet modernization cost. This measure is included in the baseline calculations for the EIS/EIR for Berths 136-147.

B.4.6 R6 – Ultra-Low Emission Switcher Locomotives: PHL

Description

This measure will require the remaining four on-Port PHL switcher locomotives (beyond the 16 locomotives covered by R5) to be replaced with ultra-low emission locomotives during the period from 2007 to 2010.

Feasibility

Similar to measure R5, this measure is considered feasible. This measure, however, has not been included as Project mitigation in the EIS/EIR for Berths 136-147 because it will be implemented on a Portwide basis.

B.4.7 R7 – Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1

Description

This control strategy requires deployment of ultra-low emission locomotives by Class 1 freight railroads for out-of-Port switching and in-Port and out-of-Port line haul operations. The first phase would apply to Port-related switcher locomotives, and the second phase would apply to Port-related line haul locomotives. This measure may be met through the use of Tier 3 nonroad engines (see R6) and/or the use of control technologies such as DPFs, LNG conversions, and SCR.

Feasibility

This measure is considered feasible now and in the future as new control technologies are developed and refined.

LNG line-haul locomotives have been demonstrated and are ready for commercialization.

SCR is a control technology that has been developed for stationary diesel engines but can be adapted to locomotive engines. In addition to a special catalytic converter, SCR systems require the use of a liquid reductant (usually ammonia or urea) that is sprayed into the exhaust stream. With proper engineering, new, modern locomotives can be designed to be equipped with SCR systems while still retaining the external space limitations for bridges and tunnels.

The CARB, in cooperation with BNSF and UPRR, is investigating the use of DPFs on switch locomotives. To date, technology to reduce lubrication oil combustion with conventional locomotive engines has been identified; and the design of compatible DPFs is underway.

Although this measure is considered feasible, it has not been included as Project mitigation in the EIS/EIR for Berths 136-147 because it will be implemented on a Portwide basis.

B.4.8 R8 – Tier 3 Engine Standards for New and Remanufactured Locomotives and Locomotive Engines

Description

USEPA is considering standards for new locomotive diesel engines and additional requirements for all 1973 and later locomotives covered under current Tier 0, 1, and 2 engine standards. USEPA has identified a number of different advanced emission control and after treatment technologies, currently being developed to meet 2007 highway engine standards and Tier 4 nonroad engine standards. Technologies for control of PM include catalyzed diesel particulate filters (CDPF), and for NO_x technologies include NO_x adsorbers and SCR. To operate reliably and at high efficiencies, these technologies will

1 require use of 15-ppm diesel fuel. Use of EGR and optimized fuel injection could also be
2 applied.

3 **Feasibility**

4 This measure is considered feasible from a federal agency standpoint (USEPA) because
5 USEPA has the authority to set diesel engine standards, but is not considered feasible
6 from a Port perspective because the Port does not have such authority. This measure has
7 not been included as Project mitigation for the proposed container terminal at Berths 136-
8 147 because the future federal standards will need to undergo formal rulemaking, with a
9 proposal, public comment period, and final action that is responsive to the public
10 comments. Until USEPA completes this process and issues the final rule, it is not
11 possible to predict what standards may be set, when the standards might go into effect, or
12 what engine population might be affected.

13 **B.4.9 R9 – CARB Diesel Fuel for Class 1 Railroad Locomotives**

14 **Description**

15 Under this measure, the Port would provide incentives to Class 1 railroad operators that
16 provide line-haul service within the Port of Los Angeles to only use fuel for their
17 operations that meets the same fuel-based standards as intrastate locomotives (i.e., CARB
18 Diesel) while in the SCAB. The CARB recently adopted low-sulfur fuel requirements for
19 intrastate locomotives and harbor craft do not apply to locomotives operated by Class 1
20 freight railroads (i.e., BNSF, UPRR) operated in the SCAB. This control strategy is
21 proposed for implementation for all locomotives in 2007.

22 **Feasibility**

23 This measure is not currently considered feasible due to the high level of modifications
24 that would be required for locomotives and the associated logistical and operational
25 issues. Under this measure, locomotives using high-sulfur fuel and carrying freight in
26 and out of the Port and Basin would have to switch to low-sulfur fuel upon entering the
27 Basin. This will result in potentially substantial operational, logistical, and equipment
28 changes. This would include, but not be limited to, draining of fuel tanks or the
29 installation of separate fuel tanks, baffling of fuel tanks, or the addition of a dedicated
30 fuel car containing ULSD to the train all with the ability to switch over fueling. The
31 benefit of using ULSD in locomotive engines may be more limited than in highway and
32 nonroad engines, due to low speed, steady-state operation, and engines not connected to
33 wheel axles with a transmission.

34 **B.4.10 R10 – Idling Controls for Switcher and Line Haul** 35 **Locomotives**

36 **Description**

37 Under this measure, the Port would require the installation of tamper-proof idling control
38 devices on all switcher and line haul locomotives serving the Port of Los Angeles. These
39 idling control systems turn off the propulsion engines after a certain time or when use
40 parameters are exceeded, and then restart the engine whenever engine or operational
41 parameters drop below their minimums. Locomotives spend from 40 to 80 percent of

1 their operational time idling, but almost never turn off their propulsion engines for
2 operational and technical reasons that include the need to avoid startup delays, to
3 maintain water jacket temperature, to maintain battery voltage and brake system air
4 pressure, and to reduce wear on the starting system and battery pack.

5 **Feasibility**

6 BNSF currently intends to equip switchers and intrastate locomotives with idling controls
7 in 3 to 4 years with the potential to accelerate the program to 2 years. This measure is
8 considered feasible, but it has not been included as Project mitigation for the proposed
9 container terminal at Berths 136-147. This is because it would be implemented on a
10 Portwide basis and because the line-haul locomotives would not be dedicated to a
11 particular terminal (they would transport containers from multiple terminals).

12 **B.4.11 R11 – Efficiency Improvements on In-Use Class 1 Rail** 13 **Equipment**

14 **Description**

15 This measure would continue the commitment of Class 1 freight railroads to develop and
16 implement efficiency improvements to increase fuel efficiency and reduce NO_x and PM
17 emissions. The efficiency improvements in locomotives and railcars include measures
18 such as low-torque bearings.

19 **Feasibility**

20 This measure is considered feasible, but it has not been included as Project mitigation for
21 the proposed container terminal at Berths 136-147. This is because it would be
22 implemented on locomotives and rail cars that serve the Port as a whole and because the
23 locomotives and rail cars would not be dedicated to a particular terminal (they would
24 transport containers from multiple terminals).

25 **B.4.12 R12 – Electrification of the Alameda Corridor and Alameda** 26 **Corridor East**

27 **Description**

28 Under this measure, the electrification of the Alameda Corridor and Alameda Corridor
29 East would be considered to achieve reductions from line-haul locomotives by converting
30 diesel locomotives to electrical power.

31 **Feasibility**

32 This measure is not considered feasible at this time due to various planning, technical,
33 operational, and cost constraints. Because the Alameda Corridor serves a regional and
34 extended purpose, the Alameda Corridor has been designed, constructed, and is operated
35 as a regional project (i.e., Alameda Corridor and Alameda Corridor East) rather than as
36 segmented rail line. Its conversion to electrical power, therefore, would have to be
37 considered on a regional level. Original cost estimates to electrify the Corridor were
38 several billion dollars, but could be less now due to planning for catenary lines (the
39 matrix of electric lines that will have to be installed overhead along the tracks).

1 Besides Corridor planning and infrastructure cost, additional power generation capacity
2 and upgrades to the power distribution system would likely be required (at additional
3 costs), as would the purchase of a number of electric locomotives to service the Corridor.

4 From an operational standpoint, the logistics of integrating electric locomotives to
5 maintain efficient train throughput would need to be addressed, including locomotive and
6 crew change points. This would be imperative to prevent mode shift back to trucks to
7 haul cargo around the Corridor.

8 Because numerous constraints to the electrification of the Alameda Corridor currently
9 exist, and because the Alameda Corridor serves the Port as a whole, this measure has not
10 been included as Project mitigation in the EIS/EIR for Berths 136-147.

11 **B.5 NNI Heavy-Duty Vehicles Measures**

12 This section discusses the feasibility of applying or adapting the NNI Control Measures
13 for Heavy-Duty Vehicles (HDV) as part of the EIS/EIR for Berths 136-147.

14 **B.5.1 HDV1 – 2004 On-Road Standards for Heavy-Duty Diesel 15 Vehicles**

16 **Description**

17 New on-road standards under Phase I of the USEPA Rule (Control of Emissions of Air
18 Pollution from Highway Heavy Duty Engines) targets highway diesel vehicles greater
19 than 8,500 pounds gross vehicle weight built for model year 2004 and beyond to reduce
20 NO_x, HC, and PM emissions. The new emissions standard represents a combined
21 reduction in the emissions limit of approximately 40 percent from the former standard.

22 **Feasibility**

23 This measure is considered feasible from a federal agency standpoint (USEPA) because it
24 has already been adopted and is being implemented by applicable engine manufacturers.
25 This measure is not considered feasible from a Port perspective because the Port does not
26 have the authority to establish engine emission standards for heavy-duty vehicles.
27 Because the standards are in effect, however, this measure is included in the Project
28 calculations for the EIS/EIR for Berths 136-147.

29 **B.5.2 HDV2 – 2007 On-Road Standards for Heavy-Duty Diesel 30 Vehicles**

31 **Description**

32 The control measure will reduce NO_x, HC, and PM emissions by building on Phase I
33 emission standards (HDV1). This USEPA rule covers Phase II in a comprehensive
34 nationwide program for controlling emissions from heavy-duty engines, and is based on
35 the use of high-efficiency exhaust emission control devices and the consideration of the
36 vehicle and its fuel as a single system. The rule is expected to reduce PM and NO_x
37 emission levels to 90 and 95 percent below the 2004 standard, respectively. The
38 standards will be effective in the 2007 model year, and the low-sulfur diesel fuel needed

1 to facilitate the standards will be available in mid-2006. New evaporative emission
2 standards are also contained in the rule.

3 **Feasibility**

4 This measure is considered feasible from a federal agency standpoint (USEPA) because it
5 has already been adopted and will be implemented by applicable engine manufacturers.
6 This measure is not considered feasible from a Port perspective because the Port does not
7 have the authority to establish engine emission standards for heavy-duty vehicles.
8 Because the standards set forth in this measure will be implemented, however, this
9 measure is included in the Project calculations for the EIS/EIR for Berths 136-147.

10 **B.5.3 HDV3 – Gateway Cities Truck Modernization Program**

11 **Description**

12 Under his measure, the Port would continue to fund the Gateway Cities Truck
13 Modernization Program, under which commercial truck owners who replace their diesel
14 trucks (with older engines) for models with newer, cleaner-burning engines are
15 subsidized for the cost of the purchase. This program would reduce NO_x and PM
16 emissions. Funding from the Port of Los Angeles for the Gateway Cities program is
17 expected to replace approximately 400 trucks by mid-2006. The Board has directed staff
18 to move away from diesel technology in favor of alternative fuels, preferable LNG. Until
19 heavy-duty, on-road, alternative fuel-powered trucks become available, however, staff
20 will continue to fund the Gateway Cities projects that preceded the Board's directive and
21 will continue to do so throughout most of 2006. The program will then be refocused
22 away from diesel toward LNG.

23 **Feasibility**

24 This measure is considered feasible from a Port standpoint because it has already been
25 adopted and has been funded. This measure is not included as Project mitigation in the
26 EIS/EIR for the proposed container terminal at Berths 136-147 because this is a Portwide
27 program.

28 **B.5.4 HDV4 – Engine Software Upgrade (or Low NO_x Software Upgrade)**

30 **Description**

31 Under this measure, the CARB requires the installation of low NO_x software in heavy-
32 duty diesel vehicles with 1993 to 1998 model year engines for which low NO_x software
33 was developed under the federal Consent Decrees. Most 1993 to 1999 model year heavy-
34 duty diesel trucks with engines manufactured by Caterpillar, Cummins, Detroit Diesel
35 Corporation, Mack/Renault, Volvo, and International are eligible for low NO_x software.

36 **Feasibility**

37 This measure is considered feasible from a state agency standpoint (CARB) because the
38 CARB has the authority to regulate emissions from heavy-duty vehicle engines, but is not
39 considered feasible from a Port perspective because the Port does not have such

1 authority. This measure is included in the project calculations in the EIS/EIR for
2 Berths 136-147.

3 **B.5.5 HDV5 – Ultra-Low-Sulfur Diesel Fuel (15 ppm)**

4 **Description**

5 The CARB requires diesel fuel produced or offered for sale in California for use in any
6 on-road or nonroad vehicular or stationary diesel engines to contain no more than 15 ppm
7 sulfur by weight, beginning June 2006. Full implementation of the fuel requirement will
8 commence in mid-2006 to accommodate new vehicular engine standards in model years
9 2007 to 2010.

10 **Feasibility**

11 This measure is considered feasible from a state agency standpoint (CARB) because the
12 CARB has the authority to regulate emissions from heavy-duty vehicle engines, but is not
13 considered feasible from a Port perspective because the Port does not have such
14 authority. Because the standards set forth in this measure will be implemented, however,
15 they are included in the Project calculations for the EIS/EIR for Berths 136-147.

16 **B.5.6 HDV6 – Heavy-Duty Vehicle Inspection**

17 **Description**

18 Under this measure, the CARB would continue to implement the Heavy Duty Vehicle
19 Inspection Program where CARB staff inspects trucks and buses for excessive smoke to
20 reduce PM emissions. The inspections take place at border crossings, California
21 Highway Patrol (CHP) scales, and other locations that do not hinder traffic flow. Trucks
22 and buses with excessive smoke are subject to fines starting at \$300.

23 **Feasibility**

24 This measure is considered feasible from a state agency standpoint (CARB) because it is
25 an existing and ongoing CARB program, but is not considered feasible from a Port
26 perspective because the Port does not have authority to establish such a program. This
27 measure is not included as mitigation in the EIS/EIR for Berths 136-147 because the Port
28 does not have the authority to require trucks to undergo smoke opacity inspections. This
29 measure is an ongoing program, however, and is assumed in the Project calculations for
30 the EIS/EIR for Berths 136-147.

31 **B.5.7 HDV7 – Periodic Smoke Inspection Program**

32 **Description**

33 Under this existing and ongoing CARB program, owners of California-based fleets with
34 two or more vehicles are required to perform annual smoke opacity tests on their heavy-
35 duty, diesel-powered vehicles with a gross vehicle weight greater than 6,000 pounds to
36 reduce PM emissions.

Feasibility

This measure is considered feasible from a state agency standpoint (CARB) because it is an existing CARB program, but is not considered feasible from a Port perspective because the Port does not have authority to establish or implement such a program. This measure is not included in the EIS/EIR for Berths 136-147 because the Port does not have the authority to require such inspections and because the container terminals do not generally own their own container trucking fleets. This measure is an ongoing program, however, and is assumed in the Project calculations for the EIS/EIR for Berths 136-147.

B.5.8 HDV8 – Augment Truck and Bus Highway Inspections with Community-Based Inspections

Description

Under this existing CARB measure, and in concert with fuel and hazardous waste inspections, heavy-duty vehicles are inspected in mixed use communities (residential/commercial/industrial areas) to detect maintenance issues and tampering, and to measure smoke emissions.

Feasibility

This measure is considered feasible from a state agency standpoint (CARB) because it is an existing CARB program, but is not considered feasible from a Port perspective because the Port does not have authority to establish or implement such a program. This measure is not included in the EIS/EIR for Berths 136-147 because the Port does not have jurisdiction in mixed-use communities outside the Port proper and because such mixed-use areas are not located in the Port.

B.5.9 HDV9 – Reduced Truck Idling

Description

This existing CARB measure requires that the driver of diesel-fueled commercial motor vehicles with a gross vehicle weight of greater than 10,000 pounds to limit idling of the vehicle primary diesel engine for up to 5 minutes at any location. Operation of a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth is limited to 5 minutes or less at any location when within 100 feet of a restricted area.

Feasibility

This measure is considered feasible from a state agency standpoint (CARB) because it is an existing CARB program. It is also considered feasible from a Port perspective because the Port does have authority to establish or implement a truck-idling reduction program on terminals within Port jurisdiction. Although this measure has been included as Project mitigation in the EIS/EIR for Berths 136-147, it has not been quantified because the effectiveness of this measure depends on the degree of implementation, which is variable.

B.5.10 HDV10 – Expanded Truck Modernization Program

Description

This measure would expand the existing Truck Modernization Program, (HDV3) through the provision of subsidies for the installation of DOC on trucks before June 2006 and DPFs on trucks that will be replaced after 2006. This also applies to the replacement of trucks built from 1987 to 2006 over a 19-year period (to 2025).

Feasibility

This measure is considered feasible from a Port standpoint because the Port has the authority to provide such subsidies; however, funding will have to be allocated. This measure is not included as Project mitigation in the EIS/EIR for the proposed container terminal at Berths 136-147 because this is a Portwide program.

B.5.11 HDV11 – California Heavy-Duty Diesel Vehicle Standards and Fleet Modernization for Mexican Trucks

Description

Under this measure, the CARB will require that all Mexican trucks servicing the Port (if any) comply with the California On-Road Heavy-Duty Diesel Emission Standards applicable to the engine model year at the time the engine was manufactured. Mexican heavy-duty diesel trucks will soon be permitted to travel beyond the restricted mileage range of the Mexican/U.S. border under the North American Free Trade Agreement (NAFTA) policy. It is anticipated that a portion of the heavy-duty diesel trucks serving the Port of Los Angeles will be made up of these Mexican vehicles. Compliance with AB 1009, which was chaptered into law in September 2004, may effectively fulfill the requirements of this measure because the bill requires the CARB, in cooperation with the CHP, to develop protocols to ensure that vehicles entering the state (particularly Mexican vehicles) provide evidence that the truck engine meets the federal standards for the applicable model year at the time it was manufactured.

Feasibility

This measure is considered feasible from a state agency standpoint (CARB) because the CARB has the authority to establish emission standards for on-road truck engines, but is not considered feasible from a Port perspective because the Port does not have such authority. Because this measure will be implemented, however, it is included in the Project calculations in the EIS/EIR for Berths 136-147, which assumes that trucks serving container terminals at the Port are in compliance with the California On-Road Heavy-Duty Diesel Emission Standards.

B.5.12 HDV12 – Early ULSD Implementation

Description

Under this measure, the availability of ULSD for on-road trucks servicing the Port would be accelerated to facilitate early installation of DPFs to reduce PM emissions.

Feasibility

This measure is considered feasible from a Port standpoint because the Port can take measures to facilitate the availability of ULSD in the Port area. This measure is not included as Project mitigation in the EIS/EIR for the proposed container terminal at Berths 136-147 because it would apply to heavy-duty vehicles Portwide.

B.5.13 HDV13 – Retrofit Heavy-Duty Diesel Vehicles with Diesel Oxidation Catalysts

Description

Under this measure, diesel PM from on-road trucks would be reduced by approximately 20 percent through the installation of DOCs, which would be installed on all Gateway Cities-funded on-road trucks (model year 1993 and older) from the NNI plan adoption to June 2006 and on all trucks funded prior to plan adoption.

Feasibility

This measure is considered feasible from a Port standpoint because the Port is a sponsor of the Gateway Cities Truck Modernization Program. This measure has not been included as Project mitigation in the EIS/EIR for the proposed container terminal at Berths 136-147 because it would apply to heavy-duty vehicles Portwide.

B.5.14 HDV14 – Retrofit Heavy-Duty Diesel Vehicles with Diesel Particulate Filters

Description

This measure would require and provide subsidies for the installation of DPFs on model years 1994 to 2006 heavy-duty diesel trucks serving the Port of Los Angeles. This measure focuses on (1) the portion of the truck fleet that will not participate in the Expanded Truck Modernization Program (HDV10) until 2009 and (2) those trucks replaced under the Expanded Truck Modernization Program prior to June 2006, after which DPFs will be installed as standard equipment.

Feasibility

This measure is considered feasible from a Port standpoint because the Port can authorize funds for such uses. This measure is not included as Project mitigation in the EIS/EIR for the proposed container terminal at Berths 136-147 because it would apply to heavy-duty vehicles Portwide.

B.5.15 HDV15 – PM In-Use Emission Control

Description

Under this measure, the CARB will require public and private on-road truck operators to aggressively reduce PM emissions from their truck/bus fleets. The strategies that operators select must have CARB-verified emission reductions or involve the use of

1 CARB-certified engines and must meet the emission reduction targets specified by the
2 truck/bus fleet rules.

3 **Feasibility**

4 This measure is considered feasible from a state agency standpoint (CARB) because the
5 CARB has the authority to establish emission standards for on-road truck fleets, but is not
6 considered feasible from a Port perspective because the Port does not have such
7 authority. This measure is not included as Project mitigation in the EIS/EIR for the
8 proposed container terminal at Berths 136-147 because it would apply to heavy-duty
9 vehicles Portwide.

10 **B.5.16 HDV16 – On-Board Diagnostics for Heavy-Duty Trucks**

11 **Description**

12 Under this measure, the CARB will require heavy-duty engines used in trucks to be
13 equipped with on-board diagnostic (OBD) systems that monitor the emission controls on
14 the engine and detect a fault when one or more of the emission-related components is
15 malfunctioning. Upon detecting a fault, the system illuminates a warning lamp on the
16 dash and stores fault information that can be used by repair technicians to identify the
17 cause of the fault. This measure, as proposed, would require implementation on all 2010
18 and subsequent model year engines to reduce NO_x, PM, HC, and CO emissions.

19 **Feasibility**

20 Given that many of the emission controls, such as NO_x adsorbers, DPFs and SCR
21 systems, will be newly introduced starting in the 2010 model year, manufacturers will
22 have limited experience with those controls; and the added burden of developing
23 diagnostics for this control measure may be challenging. This measure, however, is
24 considered feasible from a state agency standpoint (CARB) because the CARB has the
25 authority to establish emission standards for on-road truck engines and because engine
26 manufacturers could refine the diagnostics for the control technologies. This measure is
27 not considered feasible from a Port perspective because the Port does not have authority
28 over engine standards. This measure is not included as Project mitigation in the EIS/EIR
29 for the proposed container terminal at Berths 136-147 because it would apply to heavy-
30 duty vehicles Portwide.

31 **B.5.17 HDV17 – Transportation Refrigeration Units**

32 **Description**

33 Under this measure, the CARB would accelerate the implementation dates of the CARB
34 ATCM for transportation refrigeration units (TRUs) serving the Port of Los Angeles.
35 Under the ATCM for TRUs, TRUs operating within the state are required to meet in-use
36 performance standards that vary by horsepower range. These standards can be met by
37 using an engine that meets a required engine-certified emission level, equipping the TRU
38 with a verified diesel emission control system (VDECS), or using an alternative
39 technology (e.g., electrification).

Feasibility

This measure may not be necessary due to the current practice of not operating TRUs within short distances from the Port of Los Angeles (from sufficient residual cooling capacity of refrigerated trailers). The necessity of this measure is still being evaluated. This measure is considered feasible from a state agency standpoint (CARB) because the CARB has the authority to establish emission standards for engines that power TRUs, but is not considered feasible from a Port perspective because the Port does not have such authority. This measure is not included as Project mitigation in the EIS/EIR for the proposed container terminal at Berths 136-147 because it would apply to TRUs Portwide, because TRUs are not dedicated to a particular terminal, and the number of refrigerated containers varies. Thus, the emission reductions realized at Berth 136-147 would be difficult to quantify.

B.5.18 HDV18 – Electrified Truck Spaces

Description

Under this measure, the Port would require heavy-duty diesel trucks serving the Port of Los Angeles to use off-truck electrical systems while parked at truck spaces in lieu of idling the main drive or auxiliary engines. Electrification of truck spaces is the action of using off-truck electric power to operate on-truck or trailer TRUs, in-cab appliances, or directly supplied heating and air conditioning while heavy-duty diesel trucks are parked in truck spaces. Truck space electrification allows the truck operator to run the on-truck or trailer systems without operating the truck main drive or auxiliary engine, thereby reducing NO_x and PM emissions.

Feasibility

This measure needs to be further evaluated to determine applicability to truck transport of Port-related cargo and potential impacts and emission benefits. This measure would require installation of electrical infrastructure at truck space locations and modifications to trucks to accept and utilize outside power for truck uses that are typically powered by main or auxiliary diesel engines. This measure is considered feasible from a Port perspective because the Port has the authority to establish electrified truck spaces. This measure is not included as Project mitigation in the EIS/EIR for the proposed container terminal at Berths 136-147 because it would apply Portwide and because potential emission reduction benefits have not been evaluated.

B.5.19 HDV19 – Idling Reduction Measures

Description

Under this measure, reducing idling times (beyond the truck idling reductions in HDV9) would lower PM emissions from heavy-duty vehicles. The additional idling-reduction measures are currently unspecified, but could include development of a standard for terminal turn-times.

Feasibility

This measure needs to be further evaluated to identify a suite of idling-reduction measures that can be implemented. This measure is considered feasible from a Port

1 perspective because the Port has the authority to establish or implement truck idling-
2 reduction measures within the Port. This measure is included as Project mitigation in the
3 EIS/EIR for the proposed container terminal at Berths 136-147 and requires the terminal
4 operator to identify and implement various truck idling-reduction measures. Emission
5 reductions, however, are not quantified because the amount of idling reduction that can
6 be achieved is not certain at this time.