

Appendix C

PCAC and NNI Mitigation Measures

PCAC Mitigation Measures

<i>Air Quality</i>				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible? (if not, why?)
IMPACT: AIR EMISSIONS IN EXCESS OF SCAQMD THRESHOLDS				
GENERAL				
AQ-17	No Net Increase – Use all known programs to attain no net increase.	Yes, terminal construction and operation will emit air pollutants.	Yes	Yes, some No Net Increase measures are included as Project mitigation. See Appendix C, NNI Mitigation Measures Section
AQ-5	Alternative Fuels – Port to require its tenants to use less polluting fuels.	Yes, terminal construction and operation will emit air pollutants.	Yes	Yes, included in Project Mitigation
AQ-42	Refuel – Use alternative fuels and cleaner diesel fuels.	Yes, terminal construction and operation will emit air pollutants.	Yes	Yes, included in Project Mitigation
AQ-11	Retrofit Equipment – Retrofit existing trucks, trains and equipment with oxidation catalysts or particulate traps.	Yes, terminal construction and operation will emit air pollutants.	Yes	Yes, included in Project Mitigation
AQ-35	Electrification – Implement electrification for mitigation of air quality toxins.	Yes, terminal construction and operation will emit toxic air pollutants.	Yes	Yes, included in Project Mitigation
SHIPS				
AQ-32	Bunker Alternative Fuel – Include ship bunker – alternative fuel as a lease requirement.	Yes	Yes	Yes, included in Project Mitigation
AQ-15	Low Sulfur Fuels – Use low sulfur fuels on ships.	Yes, ship operation will produce air pollutants.	Yes	Yes, included in Project Mitigation
AQ-10	Electric Power – Use electric power for equipment and plug ships into shore power.	Yes, ship hoteling produces air emissions.	Yes	Yes, included in Project Mitigation

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AQ-25	BAT Ships Required by Lease – Require that leases use the Best Available Technology ships with engine designs that are 80% pollution free. Older ships should be required to incorporate technologies which reduce air pollutants.	Yes, ship operation will produce air pollutants.	Partial	No, no Port control. However, most ships visiting the terminal are new and will have BAT by default (See page 3.2-49).
AQ-38	Electrical Power for Docking – Install electrical power for hoteling ships at the China Shipping terminal and retrofit China Shipping line ships for electrical power while docked at the Port.	Yes, ship hoteling produces air emissions.	Yes	Yes, included in Project Mitigation

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TRUCKS				
AQ-30	Fuel Requirements – Require the Port, its terminal operators and shipping companies and all lease tenants to require the use of alternative fuels with all their subcontracted or leased common carriers and owner operated diesel trucks.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	No. Trucks and infrastructure may not be available in necessary quantities. Port is currently investigating LNG truck availability.
AQ-40	Remanufactured Engine Repowers – Repower trucks with newer engines to lower emissions.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, included in Clean Truck Program
AQ-22	Low Emission Transport – Use zero or low emission transport for cargo.	Yes, terminal operation, including transport, will emit air pollutants.	No	Yes, included in Clean Truck Program
AQ-37	Environmental Truckers – Require China Shipping to deal only with trucking companies that meet an environmental and safety standard.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, included in Clean Truck Program
AQ-19	Retire Old Trucks – Implement a finance program to retire old, high-polluting trucks with newer, cleaner vehicles.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, but at a Portwide level through Gateway Cities Program.
AQ-24	Truck Loans – Establish a \$10 million low interest new truck loan program.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, included in Clean Truck Program
AQ-33	Turn Off Engines – All trains and idling trucks should turn off engines to reduce Port pollution.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	No, Trucks are asked to minimize idling.
AQ-44	Reduce Idling – Procedural changes and technology	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, included in Project Mitigation

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AQ-41	Fleet Modernization – Replace pre-1984 with post-1993 trucks in specific vocations.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, included in Clean Truck Program
YARD EQUIPMENT				
AQ-6, 43	After Treatment – Equipment which cannot use alternative fuel engines should be installed with after-treatment devices to reduce emissions.	Yes, terminal operation will emit air pollutants.	Possible	Technology not available for all types of engines. Mitigation Measures implement such technology where available.
AQ-46	DPFs – Use of Diesel Particulate Filters on dockside equipment.	Yes, terminal operation will emit air pollutants.	Yes	Feasibility uncertain
AQ-47	Repower – 14 Wheel Scrapers with Tier II Caterpillar D3456 Engines.	Yes, terminal operation will emit air pollutants.	No	No, no impact identified. Not applicable to the proposed project.
AQ-21	Terminal Yard Tractors – Use terminal yard tractors compliant with EPA on-road regulations.	Yes, terminal operation will emit air pollutants.	Yes	Yes, included in baseline Project emission estimates.
AQ-27	Non-Polluting Fuels – Port to establish a timeline for the phasing out of diesel vehicles and equipment for non-polluting fuels.	Yes, terminal operation will emit air pollutants.	Possible	No, Port-wide measure. Port is working with agencies and engine manufacturers to determine feasibility.
RAIL				
AQ-18, 34	Electrify Rail	Yes, terminal operation, including transport, will emit air pollutants.	Yes	No, requires new fleet and related infrastructure. May not be technically feasible
AQ-36	Electric Cranes – Use electric cranes to reduce diesel emissions.	Yes, terminal operation, including transport, will emit air pollutants.	Yes	Yes, electric cargo cranes assumed in baseline Project emissions.
BACKLANDS AND BUILDINGS				

<i>Air Quality</i>				
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AQ-14	Solar Energy – Implement a solar energy plan with solar panels on new and old buildings, DC electricity operated equipment, and a budget to pay for equipment conversion.	No	No	Yes, In addition, Administration buildings will be built to LEED standards and will incorporate energy saving designs/measures.
AQ-26	Automation of Port Operations – Port to automate their operation and to utilize BAT for container or liquid bulk unloading, loading, storage, transportation, and distribution.	No	No	No, terminal parameters dictate automation level.
AQ-45	Automated Reservation Systems – Employ Just-In-Time scheduling for terminals.	No	Possible	Yes, ongoing off-peak program scheduling on a Portwide basis.
AQ-20	Eliminate Toxic Products – Eliminate the use of high VOC and toxic chemical products.	No	No	No, not applicable to the proposed Project.
FINANCIAL INCENTIVES AND MITIGATION				
AQ-12	Mitigation Funds – Target mitigation funds to San Pedro and Wilmington.	No	Yes, provided there is a nexus between fund usage and Project impact.	Yes. Not included in mitigation as no impact identified. However, China Shipping Settlement Funds are dedicated to San Pedro and Wilmington communities.
AQ-13	Container Taxation – Use a portion of container taxation funds (based on adherence to environmental standards) for community improvements.	No	No	No, no Port control.

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AQ-29	Tax Old Technologies – Levee a charge of up to \$100, based on pollutants emitted, for every container that moves through the Port using conventional technology.	No	No	No, no Port control.
MONITORING				
AQ-16	Air Monitoring Systems – Port to establish and maintain air monitoring systems	Yes, Project will emit air pollutants.	No	Yes, Ongoing Port project.
AQ-23	Onsite Air Quality Monitoring – Establish an onsite air quality program with daily monitoring and baseline prior to beginning construction. Program shall include an action plan for times when pollution exceeds legal standards.	Yes, Project will emit air pollutants.	No	Ongoing Port project. Air quality monitoring stations have been established in areas best able to monitor direct Port impacts.
AQ-4	Reports – Port to furnish annual and 10-year summary reports. (Potential global practice, applied to all impact areas)	No	No	Ongoing Port project. Port to prepare annual reports on environmental programs including mitigation measures
AQ-48	Reduce Port operations when pollutant levels rise above a given threshold.	Yes, Project emissions will exceed SCAQMD thresholds.	Yes	No, Portwide operations are continuous and cannot be reduced at a moments notice.
SPECIFIC PROJECTS				
AQ-39	A/C Filter – Provide A/C filter residential indoor quality.	No	No	No, no indoor air quality impacts are anticipated.

Air Quality				
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AQ-1	Public Health Trust Fund – Annual \$10 million fund to pay for local health care to mitigate the health impacts of China Shipping.	Yes, the Project would emit air pollutants and pose a potential health risk.	Not directly	HRA is not significant therefore no Project impact nexus. Port programs are designed to reduce emissions to reduce potential future health impacts.
AQ-2	Health Survey – Conduct a Harbor Community Health Survey/Study to determine any nexus between Port activities and local health.	Yes, the Project would have potential health risks.	No, a study is not mitigation.	HRA is not significant therefore no Project impact nexus.
A-36	Partners for Healthy Kids – A mobile pediatric clinic which travels to school sites in San Pedro and Wilmington, along with other South Bay schools, each week, providing children with free diagnosis and treatment of acute medical conditions, immunizations, health education and screenings.	No	No	HRA is not significant therefore no Project impact nexus.
AQ-3	Health & Environmental Directory – Publish and distribute a directory of agencies and officials who may be contacted regarding environmental and health problems.	No	No	HRA is not significant therefore no Project impact nexus.
AQ-28	School Bus Replacement – Replace diesel powered school buses with CNG or LNG.	No	No	HRA is not significant therefore no Project impact nexus.
AQ-31	Mitigate Off-Port Properties – Implement additional mitigation outside Port properties.	Yes	Contingent upon details of measure.	Yes, included in Project Mitigation AES-4

<i>Utilities and Services</i>				
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IMPACT: ENERGY CONSUMPTION				
A-4	Energy Conservation – Consultant to help energy conservation measures "Turn off some of the lights."	No	No	New buildings will be built to LEED standards and will incorporate energy saving designs/measures.
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	No	Not recommended as Project mitigation as no impact is anticipated. However, Port has recently hired officers dedicated to truck traffic and parking in local communities
T-16	Additional Police – Require the Port to hire additional Port police to protect the harbor community.	No	No	Not recommended as Project mitigation as no impact is anticipated. However, Port has recently hired new officers.

<i>Aesthetics Measures</i>				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
<i>IMPACT: REDUCES AESTHETIC VALUE</i>				
GENERAL				
A-2	No Negative impacts on Port Property – Remove or minimize or limit all negative impacts.	Yes	No	Yes, included in Project Mitigation
A-3	Greening of Port Property – Greening landscape, create open landscapes.	No, the Project would not result in landscape impacts on the terminal site.	No	Yes, included in Project Mitigation
A-10	Beautification – Conduct beautification and aesthetic enhancement on and off Port property, including streetscape improvements and a replica of the Vincent Thomas Bridge.	Yes, the Project would involve roadway improvements and would install cranes that could block views of the Vincent Thomas Bridge.	Yes, for roadway improvement landscaping.	Yes, included in Project Mitigation
A-6	Mature Trees – Plant mature trees and shrubs along the I-110 (Harbor) Freeway.	No, no aesthetic impacts along I-110 are anticipated.	No	No, as no such impacts are anticipated.

<i>Aesthetics Measures</i>				
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CRANES				
A-1	Alternate Cranes – Low profile, mobile.	Yes, the Project would block views of the Vincent Thomas Bridge.	Yes	No, Low Profile cranes were not found to be feasible (see Chapters 2 and 3-1).
A-11	Mobile Cranes – Use lower profile mobile cranes.	Yes, the Project would block views of the Vincent Thomas Bridge.	No	No, low profile mobile cranes are not applicable to the container operations for the proposed Project.
	Paint Cranes – Paint cranes light blue.	Yes, the Project cranes affect views of the Vincent Thomas Bridge.	Yes	Yes, included in Project Mitigation

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A-14	Aesthetic Improvements – Move cranes away from the bridge and use less of them.	Yes, the Project cranes affect views of the Vincent Thomas Bridge.	No	No, crane locations are dictated by the wharf locations.
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, light and glare impacts to birds are not anticipated.	No	No, crane locations are dictated by the wharf locations.
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, backland created by the Channel Deepening Project.	No	No, backlands already created. A non-shipping alternative is included in the project.
A-21	Inspection/Maintenance – Leases to provide for inspection program, maintenance for container storage facilities.	No, impacts related to maintenance are not anticipated.	No	No, as no such impacts are anticipated.
	Maintain Facilities – There should not be any peeling paint, debris, etc.	No, container terminal is consistent with Port uses.	No	Not identified as Project mitigation.

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	Fencing – Prohibit chain link fencing; use decorative fencing	No	No	Not identified as Project mitigation. Chain link fence needed for security reasons
<i>IMPACT: INCREASED LIGHT AND GLARE</i>				
LIGHTING				
A-5	Lighting/Glare – International Dark Sky Association to consult on lighting/glare issues.	Yes	Yes	Yes, measure is incorporated into Project.
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	Yes	Yes, measure is feasible and part of a separate Port-wide project.
A-9	Reduced Lighting – use reduced lighting at facilities not in operation at night.	No	Yes	Yes, measure is feasible, but not identified as Project mitigation.
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	No	No, Project would not result in street lighting impacts so measure is not cost effective.

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A-7	Sunlight Glare – Obscure sunlight glare from bright surfaces using dull paint or vegetation.	No	No	No, as no such impacts are anticipated.
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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
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.	Yes	Yes	Yes, included in Project mitigation (AES-1). See attached PCAC Aesthetic Mitigation Section
A-50	Linkages projects – Fund and implement projects under development by LA Harbor-Watts Economic Development Corporation and California Coastal Conservancy	No	No	No, as no such impacts are anticipated.

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A-51	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	No	No, as no such impacts are anticipated.
A-52	Knoll Hill – Dedicate Knoll Hill in perpetuity as a public open space.	No	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
A-53	Public open space – Create open space/parks in Wilmington equal to Knoll Hill acreage.	No	No	No, as no such impacts are anticipated.
Portion of A-13	North Gaffey – Create a river walk boardwalk along North Gaffey.	No	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
A-15	Pedestrian Walkway – Use boardwalk for light rail lines, walkways to cruise terminals, Harbor College, Wilmington, and streets.	No	No	No, as no such impacts are anticipated. The Bridge to Breakwater Project will include such provisions.

Recreation Measures				
Subcommittee Recommendation:	CEQA Criteria for Mitigation 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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section

<i>Recreation Measures</i>				
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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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section
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	No	No, as no such impacts are anticipated. See attached PCAC Aesthetic Mitigation Section

Traffic Measures				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
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	No	No, as no such impacts are anticipated. However, Port is working with PCAC Traffic Subcommittee, MTA and Caltrans to increase truck route signage
T-16	Additional Police – Require the Port to hire additional Port police to protect the harbor community and enforce trucking restrictions.	No	No	No, as no such impacts are anticipated. However, Port has hired new officers dedicated to truck routes and parking in community
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	No	No, as no such impacts are anticipated.
T-6	Implementation of Mitigation – Traffic mitigation proposals should include financing, scheduling considerations, implementation responsibilities, monitoring plans.	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.	Yes	Yes	No, Phase I completed already.

Traffic Measures				
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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.	No, studies are not considered mitigation.	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.	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	No	No, truck business model changes required.
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	No	No, as no such impacts are anticipated. However, Port has hired new officers dedicated to truck routes and parking in community
T-9	Trucking Restrictions – Restrict truck movements from residential neighborhoods.	No	No	Yes, not recommended as Project mitigation because restrictions currently exist. Port is working with PCAC Traffic Subcommittee, MTA and Caltrans to increase truck route signage

Traffic Measures				
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T-19, short term only	Truck Routing – Require trucks to use only the C Street on and off ramps.	No	No	No, as no such impacts are anticipated. Traffic improvements will however facilitate more direct terminal freeway access.
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.	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	No	No, as no such impacts are anticipated.
BACKLANDS				
T-8	Routing – Improve routing to move cargo more efficiently.	No	No	No, improved cargo routing inherent in Project.

Traffic Measures				
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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	No, container throughput requires container movement flexibility.
T-13	Backlands and 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	Not Applicable	Yes, incorporated into Project.
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	Not Applicable	No, AMP requirements will make ships berth-specific.
T-14	Integrated Traffic Demand System – Operate terminals as part of an integrated traffic demand system.	Yes	No	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	Partial	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	No	Transportation mode depends on destination, rail facility capacity, and other parameters. However, on-dock rail will facilitate increased rail movement
T-17	Alameda Corridor – Maximize use of the Alameda Corridor and provide any needed improvements to the corridor.	No	Not Applicable	No, as no rail impacts to the Corridor are anticipated.

Noise Measures				
Subcommittee Recommendation:		CEQA Criteria for Mitigation 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	No, noise impacts would be limited and temporary and reduced through direct mitigation.
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	No, as noise impacts would not affect the entire LA Harbor area.
N-3	Sound proof sensitive noise receptors.	Yes, during construction.	Yes	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	No	Yes, not recommended as Project mitigation as rail noise impacts are not anticipated.
	Require that vehicles and equipment be equipped with adequate mufflers and noise baffles	Yes, during construction.	Yes	Yes, included in Project mitigation (MM NOI-1).

Water Quality Measures				
Subcommittee Recommendation:		CEQA Criteria for Mitigation 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	Not Applicable	Yes, features incorporated into Phase I.
WQ-1b	Recycle rainwater for landscaping or other uses (could also mitigate utility impact)	No	No	No, as no onsite landscaping is proposed and utility impacts would not be significant.
WQ-2	Lagoon – Replace loss of water views with a lagoon.	No, view impacts relate views of the Vincent Thomas Bridge.	No	No, as Project view impacts are related to the Vincent Thomas Bridge.

<i>Land Use and Planning Measures</i>				
Subcommittee Recommendation:	CEQA Criteria for Mitigation Measures			
	Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)	
<i>IMPACT: INCOMPATIBLE LAND USE AND PLANNING</i>				
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	No	No, as no impacts are anticipated.
LU-11	Limit Container Storage Time – Limit the time a container can stay at one storage location; achieve compliance through financial penalties.	No	No	No, as no impacts are anticipated. However, the Port has decreased free-time allowance on terminals to facilitate container movement.
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	No	Yes, The MMRP becomes part of the lease and is enforceable.
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	No	No, as no impacts are anticipated. However, shippers are not allowed to release ballast water into harbor waters per legislation

Land Use and Planning Measures				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
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	No	No, as no impacts are anticipated.
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	No	No, Tenants cannot sufficiently amortize environmental provisions over short-term leases.
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.	Partial, construction impacts are not likely to affect all residences out to 10 miles.	No	No, as construction impacts out to 10 miles are not anticipated.

<i>Land Use and Planning Measures</i>				
Subcommittee Recommendation:	CEQA Criteria for Mitigation Measures			
	Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)	
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.	Yes	N/A	Yes. Monthly monitoring for some measures may not be applicable, but routine monitoring will be implemented through the MMRP.
CONSTRUCTION				
LU-9	Construction and Mitigation Plan – Publish and distribute a construction and mitigation plan.	No, land use impacts from construction not anticipated.	No	No, as no impacts are anticipated to Land Use. However, an air quality construction mitigation plan will be established.
PORTWIDE 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	No	Yes, not recommended as Project mitigation as a Port Master Plan update is underway.

<i>Land Use and Planning Measures</i>				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
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.	Yes, the project will emit air pollutants.	No	Yes, at a Portwide level.
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.	Yes, the proposed Project will have impacts related to terminal development and operation.	No, this measure is a feasibility study rather than an actual moratorium.	No, not a Project-level measure.
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	No, this measure is a conference rather than implementation of a plan.	No, as impacts are not anticipated.
LU-12	Community Parks and Gardens – Require the Port to designate land for community parks and botanical gardens within the Harbor communities.	No	No	No, as impacts are not anticipated.

Hazards Measures				
Subcommittee Recommendation:	CEQA Criteria for Mitigation Measures			
	Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)	
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	No	No, as no Project impact is anticipated.
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	No	No, as no liquid bulk facilities are proposed.
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	No	No, as a container terminal is not a vulnerable resource.
H-7	Emergency Response – Provide additional emergency response equipment or infrastructure in order to achieve acceptable response times.	No	No	No, as no impact is anticipated.

Hazards Measures				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
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.	Yes, as it related to exposure of workers to contamination.	Yes	Yes, included as Project mitigation (HAZ-1)
BUFFER AREAS/PORT PLANNING				
H-4b	LPG Facility – Relocate the LPG facility to Pier 400 to avoid safety and hazard impacts.	No	N/A	No, as no impact is anticipated. The China Shipping Project will not influence liquid bulk facilities
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	No	No, as no impact is anticipated.
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	No	No, as no impact is anticipated.
A-16	Reduce Backland – Scale back the 35-acre backland creation to allow for tall ship/small vessel traffic and emergency evacuation.	No	No	No, removal of newly created landfill is too costly. However, a Reduced Project Alternative and a Non-Shipping Alternative are included in the analysis.

Biological Measures				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
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 habitat.	Yes	Yes, included in Project mitigation (BIO-1).
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	No, this measure is a conference rather than implementation of a plan.	No, as impacts are not anticipated.
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	No	No, as impacts are not anticipated to fresh water habitats.

<i>Biological Measures</i>				
Subcommittee Recommendation:		CEQA Criteria for Mitigation Measures		
		Does the Project have a significant physical impact in this area?	Does the measure directly avoid, reduce, eliminate and/or rectify the specific impact?	Is the measure feasible in terms of technology and/or cost? (if not, why?)
<i>IMPACT: SPECIES LOSS/HARM</i>				
BR-2	Invasive Species – Require shippers to bond for costs of eradicating invasive species potentially introduced.	No	No	No, as impacts are not anticipated to due compliance with Ballast Water management measures.

PCAC Aesthetic Mitigation Projects: As part of the China Shipping Settlement Agreement, funding is available for aesthetic mitigation projects as proposed by community members. The below list of aesthetic mitigation projects were submitted to PCAC by members of the Wilmington and San Pedro communities. The China Shipping Settlement allows application of China Shipping settlement funds towards approved aesthetic projects (ASJ, VIII § 6B4b). The proposed aesthetic projects below have been prioritized by the PCAC based in part on criteria (A. open space and parks, B. landscaping and beautification, and C. education, arts and athletic facilities) set forth in the settlement agreement. In addition, the PCAC completes a CEQA-like analysis to determine if there is a nexus between the submitted proposal and Port impacts. Proposals are then ranked based on the aforementioned criteria as to priority. The aesthetic projects identified below as "Priority" projects have been approved by the PCAC. In accordance with the Settlement, Port staff is reviewing each of these aesthetic proposals for applicability/nexus as mitigation for identified China Shipping project impacts.

PROPOSAL NAME	DESCRIPTION	PCAC FUNDING PRIORITY/ CATEGORY	APPLICABLE TO PROPOSED CHINA SHIPPING PROJECT
Welcome Park	The proposed aesthetic project is located at the southern terminus of the I-110 Freeway (Harbor Freeway). The project objective is to replace an existing blighted area with an attractive gateway entrance to San Pedro through property acquisition and landscaping.	PCAC Priority Project/ Landscaping and Beautification	No. While the Welcome Park Improvements would improve the appearance of the Gaffey Street entry into San Pedro, these improvements would not avoid, reduce, or compensate for the visual resource effects identified in this Environmental Impact Report. These effects relate to peripheral visual resources around the terminal identified in the City's Transportation Plan as a scenic highway for views of a working port and the Vincent Thomas Bridge. The peripheral effects need to be mitigated at or near the project site whereas the Gaffey Street entryway is not within view site of the China Shipping or the Port in general. Secondly, effects of container cranes competing with the general horizon views with a local landmark, the Vincent Thomas Bridge, would not be mitigated by improvements at the Gaffey Street location. Views of the horizon with the bridge are not readily available at the Gaffey Street site. Finally, the Welcome Park is now the subject of a land negotiation/purchase, which will generate funding so that the City of Los Angeles can effect these improvements. Staff is recommending improvements
East Wilmington Greenbelt	The proposed aesthetic project is located on former SP Railroad property donated (8.279 acres) to the City of LA for public recreation and beautification proposes, between Sanford Avenue (southern limit), and Blink Avenue (northern limit).	PCAC Priority Project/ Landscaping and Beautification; Education, Arts and Athletic facilities.	No. While the proposed Project would have significant aesthetic impacts, the impacts are limited to the roadway areas around the Project's perimeter and views of the Vincent Thomas Bridge. The East Wilmington greenbelt improvements would not mitigate the identified impacts for the same reasons identified above for the Welcome Park.
Proposed Wilmington Youth Sailing Center	The proposed aesthetic project would provide low-income and at-risk harbor area youth (08-18 years) after-school and weekend recreational and maritime education services.	PCAC Priority Project/ Education, Arts and Athletic facilities. To Board in April 2006	No. No significant impacts to recreation would occur as a result of the proposed Project. Although a small marina was once located in the Berth 100 vicinity, the marina was not removed as part of the China Shipping Project.

PROPOSAL NAME	DESCRIPTION	PCAC FUNDING PRIORITY/ CATEGORY	APPLICABLE TO PROPOSED CHINA SHIPPING PROJECT
Northwest Harbor Beautification	The proposed aesthetic project would include beautification and landscaping, and create open space in two adjacent areas on the Northwest Harbor area of the Port of Los Angeles.	PCAC Priority Project/ Open Space and Parks; Landscaping and Beautification	Yes. The proposed project would have significant impacts to aesthetics. As part of the Project, the recommendations of the Northwest Harbor Beautification Plan will be implemented along Pacific Avenue and Front Street. Additionally, to offset the reduction in the quality of views from the upper portions of the Channel Street corridor, the Project would implement beautification plan improvements along the portion of John S. Gibson Boulevard and Pacific Avenue at the intersection of Channel Street. A portion of this Project has been completed as part of the Port's Beautification Plan. A second component along Gaffey Street will be implemented as a funded project under the China Shipping Settlement. In addition, staff is recommending improvements along the perimeter of the China Shipping Terminal from the Vincent Thomas Bridge to the 110 on ramp north of Channel Street.
San Pedro Gateway Monument	The proposed aesthetic project is for improving Plaza Park, located on the bluff overlooking Harbor Blvd., on Beacon S. from 7th St. to Gulch Rd., including addition of a Gateway to San Pedro Monument.	PCAC Priority Project/ Open Space and Parks; Landscaping and Beautification	Yes. Plaza Park area provides open views of the Vincent Thomas Bridge and Port area. To offset the reduction in the quality of views from the area along the Main Channel, Plaza Park will be improved as a place to enjoy views of the Port and of the Vincent Thomas Bridge.
The Museum of Air Quality, Emissions and Reuse	The proposed aesthetic project would convert the former Bureau of Sanitation facility above the community gardens into a museum of air quality emissions, and reuse. The proposed project would provide a museum, research and education, and communication hub.	Nonpriority Project/Open Space and Parks; Education, Arts and Athletic Facilities	No. While the proposed Project would have significant air quality impacts, the proposed museum would not reduce or eliminate emissions.
Bridging the Gap: Maritime Industry and Banning High School	The proposed aesthetic project would develop six new international maritime-related academies to provide entry-level jobs, and post secondary training and degree programs.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.
Harbor Environmental and Health Education Center	The proposed aesthetic project would conduct air and water quality, scientific research, provide public health education, operate a community environmental and health library, and offer high school and college student courses.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project. While the proposed Project would have significant air quality impacts, the proposed museum would not reduce or eliminate emissions.
Cabrillo Lagoon and Recreational Area	The proposed aesthetic project would create a waterfront area that residents, tourist, and schools could all use and enjoy.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. While the proposed Project would have significant aesthetic impacts, the impacts are limited to the roadway areas around the Project's perimeter and views of the Vincent Thomas Bridge.
Youth Alternatives Center in Wilmington	The proposed aesthetic project would create a multi-use facility in the community of Wilmington. It will provide an open campus environment for the youth of Wilmington and San Pedro, managed and operated by the Gang Alternatives Program.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.

PROPOSAL NAME	DESCRIPTION	PCAC FUNDING PRIORITY/ CATEGORY	APPLICABLE TO PROPOSED CHINA SHIPPING PROJECT
Freshwater Preservation/Habitat Restoration	The proposed aesthetic project would encompass Harbor Blvd., the Bike Path, 22nd Street, Cabrillo Via Way to the Cabrillo Marine Aquarium. The project involves replacing and planting vegetation, constructing trails or pathways and signage to educate visitors.	Nonpriority Project/ Open Space and Parks; Landscaping and Beautification	No. While the proposed Project would have significant aesthetic impacts, the impacts are limited to the roadway areas around the Project's perimeter and views of the Vincent Thomas Bridge. No significant impacts to fresh water habitats would occur as a result of the proposed Project.
Port of Los Angeles Charter High School	The proposed aesthetic project would create a public comprehensive charter high school (grades 9-12) that will provide an innovative curriculum based on state-identified academic standards and advanced placement classes along with the maritime specializations.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.
Floating Classroom	The proposed aesthetic project would create a large sailing vessel that becomes a floating classroom, offering students on-hand training of maritime operations and experiences.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.
Harbor Free Clinic	The proposed aesthetic project would improve a refurbished clinic, for beautification, landscaping, rebuilding roof berm, mural, repavement and marking parking lot, lights and project management funds.	Nonpriority Project/ Landscaping and Beautification	No. While the proposed Project would have significant air quality impacts and contribute to the area's health risk, the proposed structural upgrades to the Clinic would not reduce or eliminate air emissions. Mitigation will focus instead on directly eliminating health risk and emissions through technology and/or operational changes.
Partners for Healthy Kids	The proposed aesthetic project would create a mobile pediatric clinic that travels to school sites, providing children with free diagnosis and treatment of acute medical conditions, immunizations, health education and screenings.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. While the proposed Project would have significant air quality impacts and contribute to the area's health risk, the proposed mobile clinic would not reduce or eliminate air emissions. Mitigation will focus instead on directly eliminating health risk and emissions through technology and/or operational changes.
Merchant Marine Veterans Memorial	The proposed aesthetic project would add to the American Merchant Marine Memorial located in San Pedro including an interactive public information and education system, a security system, installation of a compass rose and flag poles, and the establishment of a trust.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to cultural resources related to the Merchant Marine Memorial would occur as a result of the proposed Project.
Los Angeles Maritime Museum	The proposed aesthetic project would install a new interactive exhibits at the Maritime Museum, as well as portable exhibits in order to outreach to distant schools, an interactive map at the museum, and an updated website that offers distance learning capabilities.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education or cultural resources in terms of maritime history would occur as a result of the proposed Project.
Twin Brigantine Tall Ships	The proposed aesthetic project would complete the construction of twin brigantine tall ship which are used in the TopSail Youth Program to provide primarily disadvantaged youth groups the opportunity to work on these sailing ships.	Nonpriority Project/ Education, Arts and Athletic Facilities	No. No significant impacts to recreation and public services in terms of education would occur as a result of the proposed Project.

PROPOSAL NAME	DESCRIPTION	PCAC FUNDING PRIORITY/ CATEGORY	APPLICABLE TO PROPOSED CHINA SHIPPING PROJECT
Union Art Works	This project seeks to create parks and green space, construct a bicycle path, and place works of art in various locations within San Pedro.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to emergency response would occur as a result of the proposed Project.
A Safe Harbor at Harbor College	The proposed aesthetic project would create a community emergency shelter on the Harbor College campus. It also proposes to stock emergency quick frozen food, rotated out and donated to local shelters every six months.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.
Environmentalists' Club	The proposed aesthetic project would create an Environmentalist's Club run by four chapters of the Boys and Girls Club. The Environmentalist's Club will have 200 members - 50 from each chapter, and will focus on promoting a respect for and love of the environment.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.
Ocean Education Program	The proposed aesthetic project would develop a comprehensive, ocean based educational and recreational program for the general public through the Los Angeles Department of Recreation and Parks.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to recreation and public services in terms of education would occur as a result of the proposed Project.
Environmental Education and Preservation Programs	The proposed aesthetic project would support local organizations dedicated to environmental education and preservation, in addition to funding their own "Walk on the Wild Side", which is an educational walk geared to third grade students.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to public services in terms of education would occur as a result of the proposed Project.
Cabrillo Beach Youth Facility	The proposed aesthetic project would buy out the lease on the Cabrillo Beach Youth Facility from the Boy Scouts of America and to make improvements. This would make the property available to the public.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to recreation and public services in terms of education would occur as a result of the proposed Project.
George Peck House	The proposed aesthetic project would acquire, renovate and relocate the historic Peck House. The house would be moved closer to its original location and outfitted with interpretive displays and made open to the public.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to cultural resources related to the Peck House would occur as a result of the proposed Project.
Floating Chinese Garden	The proposed aesthetic project would construct a Floating Chinese Garden. The garden is to be constructed from surplus cargo containers. The garden will be mobile, to be moved to different areas as needed. There will be water taxi transportation to the garden.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to cultural resources related to public gardens would occur as a result of the proposed Project.
Baseball Facilities and Program	The proposed aesthetic project would renovate an existing baseball facility as well as provide funding for staffing its baseball and boxing programs for the next three years.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to recreation would occur as a result of the proposed Project.
Farmland Conservancy	The proposed aesthetic project would use nonpublic parcels of open space riparian lands, within the industrial areas of the Port of Los Angeles, to create greenbelts of organic farmland.	Nonpriority Project/ Landscaping and Beautification	No. No significant impacts to agriculture would occur as a result of the proposed Project. Additionally, farmland would not be consistent with land use and zoning at the Port.

PROPOSAL NAME	DESCRIPTION	PCAC FUNDING PRIORITY/ CATEGORY	APPLICABLE TO PROPOSED CHINA SHIPPING PROJECT
Warner Grand Theatre	The proposed aesthetic project would retrofit the Warner Grand Theatre.	Nonpriority Project/ Open Space and Parks; Education, Arts and Athletic Facilities	No. No significant impacts to cultural resources related to the Warner Grand Theatre would occur as a result of the proposed Project.

NNI Mitigation Measures

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. As discussed in Chapter 1 (1.6.2), NNI was not adopted by the Harbor Department but does serve as a precursor for the CAAP. Although NNI was not adopted, the task force identified at least 68 control measures that could be considered at least potentially technically feasible for industrial Port projects. 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 97-109 Container Terminal Project.

C.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 97-109.

C.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.

1 **Feasibility**

2 This measure is considered feasible from an agency standpoint because it has already
3 been adopted and is being implemented by engine manufacturers for merchant shippers.
4 This measure has not been included as project mitigation in the EIS/EIR for Berths 97-
5 109, but has been included in the baseline emissions calculations in the document.

6 **C.1.2 OGV2 – Vessel Speed Reduction Memorandum of**
7 **Understanding**

8 **Description**

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

18 **Feasibility**

19 For the China Shipping Terminal, ships are currently complying with VSR requirements
20 (2007). However, because this document is reanalyzing Phase I and there were no ship
21 calls as part of the baseline, these ship calls are not included in the baseline air quality
22 calculations in the EIS/EIR for Berths 97-109. Including a measure to fully implement
23 VSR to achieve a 100 percent compliance rate for the China Shipping Terminal is
24 considered feasible and, therefore, has been included in the EIS/EIR as a mitigation
25 measure.

26 **C.1.3 OGV3 – Alternative Maritime Power**

27 **Description**

28 This measure would utilize land-based facilities to supply electrical power to marine
29 vessels during hoteling to reduce or eliminate the use of on-board auxiliary diesel engines
30 and their associated emissions. This measure would implement alternative maritime
31 power (AMP) requirements. Approximately 70 percent of ship calls at the China
32 Shipping Terminal currently use AMP. However, because this document is reanalyzing
33 Phase I and there were no ship calls as part of the baseline, these ship calls are not
34 included in the baseline air quality calculations in the EIS/EIR for Berths 97-109. AMP
35 compliance will be increased as part of the mitigation strategy.

36 **Feasibility**

37 For the China Shipping Terminal, implementation of AMP is considered feasible and is
38 included in the EIS/EIR as mitigation.

C.1.4 OGV4 – Auxiliary Engine Fuel Improvement Program

Description

This measure would require the use of lower sulfur fuels in OGV auxiliary engines, beginning at 40 nautical miles (nm) from Point Fermin. The program focuses on shifting bunker-burning auxiliary engines to 1.5 percent sulfur fuels and cleaner fuels (most commonly marine diesel oil [MDO]). Implementation of low sulfur fuels in auxiliary engines will occur as follows:

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

Feasibility

This measure is considered feasible and has been included in the EIS/EIR for Berths 97-109. This measure will be phased in to the operation via lease requirements.

C.1.5 OGV5 – New Engine Standards for Category 3 Marine Engines

Description

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

Feasibility

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

C.1.6 OGV6 – Reroute Cleaner Ships

Description

This measure would require the China Shipping 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 97-109.

C.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 97-109.

C.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 and ratified by CARB. However, this rule is currently subject to ongoing litigation. This measure has not been

1 included in the EIS/EIR for Berths 97-109. The current CARB rule includes a provision
2 that would exclude ships that participate in AMP programs from this rule. Because the
3 proposed Project includes strong AMP requirements and low sulfur MDO/MGO
4 requirements, the Project will exceed proposed CARB requirements. In addition,
5 mitigation will require the use of 0.2 percent sulfur fuel in main engines, auxiliary
6 engines and boilers.

7 **C.1.9 OGV9 – Main Engine Fuel Improvement Program**

8 **Description**

9 This measure would provide incentives for ships that use 1.5 percent fuels in their main
10 propulsion engines while within 40 nm of Point Fermin, specifically focusing on
11 containerships. Target participation rates are 15 percent by 2006, 25 percent by 2007,
12 50 percent by 2008, and 100 percent by 2010.

13 **Feasibility**

14 This measure has been included as mitigation in the EIS/EIR for Berths 97-109.
15 Mitigation will require the use of 0.2 percent sulfur fuel in main engines, auxiliary
16 engines and boilers

17 **C.1.10 OGV10 – Creation of a Sulfur Emission Control** 18 **Area**

19 **Description**

20 USEPA is currently studying the proposal to create a sulfur emission control area (SECA)
21 covering all of North America. Under this measure, it is envisioned that a SECA will be
22 established to limit the sulfur content of marine fuels used throughout North America to
23 1.5 percent.

24 **Feasibility**

25 This measure is considered feasible from a federal agency perspective (USEPA) because
26 USEPA has authority to establish a SECA, but it is not considered feasible by the Port of
27 Los Angeles because the Port does not have authority to establish a SECA. This measure
28 would be similar to OGV9 in that it would effectively result in the use of low-sulfur
29 residual fuels for main propulsion engines in U.S. Territorial waters. The technical and
30 logistical issues described under OGV9 would apply to this measure. Because the Port
31 does not have the authority to establish a SECA, this measure is not included in the
32 EIS/EIR for Berths 97-109 as mitigation. It should be noted, however, that this measure
33 would be implemented if USEPA establishes a SECA.

34 If USEPA determines that a SECA in North America is not feasible and will not be
35 established, then the measures under OGV9 would be implemented, which require the
36 use of low-sulfur fuel for main engine propulsion within 40 nm of Point Fermin.
37 Mitigation has been added to the EIS/EIR for Berths 97-109 that effectively go beyond
38 OGV10 in the Port area by requiring 0.2 percent sulfur fuel in main engines, auxiliary
39 engines and boilers.

C.1.11 OGV11 – Expanded Auxiliary Engine Fuel Improvement Program

Description

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

Feasibility

Mitigation has been added to the EIS/EIR for Berths 97-109 that requires 0.2 percent sulfur fuel in main engines, auxiliary engines and boilers. In regards to the request to mandate fuel with a fuel content of 0.1 percent instead of 0.2 percent, the Port has found that requiring 0.1 percent is infeasible due to availability issues. In order to allow for some margin of error and product contamination in the distribution system, when a shipping line orders 0.2 percent sulfur fuel, they are actually receiving a fuel with lower sulfur content of between 0.13 percent and 0.16 percent. Therefore, if the mitigation measure required 0.1 percent fuel, the fuel supplier would have to provide fuel at a lower than 0.1 percent content, which may not be currently possible at refineries. Additionally, 0.2 percent is consistent with the CAAP. In developing and approving the CAAP, the Ports of Los Angeles and Long Beach met and collaborated with agencies (including CARB, SCAQMD, and USEPA), environmental and community groups, and the shipping industry. As a result of this collaborative process, 0.2 percent sulfur fuel was found to be feasible from port-wide perspective.

C.1.12 OGV12 – Expanded Main Engine Fuel Improvement Program

Description

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

Feasibility

This measure has been added to the proposed Project as a mitigation measure. Mitigation has been added to the EIS/EIR for Berths 97-109 that requires 0.2 percent sulfur fuel in main engines, auxiliary engines and boilers

C.1.13 OGV13 – Additional Auxiliary Engine Reductions for Frequent Callers

Description

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

Feasibility

Potential implementation issues may include technical issues with implementation of retrofit control technology, enforcement of numerous unique control plans, and legal challenges of state authority over vessels. AMP may be one means of compliance. Although this measure falls under the purview of the CARB, the required plans to reduce PM₁₀ and NO_x emissions would be prepared by the terminal operator and submitted to the Port for review. Because of this, this measure has been included as mitigation in the EIS/EIR for Berths 97-109. All China Shipping ships that meet AMP requirements will be ships built in 2000 or later, and this mitigation measure will apply to these frequent callers.

C.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 97-109. Additionally, because of high AMP rates, the terminal is expected to receive calls only from frequent callers.

C.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

This measure has been included as mitigation in the EIS/EIR for Berths 97-109.

C.1.16 OGV16 – Expanded AMP

Description

This measure would build on OGV3 and require a higher percentage of ships calling at the China Shipping 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 97-109.

C.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 97-109 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

1 to the China Shipping fleet would result in additional emission reductions. Main engine
2 control devices, such as SCR, Exhaust Gas Water Treatment, Water Injection, and
3 Injection Timing Delay would potentially reduce NO₂, PM₁₀ and PM_{2.5}, however, as
4 discussed below, because most of the measures are still in the research and development
5 phases, emission reductions are theoretical. New main engine control devices may
6 decrease emissions in 2010; however the main engine technology identified in comments
7 are not feasible at this time. For example, although SCR technology has been
8 demonstrated on four new vessels carrying scrap/steel between the Bay Area and Korea,
9 the applicability of low-emissions technologies like SCR to large ocean-going vessels
10 such as container ships needs to be further evaluated and demonstrated. There are still a
11 number of feasibility questions in regards to SCR, namely spatial needs, reactant
12 (ammonia) availability and byproduct issues. At this time, SCR is not feasible. SCR and
13 the other control devices listed above however are expected to be available in the future
14 and therefore are currently being tested as part of the TAP. The lease measures below are
15 designed to provide a process to consider and implement new technology identified in the
16 TAP throughout the lease period.

17 *As partial consideration for the Port's agreement to issue the permit to the tenant, tenant*
18 *shall implement not less frequently than once every 7 years following the effective date of*
19 *the permit, new air quality technological advancements, subject to the parties mutual*
20 *agreement on operational feasibility and cost sharing which shall not be unreasonably*
21 *withheld.*

22 Additionally, MM AQ-13 has been modified to include additional future technologies:

23 ***MM AQ-13 New Vessel Builds.*** *All new vessel builds shall incorporate NO_x PM₁₀ and*
24 *GHG control devices on auxiliary and main engines. These control devices include, but*
25 *are not limited to the following technologies, where appropriate: (1) selective catalytic*
26 *reduction (SCR) technology, (2) exhaust gas recirculation, (3) in line fuel emulsification*
27 *technology, (4) diesel particulate filters (DPFs) or exhaust scrubbers, (5) common rail,*
28 *(6) Low NO_x burners for boilers, (7) implementation of fuel economy standards by vessel*
29 *class and engines, and (8) diesel-electric pod-propulsion system.*

30 C.2 NNI Harbor Craft Measures

31 This section discusses the feasibility of applying or adapting the Control Measures for
32 Harbor Craft (HC) as part of the EIS/EIR for Berths 97-109.

33 C.2.1 HC1 – New Engine Standards for Harbor Craft

34 Description

35 USEPA approved final exhaust emission standards for new diesel engines over 37 kW
36 (50 horsepower [hp]) on December 29, 1999 (64 FR 73301). The standards apply
37 primarily to commercial harbor craft with Category 1 and 2 engines, and implementation
38 of the new standards began in 2005. This measure would reduce the level of NO_x,
39 reactive organic gas (ROG), PM, and carbon monoxide (CO) emitted from harbor craft
40 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 included as Project mitigation in the EIS/EIR for Berths 97-109, emission reductions will occur on a Portwide basis as the new engine standards are implemented by various harbor craft users in the Port area. To the extent that harbor craft that meet the new engine standards provide vessel-assist services to the Berth 136-147 fleet, additional reductions in Project emissions would occur.

C.2.2 HC2 – Clean Fuels for Harbor Craft

Description

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

Feasibility

This measure is considered feasible from a state agency perspective (CARB) because the CARB has authority to establish fuel requirements in California territorial waters. It is not considered feasible by the Port of Los Angeles because the Port does not have such authority. Although this measure has not been specifically included as Project mitigation in the EIS/EIR for Berths 97-109, emission reductions from implementation of this measure have been included in the document baseline emission calculations because the measure will be effective at the time of Phases II and III operation.

C.2.3 HC3 – Early Implementation of Ultra-Low-Sulfur Diesel

Description

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

1 **Feasibility**

2 This measure is considered feasible because ULSD fuel is available and the Port of
3 Los Angeles has the authority to implement it. This measure, therefore, has been
4 included as Project mitigation in the EIS/EIR for Berths 97-109 and would apply to
5 ongoing Phase I operations. This measure would not apply to Phase II or Phase III
6 operations because those phases would become operational after 2006.

7 **C.2.4 HC4 – Dredging Activities**

8 **Description**

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

20 **Feasibility**

21 This measure is considered feasible from a state agency perspective because the CARB
22 and the SCAQMD have authority to regulate dredging activities and engines. It is not
23 considered feasible by the Port of Los Angeles because the Port does not have such
24 authority. This measure has not been included as Project mitigation in the EIS/EIR for
25 Berths 97-109. However, there is no dredging in Phases II and III,

26 **C.2.5 HC5 – Technical Advisory Committee Harbor Craft
27 Measures**

28 **Description**

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

33 **Feasibility**

34 This measure is considered feasible because the Port has the authority to provide
35 incentives for the retrofitting or repowering of harbor craft engines. This measure is not
36 specifically included as Project mitigation in the EIS/EIR for Berths 97-109 because this
37 is an ongoing Portwide program and because harbor craft (tugs) are not dedicated to
38 particular shippers; rather, they provide service to multiple shippers.

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

Feasibility

This measure is considered feasible from a federal agency perspective because USEPA has authority to regulate emission standards for marine engines. This measure is not considered feasible by the Port of Los Angeles, however, because the Port does not have such authority. Although this measure has not been included as Project mitigation in the EIS/EIR for Berths 97-109, this measure will result in reduced emission levels from harbor craft in the Port as it is implemented over time, in particular, as more efficient tugs provide vessel-assist services to the project fleet.

C.2.7 HC7 – Emulsified Fuels

Description

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

Feasibility

Emulsified diesel is no longer considered available.

C.2.8 HC8 – In-Use Harbor Craft Emission Reduction Measure/Airborne Toxic Control Measure

Description

The CARB is proposing to reduce NO_x, ROG, and PM emissions from existing "in-use" harbor craft engines. This proposed measure includes a number of options to reduce emissions, including the use of add-on control equipment and repowering, replacing or retrofitting existing vessels and/or early introduction of new vessels. Due to the diversity within the harbor craft category, specific emission reduction proposals may vary with the 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 97-109. 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.

C.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 97-109. As more harbor craft are being repowered through the existing program, however, some emission reductions associated with Berth 97-109 operations would occur.

C.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,

1 this measure is not included as Project-specific mitigation in the EIS/EIR for Berths 97-
2 109. Portwide implementation, however, would result in some emission reductions for
3 harbor craft such as tugs that would serve the Berth 136-147 fleet.

4 **C.2.11 HC11 – AMP-Ready Staging Areas for Vessel-Assist** 5 **Tugs**

6 **Description**

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

12 **Feasibility**

13 This measure appears technically feasible; however, constraints related to locating the
14 staging areas and new AMP facilities may exist. Retrofitting tugs for AMP (to offset the
15 need for operating auxiliary engines on tugs) also may not result in the same emissions-
16 reduction benefits as implementing AMP for OGVs. This is due to the much smaller
17 displacement of harbor craft auxiliary engines compared to OGV auxiliary engines.
18 Because the feasibility of this measure is uncertain and because tugs provide Portwide
19 vessel-assist services to multiple fleets, this measure is not included as Project mitigation
20 in the EIS/EIR for Berths 97-109. Portwide implementation, however, would result in
21 some emission reductions for tugs that would serve the Berth 136-147 fleet.

22 **C.3 Cargo Handling Equipment**

23 This section discusses the feasibility of applying or adapting the Control Measures for
24 Cargo Handling Equipment (CHE) as part of the EIS/EIR for Berths 97-109.

25 **C.3.1 CHE1 – Emission Standards for Heavy-Duty** 26 **Nonroad Diesel Engines**

27 **Description**

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

1 technologies. These technologies will reduce PM and NO_x emissions from new engines
2 up to 95 percent when compared to previous emission requirements.

3 **Feasibility**

4 This measure is considered feasible from an agency standpoint because it has been
5 adopted already and is being implemented by manufacturers of engines used in cargo
6 handling equipment. This measure has been included in the baseline emissions
7 calculations in the EIS/EIR for Berths 97-109.

8 **C.3.2 CHE2 – Yard Tractor Modernization and ULSD** 9 **Programs**

10 **Description**

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

21 **Feasibility**

22 Meeting the emission-reduction standards for the identified pollutants would involve
23 various technologies, including alternative fuel engines, use of emulsified fuel, use of
24 on-road engines in off-road applications, and CARB-verified active DPFs that are
25 currently verified for off-road applications. Although this measure is technically feasible,
26 it has not been included as Project mitigation in the EIS/EIR for Berths 97-109 because
27 mitigation requiring alternative-fueled yard tractors (see CHE4 below) has been required
28 instead of this measure.

29 **C.3.3 CHE3 – Early Implementation of ULSD for CHE** 30 **(Other than Yard Tractors)**

31 **Description**

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

37 **Feasibility**

38 This measure is considered feasible and has been implemented at Port facilities since
39 2005. However, this measure has not been included as mitigation in the EIS/EIR for

1 Berths 97-109 because mitigation requiring the alternative fuels in CHE (see CHE5
2 below) has been required instead of ULSD fuels.

3 **C.3.4 CHE4 – Alternative Fuel Yard Tractor Resolution**

4 **Description**

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

17 **Feasibility**

18 There may be feasibility issues in the near term related to the procurement of local
19 supplies of alternative fuel and installation of fueling infrastructure; however, these issues
20 do not appear to be insurmountable. This measure, therefore, has been included as
21 Project mitigation in the EIS/EIR for Berths 97-109. The mitigation measure in the
22 EIS/EIR assumes the use of liquid petroleum gas (LPG) as an alternative CHE fuel.

23 **C.3.5 CHE5 – Emulsified Fuels**

24 **Description**

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

28 **Feasibility**

29 Emulsified diesel is no longer considered available.

30 **C.3.6 CHE6 – Technical Advisory Committee CHE** 31 **Measures**

32 **Description**

33 As part of the China Shipping settlement, the Port has committed to implementing
34 various emission-reduction strategies as determined and evaluated by the TAC. Under
35 the TAC CHE measures, NO_x and PM emissions would be reduced by converting yard
36 tractors to liquefied natural gas (LNG), using oxygen (O₂) Diesel Fuel (proprietary

1 ethanol-diesel blend) in selected nonroad equipment, in some cases, with an oxidation
2 catalyst retrofit and repowering of selected CHE.

3 **Feasibility**

4 This measure is considered feasible because the Port has committed to its implementation.
5 Some of the TAC measures are included as Project mitigation in the EIS/EIR for
6 Berths 97-109, including alternative-fueled (LPG) yard tractors and oxidation catalyst
7 retrofits on selected CHE.

8 **C.3.7 CHE7 – Expanded Yard Tractor Modernization**

9 **Description**

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

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

21 **Feasibility**

22 Achieving these NO_x and PM standards would involve the use of various technologies,
23 including alternative-fuel engines, use of emulsified fuel, use of on-road engines in off-
24 road cargo handling equipment, and with CARB-verified active DPFs that are currently
25 verified for off-road applications. This measure is considered technically feasible. This
26 measure has not been included as Project mitigation in the EIS/EIR for Berths 97-109
27 because more stringent mitigation requiring LPG yard tractors has been required (see
28 CHE4 above).

29 **C.3.8 CHE8 – Enhanced CHE Modernization**

30 **Description**

31 Under this measure, the Port would require that both new purchases and replacement or
32 retrofit of existing CHE equipment (other than yard tractors, such as top picks, side picks,
33 and rubber-tired gantry cranes) use alternative fuel, on-road engines, or Tier 3 and 4
34 nonroad engines. Implementation of this measure began in 2005 and will continue
35 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 97-109 includes Project mitigation requiring all RTGs be electric and all top-picks be alternative fuel.

C.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 included in the EIS/EIR for Berths 97-109 as part of the Project calculations because the CARB rule has taken effect and could change before it takes its final form.

C.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 97-109.

C.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.

1 The first set of standards (Tier 0) applies to locomotives and locomotive engines
2 originally manufactured from 1973 through 2001, or any time they are remanufactured.
3 The second set of standards (Tier 1) applies to locomotives and locomotive engines
4 originally manufactured from 2002 through 2004 or their subsequent remanufacture. The
5 final set of standards (Tier 2) applies to locomotives and locomotive engines originally
6 manufactured in 2005 and later. Tier 2 locomotives and locomotive engines will be
7 required to meet the applicable standards at the time of original manufacture and each
8 subsequent remanufacture.

9 **Feasibility**

10 This measure is considered feasible from a federal agency standpoint (USEPA) because it
11 has already been adopted and is being implemented by rail engine manufacturers. This
12 measure is not considered feasible from a Port of Los Angeles perspective because the
13 Port does not have the authority to establish rail engine emission standards. Because the
14 standards are in effect, however, this measure is included in the baseline calculations for
15 the EIS/EIR for Berths 97-109.

16 **C.4.2 R2 – CARB Diesel Fuel Used by Intrastate** 17 **Locomotives**

18 **Description**

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

23 **Feasibility**

24 This measure is considered feasible from a state agency standpoint (CARB) because it
25 has already been adopted and will become effective in 2007. This measure is not
26 considered feasible from a Port perspective because the Port does not have the authority
27 to establish fuel requirements for intrastate locomotives. However, because this measure
28 has been finalized by the CARB, it is included in the baseline calculations in the EIS/EIR
29 for Berths 97-109.

30 **C.4.3 R3 – Federal Standards for Nonroad Diesel Fuel**

31 **Description**

32 Current federal nonroad diesel fuel standards require that sulfur levels for nonroad diesel
33 fuel be reduced from current uncontrolled levels ultimately to 15 ppm, with an interim
34 cap of 500 ppm. The rule applies to all locomotives and marine vessels. This measure
35 requires refiners to produce nonroad, locomotive, and marine diesel fuel that meets a
36 maximum sulfur level of 500 ppm beginning in 2007 and a maximum sulfur level of
37 15 ppm in 2012.

Feasibility

This measure is considered feasible from a federal agency standpoint (USEPA) because it has already been adopted, but is not considered feasible from a Port perspective because the Port does not have the authority to establish nonroad diesel fuel standards. Because this USEPA requirement will be implemented, however, this measure is included in the baseline calculations for the EIS/EIR for Berths 97-109.

C.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 97-109 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 97-109.

C.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

1 grant funds have also been awarded to PHL for a portion of the fleet modernization cost.
2 This measure is included in the baseline calculations for the EIS/EIR for Berths 97-109.

3 **C.4.6 R6 – Ultra-Low Emission Switcher Locomotives:** 4 **PHL**

5 **Description**

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

9 **Feasibility**

10 Similar to measure R5, this measure is considered feasible. This measure, however, has
11 not been included as Project mitigation in the EIS/EIR for Berths 97-109 because it will
12 be implemented on a Portwide basis.

13 **C.4.7 R7 – Ultra-Low Emission Switcher and Line Haul** 14 **Locomotives: Class 1**

15 **Description**

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

22 **Feasibility**

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

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

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

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

36 Although this measure is considered feasible, it has not been included as Project
37 mitigation in the EIS/EIR for Berths 97-109 because it will be implemented on a
38 Portwide basis.

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

Feasibility

This measure is considered feasible from a federal agency standpoint (USEPA) because USEPA has the authority to set diesel engine standards, but is not considered feasible from a Port perspective because the Port does not have such authority. This measure has not been included as Project mitigation for the proposed container terminal at Berths 97-109 because the future federal standards will need to undergo formal rulemaking, with a proposal, public comment period, and final action that is responsive to the public comments. Until USEPA completes this process and issues the final rule, it is not possible to predict what standards may be set, when the standards might go into effect, or what engine population might be affected.

C.4.9 R9 – CARB Diesel Fuel for Class 1 Railroad Locomotives

Description

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

Feasibility

This measure is not currently considered feasible due to the high level of modifications that would be required for locomotives and the associated logistical and operational issues. Under this measure, locomotives using high-sulfur fuel and carrying freight in and out of the Port and Basin would have to switch to low-sulfur fuel upon entering the Basin. This will result in potentially substantial operational, logistical, and equipment changes. This would include, but not be limited to, draining of fuel tanks or the installation of separate fuel tanks, baffling of fuel tanks, or the addition of a dedicated

1 fuel car containing ULSD to the train all with the ability to switch over fueling. The
2 benefit of using ULSD in locomotive engines may be more limited than in highway and
3 nonroad engines, due to low speed, steady-state operation, and engines not connected to
4 wheel axles with a transmission.

5 **C.4.10 R10 – Idling Controls for Switcher and Line Haul** 6 **Locomotives**

7 **Description**

8 Under this measure, the Port would require the installation of tamper-proof idling control
9 devices on all switcher and line haul locomotives serving the Port of Los Angeles. These
10 idling control systems turn off the propulsion engines after a certain time or when use
11 parameters are exceeded, and then restart the engine whenever engine or operational
12 parameters drop below their minimums. Locomotives spend from 40 to 80 percent of
13 their operational time idling, but almost never turn off their propulsion engines for
14 operational and technical reasons that include the need to avoid startup delays, to
15 maintain water jacket temperature, to maintain battery voltage and brake system air
16 pressure, and to reduce wear on the starting system and battery pack.

17 **Feasibility**

18 BNSF currently intends to equip switchers and intrastate locomotives with idling controls
19 in 3 to 4 years with the potential to accelerate the program to 2 years. This measure is
20 considered feasible, but it has not been included as Project mitigation for the proposed
21 container terminal at Berths 97-109. This is because it would be implemented on a
22 Portwide basis and because the line-haul locomotives would not be dedicated to a
23 particular terminal (they would transport containers from multiple terminals).

24 **C.4.11 R11 – Efficiency Improvements on In-Use Class 1** 25 **Rail Equipment**

26 **Description**

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

31 **Feasibility**

32 This measure is considered feasible, but it has not been included as Project mitigation for
33 the proposed container terminal at Berths 97-109. This is because it would be
34 implemented on locomotives and rail cars that serve the Port as a whole and because the
35 locomotives and rail cars would not be dedicated to a particular terminal (they would
36 transport containers from multiple terminals).

C.4.12 R12 – Electrification of the Alameda Corridor and Alameda Corridor East

Description

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

Feasibility

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

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

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

Because numerous constraints to the electrification of the Alameda Corridor currently exist, and because the Alameda Corridor serves the Port as a whole, this measure has not been included as Project mitigation in the EIS/EIR for Berths 97-109.

C.5 NNI Heavy-Duty Vehicles Measures

This section discusses the feasibility of applying or adapting the NNI Control Measures for Heavy-Duty Vehicles (HDV) as part of the EIS/EIR for Berths 97-109.

C.5.1 HDV1 – 2004 On-Road Standards for Heavy-Duty Diesel Vehicles

Description

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

1 **Feasibility**

2 This measure is considered feasible from a federal agency standpoint (USEPA) because it
3 has already been adopted and is being implemented by applicable engine manufacturers.
4 This measure is considered feasible from a Port perspective because the Port has recently
5 approved the Clean Trucks Program. Emissions reductions have been assumed in the
6 EIS/EIR.

7 **C.5.2 HDV2 – 2007 On-Road Standards for Heavy-Duty
8 Diesel Vehicles**

9 **Description**

10 The control measure will reduce NO_x, HC, and PM emissions by building on Phase I
11 emission standards (HDV1). This USEPA rule covers Phase II in a comprehensive
12 nationwide program for controlling emissions from heavy-duty engines, and is based on
13 the use of high-efficiency exhaust emission control devices and the consideration of the
14 vehicle and its fuel as a single system. The rule is expected to reduce PM and NO_x
15 emission levels to 90 and 95 percent below the 2004 standard, respectively. The
16 standards will be effective in the 2007 model year, and the low-sulfur diesel fuel needed
17 to facilitate the standards will be available in mid-2006. New evaporative emission
18 standards are also contained in the rule.

19 **Feasibility**

20 This measure is considered feasible from a federal agency standpoint (USEPA) because it
21 has already been adopted and will be implemented by applicable engine manufacturers.
22 This measure is considered feasible from a Port perspective because the Port has recently
23 approved the Clean Trucks Program. Emissions reductions have been assumed in the
24 EIS/EIR.

25 **C.5.3 HDV3 – Gateway Cities Truck Modernization
26 Program**

27 **Description**

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

1 **Feasibility**

2 This measure is considered feasible from a Port standpoint because it has already been
3 adopted and has been funded. This measure is not included as Project mitigation in the
4 EIS/EIR for the proposed container terminal at Berths 97-109 because this is a Portwide
5 program.

6 **C.5.4 HDV4 – Engine Software Upgrade (or Low NO_x**
7 **Software Upgrade)**

8 **Description**

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

14 **Feasibility**

15 This measure is considered feasible from a state agency standpoint (CARB) because the
16 CARB has the authority to regulate emissions from heavy-duty vehicle engines, but is not
17 considered feasible from a Port perspective because the Port does not have such authority.
18 This measure is included in the project calculations in the EIS/EIR for Berths 97-109.

19 **C.5.5 HDV5 – Ultra-Low-Sulfur Diesel Fuel (15 ppm)**

20 **Description**

21 The CARB requires diesel fuel produced or offered for sale in California for use in any
22 on-road or nonroad vehicular or stationary diesel engines to contain no more than 15 ppm
23 sulfur by weight, beginning June 2006. Full implementation of the fuel requirement will
24 commence in mid-2006 to accommodate new vehicular engine standards in model years
25 2007 to 2010.

26 **Feasibility**

27 This measure is considered feasible from a state agency standpoint (CARB) because the
28 CARB has the authority to regulate emissions from heavy-duty vehicle engines, but is not
29 considered feasible from a Port perspective because the Port does not have such authority.
30 Because the standards set forth in this measure will be implemented, however, they are
31 included in the Project calculations for the EIS/EIR for Berths 97-109.

32 **C.5.6 HDV6 – Heavy-Duty Vehicle Inspection**

33 **Description**

34 Under this measure, the CARB would continue to implement the Heavy Duty Vehicle
35 Inspection Program where CARB staff inspects trucks and buses for excessive smoke to
36 reduce PM emissions. The inspections take place at border crossings, California

1 Highway Patrol (CHP) scales, and other locations that do not hinder traffic flow. Trucks
2 and buses with excessive smoke are subject to fines starting at \$300.

3 **Feasibility**

4 This measure is considered feasible from a state agency standpoint (CARB) because it is
5 an existing and ongoing CARB program, but is not considered feasible from a Port
6 perspective because the Port does not have authority to establish such a program. This
7 measure is not included as mitigation in the EIS/EIR for Berths 97-109 because the Port
8 does not have the authority to require trucks to undergo smoke opacity inspections. This
9 measure is an ongoing program, however, and is assumed in the Project calculations for
10 the EIS/EIR for Berths 97-109.

11 **C.5.7 HDV7 – Periodic Smoke Inspection Program**

12 **Description**

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

17 **Feasibility**

18 This measure is considered feasible from a state agency standpoint (CARB) because it is
19 an existing CARB program, but is not considered feasible from a Port perspective
20 because the Port does not have authority to establish or implement such a program. This
21 measure is not included in the EIS/EIR for Berths 97-109 because the Port does not have
22 the authority to require such inspections and because the container terminals do not
23 generally own their own container trucking fleets. This measure is an ongoing program,
24 however, and is assumed in the Project calculations for the EIS/EIR for Berths 97-109.

25 **C.5.8 HDV8 – Augment Truck and Bus Highway 26 Inspections with Community-Based Inspections**

27 **Description**

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

32 **Feasibility**

33 This measure is considered feasible from a state agency standpoint (CARB) because it is
34 an existing CARB program, but is not considered feasible from a Port perspective
35 because the Port does not have authority to establish or implement such a program. This
36 measure is not included in the EIS/EIR for Berths 97-109 because the Port does not have
37 jurisdiction in mixed-use communities outside the Port proper and because such mixed-
38 use areas are not located in the Port.

C.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 97-109, it has not been quantified because the effectiveness of this measure depends on the degree of implementation, which is variable.

C.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 Emissions reductions have been assumed in the EIS/EIR.

C.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

1 requirements of this measure because the bill requires the CARB, in cooperation with the
2 CHP, to develop protocols to ensure that vehicles entering the state (particularly Mexican
3 vehicles) provide evidence that the truck engine meets the federal standards for the
4 applicable model year at the time it was manufactured.

5 **Feasibility**

6 This measure is considered feasible from a state agency standpoint (CARB) because the
7 CARB has the authority to establish emission standards for on-road truck engines, but is
8 not considered feasible from a Port perspective because the Port does not have such
9 authority. Because this measure will be implemented, however, it is included in the
10 Project calculations in the EIS/EIR for Berths 97-109, which assumes that trucks serving
11 container terminals at the Port are in compliance with the California On-Road Heavy-
12 Duty Diesel Emission Standards. Instead the Project assumes emission reductions from
13 Clean Truck Program, including the truck ban independent of truck origin, which results
14 in equal to or greater emissions savings.

15 **C.5.12 HDV12 – Early ULSD Implementation**

16 **Description**

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

19 **Feasibility**

20 This measure is considered feasible from a Port standpoint because the Port can take
21 measures to facilitate the availability of ULSD in the Port area. This measure is not
22 included as Project mitigation in the EIS/EIR for the proposed container terminal at
23 Berths 97-109 because it would apply to heavy-duty vehicles Portwide. Instead the
24 Project assumes emission reductions from Clean Truck Program, which results in equal
25 to or greater emissions savings.

26 **C.5.13 HDV13 – Retrofit Heavy-Duty Diesel Vehicles with 27 Diesel Oxidation Catalysts**

28 **Description**

29 Under this measure, diesel PM from on-road trucks would be reduced by approximately
30 20 percent through the installation of DOCs, which would be installed on all Gateway
31 Cities-funded on-road trucks (model year 1993 and older) from the NNI plan adoption to
32 June 2006 and on all trucks funded prior to plan adoption.

33 **Feasibility**

34 This measure is considered feasible from a Port standpoint because the Port is a sponsor
35 of the Gateway Cities Truck Modernization Program. This measure has not been
36 included as Project mitigation in the EIS/EIR for the proposed container terminal at
37 Berths 97-109 because it would apply to heavy-duty vehicles Portwide. Instead the
38 Project assumes emission reductions from Clean Truck Program, which results in equal
39 to or greater emissions savings.

C.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 97-109 because it would apply to heavy-duty vehicles Portwide. Instead the Project assumes emission reductions from Clean Truck Program, which results in equal to or greater emissions savings.

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

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 fleets, 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 97-109 because it would apply to heavy-duty vehicles Portwide.

C.5.16 HDV16 – On-Board Diagnostics for Heavy-Duty Trucks

Description

Under this measure, the CARB will require heavy-duty engines used in trucks to be equipped with on-board diagnostic (OBD) systems that monitor the emission controls on the engine and detect a fault when one or more of the emission-related components is malfunctioning. Upon detecting a fault, the system illuminates a warning lamp on the dash and stores fault information that can be used by repair technicians to identify the

1 cause of the fault. This measure, as proposed, would require implementation on all 2010
2 and subsequent model year engines to reduce NO_x, PM, HC, and CO emissions.

3 **Feasibility**

4 Given that many of the emission controls, such as NO_x adsorbers, DPFs and SCR
5 systems, will be newly introduced starting in the 2010 model year, manufacturers will
6 have limited experience with those controls; and the added burden of developing
7 diagnostics for this control measure may be challenging. This measure, however, is
8 considered feasible from a state agency standpoint (CARB) because the CARB has the
9 authority to establish emission standards for on-road truck engines and because engine
10 manufacturers could refine the diagnostics for the control technologies. This measure is
11 not considered feasible from a Port perspective because the Port does not have authority
12 over engine standards. This measure is not included as Project mitigation in the EIS/EIR
13 for the proposed container terminal at Berths 97-109 because it would apply to heavy-
14 duty vehicles Portwide. Instead the Project assumes emission reductions from Clean
15 Truck Program, which results in equal to or greater emissions savings.

16 **C.5.17 HDV17 – Transportation Refrigeration Units**

17 **Description**

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

25 **Feasibility**

26 This measure may not be necessary due to the current practice of not operating TRUs
27 within short distances from the Port of Los Angeles (from sufficient residual cooling
28 capacity of refrigerated trailers). The necessity of this measure is still being evaluated.
29 This measure is considered feasible from a state agency standpoint (CARB) because the
30 CARB has the authority to establish emission standards for engines that power TRUs, but
31 is not considered feasible from a Port perspective because the Port does not have such
32 authority. This measure is not included as Project mitigation in the EIS/EIR for the
33 proposed container terminal at Berths 97-109 because it would apply to TRUs Portwide,
34 because TRUs are not dedicated to a particular terminal, and the number of refrigerated
35 containers varies. Thus, the emission reductions realized at Berth 136-147 would be
36 difficult to quantify.

37 **C.5.18 HDV18 – Electrified Truck Spaces**

38 **Description**

39 Under this measure, the Port would require heavy-duty diesel trucks serving the Port of
40 Los Angeles to use off-truck electrical systems while parked at truck spaces in lieu of
41 idling the main drive or auxiliary engines. Electrification of truck spaces is the action of

1 using off-truck electric power to operate on-truck or trailer TRUs, in-cab appliances, or
2 directly supplied heating and air conditioning while heavy-duty diesel trucks are parked
3 in truck spaces. Truck space electrification allows the truck operator to run the on-truck
4 or trailer systems without operating the truck main drive or auxiliary engine, thereby
5 reducing NO_x and PM emissions.

6 **Feasibility**

7 This measure needs to be further evaluated to determine applicability to truck transport of
8 Port-related cargo and potential impacts and emission benefits. This measure would
9 require installation of electrical infrastructure at truck space locations and modifications
10 to trucks to accept and utilize outside power for truck uses that are typically powered by
11 main or auxiliary diesel engines. This measure is not feasible for Port operations as it
12 would not reduce emissions. Truck stops provide plug-ins for trucks that are stopped for
13 an extended period of time for example, when the truck is parked overnight. During
14 overnight stops, truck drivers often idle their engines to operate air conditioning or heat
15 in their sleeper cabs, or on-board appliances. Plug-in facilities allow the truck to turn its
16 engine off and draw electricity from the grid to operate heating and/or cooling systems
17 and on-board appliances. The trucks at the China Shipping terminal do not park or idle in
18 one place long enough to plug-in. In regards to general idling restrictions, TraPac's new
19 terminal design, plus a container optical character recognition scanning system,
20 eliminates the need for queuing at the gate. Once in the terminal, the truck idles only to
21 yield to other traffic and when hooking or un-hooking loads. These movements are
22 short-term and occur at various locations making plug-in receptacles impractical.
23 Therefore, this is not a feasible measure. At present, the availability/feasibility of
24 requiring idling restrictions on terminal equipment and its effect on terminal operations is
25 unknown. The Port will review the feasibility of such measures through the TAP, and if
26 warranted, include such measures in the next revision to the CAAP.

27 **C.5.19 HDV19 – Idling Reduction Measures**

28 **Description**

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

33 **Feasibility**

34 This measure needs to be further evaluated to identify a suite of idling-reduction
35 measures that can be implemented. This measure is considered feasible from a Port
36 perspective because the Port has the authority to establish or implement truck idling-
37 reduction measures within the Port. This measure is included as Project mitigation in the
38 EIS/EIR for the proposed container terminal at Berths 97-109 and requires the terminal
39 operator to identify and implement various truck idling-reduction measures. Emission
40 reductions, however, are not quantified because the amount of idling reduction that can
41 be achieved is not certain at this time.

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					
	Measure	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?	4. (b) Is the measure feasible? (If not, why?)	Mitigation Measure
OCEAN-GOING VESSELS					
OV1	New Engine Standards for Ships	Yes, air pollutant emissions.	Possible	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	Yes, air pollutant emissions.	Yes	Yes	Yes
OV3	Alternative Maritime Power (AMP)	Yes, air pollutant emissions.	Yes	Yes	Yes
OV4	Auxiliary Engine Fuel Improvement Program	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes
Engine Standards					
OV5	New Engine Standards for Category 3 Marine Engines	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	No, however, future EPA engine standards would reduce unmitigated Project emissions.
OV6	Reroute Cleaner Ships	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes
OV7	Low Emission Main Propulsion Engines	Yes, air pollutant emissions.	Yes, for ship emissions.	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	Yes, air pollutant emissions.	Yes, for ship emissions.	No, no Port control.	No, however, Goal is met by a mitigation measure
OV10	Main Engine Fuel Improvement Program	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes
OV11	Creation of a Sulfur Emission Control Area (SECA)	Yes, air pollutant emissions.	Yes, for ship emissions.	No, no Port control.	No, however, Goal is met by a mitigation measure

NNI Air Quality Mitigation Measures					
	Measure	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?	4. (b) Is the measure feasible? (If not, why?)	Mitigation Measure
OV12	Expanded Auxiliary Engine Fuel Improvement Program	Yes, air pollutant emissions.	Possible, study underway.	Possible, feasibility study in process.	Yes
OV13	Expanded Main Engine Fuel Improvement Program	Yes, air pollutant emissions.	Possible, study underway.	Possible, feasibility study in process.	Yes
Repower/Retrofit					
OV14	Additional Auxiliary Engine Reductions for Frequent Callers	Yes, air pollutant emissions.	Yes, for ship emissions.	No, no Port control.	Yes
OV15	Retrofit/Repower Requirements for Infrequent Callers	Yes, air pollutant emissions.	Yes, to offset ship emissions.	No, no Port control, but is expected by 2015.	Yes
Operational Efficiencies or Improvements					
OV16	Expanded VSR Program	Yes, air pollutant emissions.	Yes, for ship emissions.	Yes	Yes
OV17	Expanded AMP	Yes, air pollutant emissions.	Yes, for hoteling emissions.	Yes	Yes
OV18	Additional In-Use Measures for Ships	Yes, air pollutant emissions.	Yes	No, no Port control.	No, however, future EPA or ARB regulations may reduce unmitigated Project emissions and mitigation includes a future technology lease clause.
HARBOR CRAFT					
HC1	New Engine Standards for Harbor Craft	Yes	Yes	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	Yes	Yes	Yes	No, however, measure is assumed in baseline emissions calculations.
HC3	Early Implementation of Ultra Low Sulfur Diesel (ULSD)	Yes	Yes	Yes	Yes
HC4	Dredging Activities	No	No	No, no impacts	No

NNI Air Quality Mitigation Measures					
Measure		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?	4. (b) Is the measure feasible? (If not, why?)	Mitigation Measure
HC5	Technical Advisory Committee (TAC) Harbor Craft Measures				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	No	No	No, no Port control.	No, however, future EPA engine standards may reduce unmitigated Project emissions.
Fuel Requirements					
HC7	Emulsified Fuels	Yes	Yes	No	Emulsified Fuels are no longer available.
Repower/Retrofit					
HC8	In-Use Harbor Craft Emission Reduction Measure/Airborne Toxic Control Measure (ATCM)	Yes	Yes	No, no Port control.	No
HC9	Repower Existing Harbor Craft	Yes	Yes	Yes	Ongoing Portwide program, not listed as Project mitigation.
HC10	Retrofit Existing Harbor Craft	Yes	Yes	Yes	No, would have to occur at a Portwide level.
Operational Efficiencies or Improvements					
HC11	AMP-Ready Staging Areas	Yes	Possible	No, AMP not cost effective.	No
CARGO HANDLING EQUIPMENT					
CHE1	Emission Standards for Heavy-Duty Nonroad Diesel Engines	Yes	Yes	Yes, emission standards in effect.	No, however, measure is included in baseline emissions calculations.
CHE2	Yard Tractor Modernization and ULSD Programs	Yes	Yes	Yes	No, Project mitigation requires LPG instead of ULSD.
CHE3	Early Implementation of ULSD for CHE (Other than Yard Tractors)	Yes	Yes	Yes	No, Project mitigation requires emulsified fuels instead in Phase I and Alternative Fuel in
CHE4	Alternative Fuel Yard Tractor Resolution	Yes	Yes	Yes	Yes
CHE5	Emulsified Fuels	Yes	Yes	Yes	Yes

NNI Air Quality Mitigation Measures					
	Measure	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?	4. (b) Is the measure feasible? (If not, why?)	Mitigation Measure
CHE6	Technical Advisory Committee (TAC) CHE Measures	Yes	Yes	Yes	Yes, some measures include as Project mitigation.
	Engine Standards				
CHE7	Expanded Yard Tractor Modernization	Yes	Yes	Yes	No, implemented LGP instead.
CHE8	Enhanced CHE Modernization	Yes	Yes	Yes	Yes
	Repower/Retrofit				
CHE9	Cargo Handling Equipment at Ports and Intermodal Rail Yards	Yes	Yes	Yes	No
	RAIL				
R1	Tier 0, 1, and 2 Engine Standards for New and Remanufactured Locomotives and Locomotive Engines	Yes	Yes	Yes	No, however, measure is included in baseline emissions calculations.
R2	ARB Diesel Fuel Used by Intrastate Locomotives	Yes	Yes	Yes	No, however, measure is included in baseline emissions calculations.
R3	Federal Standards for Nonroad Diesel Fuel	Yes	Yes	Yes	No, however measure is included in baseline emissions calculations.
R4	Memorandum of Understanding (MOU) in the South Coast Air Basin	Yes	Yes	Yes	No, no Port control.
R5	PHL Switcher Locomotive Modernization and ULSD Programs	Yes	Yes	Yes	No, would be done on a Portwide basis.
	Engine Standards				
R6	Ultra-Low Emission Switcher Locomotives: PHL	Yes	Yes	Yes	No, would be done on a Portwide basis.
R7	Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1	Yes	Yes	Yes	No, would be done on a Portwide basis.
R8	Tier 3 Engine Standards for New and Remanufactured Locomotives and Locomotive Engines	Yes	Yes	Yes	No, no Port control.
R9	Fuel Requirements				
R10	ARB Diesel Fuel for Class 1 Railroad Locomotives	No	No	No, not applicable.	No

NNI Air Quality Mitigation Measures					
Measure	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?	4. (b) Is the measure feasible? (If not, why?)	Mitigation Measure	
Repower/Retrofit					
R11	Idling Controls for Switcher and Line Haul Locomotives	No	No	No, not applicable.	No
Operational Efficiencies or Improvements					
R12	Efficiency Improvements on In-Use Class 1 Rail Equipment	No	No	No, not applicable.	No
R13	Electrification of Alameda Corridor and Alameda Corridor East	No	No	No, not applicable.	No
HEAVY DUTY VEHICLES					
HDV1	2004 On-Road Standards for Heavy Duty Diesel Vehicles	Yes	Yes	Yes	Yes as part of the Clean Truck Program
HDV2	2007 On-Road Standards for Heavy-Duty Diesel Vehicles	Yes	Yes	Yes	Yes as part of the Clean Truck Program
HDV3	Gateway Cities Truck Modernization Program	Yes	Yes	Yes, ongoing Port program.	No, but this is an ongoing Port program.
HDV4	Engine Software Upgrade (or Low NOx Software Upgrade)	Yes	Yes	Possible	No, but goals would be met through the Clean Truck Program
HDV5	Ultra Low Sulfur Diesel Fuel (15 ppm)	Yes	Yes	Yes	No, however, measure is included in baseline emission calculations.
HDV6	Heavy-Duty Vehicle Inspection	Yes	Yes	Possible	Yes as part of the Clean Truck Program
HDV7	Periodic Smoke Inspection Program (PSIP)	Yes	Yes	Possible	No, no Port control.
HDV8	Augment Truck and Bus Highway Inspections with Community-Based Inspections	Yes	Yes	Possible	No, no Port control.
HDV9	Reduced Truck Idling	Yes	Yes	Yes	Yes
Engine Standards					
HDV10	Expanded Truck Modernization Program	Yes	Yes	Yes	Yes as part of the Clean Truck Program
HDV11	California Heavy-Duty Diesel Vehicle Standards and Fleet Modernization for Mexican Trucks	No	No	No, no Mexican trucks in Port fleet.	No

NNI Air Quality Mitigation Measures					
Measure	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?	4. (b) Is the measure feasible? (If not, why?)		Mitigation Measure
Fuel Requirements					
HDV12	Early ULSD Implementation	Yes	Yes	Yes	No, would be implemented at a Portwide level.
Retrofit/Repower					
HDV13	Retrofit Heavy-Duty Diesel Vehicles with Diesel Oxidation Catalysts (DOC)	Yes	Yes	Yes	No, but goals would be met through the Clean Truck Program
HDV14	Retrofit Heavy-Duty Diesel Vehicles with Diesel Particulate Filters (DPF)	Yes	Yes	Yes	No, but goals would be met through the Clean Truck Program
HDV15	PM In-Use Emission Control	Yes	Yes	Yes	No, but goals would be met through the Clean Truck Program
Operational Efficiencies and Improvements					
HDV16	On-Board Diagnostics (OBD) for Heavy-Duty Trucks	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV17	Transportation Refrigeration Units (TRU)	Yes	Yes	Yes	No, would be implemented at a Portwide level.
HDV18	Electrified Truck Spaces	Yes	Yes	Yes	No, not consistent with terminal operations.
HDV19	Idling Reduction Measures	Yes	Yes	Yes	Yes