

CANDIDATE ACTIONS DRAWN FROM SUGGESTED SOURCE DOCUMENTS

The Source Document Work Team of the Port of Oakland Maritime Air Quality Task Force produced this document, drawing on Source Documents suggested during stakeholder assessment interviews and suggestions offered by Task Force members. The candidate actions are organized into 10 categories below, as labeled A through J. Work Team members recognize that many candidate actions could fit into more than one category. This list of candidate actions is intended to be a starting point for Task Force discussion. It is expected that Task Force members will have additions to this list, and that further description or classification of the candidate actions may be useful.

Two appendices are included with this document:

1. **Appendix A** directly excerpts additional candidate actions from the CA Goods Movement Action Plan.
2. **Appendix B** links the candidate actions below (by number) with their corresponding location in the original Source Document from which they were drawn.

A. Numerical Objectives:

1. Reduce goods movement emissions at least back to 2001 levels by 2010.
2. Reduce statewide diesel PM health risk from goods movement by 85% by year 2020.

B. Overall Process and Approach:

3. Apply emissions reductions strategies for ports and goods movement statewide.
4. Adapt and incorporate the state's findings and resolutions for goods movement (including ARB Resolution 06-14) and apply them at the local level as a starting point for clean-up at the Port of Oakland. At a minimum, this would require an 85% reduction in diesel risk from goods movement related activities by 2020.
5. Make every feasible effort to reduce localized risk in communities adjacent to goods movement facilities as expeditiously as possible.
6. Establish a shared assumption that "further growth of the ports and shipping could not proceed without dealing with community impacts."
7. Place impacted communities at the center of decision-making on the growth of freight transport and make community health concerns front and center ("ground zero").
8. Include mitigation funding for community impacts with all new infrastructure projects.
9. Incorporate environmental justice principles and analysis in freight transport planning.
10. Apply a "best available green technology" standard to all measures in the Port of Oakland MAQIP.
11. Subject all final project plans for freight transport expansion to CEQA review and perform mitigation for every infrastructure project both independently and as an entire system to account for systemwide impacts.
12. Environmental impacts should be measured against the short- and long-term environmental gains of the Port Redevelopment Project. Short-term gains would be achieved through increased public access to open space, accompanying recreational opportunities, and enhancement of marine habitat along the Oakland Middle Harbor. Long-term gains include maintaining public access and open space along the San Francisco Bay shoreline, and protecting biological resources in the area.
13. The Port Commission must be very involved, set policies and drive the process.

14. Ensure Port staff are well organized and aggressive about getting needed information; the Port must involve the relevant agencies with technical expertise, including the Air Resources Board, Air District and U.S. EPA.
 - Create an "agency caucus," with a role that is transparent to the community and other sectors.

C. Port Administration:

15. Continue to test cleaner fuels and technologies
 - Include an alternative fueling station in redevelopment design
16. Establish employee programs to facilitate sustainable commuting.
17. Provide leadership in energy and environmental design.
18. Conduct energy audits and implement feasible improvements.

D. Public Health:

19. Establish a Public Health and Safety Department within the Port:
 - Share accountability among the Port, the City, and the County with the support and involvement of all three.
 - Involve this Department in developing and implementing mitigation measures and other aspects of addressing health impacts of goods movement.
20. Collect a fee (from the Port itself, shipping lines, or terminal operators) to establish and support a community fund. Community members would then use the fund to support pollution reduction efforts and health initiatives such as an asthma clinic and health education program.
21. Develop an inventory of toxic air contaminants (TAC) and identify locations and populations with a relatively high health risk.
22. Use the findings of the Bay Area Air Quality Management District's CARE program to design and implement measures for exposure reduction.
23. Require importers, exporters, shippers, rail companies and other industries to pay the full costs of moving goods through California, including the health costs from pollution that are borne by California Residents. Example Options: Companies pay a charge for each container that comes and leaves ports; a percentage of the funds are used to mitigate community impacts.
24. Evaluate the actual cost to California taxpayers and insurance ratepayers for freight transport. Ultimately, California taxpayers pay for the uninsured affected by freight transport morbidity, and insured Californians affected by freight transport will end up driving up health insurance cost to others.

E. Trucks:

25. Implement a Clean Trucks Program.

Key elements of the San Pedro Bay Ports (Los Angeles and Long Beach) Proposed Clean Trucks Program include:

- State a goal of replacing or retrofitting 16,000 trucks over 5 years to meet a "clean truck" standard.
- Establish the "clean truck" standard:
 - Diesel trucks manufactured 2007 or newer.
 - Retrofitted trucks manufactured 1994 – 2006.
- Ban older trucks from Port terminals in a phased 5-year schedule.

(continued):

- Charge a “Truck Impact Fee” (based on Port tariff authority) to trucks not meeting the “clean truck” standard when accessing Port terminals. The “Truck Impact Fee” will:
 - Be paid by the motor carrier.
 - No longer be charged once the entire fleet has been turned over.
- Ports provide trucking concessions to trucking companies:
 - Charge a license fee to obtain a trucking company concession
 - Require employee drivers rather than owner/operators (after a transition period)
 - Do not limit the number of concessionaires to start
 - Give preference to existing owner/operator drivers
 - Require concessionaires to participate in City workforce development initiatives
 - Require concessionaires to certify drivers and adhere to national and local security standards
- Elements of the Concession Truck Replacement and Retrofit Program include:
 - Clean Truck Replacement and Retrofit Grants are given only to licensed concessionaires, with the amount based on miles driven and frequency of Port calls.
 - Subsidized trucks must be concessionaire owned and are contractually required to stay in Port service for a specific period of time or mileage
 - The owner of the old truck will be paid for the truck and the truck will be scrapped.
 - All trucks in the program will be issued radio frequency identification (RFID) tag for tracking.
 - Concessionaires will be required to establish maintenance and training programs
- Funding for the Clean Trucks Program is shared among the Ports, the local Air Quality Management District, Proposition 1B Funds, and the “Truck Impact Fee”
- It is envisioned that a third party will administer the Clean Trucks Program

26. Provide truck services (fueling, truck repair, food and beverages) at the Port of Oakland.
27. Maximize implementation of “paperless gate;” such as RFID in combination with web-based booking systems to prevent gate congestion and idling and use OCR for gate efficiency.
28. Implement mandatory web-based reservation systems, giving preference to trucks participating in diesel reduction strategies.
29. Implement increased gate hours (decreasing congestion).
30. Conduct terminal efficiency studies and improvements.
31. Continue terminal gate and roadway efficiencies for congestion relief.
32. Use design/operational measures such as subsidized parking, synchronized traffic signals, and driver training.
33. Have the Port of Oakland provide financial incentives to replace older trucks.
34. Identify and retrofit eligible equipment such as diesel particulate filters (DPF) or diesel oxidation catalysts (DOC) and fuel saving devices that would also reduce greenhouse gas emissions.
35. Study the feasibility of a heavy duty truck test station.
36. Provide electrified parking spaces for trucks to reduce unnecessary idling.
37. Allow alternative fuel trucks to the front of the truck queues.
38. Pass anti-idling rules and enforce anti-idling at terminal gates.
39. Encourage the use of biodiesel and other alternative fuels.
40. Decrease truck traffic by increasing the percentage of containers moved by rail.
41. Perform feasibility study of short sea shipping as an alternative to truck transport.
42. Evaluate dedicated terminal to railyard routes.
43. Convene a stakeholder process to create a designated truck route that does not travel through the West Oakland neighborhood.

44. Institute a collaborative effort among the West Oakland community, the Oakland Police Department, and the Port to increase enforcement & penalties on prohibited truck routes in West Oakland.
45. Take steps to limit the impact of Port construction operations related to the Oakland Army Base redevelopment.
46. By 2011, require all trucks calling at the port frequently or semi-frequently to meet or exceed the EPA 2007 on-road particulate matter (PM) emissions standards (0.01 G/BHP – HR for PM), and be the cleanest available oxides of nitrogen (NOx) at the time of replacement or retrofit.

F. Ocean Going Vessels:

47. Ensure the best technologies are incorporated into new equipment purchases.
48. Where possible, provide grants, in-kind monies, and other financial support to owners/carriers to encourage them to test new technologies on their vessels.
49. Retrofit existing engines to decrease emissions.
50. Use cleaner fuels at berth and at anchor, with a focus on frequent callers.
51. Standardize the use of marine gas oil (MGO) (less than 1.5 % Sulfur (S)) fuels in the main engines during transit and maneuvering, moving towards a 0.1% S standard as appropriate fuels become available.
52. 100% use of cleaner fuels, such as 0.1% S in the auxiliary engines at anchor and at dock for vessels with adequate tank capacity. Assess the feasibility for vessels other than frequent callers, including vessels at anchor and vessels with smaller tank capacity.
53. Use $\leq 0.2\%$ Sulfur Marine Gas Oil (MGO) Fuel in vessel auxiliary and main engines at berth and during transit out to a specified distance from the Port.
54. Study feasibility of hybridization or electricity generation during voyage.
55. Implement operational efficiency improvements during Port development to reduce time at anchor and at dock
56. Implement additional at-dock (e.g. stack after-treatment) and during voyage (e.g. electrification or scrubbing) emissions reduction options deemed viable.
57. Use of diesel particulate matter (DPM) and NOx control devices on auxiliary and main engines mandated on new vessel builds and existing frequent callers.
58. Use “Cold-Ironing” technology to shut down auxiliary engines on ocean-going ships while in port by connecting to electrical power supplied at the dock.
59. Conduct feasibility studies for other types of shore power or other at-dock treatment infrastructure.
60. Evaluate and update environmentally preferable vessel design considerations for future new builds and prepare a list of such vessel design features to promote with owners, carriers, yards, and the general industry.
61. Increase compliance with vessel speed reduction requirements out to a specified distance from the Port.

G. Harbor Vessels:

62. Use ultra low sulfur diesel and/or bio-fuel blends for cleaner emissions.
63. Support efforts to increase fuel efficiency.
64. Run pilot programs to test hybridization.
65. Commit to working with owners and operators to implement pilot projects, including educational campaigns.

66. Require all home-based harbor craft to meet most EPA Tier II standards for harbor craft of equivalent reductions.
67. By a specified time, require all previously repowered home based harbor craft to be retrofitted with the most effective CARB verified NOx and or PM emissions reduction technologies. When Tier III engines become available, all home based harbor craft will be repowered with new engines.

H. Cargo Handling Equipment (CHE):

68. Increase fuel efficiency by using hydraulic hybrids.
69. Standardize the use of Ultra low-sulfur diesel and/or biofuel and promote the use of cleaner fuels and lubricants where appropriate.
70. Use CHE with hybridization or full-electrification technologies, as feasible.
71. Replace equipment with lighter, more efficient straddle carriers, rubber tired gantries (RTG), or fully-electric rail mounted gantry (RMG) cranes, and use Tier 4 engines for yard tractor fleet.
72. Complete retrofits of suitable CHE with exhaust treatment equipment.
73. Implement idle reduction education, technology, and policy program with provisions to assure terminal adherence to anti-idling policies and procedures.
74. Identify opportunities for and maximize the use of regenerative energy technologies for CHE.
75. Use crankcase emission reduction systems equipment.
76. Complete full-scale fleet upgrade to the best available technology.
77. Maximize operational efficiency and terminal design as port development occurs and negotiate cleaner alternatives at the time of major modifications and lease negotiations.
78. Use lease measures and project reviews to drive continuous improvements and emissions reductions.
79. Require all yard tractors to meet a minimum EPA 2007 On-road or Tier IV engine standard by the end of 2010.
80. Require all CHE with engines with > 750 hp to meet, at a minimum, the EPA Tier IV of road standards by the end of 2014. Starting 2007, require all CHE with engines < 750 hp to be equipped with the cleanest available VDEC verified by CARB.

I. Rail:

Key elements of the 2005 CARB/Railroad Statewide Agreement (Memorandum of Understanding):

81. Utilize a uniform statewide approach in addressing emissions at rail yards to provide the greatest and most immediate health and welfare benefits to the people of California.
82. Eliminate non-essential locative idling both inside and outside of rail yards by installing automatic idling-reduction devices on 99% of unequipped intrastate locomotives by 2008.
83. Use lower-sulfur diesel in 80% of locomotives operating in California by December 2006.
84. Ensure that the incidence of locomotives with excessive visible emissions is very low through the Visible Emission Reduction and Repair Program.
85. Conduct early review of air emissions impacts from designated yards – with ensuing mitigations.
86. Identify the risks from toxic air contaminants that rail yards represent in affected communities through Health Risk Assessments of Toxic Air Contaminants at designated California Rail Yards.
87. Fund mitigation programs through sources such as railroads and industries, the Carl Moyer program and US EPA.

(continued):

88. Evaluate "Remote Sensing" technology to identify high-emitting in-use locomotives along the tracks. (Page 11)
 89. Evaluate medium-term and longer-term alternatives such as diesel particulate filters and oxidation catalysts and the use of lower-emission technologies such as LNG or CNG fueled locomotives.
 90. Leverage penalties for non-compliance with idling provisions or failure to meet program requirements.
91. Use ultra low sulfur diesel and/or biofuel in switch yard and line haul locomotive engines.
 92. Identify all suitable switching locomotives for re-power with cleaner and more efficient engines or retrofit with after treatment devices.
 93. Complete the evaluation of switch yard electrification for long-term objectives.
 94. Evaluate and pilot the use of a hybrid switching engine.
 95. Specify a date by which any new switch engine acquired must meet EPA Tier III standards.
 96. Standardize routine stack opacity tests on locomotives.
 97. Implement efficiency improvements to switchyards including electrification of lift equipment and RFID system implementation.
 98. Implement freight car productivity improvements, incorporating technologies that reduce train resistance (drag).
 99. Increase port-wide rail and switching yard efficiencies and identify the feasibility of on-dock rail as alternative to near dock rail.
 100. Actively pursue pilots and demonstration projects of existing technologies such as switch-engine anti-idling and recapturing electricity during line haul.
 101. Over a specified transition period, require the fleet average for Class I Long Haul Locomotives calling at port properties to be Tier III equivalent PM and NOx and to use 15 minute idle restrictors.
 102. Require any new rail yards developed or significantly redesigned to operate the cleanest available technology for switcher, helper, and long haul locomotives by utilizing idling shut-off devices and exhaust hoods, using only ULSD or alternative fuels and have clean only OHE's and HDV's consistent with a clean air action plan.

J. Candidate Actions involving non-Port Institutions:

103. Regulate truck idling to less than 30 minutes within Port terminals (Bay Area Air Quality Management District)
104. Install traffic Barriers on streets where trucks are prohibited. (City of Oakland)
105. Pass an ordinance prohibiting overnight truck parking in residential areas. (City of Oakland)
106. Develop a biodiesel consortium (City of Oakland, Port of Oakland, City of Berkeley, West Oakland community).
107. Provide clear direction. (Oakland Mayor's office)
-Involve the community in selecting replacements for Port Commission vacancies.
108. Sponsor a Healthy Homes Project utilizing technology and design practices to reduce the amount of dangerous pollution residents breathe inside their homes. (Alameda County Public Health Department and the California Department of Health Services)
109. Encourage common-sense regulations on land-use – CARB land-use guidelines clearly indicate approving new housing within 500 feet of major sources of diesel pollution is not recommended due to health risk, yet city councils continue this practice. (Local jurisdictions)
110. Regulate hubs in the freight transportation system as large fixed sources, similar to factories.

Key Policy Recommendations of the Bay Area Air Quality Management District's CARE Program (Phase I):

111. Target mitigation efforts to areas with high toxic air contaminant emissions and sensitive populations based on Phase I findings.
112. Focus grant and incentive programs such as the Carl Moyer Program, the Transportation Fund for Clean Air, and the Mobile Source Incentive Fund to areas with high toxic air contaminants and sensitive populations based on Phase I findings.
113. Engage affected communities through continued public involvement efforts. Work with local Resource Teams to encourage public involvement and use public workshops to explain new regulations and communicate findings.
114. Continue collaboration with other governmental agencies such as Cal/EPA, the ARB, the Metropolitan Transportation Commission, and the Port of Oakland to reduce air quality impacts.
115. Develop model ordinances on issues such as idling of diesel equipment for adoption by local jurisdictions.
116. Regulate criteria pollutant and toxic emissions from stationary sources and indirect sources based on Phase I findings.
117. Sponsor and/or support legislation to reduce criteria pollutant and toxic emissions, such as SB 1601 which would have required Best Available Control Technology to reduce emissions at California ports. Phase I findings will help identify and advocate for additional legislation.

**APPENDIX A:
CANDIDATE ACTIONS FROM THE
CALIFORNIA GOODS MOVEMENT ACTION PLAN**

The following pages are directly excerpted without modification from the California Goods Movement Action Plan.

The chart shows Candidate Actions from Section V of the Goods Movement Action Plan. The Source Document Work Team recognizes that many of the candidate actions listed in this Appendix are location-specific and may not be directly applicable to the MAQIP planning process. The Work Team sees value in distributing the full chart of candidate actions to the Task Force so that Task Force members see a range of candidate actions in relation to goods movement.

The full text of the Goods Movement Action Plan is available at:
<http://www.arb.ca.gov/gmp/docs/gmap-1-11-07.pdf>

**TABLE V-1
PRELIMINARY CANDIDATE ACTIONS – SUMMARY FOR FOUR CORRIDORS**

	Immediate Actions	Short-Term Actions (0-3 years)	Intermediate-Term Actions (4-10 years)	Long-Term Actions (more than 10 yrs)
Infrastructure and Operations	<u>Operational Improvements</u>	<u>Infrastructure Projects</u>	<u>Infrastructure Projects</u>	<u>Infrastructure Projects</u>
	<p>Ships</p> <ul style="list-style-type: none"> ➤ Spread out vessel sailings and arrivals in the trans-Pacific trade. ➤ Evaluate short- sea shipping – including environmental impacts. ➤ Increase “destination loading” on ships from the Far East. ➤ Finalize ARB ship auxiliary engine rule (OAL review). <p>Ports</p> <ul style="list-style-type: none"> ➤ Operate PierPass port extended gate hours program. ➤ Implement PierPass drayage truck fleet emission reduction program. ➤ Expand labor force at the ports. ➤ Improve labor work rule flexibility to enable increased daily truck turns. ➤ Implement virtual container yards. ➤ Implement incentives to limit container dwell time. ➤ Finalize ARB intermodal cargo equipment rule (OAL). <p>Rail</p> <ul style="list-style-type: none"> ➤ Evaluate shuttle train pilot project performance. ➤ Utilize more rail for long haul. ➤ Finalize ARB intermodal cargo equipment rule (OAL). <p>Trucks</p> <ul style="list-style-type: none"> ➤ Develop regional or national chassis pools. ➤ Implement port-wide terminal appointment systems for truckers. <p>Other</p> <ul style="list-style-type: none"> ➤ Employ better trade and transportation forecasting. ➤ Improve communications of fluctuating demand forecasts for labor and equipment among carriers, railroads, and terminal operators. ➤ Develop comprehensive goods movement data collection methodologies, modeling, and data evaluation. ➤ Enact public-private partnership legislation. ➤ Enact design-build and design sequencing legislation. 	<ul style="list-style-type: none"> ➤ State Route 47, Alameda Corridor Expressway (includes Schuyler Heim Bridge replacement). ➤ I-710 Early Action Project: Port Terminus Improvements. ➤ Port of Long Beach Gerald Desmond Bridge Replacement. ➤ Alameda Corridor East Grade Separations.* ➤ BNSF/UP, Los Angeles Basin Rail Capacity Improvements.* ➤ BNSF/UP Colton Crossing Rail Grade Separation.* ➤ Port of Oakland 7th Street/Union Pacific Grade Separation Reconstruction. ➤ Port of Oakland Outer Harbor Intermodal Terminal. ➤ Union Pacific Railroad Martinez Subdivision, Oakland to Martinez, Capacity Improvement Project. ➤ I-880 23rd and 29th Avenue Interchanges, Operational improvements. ➤ Altamont Pass Rail Corridor/Central Valley Rail Freight Shuttle Demonstration Project. ➤ State Route 905 Six-Lane Freeway (Mexico border/Otay Mesa port of entry to Interstate 805). ➤ Port of San Diego National City Marine Terminal Operational Improvements. ➤ BNSF Tehachapi Pass Double Track, Tunnels Modification. ➤ UP Central Corridor Double Track, Tunnels Modification. 	<ul style="list-style-type: none"> ➤ Alameda Corridor East Grade Separations.* ➤ BNSF “Southern California International Gateway” Near Dock Intermodal Facility. ➤ Union Pacific Near Dock Intermodal Container Transfer Facility. ➤ BNSF/UP Los Angeles Basin Rail Capacity Improvements.* ➤ Interstate 5 Truck Lanes, SR 14 to Calgrove Blvd. ➤ BNSF/UP Colton Crossing Rail Grade Separation. ➤ I-80 Cordelia Truck Scales. ➤ State Route 4 Extension to the Port of Stockton. ➤ I-580 Westbound Truck Climbing Lanes. ➤ I-580 Eastbound Truck Climbing Lanes. ➤ Otay Mesa East Border Crossing (new). ➤ State Route 11, State Route 905 to Otay Mesa East Border Crossing. 	<ul style="list-style-type: none"> ➤ Alameda Corridor East Grade Separations* ➤ BNSF/UP Los Angeles Basin Rail Capacity Improvements.*

* These infrastructure projects appear in more than one time frame due to the complexity and/or scope of the specific project(s).

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		Immediate Actions	Short-Term Actions (0-3 years)	Intermediate-Term Actions (4-10 years)	Long-Term Actions (more than 10 yrs)
Public Health and Environmental Mitigation – Air Quality	Ships	<ul style="list-style-type: none"> ➤ Support ratification of MARPOL Annex 6 for international shipping. ➤ Implement vessel speed reduction MOU in Southern California. ➤ Finalize ARB ship auxiliary engine rule (i.e., Office of Administrative Law (OAL) review). 	<ul style="list-style-type: none"> ➤ Utilize lower sulfur fuel (0.5% by 2007) for marine auxiliary engines. ➤ Dedicate cleanest vessels to California service (ongoing). ➤ Increase use of cleaner fuels in ships through voluntary or regulatory mechanisms (ongoing). ➤ Increase use of shore power or alternatives for ships through voluntary or regulatory mechanisms (ongoing). ➤ Expand vessel speed reduction program. 	<ul style="list-style-type: none"> ➤ Utilize lower sulfur fuel (0.1% by 2010) for ship auxiliary engines. ➤ Obtain Sulfur Emission Control Area (SECA) designation or alternative. ➤ Retrofit existing main engines on ships during major maintenance (ongoing). ➤ Install emission controls on ship main/auxiliary engines of frequent flyers (ongoing). ➤ Continue ongoing strategies. 	<ul style="list-style-type: none"> ➤ Continue ongoing strategies.
	Locomotives	<ul style="list-style-type: none"> ➤ Utilize CA low sulfur diesel for captive in-state locomotives. ➤ Implement 1998 Railroad MOU for South Coast Air Basin. ➤ Implement 2005 Statewide MOU for Rail Yard Risk Reduction. ➤ Conduct ARB training on locomotive idling restrictions. 	<ul style="list-style-type: none"> ➤ Upgrade engines in switcher locomotives by 2010. ➤ Retrofit existing locomotive engines with diesel PM controls. ➤ Use cleaner fuels in locomotives, particularly for captive fleets and/or new facilities. 	<ul style="list-style-type: none"> ➤ Implement Tier 3 US standards for line haul locomotives (new engine and rebuild standards). ➤ Implement US low sulfur fuel for interstate locomotives. ➤ Concentrate Tier 3 locomotives in California (ongoing). 	<ul style="list-style-type: none"> ➤ Continue ongoing strategies.
	Trucks	<ul style="list-style-type: none"> ➤ Utilize CA low sulfur diesel for trucks. ➤ Conduct smoke inspections for trucks in communities. ➤ Enforce 5 minute idling limit for trucks. ➤ Accelerate software upgrade for trucks. ➤ Implement incentives for cleaner trucks. 	<ul style="list-style-type: none"> ➤ Adopt and implement ARB rule to modernize (replace and/or retrofit) private truck fleets (ongoing). ➤ Modernize (replace and/or retrofit) port trucks (ongoing). ➤ Implement CA/US 2007 truck emission standards. ➤ Adopt and implement ARB rule to require international trucks to meet US emission standards. ➤ Enforce CA rule for transport refrigeration units on trucks, trains, ships. ➤ Enhance enforcement of truck idling limits. 	<ul style="list-style-type: none"> ➤ Restrict entry of trucks new to port service unless equipped with diesel PM controls. ➤ Continue ongoing strategies. 	<ul style="list-style-type: none"> ➤ Continue ongoing strategies.

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Public Health and Environmental Mitigation – Air Quality, Continued	Cargo Handling Equipment	<ul style="list-style-type: none"> ➤ Utilize CA low sulfur diesel for equipment. ➤ Finalize ARB intermodal cargo equipment rule (i.e., OAL review). ➤ Implement State incentives for cleaner fuels at Ports of Los Angeles and Long Beach. 	<ul style="list-style-type: none"> ➤ Implement ARB rule for cleaner cargo handling equipment through replacement, retrofit, or alternative fuels (ongoing). ➤ Adopt and implement ARB fork lift rule for gas-fired equipment (ongoing). ➤ Require green equipment for goods movement related construction and maintenance. 	<ul style="list-style-type: none"> ➤ Implement CA/US Tier 4 equipment emission standards. ➤ Upgrade cargo handling equipment to 85% diesel PM control or better. ➤ Continue ongoing strategies. 	<ul style="list-style-type: none"> ➤ Increase penetration of zero emission or near zero emission cargo handling equipment. ➤ Continue ongoing strategies.
	Commercial Harbor Craft	<ul style="list-style-type: none"> ➤ Implement incentives for cleaner harbor craft. 	<ul style="list-style-type: none"> ➤ Adopt tighter USEPA or ARB emission standards for harbor craft. ➤ Utilize CA low sulfur diesel for harbor craft. ➤ Clean up harbor craft through replacement, retrofit, or alternative fuels (ongoing). ➤ Use shore power for harbor craft at dock. 	<ul style="list-style-type: none"> ➤ Implement new USEPA or ARB engine standards for harbor craft. ➤ Implement incentives to accelerate introduction of new harbor craft engines. ➤ Continue ongoing strategies. 	<ul style="list-style-type: none"> ➤ Continue ongoing strategies.

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Public Health and Environmental Mitigation – Water Quality	<ul style="list-style-type: none"> ➤ Apply thoroughly and enforce existing water quality requirements (e.g., permits, certifications, etc.) on projects, and treat complaints, tips and violations (noncompliance with requirements) as a high priority – particularly at port operations areas, truck traffic idling areas, and upland disposal areas of any dredged materials. ➤ Identify waste load allocations (pollutant level targets, in terms of mass discharge allowed) for port-area water bodies currently listed as impaired [pursuant to Clean Water Act section 303(d)]. ➤ Review current ballast water exchange practices and identify opportunities to further mitigate exotic species introduction. ➤ Initiate studies to better understand relationship between airborne emissions in port areas and water quality and beneficial use impacts. ➤ Initiate studies to identify community impacts from project-related activities with regards to water quality and beneficial use of the waters (with special attention to potential environmental justice impacts and subsistence consumption and recreational uses). ➤ Identify sources of marine debris discharges in port areas and begin to eliminate them. ➤ Implement better land planning practices that employ the key principles of Low Impact Development (LID). For example: use site hydrology as the organizing principle for all others. <ul style="list-style-type: none"> ○ Match the initial abstraction and mimic natural water balance. ○ Employ a uniform, strategic distribution of small-scale controls. ○ Decentralize controls and disconnect impervious surfaces. ○ Minimize land disturbance and connected, impervious cover. ○ Incorporate natural site elements into design. 	<ul style="list-style-type: none"> ➤ Establish redundant systems to eliminate or reduce discharges of marine debris and other pollutants causing impairments. ➤ Establish performance measures to measure effectiveness of mitigation activities and overall mission to protect enhance and restore beneficial uses of waters in project areas. ➤ Continue to thoroughly apply and enforce existing water quality requirements (e.g., permits, certifications, etc.) on projects, and treat complaints, tips and violations (noncompliance with requirements) as a high priority – particularly at port operations areas, truck traffic idling areas, and upland disposal areas of any dredged materials. ➤ Apply waste load allocations (pollutant level targets, in terms of mass discharge allowed) for port-area water bodies approved and in force. ➤ Continue to identify waste load allocations (pollutant level targets, in terms of mass discharge allowed) for port-area water bodies currently listed as impaired [pursuant to Clean Water Act section 303(d)]. ➤ Implement better ballast water exchange practices and identify opportunities to reduce and further mitigate exotic species introduction. ➤ Implement recommendations from studies to reduce water quality and beneficial use impacts from airborne emissions in port areas. ➤ Implement recommendations from studies to enhance and restore water quality and beneficial use of the waters (with special attention to potential environmental justice impacts and subsistence consumption and recreational uses) in communities surrounding projects. ➤ Continue to implement better land planning practices that employ the key principles of Low Impact Development (LID). 	<ul style="list-style-type: none"> ➤ Monitor performance of systems employed and practices implemented in previous terms and revise plans or practices as needed. ➤ Ongoing implementation of short-term actions. 	<ul style="list-style-type: none"> ➤ Ongoing implementation of intermediate actions.

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Public Health and Environmental Mitigation - Hazardous Waste Management	<ul style="list-style-type: none"> ➤ Develop a statewide Hazardous Waste and Contaminated Media Management Plan for goods movement-related infrastructure projects to ensure the integrated, safe management of hazardous wastes and substances encountered during project design and construction. ➤ Account for the costs of any required management of contaminated soils, mitigation of other hazardous substances contamination, and oversight of compliance with related regulatory requirements in the planning and execution of infrastructure projects. ➤ Design infrastructure projects with an effort to minimize exposure to hazardous substances and to manage hazardous substances to minimize public health and environmental impacts of any removal, transportation, treatment, and onsite management. ➤ Ensure that hazardous substances mitigation approaches (such as on-site management, deed restrictions, etc.) will remain protective of public health and the environment for the life of the infrastructure project and that operations and maintenance plans that provide for ongoing monitoring and inspection of any remedial systems or site controls are in place where appropriate. 	<ul style="list-style-type: none"> ➤ Develop project specific Hazardous Waste and Contaminated Media Management Plans to ensure the integrated, safe management of hazardous wastes and substances encountered during project design and construction. 	<ul style="list-style-type: none"> ➤ Ongoing implementation of immediate and short-term actions. 	<ul style="list-style-type: none"> ➤ Ongoing implementation of immediate and short-term actions.

**TABLE V-1
PRELIMINARY CANDIDATE ACTIONS – SUMMARY FOR FOUR CORRIDORS**

	Immediate Actions	Short-Term Actions (0-3 years)	Intermediate-Term Actions (4-10 years)	Long-Term Actions (more than 10 yrs)
Community Impact Mitigation and Workforce Development	<p>Note: The actions listed in the Public Health and Environmental Mitigation section will provide significant health benefits to communities adjacent to ports, rail yards, intermodal facilities, and highways. Additional general actions include:</p> <p>Strategies</p> <ul style="list-style-type: none"> ➤ Enforce anti-idling rules. ➤ Reroute trucks. ➤ Conduct mitigation and pollution prevention. ➤ Develop community benefit agreements when desired by the community. ➤ Conduct targeted community assessments including monitoring as appropriate. ➤ Track emission reductions and estimated cancer risk reduction in communities. ➤ Preserve existing parks, open space, and natural areas. ➤ Coordinate with local city redevelopment departments to identify priority enhancement areas in adjacent communities. ➤ Develop and implement community enhancement projects. ➤ Emphasize landscaping and aesthetic improvements using local native plants. ➤ Increase enforcement of traffic and vehicle safety laws and regulations. ➤ Increase public and trucker education on safety and neighborhood issues. <p>Public Participation</p> <ul style="list-style-type: none"> ➤ Expand public outreach. ➤ Consult community members regarding infrastructure plans throughout the planning process. ➤ Establish Community Advisory Committee for the EIR /EIS stage of an infrastructure project (for projects that have not already gone through the environmental review process). 	<ul style="list-style-type: none"> ➤ Ongoing implementation of immediate actions. ➤ Use green equipment for construction of infrastructure projects (as available). ➤ Establish construction staging areas in locations to minimize impact on local circulation. ➤ Establish a community forum to address community concerns during construction. ➤ When considering operational changes to extend hours (including during construction), evaluate noise and light impacts on adjacent communities. ➤ Mitigate noise impacts in adjacent communities. ➤ Mitigate light impacts in adjacent communities. 	<ul style="list-style-type: none"> ➤ Ongoing implementation of immediate and short-term actions. 	<ul style="list-style-type: none"> ➤ Ongoing implementation of immediate, short-term, intermediate-term and long-term actions.

**TABLE V-1
PRELIMINARY CANDIDATE ACTIONS – SUMMARY FOR FOUR CORRIDORS**

	Immediate Actions	Short-Term Actions (0-3 years)	Intermediate-Term Actions (4-10 years)	Long-Term Actions (more than 10 yrs)
Community Impact Mitigation and Workforce Development, Continued	<p>Public Participation, Continued</p> <ul style="list-style-type: none"> ➤ Hold public meetings when members of the affected community can attend (e.g., in the evening). ➤ Include language translation where appropriate. ➤ Draw on knowledge and experience from the community. <p>Land Use Planning</p> <ul style="list-style-type: none"> ➤ Integrate port and city planning/promote use of buffer zones between ports and surrounding communities. <p>Workforce Development</p> <ul style="list-style-type: none"> ➤ Partner with the California Community Colleges Economic and Workforce Preparation Division, the California State University System and other institutions of higher learning, K-12, and employers to respond to the demand for qualified workers and continuous workforce improvement. 	<ul style="list-style-type: none"> ➤ Provide goods movement job training within affected communities. ➤ Develop industry driven and industry recognized certificate programs (and curriculum) in the areas of transportation, logistics support, warehousing and storage, supply chain management and safety and security. ➤ Provide logistics (goods movement) training to incumbent workers to enhance productivity and create higher skilled higher wage jobs in this sector. ➤ Placement of workers into logistics industry by creating awareness of job opportunities and preparing job seekers with employable traits as required by industry. 	<ul style="list-style-type: none"> ➤ Provide goods movement job training within affected communities. ➤ Continuously develop and offer for credit and not-for-credit logistics and goods movement curriculum. ➤ Replicate model across California. 	<ul style="list-style-type: none"> ➤ Provide goods movement job training within affected communities. ➤ Create an educational continuum by articulating curriculum from K-12 through graduate school to provide incumbent workers, employers, and job seekers with continuous educational opportunities.

**TABLE V-1
PRELIMINARY CANDIDATE ACTIONS – SUMMARY FOR FOUR CORRIDORS**

	Immediate Actions	Short-Term Actions (0-3 years)	Intermediate-Term Actions (4-10 years)	Long-Term Actions (more than 10 yrs)
Public Safety and Security	<p>Operational Improvements, Evaluations and Studies</p> <ul style="list-style-type: none"> ➤ Align CHP Foreign Export and Recovery (FEAR) efforts with Federal Homeland Security ➤ Establish a multi-jurisdictional Port Security Task Force ➤ Evaluate cross-sectoral vulnerability of ports (power, water, etc). ➤ Evaluate all truck and rail routes out of port districts and air basins to determine long term velocity, security, and environmental opportunities. ➤ Develop a Federal, State, and Local funding strategy. ➤ Evaluate the "Agile Port" concept for public safety/homeland security advantages. ➤ Use the NAFTA model to understand the public safety and security issues. ➤ Evaluate lane departure technology to identify driver fatigue and safety scoring of operators. ➤ Continue support and implementation of safety improvement programs. ➤ Increase enforcement of traffic and vehicle safety laws and regulations. ➤ Increase public and trucker education on safety and neighborhood issues. ➤ Urge US Coast Guard District Eleven Command to adopt the Automated Secure Vessel Tracking System (ASVTS) developed by the Maritime Information Services of North America (MISNA). ➤ Evaluate new freight transportation technologies (maglev, SAFE shuttle, etc.) for Homeland Security and public safety applications. ➤ Evaluate <i>Green Freight Corridor</i> road and rail infrastructure with integrated sensor network for Homeland Security and public safety applications. 	<ul style="list-style-type: none"> ➤ Construct commercial vehicle enforcement facilities around the LA/LB and Oakland ports to enhance highway safety and security. ➤ Establish a pilot test program using hazardous materials movement of containers and a short haul rail system that "flushes out" the containers in the ports and rail yards. ➤ Develop a pilot project for creating a physical communication grid in the corridor. ➤ Use intelligence and automated info to identify and target high-risk containers. ➤ Pre-screen high-risk containers at point of departure. ➤ Use new detection technology to quickly prescreen. ➤ Develop joint inspection stations in the port districts and at the border crossing. ➤ Develop community web portal to provide real or near real time information on goods movement and freight mobility conditions across road and rail network within the region. ➤ Clear U.S. Customs at inland destinations. 	<ul style="list-style-type: none"> ➤ Retrofit freight vehicles with probes and smart sensors to measure speed, weather, pollution, lane departure, cargo location, customs data, container RFID information, and vehicle/frame condition inspection dates. ➤ Use smarter, tamper-evident containers with RFID e-seals. ➤ Develop a container loading and unloading program (similar to CTPAT) that addresses homeland security issues like peaking for local California businesses. 	<ul style="list-style-type: none"> ➤ Develop a Green Freight Corridor (similar to Customs Green Lane) program and system. ➤ Install sensors and environmental monitoring equipment along corridor to communicate between operators, vehicles, containers and the command center. ➤ Establish three integrating centers for all data and system managements at the ports, Mexican border, and the Inland Empire using the Metrolink model. ➤ Provide data feeds from corridor system to County Emergency center, the Command and Control Center at Camp Pendleton, the CHP command centers, and NORTHCOM.

**APPENDIX B:
CANDIDATE ACTION SOURCE DOCUMENT REFERENCE INFORMATION**

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1	ARB Resolution 6-14 (April 20, 2006)	4
2	ARB Resolution 6-14 (April 20, 2006)	4
3	ARB Resolution 6-14 (April 20, 2006)	4
4	City of Oakland Community Task Force on Ports Recommendations	1
5	ARB Resolution 6-14 (April 20, 2006)	4
6	City of Oakland Community Task Force on Ports Recommendations	1
7	West Oakland Toxics Reduction Collaborative Recommendations (March 26, 2007)	1-2
8	"Paying with our Health." Ditching Dirty Diesel Collaborative and Pacific Institute. (November, 2006)	36
9	"Paying with our Health." Ditching Dirty Diesel Collaborative and Pacific Institute. (November, 2006)	34
9	"Paying with our Health." Ditching Dirty Diesel Collaborative and Pacific Institute. (November, 2006)	35
10	West Oakland Toxics Reduction Collaborative Recommendations (March 26, 2007)	1-2
11	"Paying with our Health." Ditching Dirty Diesel Collaborative and Pacific Institute. (November, 2006)	36
12	Summary of studies, West Oakland Diesel Truck Emissions Reduction Initiative (May 1, 2003)	23
13	West Oakland Toxics Reduction Collaborative Recommendations (March 26, 2007)	1-2
14	West Oakland Toxics Reduction Collaborative Recommendations (March 26, 2007)	1-2
15	Clearing the Air. Pacific Institute, November 2003.	12
15	Summary of studies, West Oakland Diesel Truck Emissions Reduction Initiative (May 1, 2003)	50
16	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	14
17	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	14
18	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	14
19	City of Oakland Community Task Force on Ports Recommendations	1
20	Clearing the Air. Pacific Institute, November 2003.	13
21	BAAQMD CARE Phase 1 Findings and Recommendations, Sept. 2006	2
22	BAAQMD CARE Phase 1 Findings and Recommendations, Sept. 2006	2
23	"Paying with our Health." Ditching Dirty Diesel Collaborative and Pacific Institute. (November, 2006)	33
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25	San Pedro Bay Ports Clean Air Action Plan – Proposed Clean Trucks Program Fact Sheet	1-2
25	San Pedro Bay Ports Clean Air Action Plan – Proposed Clean Trucks Program Q&A	1-8
26	Clearing the Air. Pacific Institute, November 2003.	10
27	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
28	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
29	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
30	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
31	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
32	Summary of studies, West Oakland Diesel Truck Emissions Reduction Initiative (May 1, 2003)	32
33	Clearing the Air. Pacific Institute, November 2003.	10
34	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
35	Summary of studies, West Oakland Diesel Truck Emissions Reduction Initiative (May 1, 2003)	32
36	Clearing the Air. Pacific Institute, November 2003.	11
37	Summary of studies, West Oakland Diesel Truck Emissions Reduction Initiative (May 1, 2003)	50
38	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
39	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
40	Clearing the Air. Pacific Institute, November 2003.	10
41	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
42	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	13
43	Clearing the Air. Pacific Institute, November 2003.	9
44	Clearing the Air. Pacific Institute, November 2003.	9
45	Summary of studies, West Oakland Diesel Truck Emissions Reduction Initiative (May 1, 2003)	49-50
46	San Pedro Bay Ports CAAP Overview	21
47	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	8
48	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	8
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51	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	8
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56	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	8
57	San Pedro Bay Ports CAAP Overview	21
58	Boalt Hall School of Law Economic Justice Class Presentation to City of Oakland Port Task Force (April 18, 2007)	21
59	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	7
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66	San Pedro Bay Ports CAAP Overview	22
67	San Pedro Bay Ports CAAP Overview	22
68	EPA presentation on Hydraulic hybrids	28-31
69	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	9
70	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	10
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76	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	10
77	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	10
78	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	10
79	San Pedro Bay Ports CAAP Overview	21
80	San Pedro Bay Ports CAAP Overview	21
81	2005 Railroad/CARB Statewide Agreement (MOU)	1
82	2005 Railroad/CARB Statewide Agreement (MOU)	2
83	2005 Railroad/CARB Statewide Agreement (MOU)	5
84	2005 Railroad/CARB Statewide Agreement (MOU)	5
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89	2005 Railroad/CARB Statewide Agreement (MOU)	11-12
90	2005 Railroad/CARB Statewide Agreement (MOU)	14-15
91	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	11
92	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	11
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94	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	11
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97	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	11
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100	Northwest Ports Clean Air Strategy (Draft May 16, 2007)	11
101	San Pedro Bay Ports CAAP Overview	22
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103	Clearing the Air. Pacific Institute, November 2003.	11
104	Clearing the Air. Pacific Institute, November 2003.	10
105	Clearing the Air. Pacific Institute, November 2003.	10
106	Clearing the Air. Pacific Institute, November 2003.	12
107	West Oakland Toxics Reduction Collaborative Recommendations (March 26, 2007)	1-2

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