

## **Proposed Lists of Primary Interest and Secondary Interest Air Quality Initiatives for Potential Implementation:**

*Screened and Finalized by the MAQIP Screening Work Team on November 29, 2007  
For Review/Approval by the MAQIP Task Force on December 14, 2007*

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### **I. Trucks:**

#### **A. Primary List:**

1. Increase public and trucker education on safety and neighborhood issues.
2. State a goal of replacing or retrofitting 1,500-2,500 trucks over 5 years to meet a “clean truck” standard. Ban older trucks from Port terminals in a phased 5-year schedule. The owner of the old truck will be paid for the truck.\*
3. 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.
4. Implement mandatory web-based reservation systems, giving preference to trucks participating in diesel reduction strategies.
5. Continue terminal gate and roadway efficiencies for congestion relief.
6. 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.
7. Provide electrified parking spaces for trucks to reduce unnecessary idling.
8. 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.
9. 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.\*
10. Create a buy-back program for old trucks based on established criteria (buy worst trucks first).
11. Provide incentives for early implementation of cleaner truck guidelines. Conversely, institute a penalty for companies that fail to meet the cleaner truck guidelines by a required date. An example incentive or penalty could be decreased or increased concession fees.
12. Adopt and implement ARB rule to modernize (replace and/or retrofit) private truck fleet.\*
13. Restrict entry of trucks new to port service unless equipped with diesel PM controls.
14. Implement idle reduction education, technology, and policy program with provisions to assure terminal adherence to anti-idling policies and procedures.
15. Install traffic Barriers on streets where trucks are prohibited (City of Oakland)
16. Pass an ordinance prohibiting overnight truck parking in residential areas (City of Oakland).

#### **B. Secondary List:**

1. Reroute trucks.
2. Develop a virtual container yard (off Port property) with compliance by all terminal operators to create more efficient movement of goods. This requires a

- 3rd coordinating party & central database to design & implement or a better relationship between data developers and the Port.
3. Implement Pier Pass drayage truck fleet emission reduction program as implemented in LA/LB with extended gates & daytime congestion fee.
  4. Improve labor work rule flexibility to enable increased daily truck turns.
  5. Establish inland container pools where trucks can drop-off and pick-up empty containers, to minimize deadhead truck runs (chassis pool).
  6. Create more efficient queues; Call trucks to the Port when needed to reduce idle time.
  7. Create an electrified truck stop (cold ironing the trucks) so that trucks do not idle in the queue.
  8. Accelerate software upgrade for trucks (i.e. adjust the software in certain trucks that are "gamed" to allow for greater emissions at higher speeds)
  9. Concessionaires will be required to establish maintenance and training programs
  10. Provide truck services (fueling, truck repair, food and beverages) at the Port of Oakland.
  11. Use design/operational measures such as subsidized parking, synchronized traffic signals, and driver training.
  12. Encourage the use of biodiesel and other alternative fuels.
  13. Decrease truck traffic by increasing the percentage of containers moved by rail.
  14. Create a trucker mobility program so that they do not need to drive trucks out of the Port unnecessarily (i.e. - use a shuttle, BART, or other public transportation).
  15. Deploy more LNG & CNG trucks.

**C. Duplication with Existing Regulation:**

1. Pass anti-idling rules and enforce anti-idling at terminal gates.
2. Take steps to limit the impact of Port construction operations related to the Oakland Army Base redevelopment.
3. Develop a Port-run vehicle inspection and maintenance program for port drayage trucks. This would be periodic and random inspection program, and could also be imposed on terminal operators. (State has heavy duty truck inspection rule program).
4. Utilize CA low sulfur diesel for trucks.
5. Conduct smoke inspections for trucks in communities.
6. Enforce 5-minute idling limit for trucks.
7. Adopt and implement ARB rule to require international trucks to meet US emission standards.
8. Enforce CA rule for transport refrigeration units on trucks, trains, and ships.

**II. Ocean Going Vessels:**

**A. Primary List:**

1. Collaborate with other ports (LA/LB and/or Seattle) to coordinate the movement of clean ships through incentives rather than mandates.
2. Ensure the best technologies are incorporated into new equipment purchases.
3. Standardize the use of marine gas oil (MGO) (less than 1.5% Sulfur (S)) fuels in the main engines during transit and maneuvering out to a specified distance from the Port, moving towards a 0.1% S standard as appropriate fuels become available.\*

4. 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 (this is a partial duplication of CARB's Auxiliary Engine Low Sulfur Fuel regulation currently under legal challenge but being temporarily enforced)\*.
5. Use < 0.2% Sulfur Marine Gas Oil (MGO) Fuel in vessel auxiliary engines at berth and during transit out to a specified distance from the Port (this is a partial duplication of CARB's Auxiliary Engine Low Sulfur Fuel regulation currently under legal challenge but being temporarily enforced)\*.
6. Implement additional at-dock (e.g. stack after-treatment) and during voyage (e.g. electrification or scrubbing) emissions reduction options deemed viable.
7. Use of diesel particulate matter (DPM) and/or NOx control devices on auxiliary and main engines on new vessel builds and existing frequent callers.
8. 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.\*
9. Create incentives for cold-ironing.
10. Create incentives for all ships to use low sulfur fuel in both vessel main and auxiliary engines. If the corresponding ARB rules prevail, then extend incentives to ships that are not covered under the rule.
11. Support ratification of MARPOL Annex 6 for international shipping.
12. Obtain SOx Emission Control Area (SECA) designation or alternative for North America.
13. Retrofit existing main engines on ships during major maintenance.

**B. Secondary List:**

1. Implement operational efficiency improvements during Port development to reduce time at anchor and at dock.
2. Increase "destination loading" on ships from the Far East.
3. Dedicate cleanest vessels to California service.

**C. Duplication with Existing Regulation:**

1. Finalize ARB ship auxiliary engine rule to use lower sulfur fuel (0.1% by 2010) (OAL review)
2. 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 (this is a partial duplication of CARB's auxiliary engine fuel regulation currently under legal challenge but being temporarily enforced)\*.
3. Use < 0.2% Sulfur Marine Gas Oil (MGO) Fuel in vessel auxiliary engines at berth and during transit out to a specified distance from the Port. This is a partial duplication of CARB's auxiliary engine fuel regulation currently under legal challenge but being temporarily enforced)\*.

**III. Harbor Vessels:**

**A. Primary List:**

1. Use ultra low sulfur diesel and/or bio-fuel blends for cleaner emissions (this is a partial duplication with CARB's ultra low sulfur fuel rule).
2. Adopt tighter USEPA or ARB emission standards for harbor craft.

3. Implement incentives to accelerate introduction of new harbor craft engines.

**B. Secondary List:**

1. Offer a subsidy for tugs that use cleaner-burning, but more expensive, soy diesel. Provide the subsidy if the equipment uses the fuel and stays in Oakland. This model could also be expanded to other businesses.
2. Use ultra low sulfur diesel and/or bio-fuel blends for cleaner emissions (this is a partial duplication with CARB's ultra low sulfur fuel rule).

**C. Duplication with Existing Regulation:**

1. Require all home-based harbor craft to meet most EPA Tier II standards for harbor craft of equivalent reductions.
2. By a specified time, require all previously re-powered 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 re-powered with new engines.
3. Utilize CA low sulfur diesel for harbor craft.
4. Clean up harbor craft through replacement, retrofit, or alternative fuels.

**IV. Cargo Handling Equipment:**

**A. Primary List:**

1. Seek ways to accelerate compliance with CARB's Container Handling Equipment rule.
2. Standardize the use of Ultra low-sulfur diesel and/or biofuel and promote the use of cleaner fuels and lubricants where appropriate.
3. Increase fuel efficiency by using CHE with hybridization or full-electrification technologies, as feasible.
4. 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.
5. Identify opportunities for and maximize the use of regenerative energy technologies for CHE.
6. Maximize operational efficiency and terminal design as port development occurs and negotiate cleaner alternatives at the time of major modifications and lease negotiations.
7. Use lease measures and project reviews to drive continuous improvements and emissions reductions.
8. Use electrification in much more Port/terminal operations equipment.

**B. Secondary List:**

1. Complete retrofits of suitable CHE with exhaust treatment equipment.
2. Use crankcase emission reduction systems equipment.
3. Increase penetration of zero emission or near zero emission cargo handling equipment.

**C. Duplication with Existing Regulation:**

1. Finalize ARB inter-modal cargo equipment rule (OAL)

2. Complete full-scale fleet upgrade to the best available technology.
3. Require all yard tractors to meet a minimum EPA 2007 On-road or Tier IV engine standard by the end of 2010.
4. 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 be equipped with cleanest available VDEC verified by CARB.
5. Implement ARB rule for cleaner cargo handling equipment through replacement, retrofit, or alternative fuels.
6. Adopt and implement ARB forklift rule for gas-fired equipment.
7. Require green equipment for goods movement related construction and maintenance.
8. Implement US Tier 4 equipment emission standards.
9. Upgrade cargo-handling equipment to 85% diesel PM control or better.

## **V. Rail:**

### **A. Primary List:**

1. Identify all existing switching locomotives in service at the Port of Oakland that might be potential candidates for replacement or retrofit.
2. Specify a date by which any new switch engine acquired must meet EPA Tier III standards.
3. Implement efficiency improvements to switchyards including electrification of lift equipment and RFID system implementation.
4. Require any new rail yards developed or significantly redesigned to operate the cleanest available technology.
5. Use lower emitting switch engines within rail yards, where traditionally the oldest locomotives are used.
6. Upgrade engines in switcher locomotives by 2010.
7. Retrofit existing locomotive engines with diesel PM controls.

### **B. Secondary List:**

1. Implement freight car productivity improvements, incorporating technologies that reduce train resistance (drag).
2. Increase port-wide rail and switching yard efficiencies and identify the feasibility of on-dock rail as alternative to near dock rail.
3. Create infrastructure for another level of rail traveling north & East.
4. Utilize more rails for long haul.
5. Concentrate Tier 3 locomotives in California.
6. 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.
7. Implement the equivalent of 1998 Railroad MOU for South Coast Air Basin here in Oakland as appropriate.
8. Implement Tier 3 US standards for line haul locomotives (new engine and rebuild standards).

### **C. Duplication with Existing Regulation:**

1. Utilize CA low sulfur diesel for captive in-state locomotives.

2. 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.
3. Use lower-sulfur diesel in 80% of locomotives operating in California by December 2006.
4. Ensure that the incidence of locomotives with excessive visible emissions is very low through the Visible Emission Reduction and Repair Program.
5. Conduct early review of air emissions impacts from designated yards – with ensuing mitigations.
6. Use ultra low sulfur diesel and/or biofuel in switchyard and line haul locomotive engines.
7. Implement 2005 Statewide MOU for Rail Yard Risk Reduction.
8. Conduct ARB training on locomotive idling restrictions.

#### **IV. Other:**

##### **A. Primary List:**

1. Develop a biodiesel consortium (City of Oakland, Port of Oakland, City of Berkeley, West Oakland community).
2. Establish employee programs to facilitate sustainable commuting.

##### **B. Secondary List:**

1. Create a position for a public health officer at the Port to take the lead on health impact assessment, and inform staff on community & worker health.
2. 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).
3. Conduct mitigation and pollution prevention.
4. Increase enforcement of traffic and vehicle safety laws and regulations.
5. Establish construction staging areas in locations to minimize impact on local circulation with appointment system.
6. 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.

##### **C. Duplication with Existing Regulation:**

1. Regulate criteria pollutant and toxic emissions from stationary sources and indirect sources based on Phase I findings.
2. Expand enforcement of commercial vehicle laws already adopted.
3. Use green equipment for construction of infrastructure projects (as available).

\* These initiatives overlap either in part or wholly with pending CARB and EPA rulemakings, which may or may not be in effect by the time the MAQIP is published. If these rulemakings are in fact promulgated by that time, this list will be modified accordingly.