San Pedro Bay Ports
Clean Air Action Plan 101
Implementation

Faster Freight – Cleaner Air 2007

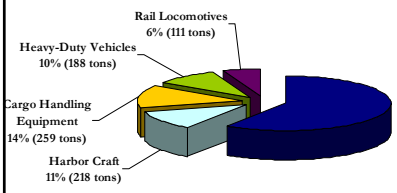
Goods Movement 101

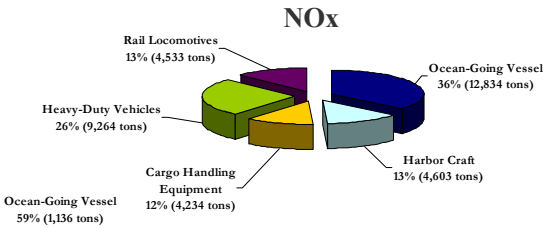
THE PORT OF LOS ANGELES

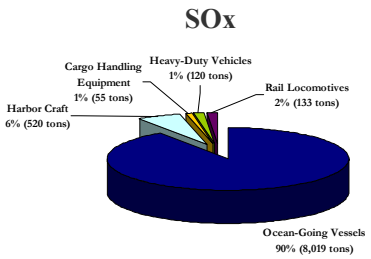
THE PORT OF LONG BEACH

Sources and Challenges

Pollutant Contribution by Source

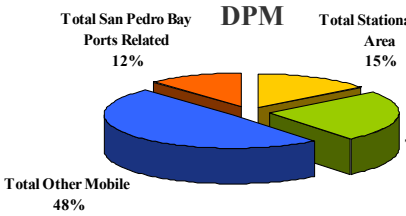


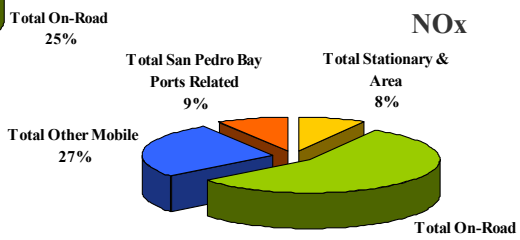


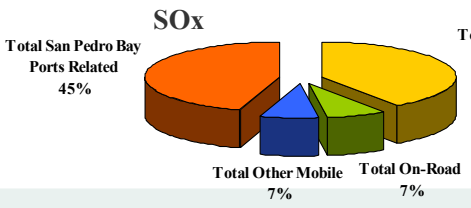


Port of Los Angeles Baseline 2001 & Port of Long Beach Baseline 2002

Port-Related Contribution to Basin 2002





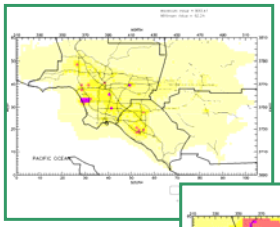


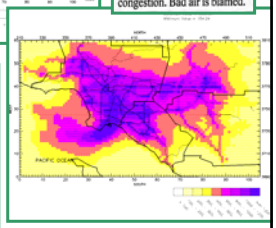
SCAQMD Draft 2007 AQMP, Table A-1

Need for Clean Air Action Plan

Health & Environmental Impacts

- **Diesel Emissiones Identified as Air Toxic by the California Air Resources Board (CARB)**
- **SCAQMD's MATES II Study**
- **CARB Diesel Particulate Matter Exposure Assessment Port of Los Angeles & Port of Long Beach**
- **Health Studies**





Pollution, traffic are linked to illness

ENVIRONMENT: German study finds heart attacks are three times more likely in congestion. Bad air is blamed.

Latino areas are hit hard by environmental health threats

REPORT: Group suffers more from pollution than the rest of the population, study finds.

Action Plan Development

- Clean Port Summit – March 2006
  - Outcome: work together towards solutions
- SPBP Clean Air Action Plan Working Group formed
  - Both Ports
  - South Coast Air Quality Management District (AQMD)
  - California Air Resources Board (CARB)
  - Environmental Protection Agency (EPA)
- Approved November 2006

THE PORT OF LOS ANGELES

THE PORT OF LONG BEACH

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

California Environmental Protection Agency Air Resources Board

AQMD

Action Plan Drivers

- Minimize health risk from port operations
- Accelerate existing emissions reduction efforts
- Set consistent project-specific & source-specific standards
- Enable port development

Ports' Five-Year Commitments

- Heavy-Duty Vehicles (Trucks)
  - **Replacement/Retrofit of frequent & semi-frequent callers**
  - **LNG Fueling Infrastructure**
  - **Two Ports & SCAQMD $206,000,000**
- Ocean-Going Vessels
  - **100% compliance w/VSR to 20 nautical miles; extend to 40 nautical miles in '08**
  - **Port of Los Angeles – 15 berths will be AMP'd**
  - **Port of Long Beach – 10 to 16 berths will be shore-powered**
  - **≤0.2% sulfur fuels for main & auxiliary engines**
  - **NOx and PM controls on new and existing vessels**
  - **Two Ports $201,800,000**

Ports' Five-Year Commitments

- Railroad Locomotives
  - **Standards for switcher and line-haul locomotives**
  - **Standards for new or modified rail yards**
  - **Two Ports & SCAQMD $21,000,000**
- Cargo Handling Equipment
  - **Standards for equipment**
- Harbor Craft
  - **Standards for harbor craft**
- Infrastructure and Efficiency Improvements
  - **Two Ports $5,000,000**
- Technology Advancement & Source Testing
  - **Two Ports $15,000,000 (minimum)**

Estimated Emission Reductions

Trucks	782	tons/yr DPM
	6,228	tons/yr NOx
	2	tons/yr SOx
Ships	331	tons/yr DPM
	5,281	tons/yr NOx
	2,207	tons/yr SOx
Cargo Handling Equipment	11	tons/yr DPM
	376	tons/yr NOx
PHL Switchers	2	tons/yr DPM
	163	tons/yr NOx
Total Reductions - 5th Year	1,126	tons/yr DPM (>3,000 tons)
	12,048	tons/yr NOx (>36,200 tons)
	2,209	tons/yr SOx (>5,600 tons)

Funding

Proposed Minimum Commitments Over Next Five Years:

- Port of Los Angeles $177,500,000
- Port of Long Beach $240,400,000*
- SCAQMD Initial Commitment $47,000,000
- Impact Fee/State Bond/Other $1,602,900,000

*- POLA & POLB spending equal on CAAP; POLB higher because of shore-power infrastructure costs

Tracking, Monitoring, and Reporting

- Expanding Port-Area Air Monitoring Network
  - Two Ports and AQMD
  - Monitors Air Quality
  - Cooperation on Methods/Evaluation
- Emissions Inventory
  - Regular Updates
- Monitor Progress on Clean Air Action Plan
  - Track implementation of each measure
- Report Progress on Clean Air Action Plan
  - At least annually

Future Actions

- Timeline indicates several future milestones and deliverables
- Heavy Duty Trucks #1 priority stakeholder forum to be convened
- Development of Source-Specific Tariffs
- CEQA documents for specific projects with CAAP measures integrated into project/mitigation measures & leases
- Technology Evaluations
- CAAP Revisions

Implementation Strategies

- **Lease Requirements**
- **Tariff Changes**
- **California Environmental Quality Act (CEQA) Mitigations**
- **Incentives**
- **Voluntary Measures**

Steps in Project Development

California Environmental Review Process

California Environmental Quality Act

(CEQA)

Time

Application for Port Development

Public Environmental Review

CEQA

Environmental Impacts

Feasible Mitigations

Public Hearing

Project Approval

Legal Challenge

Standards – Three Levels

- **San Pedro Bay Standards**
  - Reduce public health risk from port-related toxics
  - Reduce port "Fair Share" pollutant emissions
  - Prevent port-related violations of National Ambient Air Quality Standards (NAAQS)
- **Project Specific Standards**
  - Meet 10 in 1,000,000 excess cancer risk threshold
  - Implement maximum feasible controls for projects exceeding CEQA thresholds for criteria pollutants
- **Source Specific Performance Standards**

Relationships of Implementation Strategies

Port Projects Requiring CEQA Evaluations

Container Terminal Mitigation Measures

Ocean Going Vessels

- Compliance VSRP
  - 100% in 2008, 40 nm
- AMP
  - 70% in 2008
  - 90% in 2010
- Slide Valves
  - 70% in 2008
  - 100% in 2010
- Main & Auxiliary Engine Fuels
  - 50% 0.2 in 2008
  - 100% 0.2 in 2010
- Equivalent Measures

Container Terminal Mitigation Measures

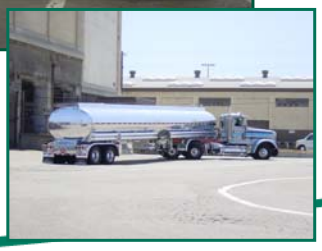
Cargo Handling Equipment

- Yard Tractors
  - 100% LPG - China Shipping*
  - 2008-100% added to fleet cleanest available NOx engine & 0.01 g/bhp-hr PM
  - 2010- 100% all yard tractors will meet EPA 2007 on-road standards
- Other Equipment
  - 2008 – 100% added to fleet cleanest available NOx engine & 0.01 g/bhp-hr PM
  - 2012 – 50% shall meet USEPA Tier 4 nonroad emission standards
  - 2015 – 100% shall meet USEPA Tier 4 nonroad emission standards
  - Variable - < & > 750 hp
- Equivalent Measures

Container Terminal Mitigation Measures

Trucks

- **Proposed:**
  - **2008 – 40% 2007 USEPA Standards**
  - **2009 – 70% 2007 USEPA Standards**
  - **2010 – 80% 2007 USEPA Standards**
  - **2011 – 90% 2007 USEPA Standards – 10% LNG**
  - **2015 – 80% 2007 USEPA Standards – 20% LNG**
- **Or Equivalent**



Container Terminal Control Measure

Railroad Locomotives

- **Switchers**
  - **2008 all PHL engines replaced with Tier 2 and DPF installed; new PHL switch engines EPA Tier 3 equivalent standards**
  - **2011 Class 1 switchers 90% NOx & PM control, 15 min idle restrictors & ULSD fuel**
- **Class 1 Locomotives**
  - **2014 Tier III equivalent, 15 min idle restrictors & ULSD fuel**

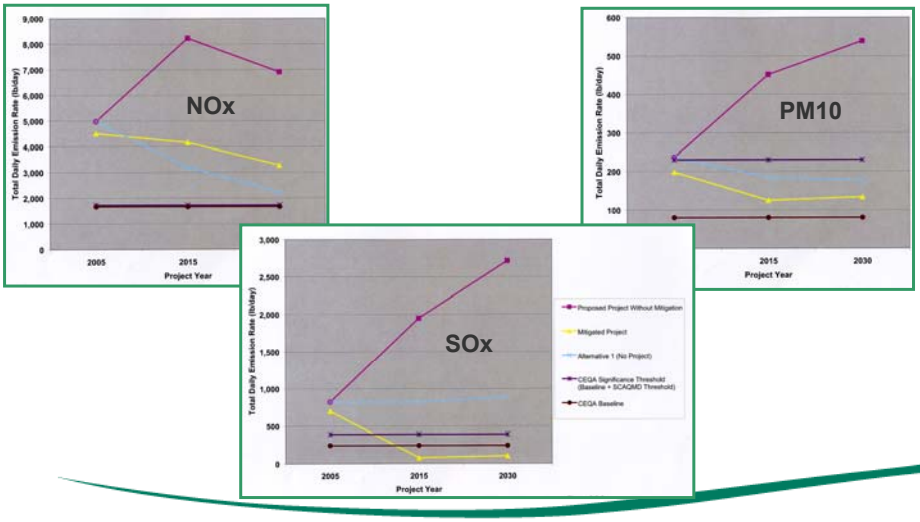
Container Terminal HRA Results

Typical Contribution of Ship Emissions in HRA

	Maximum Residential Cancer Risk	
Emission Source	Unmitigated*	Mitigated*
Ships Transit Maneuvering	8.5%	8.8%
Ships Hoteling	62.1%	9.7%
Tugs	0.9%	1.8%
Terminal Equipment	14.0%	2.2%
Trucks	13.4%	14.8%
Trains	1.1%	61.9%

*Mitigated project less then 10 in 1 million excess cancer burden.

Container Terminal Criteria Pollutants



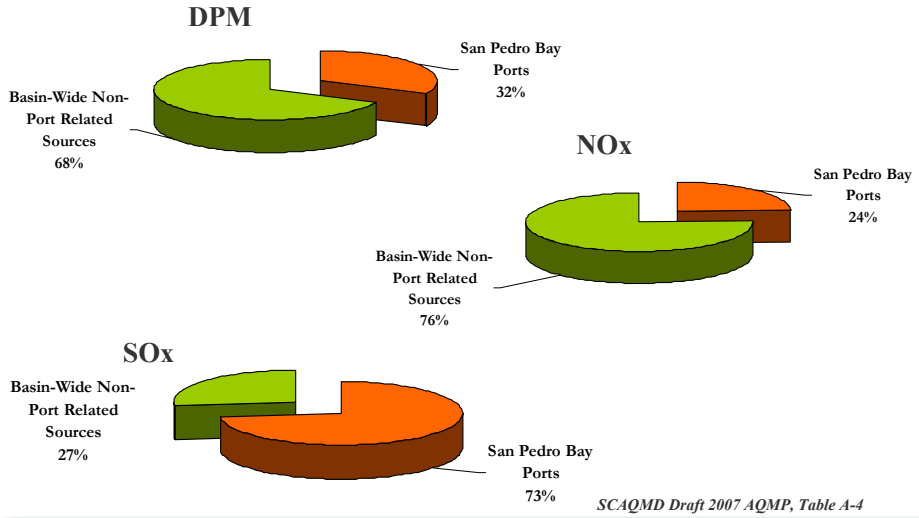
Future Actions

- Timeline indicates several future milestones and deliverables
- Heavy Duty Trucks #1 priority stakeholder forum to be convened
- Development of Source-Specific Tariffs
- CEQA documents for specific projects with CAAP measures integrated into project/mitigation measures & leases
- Technology Evaluations
- CAAP Revisions

The Good Old Days!

Thank You!

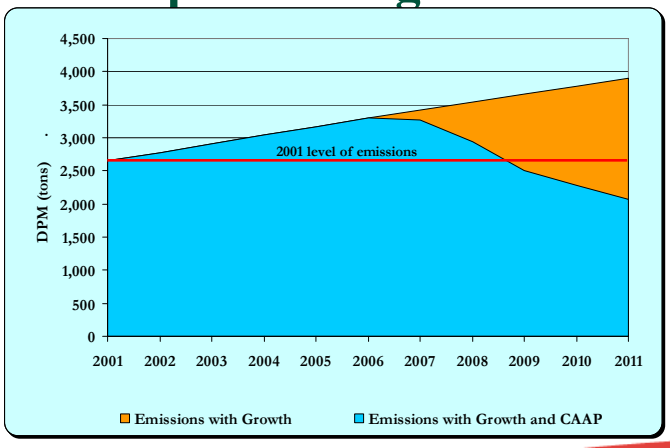
Projected Port-Related Contribution 2020 Without CAAP Implementation



SCAQMD Draft 2007 AQMP, Table A-4

Future Emissions Projections with Implementing CAAP

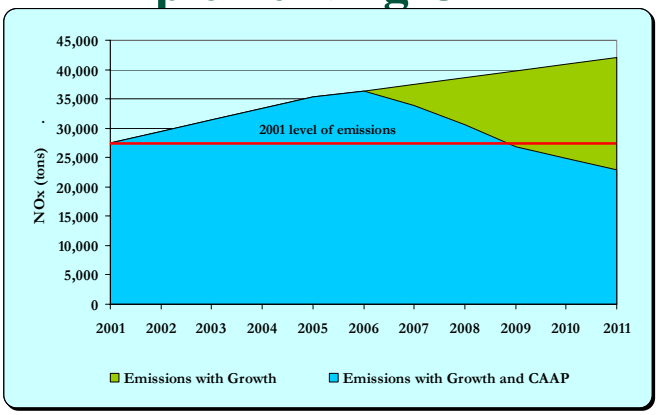
DPM



Using CARB's Goods Movement Plan growth assumptions

Future Emissions Projections with Implementing CAAP

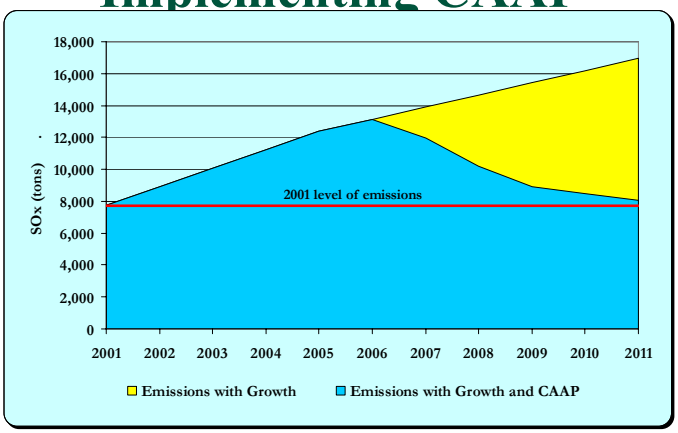
NOx



Using CARB's Goods Movement Plan growth assumptions

Future Emissions Projections with Implementing CAAP

SOx



Using CARB's Goods Movement Plan growth assumptions