Massport Efforts to Reduce Drayage Truck Emissions

Northeast Drayage Workshop
October 13, 2010
PRESENTATION OVERVIEW

• Intro to the Port of Boston

• Intro to the Massachusetts Port Authority

• Massport’s container operations and green initiatives

• Massport efforts to reduce drayage truck emissions
INTRO TO THE PORT OF BOSTON

- Oldest continuously active major port in western hemisphere
- New England’s only full service port
- Economic Engine
  - $2.4 billion annual economic impact
  - 34,000 jobs
  - Makes local business more competitive
  - Keeps prices on goods more affordable for consumers
- Better for the environment
- Key cargos (14M tons/year):
  - petroleum products
  - road salt
  - scrap metal
  - cement
  - Containerized cargo:
    - seafood
    - footwear and clothing
    - furniture
MASSPORT OVERVIEW

• State Authority est. by legislature to develop and operate key airport and port infrastructure

• Self-financing

• Primary port facilities:
  – Conley Container Terminal
  – related cargo warehouses
  – Black Falcon Cruise Terminal
  – Boston Fish Pier
  – other seafood processing and distribution facilities
  – Boston Autoport
  – bulk terminals
CONLEY CONTAINER TERMINAL

• Largest container terminal in New England
• 101-acre facility with two 45’ deep berths
• Owned and operated by Massport
• Approx. 200,000 TEUs and 1.5 million tons per year throughput
• Weekly services to Europe and Far East
CONLEY GREEN INITIATIVES

• Conley Terminal EMS and ISO 14001 Certification
• ULSD conversion for yard equipment
• Equipment retrofits
• “Green” equipment replacement program
• Recycling of specialized waste
• Buffer zones
• Truck idling reduction
• Designated/dedicated truck routes
• Evaluating clean truck program options
CLEAN TRUCK EFFORTS

- Conducted emission inventory that includes port drayage trucks
- Characterized existing Conley Terminal drayage truck fleet
- Surveyed existing U.S. port clean truck programs
- Evaluated technologies
Initial Port Emission Inventory Findings

- Cargo Handling Equipment, 87.62
- Heavy Duty Vehicles, 15.57
- Harbor Craft, 372.45
- Light Duty Vehicles, 2.77
- Stationary Sources, 2.35
- Ocean Going Vessels, 2014.2

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Conley Truck Fleet Characterization

- Survey conducted over two days at Conley Terminal
- Administered to truckers at exit by four summer interns over two days
- Designed to characterize age of fleet, frequency of visits to terminal, origin and destination of trips
- Trucking community and port operators involved in planning process
Truck Fleet Characterization Results

- 436 total truck visits recorded
- 162 unique trucks
- average model year 1999

Conley Truck Fleet Age Distribution (Model Year)
Existing Port Clean Truck Programs

• Researched existing North American clean truck programs via internet and interviews

• 5 mandatory (LA, LB, Vancouver BC, Seattle, NY/NJ,)

• 4 voluntary (Oakland, Tacoma, Houston and Virginia)

• TEUs ranged from 1.5M to 7.5M per year

• Cost to ports and truckers varied significantly
Lessons Learned

- Need to characterize truck fleet early in process
- Consult early with truck owners/operators and other stakeholders, and incorporate input to extent possible.
- Keep program simple, and have quick turnaround for the funds to make it easy for the truckers.
- Seek input in advance from Federal Maritime Comm.
- Research retrofits and technology in the program design stages, and assess whether retrofitting or truck replacement better helps meet the ports goals
Technology Survey

Idle Reduction Technologies
(range $1,800 to $8,000)

– Electrified Parking Spaces (EPS)
– Auxiliary Power Units and Generator Sets (APU/GS)
– Fuel Operated Heaters (FOH)
– Battery Air Conditioning Systems (BAC)
– Thermal Storage Systems (TSS)
– Verified Low Rolling Resistance Tires
Technology Survey

Exhaust Retrofits (range: $3,500 to $20,000):
  – Level 1 (diesel oxidation catalyst)
  – Level 2 (diesel flow-through filter/closed crank vent system)
  – Level 3 (diesel particulate filter)

Alternative Vehicles (range: $40,000 to $200,000+):
  – 2007 Model Year Diesel Trucks
  – LNG/CNG Vehicles
  – Hybrid Vehicles
  – Electric Trucks
Key Challenges

- Port trucks are very small percentage of regional truck fleet
- High cost to develop and implement clean truck program
- Cost to truckers
- Lack of authority over truck owners/operators
- Competitive disadvantage
- Legal considerations
Next Steps

- Update emission inventory with truck fleet and origin/destination data
- Meet with truckers to identify truck rotation plans, willingness to participate in program, opinions re: retrofit options and other input
- Identify framework, details and implementation strategy for voluntary clean truck program at Conley Terminal
- Assess funding opportunities and submit grant applications