



**BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT**

*Committed to Achieving Clean Air to Protect  
the Public's Health and the Environment*

# **CARE Program Phase II Updates**

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**Bay Area Air Quality Management District**

**CARE Task Force Meeting**

**March 14, 2007**

# Overview

- **West Oakland Health Risk Assessment**
  - On-Road Diesel Truck Survey
- **Supplemental Measurements of Toxic Air Contaminants (TAC)**
  - EPA grant application (April 17, 2007, deadline)
- **Update CARE Emissions Inventory**
  - Update to 2005
- **Mitigation Measures**
  - New regulation for ports

# CARE Program Phases

Phase I	Phase II	Phase III
Preliminary TAC Emissions	Refine TAC Emissions	
	Enhanced Measurements	Enhanced Measurements
	Local, Regional Scale Modeling	
		Exposure Analysis
Mitigation Measures	Mitigation Measures	Mitigation Measures

Spring '04

Fall '06

Spring '08

Fall '09

# West Oakland On-Road Diesel Truck Survey

- Map West Oakland roadways
- Estimate truck volumes and speeds along roadways
  - Estimate heavy-duty truck traffic as fraction of total traffic
  - Work with community on surveying
- Identify truck idling locations
- Develop trucker census
- Estimate diesel truck emissions



# Refine HRA Modeling for On-Road Trucks

- Use survey results to update diesel PM emissions estimates used for West Oakland HRA
- Refine HRA modeling for on-road trucks in Part 3
- Improve estimate of importance of trucks on local roadways to annual risk

# Supplemental TAC Measurements

- Increase density of air quality measurements in West Oakland via “saturation monitoring”
  - Characterize local-scale pollutant concentrations
  - Identify “hot spots”
  - Characterize concentration gradients



# Time-Integrated and Continuous Measurements

- **Seven-day-average sampling at multiple sites**
  - NO<sub>x</sub>, SO<sub>2</sub>, VOC, carbonyl compounds (passive sampling)
  - PM<sub>2.5</sub> mass and organic & elemental carbon (active samplers)
- **Continuous measurements at additional sites**
  - VOC, PM<sub>2.5</sub>, black carbon, ultrafine particles
  - More expensive sampling methods – too costly for dense network, but can provide more detail on hour-to-hour variations
- **EPA Local-scale air toxics ambient monitoring grant**

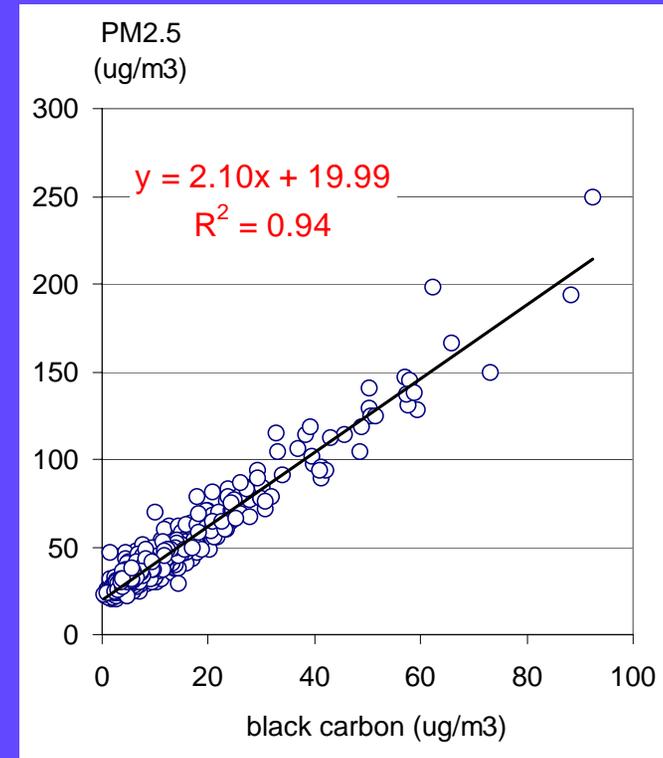
# Mobile and Micro-scale Measurements

- **Mobile sampling in West Oakland and other areas**
  - Increase spatial coverage
  - Investigate more areas
- **Measurements in specific “microenvironments” – where people are breathing**
  - Roadways
  - Indoor/outdoor



# Measurement-based Analysis

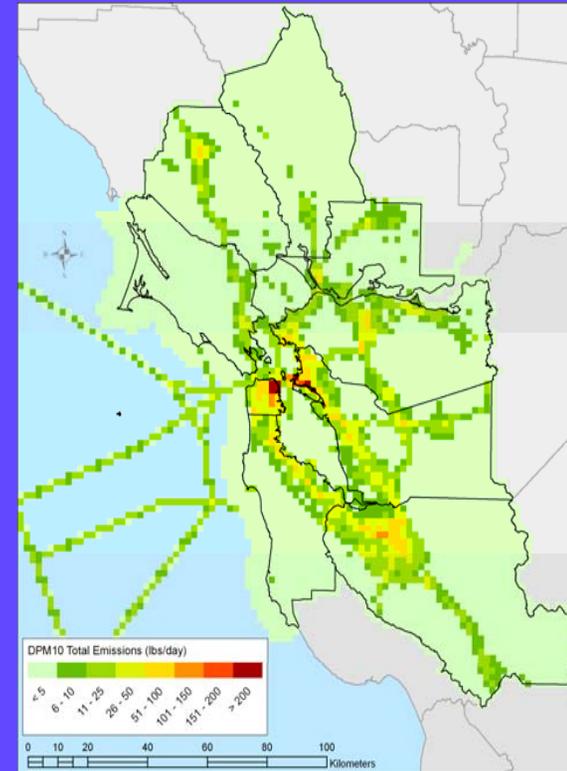
- Estimate diesel PM from measurements of
  - black carbon (optical methods)
  - elemental carbon (thermal optical methods)



Terminal Island; Fujita et al, 2005

# Update CARE Emissions Inventory

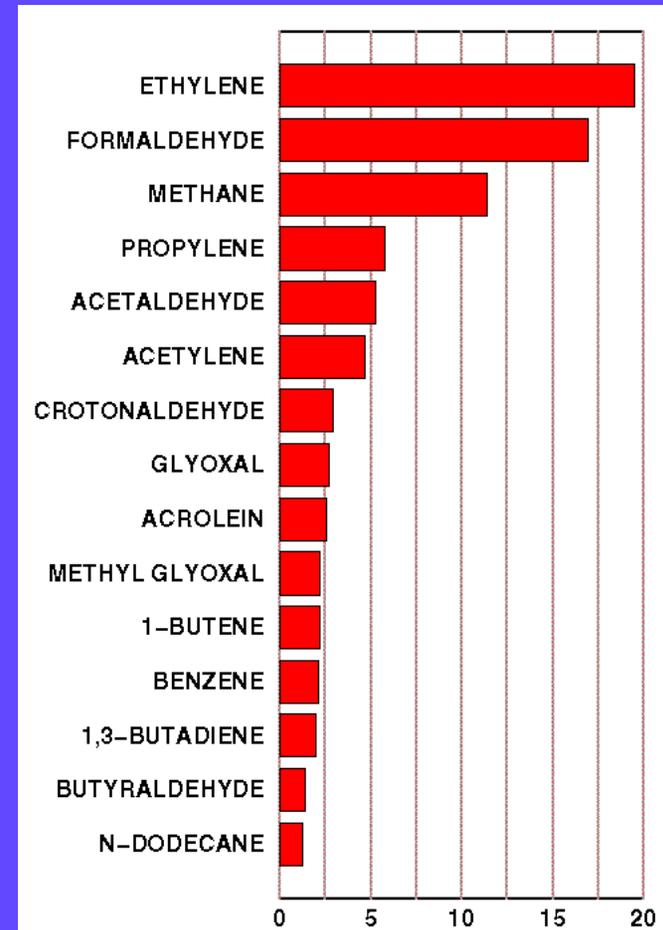
- Update emissions inventory (EI) from 2000 to 2005
- Generate emissions timing (seasonal, day-of-week) information for use in modeling
- Map emissions to land use categories in addition to 2 by 2 kilometer grid
  - For example, use for advising on development projects



Diesel PM Emissions, 2000

# Update CARE Emissions

- Update emissions totals
  - Revisit diesel PM construction emissions
- Update speciation profiles where new information exists
- Update toxicity estimates where new information exists



Jet Aircraft Speciation Profile  
(Top 15 species)

# CARE Phase II Mitigation Approaches

- Focus grant and incentive funding in target areas
- Develop model ordinances
  - “Green construction” requirement
- Update CEQA guidelines
- Development land use guidance for cities & counties
- New regulation for ports