

Context and Framing of Issues: Air Quality and Goods Movement



South Coast Air Quality Management District
Container Movement Technology Forum and Roundtable

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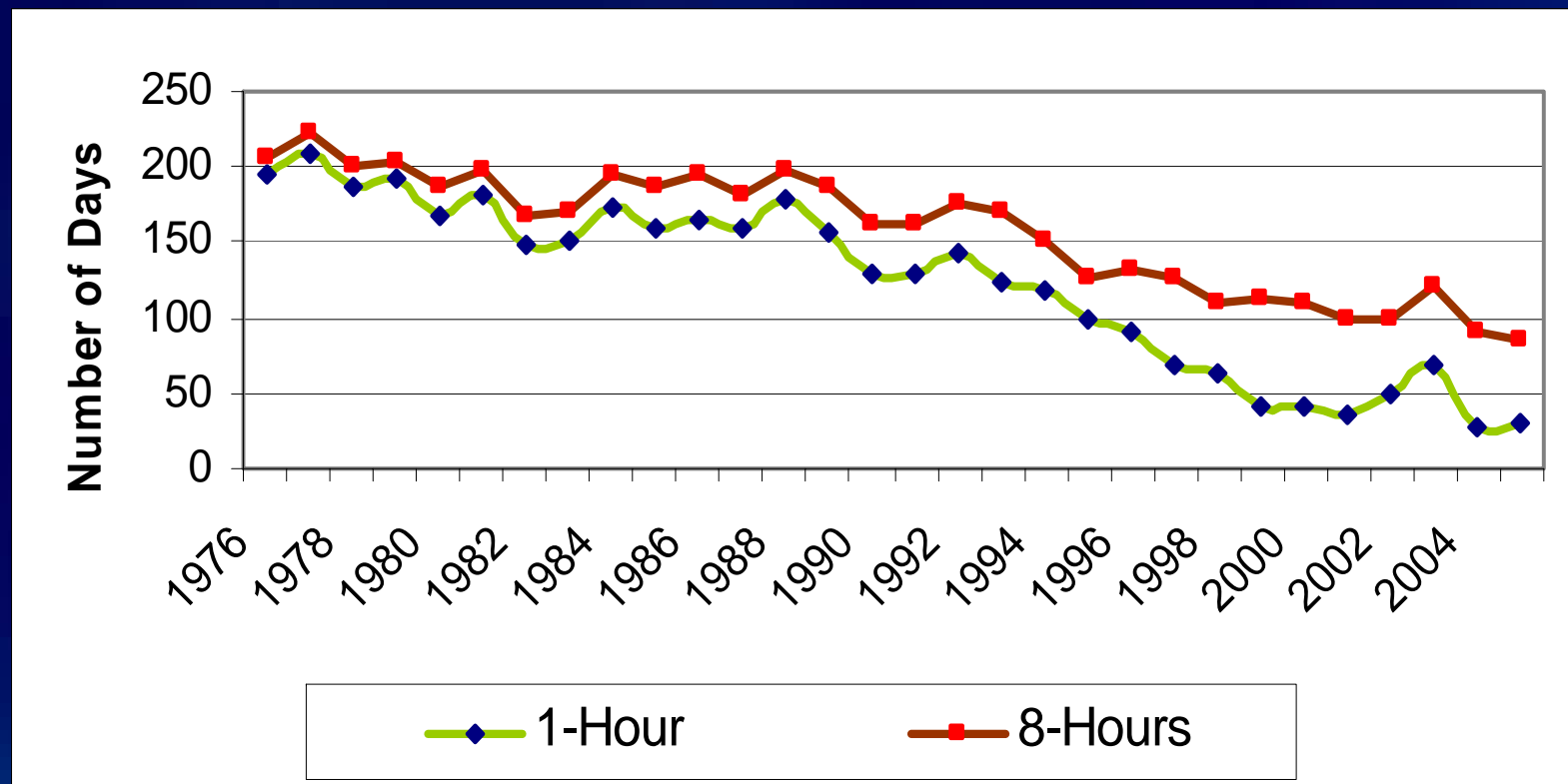
Rail Intermodal Flows





Context:

Annual Days Exceeding Ozone Standards



USC Children's Health Study

New England Journal of Medicine, Sept 2004

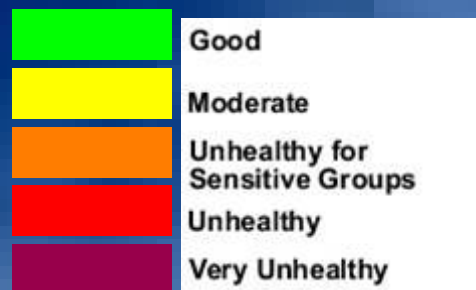
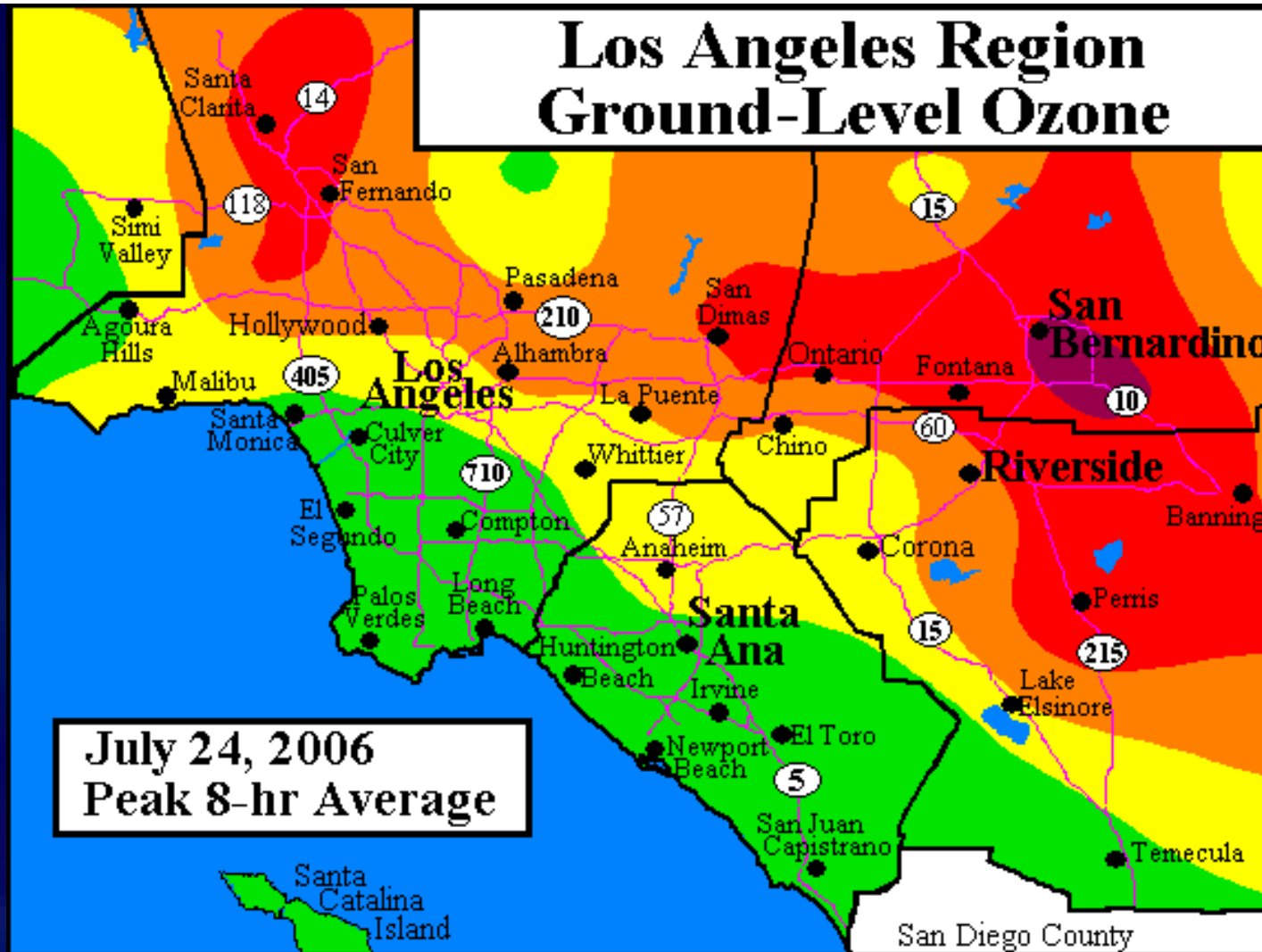
- Lower lung-function growth rate associated with PM_{10} , $PM_{2.5}$, NO_2 and acid vapor
- *“By age 18, lungs of many children growing up in smoggy areas are underdeveloped and will likely never recover”*



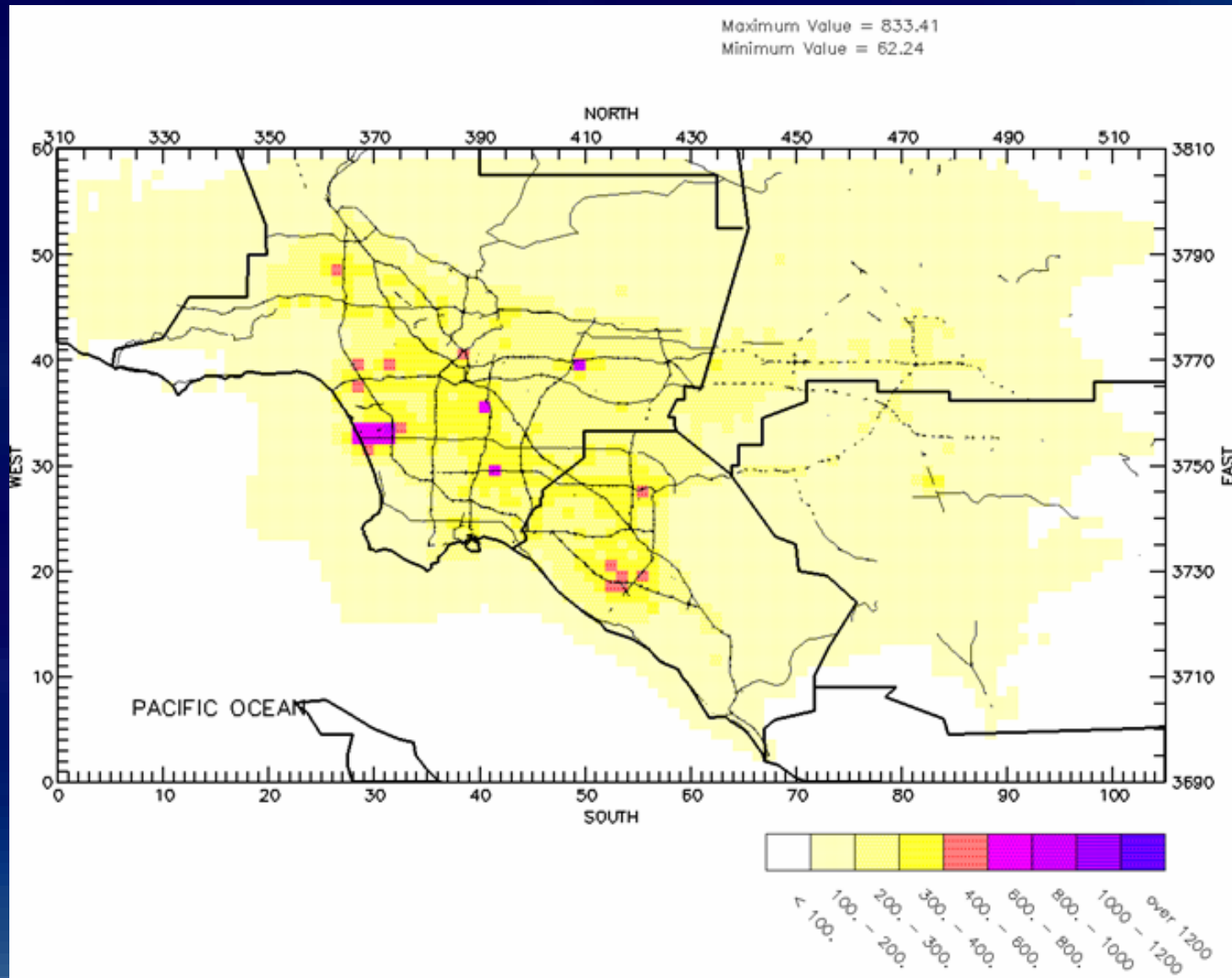
What Are the Health Consequences of Air Pollution in California?

- 8,200 premature deaths per year just from PM (year 2000)
- 2,400 premature deaths just from goods movement
- Other Impacts:
 - 9,000 hospitalizations per year
 - 1.7 million cases respiratory illness per year
 - 1.3 million school absences per year
 - 2.8 million lost workdays per year

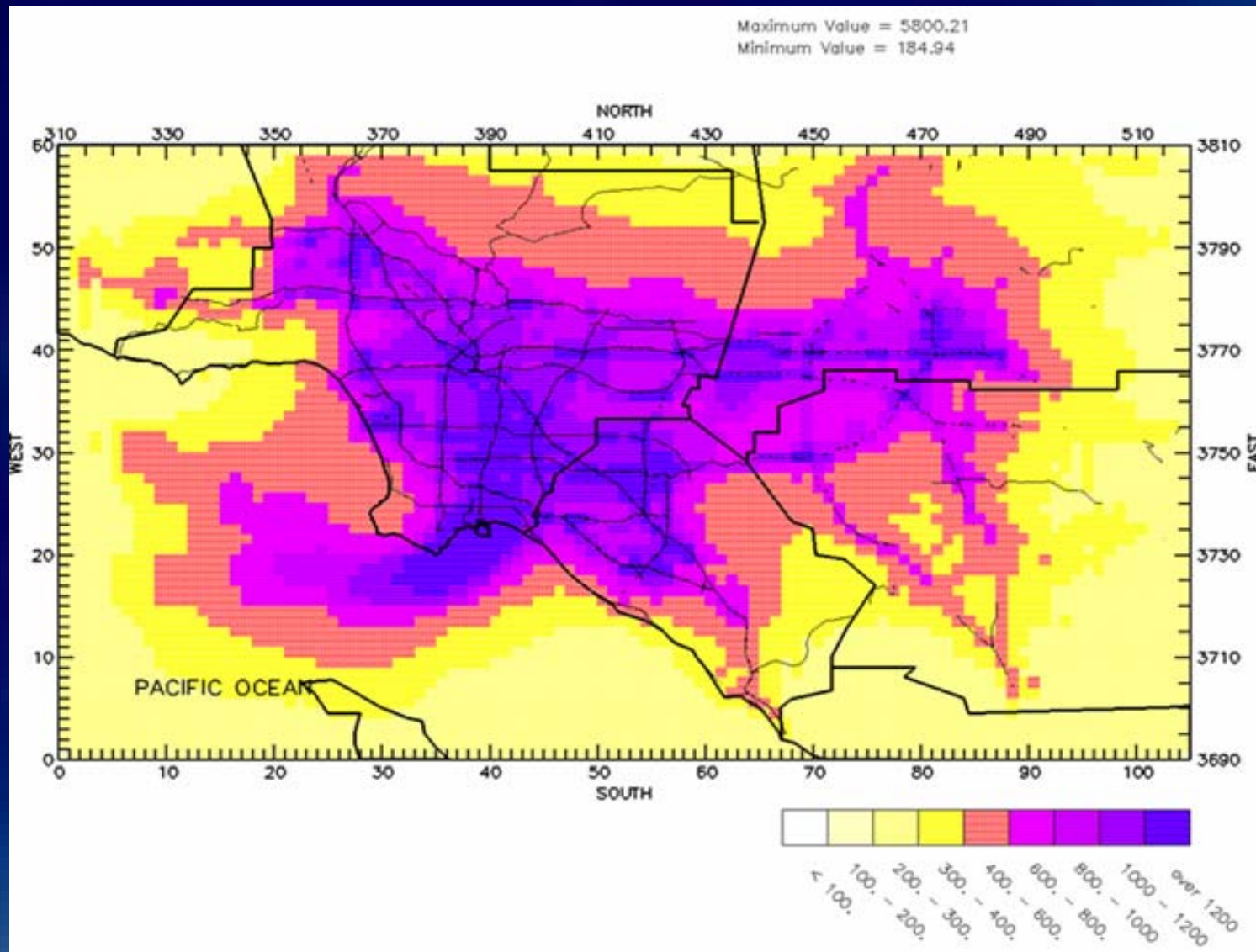
Los Angeles Region Ground-Level Ozone



Modeled Cancer Risk Excluding Diesel



Modeled Cancer Risk With Diesel

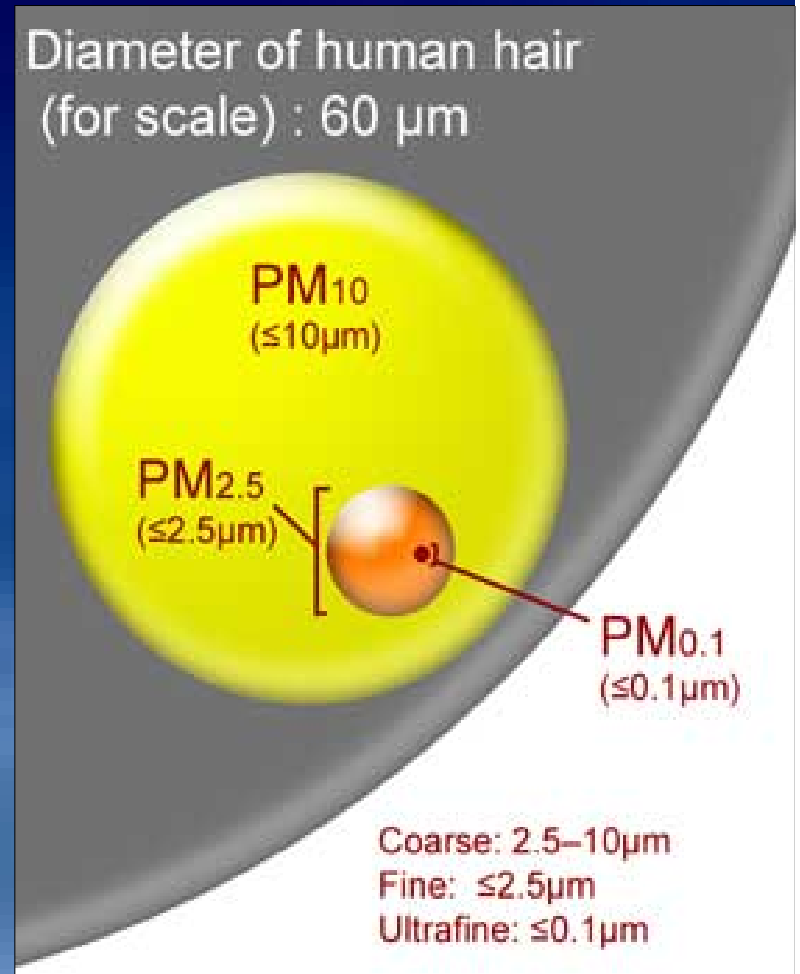


Ultra-fine Particle Counts in Southern California

Per Cubic Centimeter

Area	Particle Count
Coastal area	600-2,000
Office Spaces	500-2,000
Urban air	10,000 - 40,000
Freeways	40,000 - > 1,000,000

Westerdahl, 2004



Key Air Quality Challenges

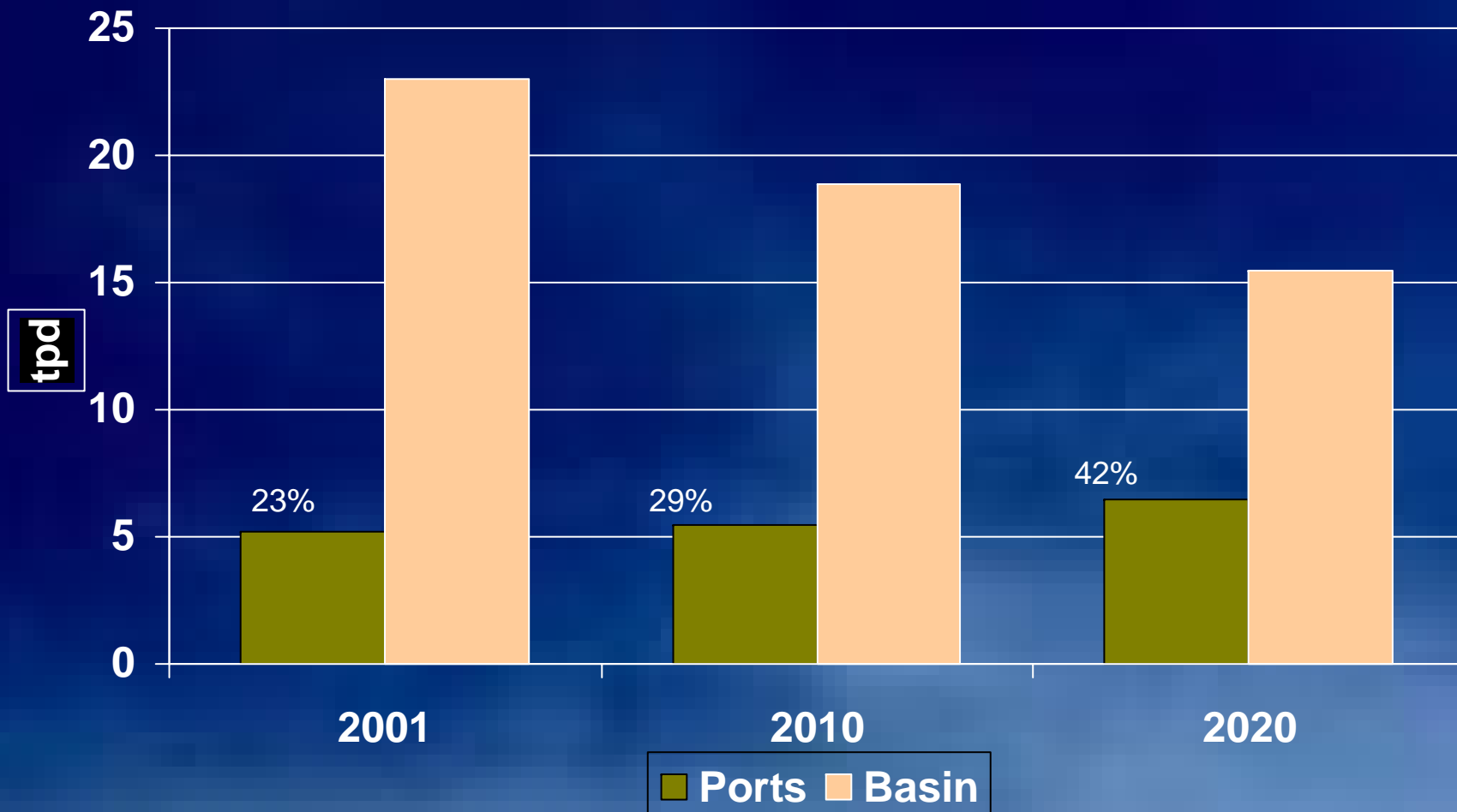
- New 8-hour ozone & PM 2.5 standards
- “Easy” reductions achieved
- Black box
- Local Cancer Risks
- Sources in *goods movement* . . .

Key Goods Movement Pollutants

- Diesel Particulates
 - Toxic Air Contaminant
 - PM Nonattainment Pollutant
- Nitrogen Oxides
 - Precursor to PM & Ozone
- Sulfur Oxides
 - Precursor to PM
- Federal Attainment Deadlines:
 - PM_{2.5}: **2015**
 - 8-Hour Ozone: **2021-2024**



Diesel Particulates: *Contribution of International Goods Movement to Regional Diesel PM10 **



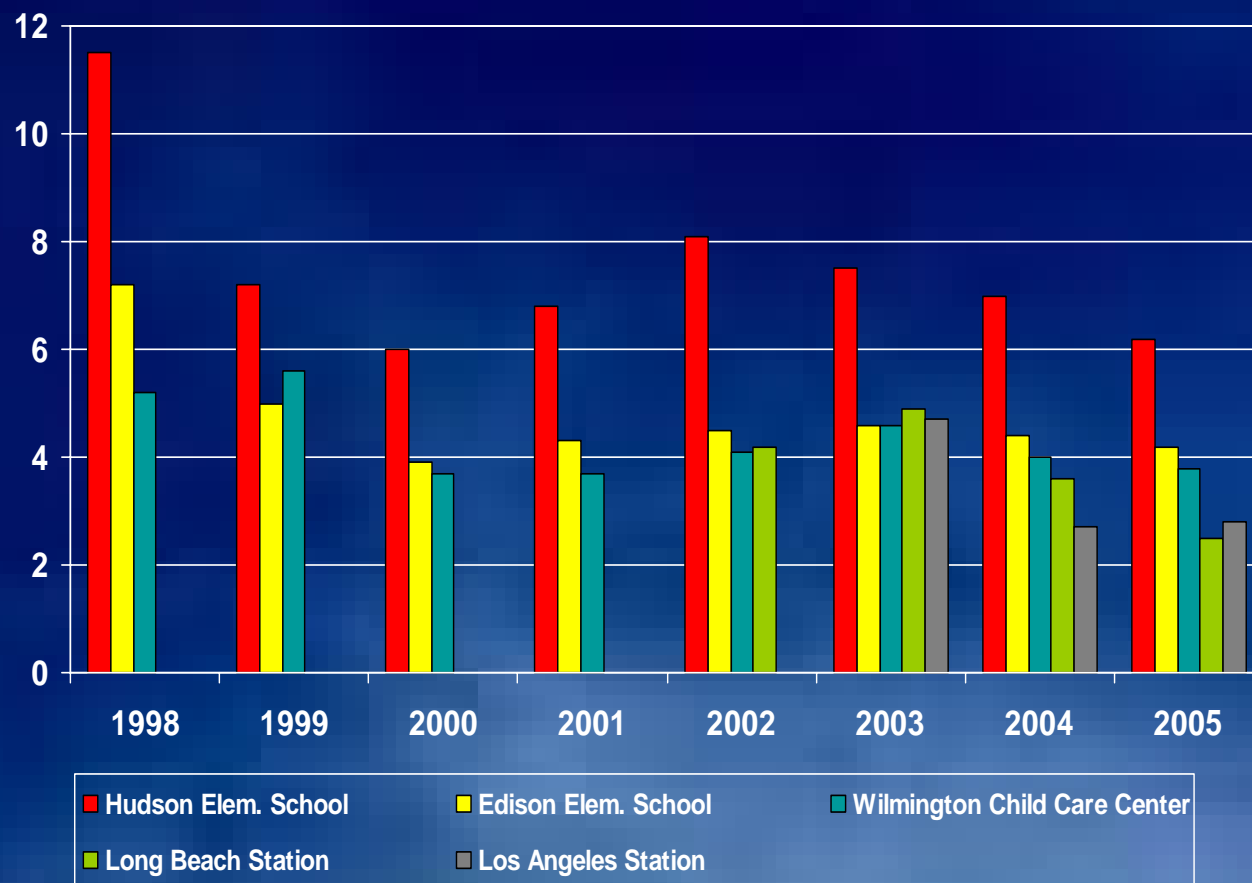
*Assuming ports recent baseline inventories and 2003 AQMP growth and control factors.

Diesel Sources

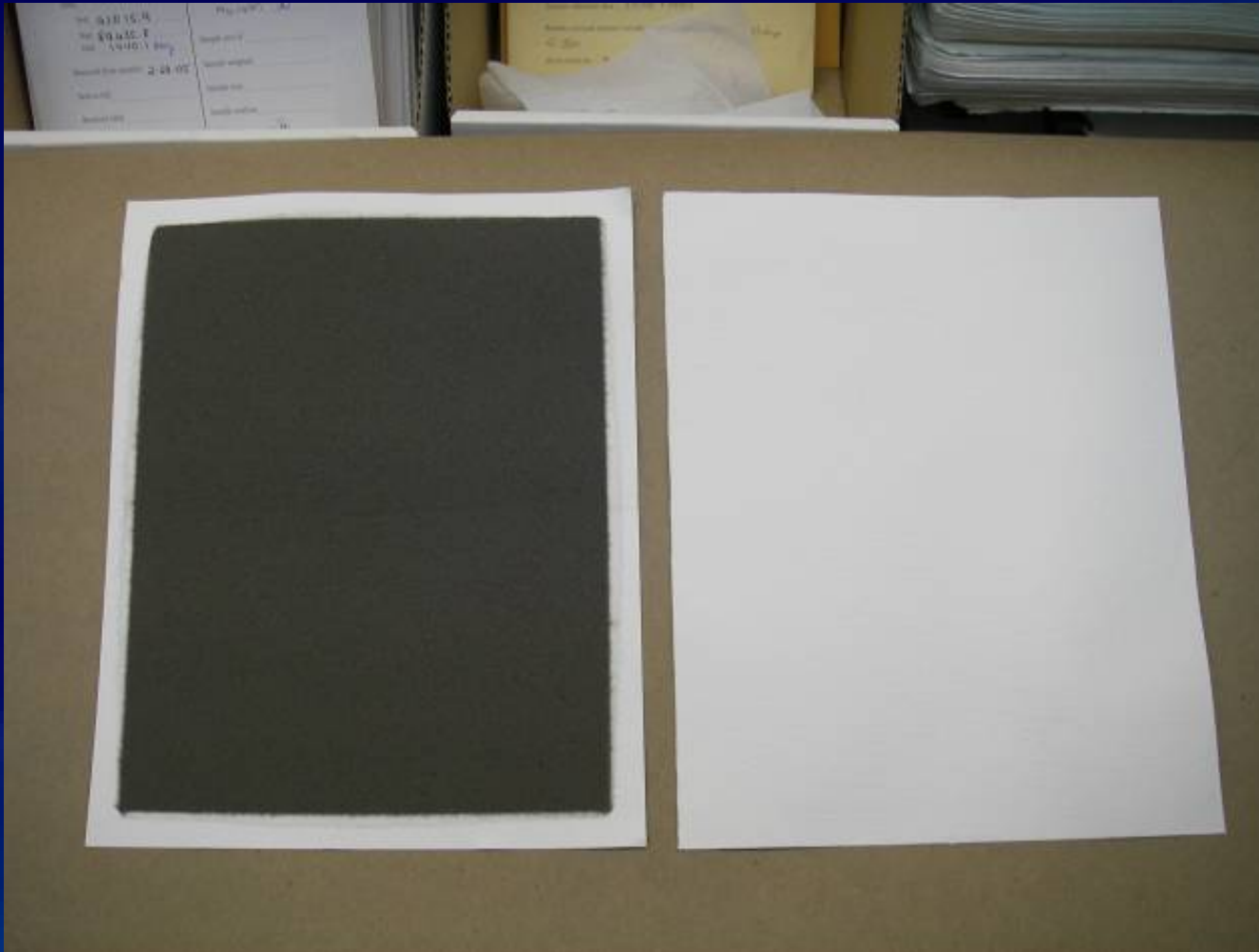
CARB Health Risk Assessments

- Roseville Railyard
 - > 500 in a million
- Ports of Los Angeles & Long Beach
 - > 100 in a million: 1,135,000 persons affected
 - > 500 in a million: 53,000 persons affected

Diesel Particulate Matter: Proximity Matters



Particulate Filters



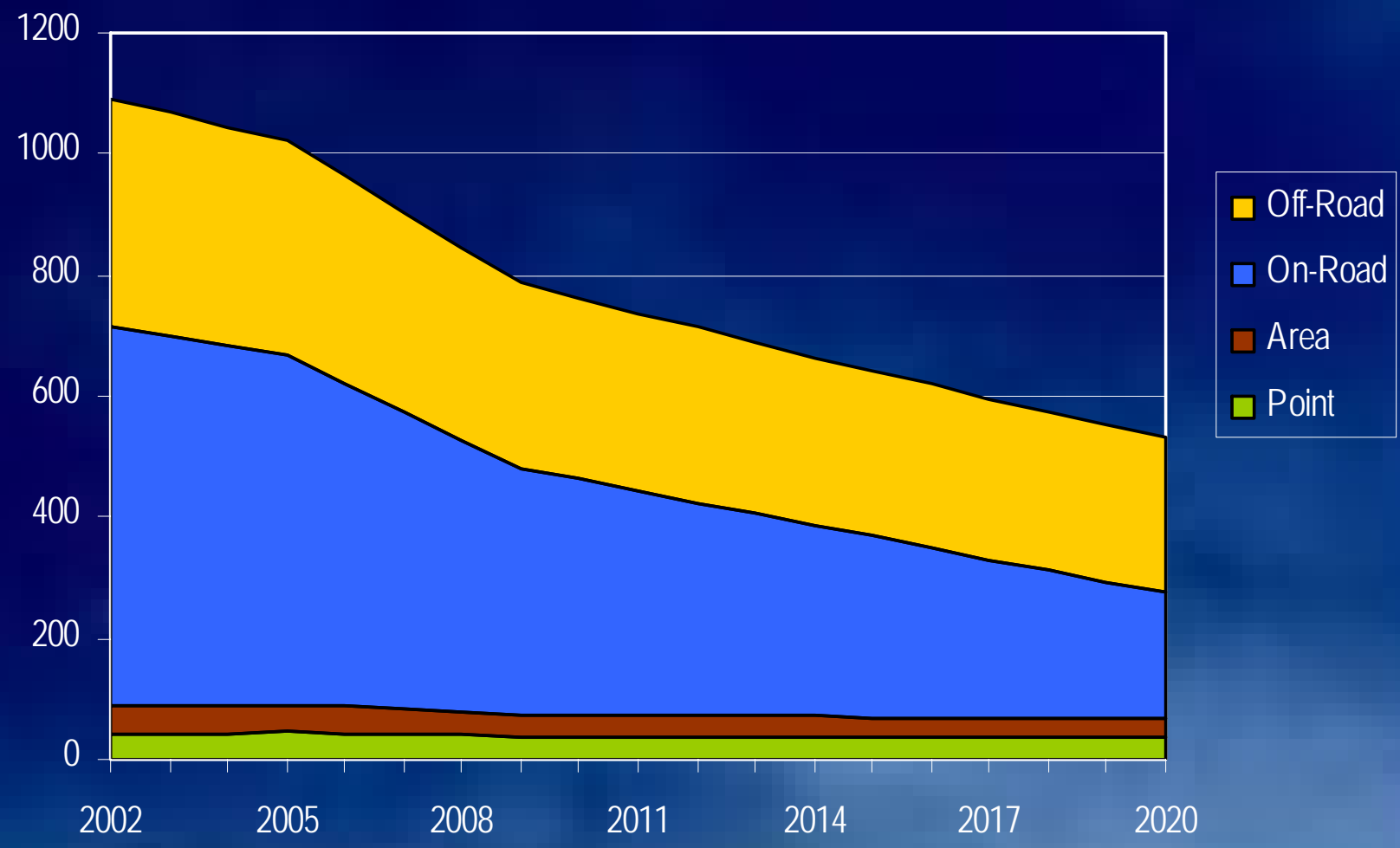
City of Commerce



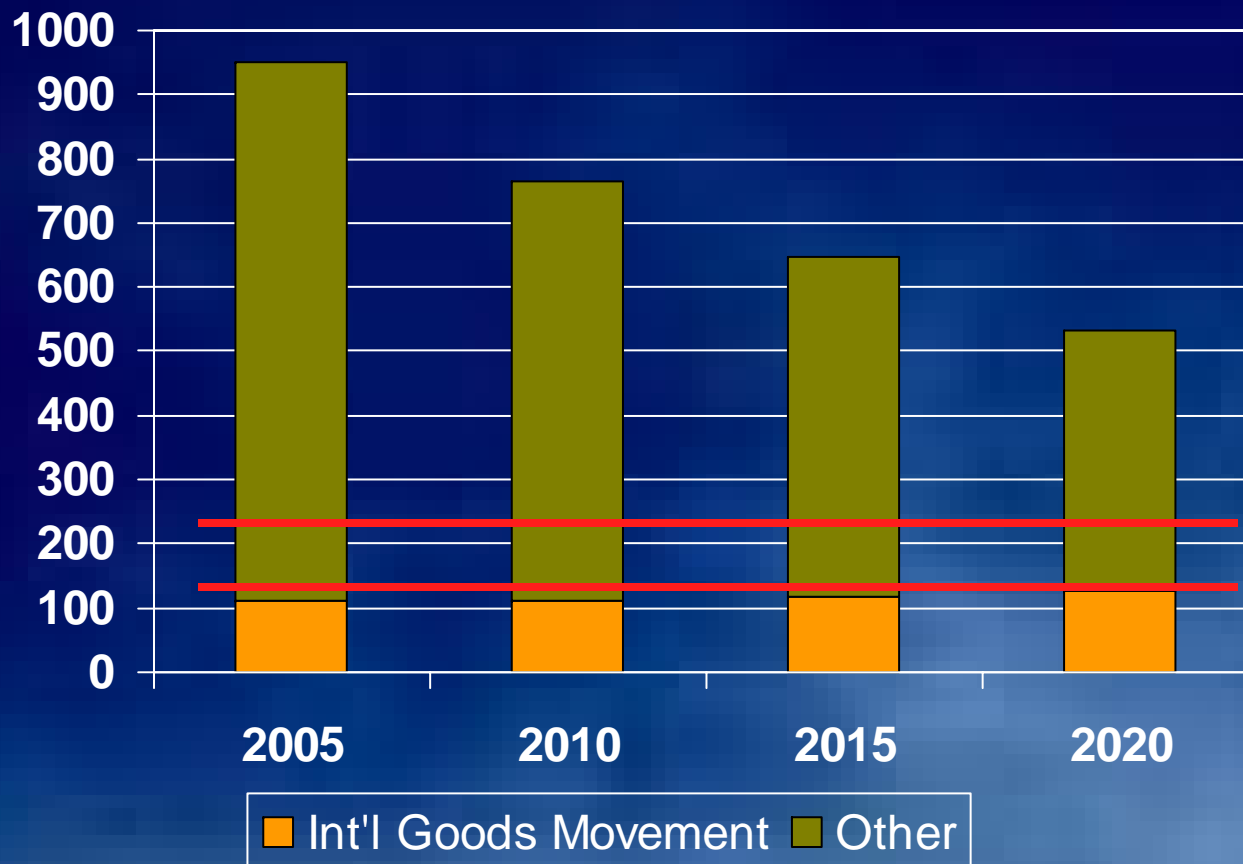
Proposed Site of
Southern California
International Gateway
(SCIG)
BNSF Railyard



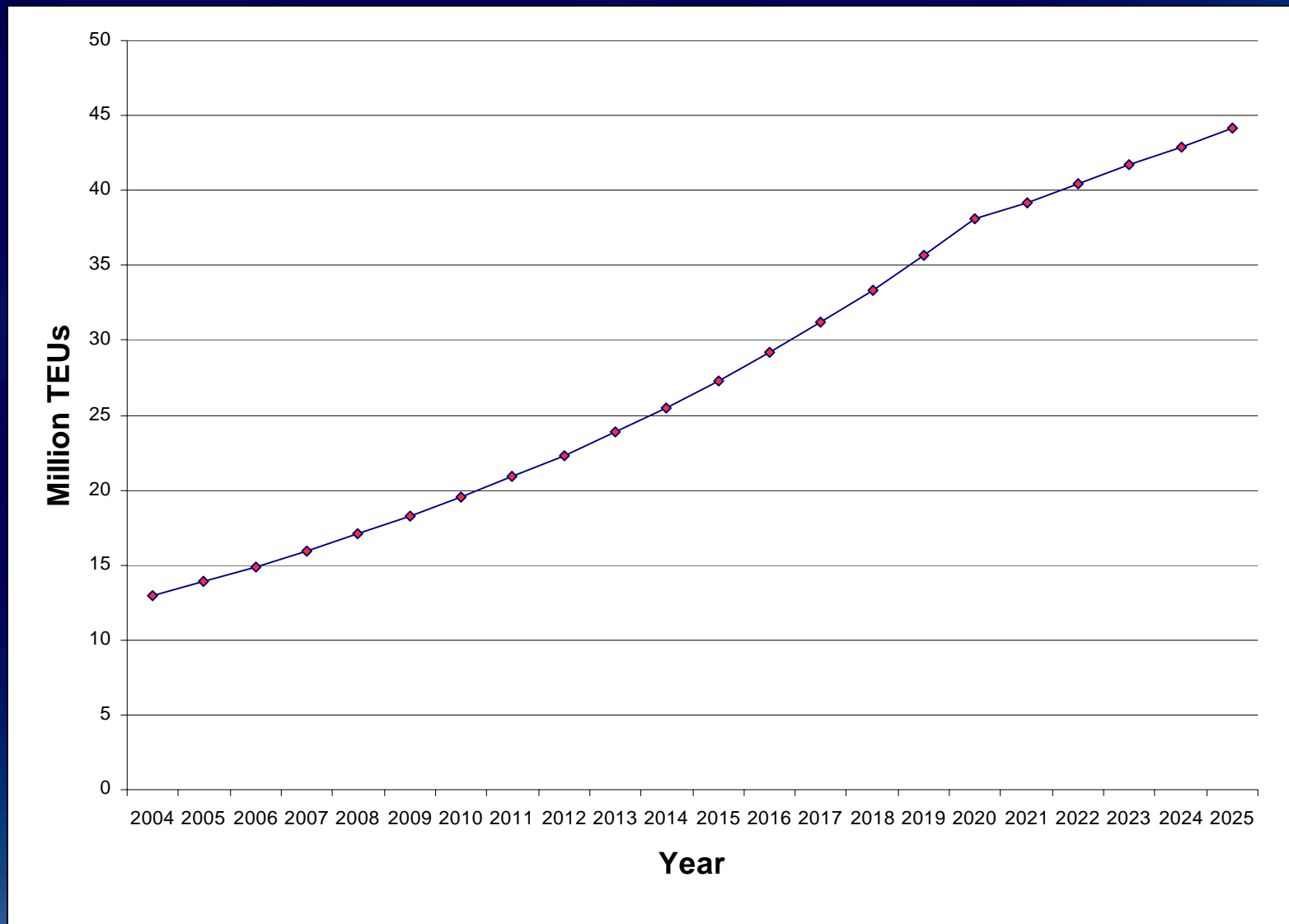
Nitrogen Oxides: Emissions Trend By Source Category



NOx Baseline Emissions and 8-Hour Ozone Preliminary Carrying Capacity (tons per day)

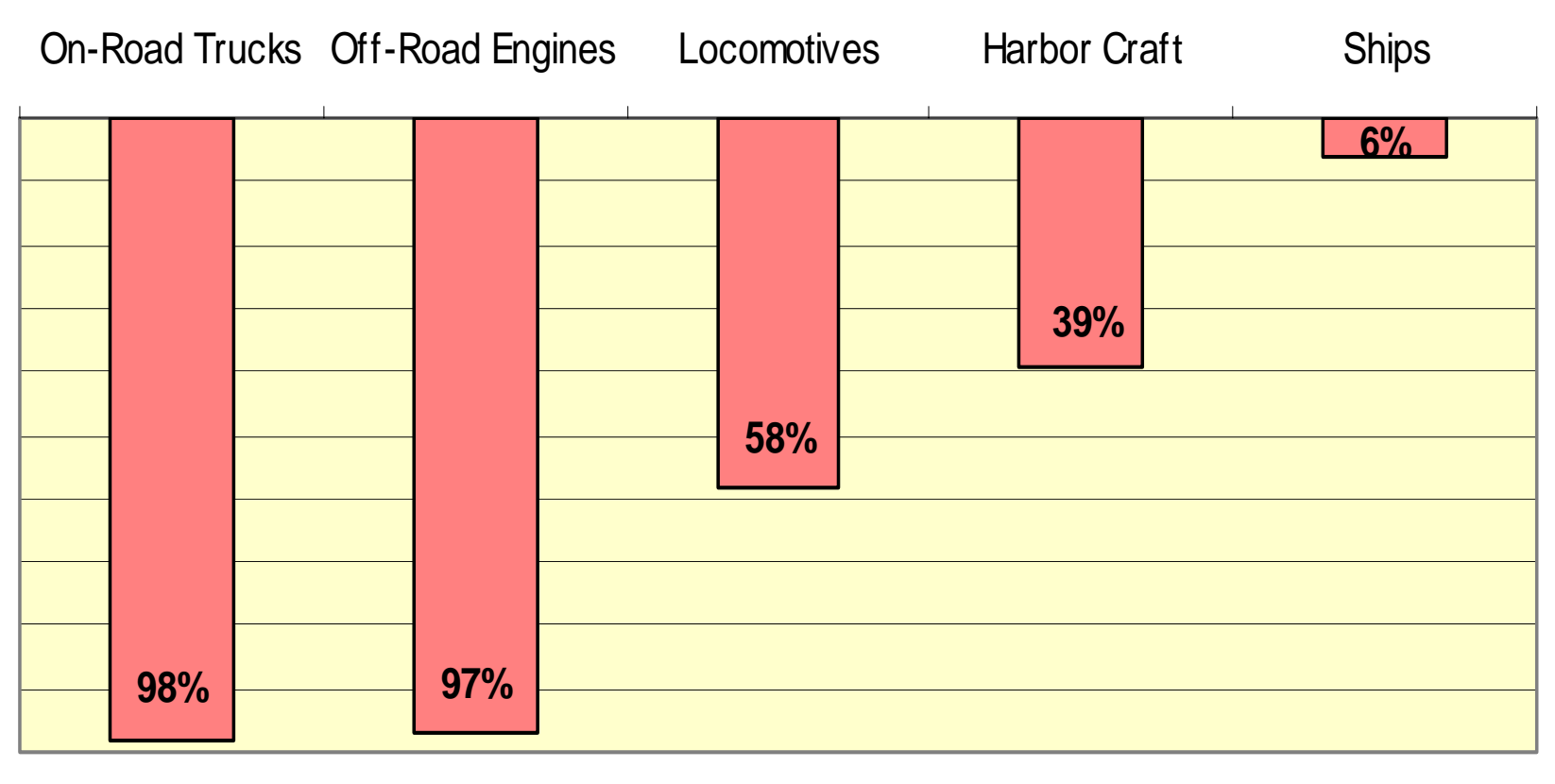


Projected Cargo Growth: San Pedro Bay Ports



Stringency of NOx Standards

(Percent Reduction Based on Adopted New Engine Standards)



Some Actions That Will Drive Emission Reductions

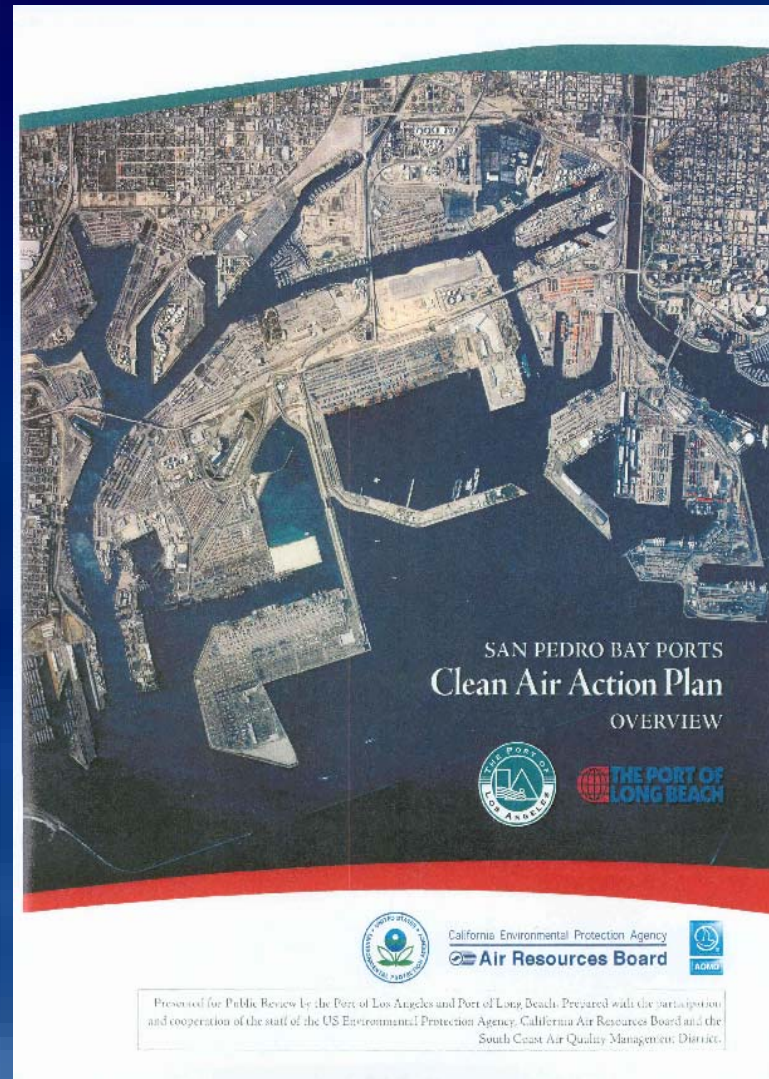
- EPA Rulemakings
- State -
 - State Goods Movement Action Plan
 - Emission Reduction Plan for Ports and Goods Movement
 - Bond Funds
 - CARB Rules/MOUs
- Local/Regional -
 - SCAG & AQMD Planning Actions, e.g. 2007 Air Quality Management Plan
 - AQMD Rules & Funding Programs
 - Multi County Goods Movement Action Plan

CEQA and NEPA

- China Shipping Litigation
- Upcoming Projects

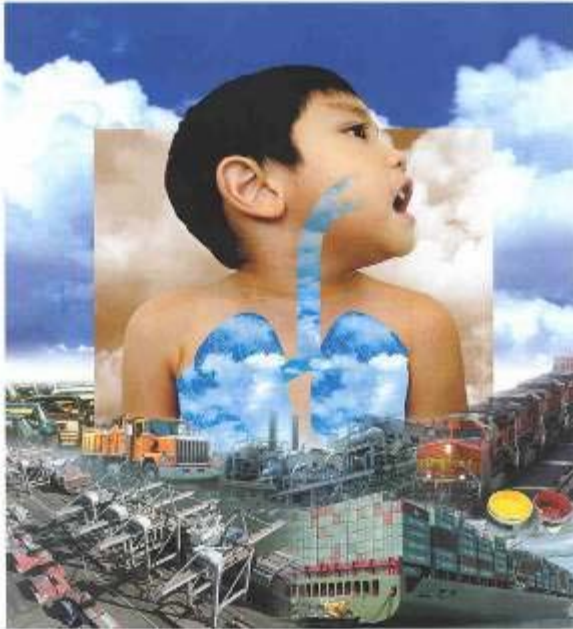


San Pedro Bay Ports Clean Air Action Plan



DRAFT

2007
Air Quality Management Plan



South Coast Air Quality Management District

Cleaning the air that we breathe...



Draft 2007 AQMP

Goal of Forum

- Identify operational and technological strategies to control emissions and move cargo
 - Aftertreatment?
 - Alternative fuels?
 - Electrification?
 - Mag Lev?
 - On-dock Rail?
 - Dedicated Truck Lanes?
 - Shuttle trains?
 - Inland Ports?
 - *And ?????*