

# **BNSF Railroad Initial Draft Diesel PM Mitigation Plan for the Richmond Railyard**

California Environmental Protection Agency

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**Air Resources Board**

April 23, 2009

# Overview of Meeting

- ARB

- Background on the BNSF Richmond railyard health risk assessment
- Process for the development of draft railyard mitigation plans
- Explain existing locomotive and railyard regulations and agreements

- BNSF

- Present initial draft railyard mitigation plan for BNSF Richmond railyard
  - Discuss next steps to identify and discuss additional mitigation measures
- Community members encouraged to discuss and provide comments

# Background

- This effort is part of our commitment to address pollution impacts on communities
  - ARB Goods Movement Plan
    - Reduce risks by at least 85 percent by 2020
  - ARB/UP/BNSF Railroad Agreement
    - Reduce exposure to toxic diesel PM as quickly as possible
- Railyard health risk assessments
  - 18 railyard health risk assessments finalized by July 2008

# Railyard Mitigation Plan Process

- Railroads prepare initial draft railyard mitigation plans
  - Pursuant to the 2005 Agreement
- ARB provides technical review of draft plans
  - No ARB endorsement or approval of the draft plans
- Public meeting to discuss the draft plans and additional mitigation measures
- Revise the plans based on public comments
- BNSF finalizes the plans

# Existing Control Measures

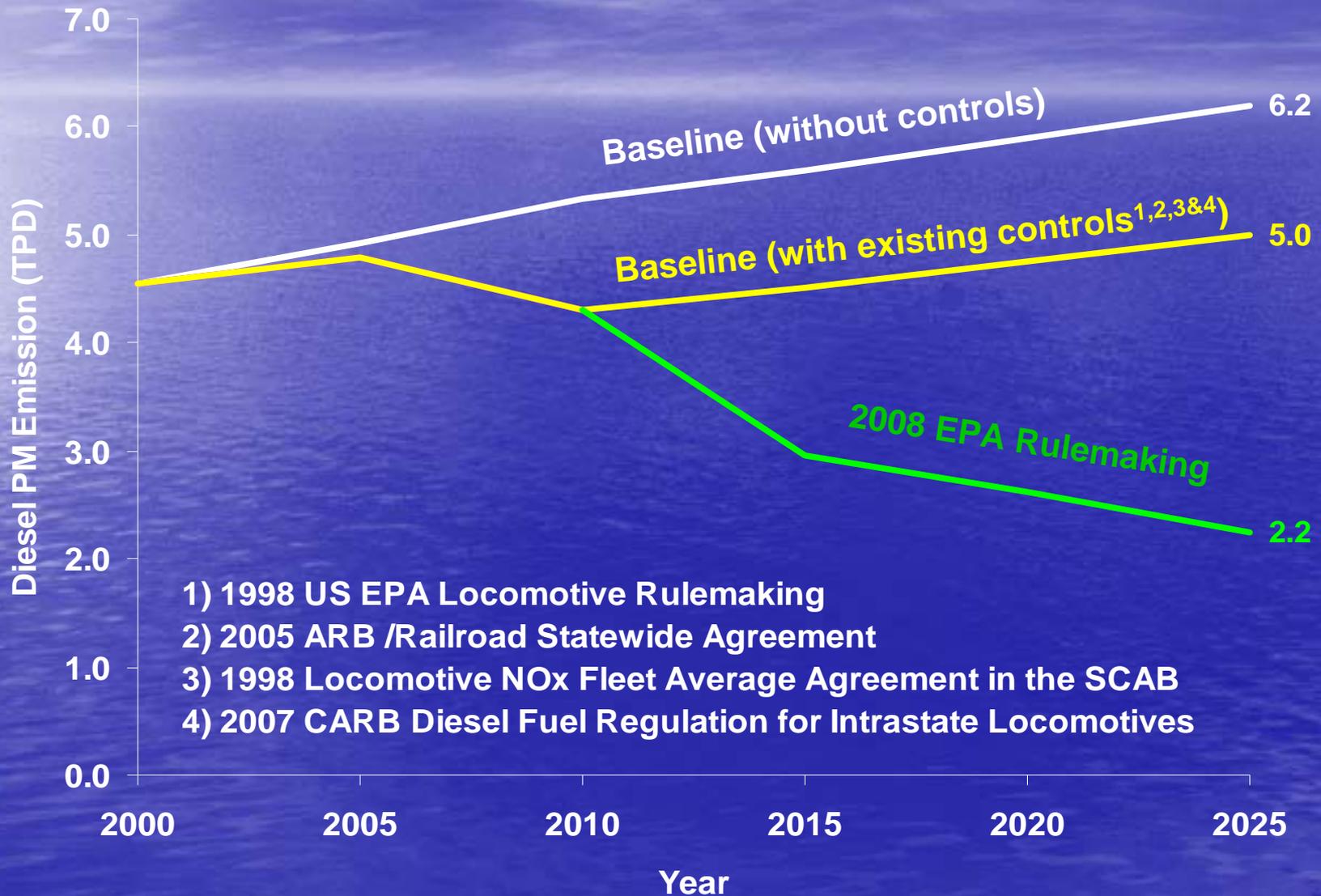
- **Locomotives:**

- Statewide Railroad Agreement (2005)
- ARB Diesel Fuel Regulation of Intrastate Locomotives (2007)
- U.S. EPA Locomotive Emission Standards (2008)
- 1998 South Coast Locomotive NO<sub>x</sub> Fleet Average Agreement (2010)

- **Non-Locomotives:**

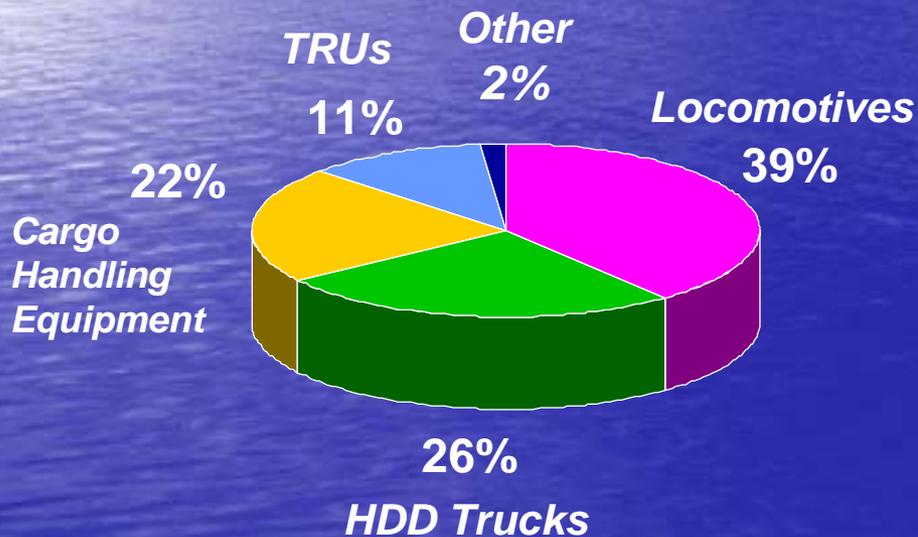
- ARB Cargo Handling Equipment Regulation (2007)
- ARB On-Road Heavy Duty Diesel Truck Emission Standards (2007)
- ARB Port and Intermodal Railyard Truck Regulation (2010)
- ARB ATCM for Transport Refrigeration (2010)
- ARB In-Use Diesel Vehicle Emission Regulation (2010)
- ARB Tier-4 Non-road Diesel-Fueled Emission Standards (2011-15)

# Statewide Locomotive DPM Emissions



# Distribution of 18 Railyard Diesel PM Emissions by Source Category

8 Intermodal Railyards DPM Emission Inventory (2005)

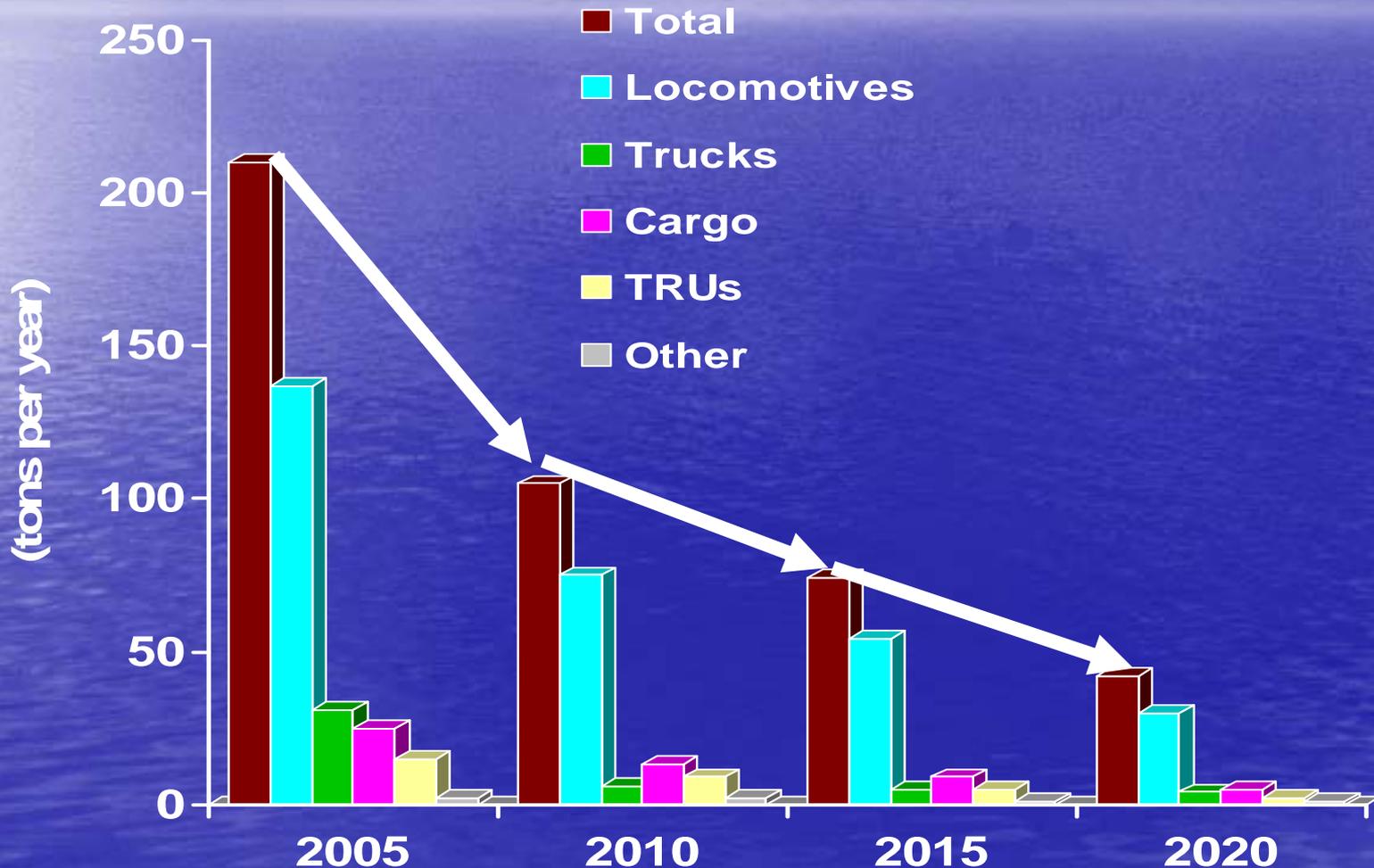


10 Classification Railyards DPM Emission Inventory (2005)



# Diesel PM Emissions from 18 Railyards

(Assumes average 80% reduction by 2020)





# BNSF Richmond Railyard



# Local and Regional Diesel PM Sources

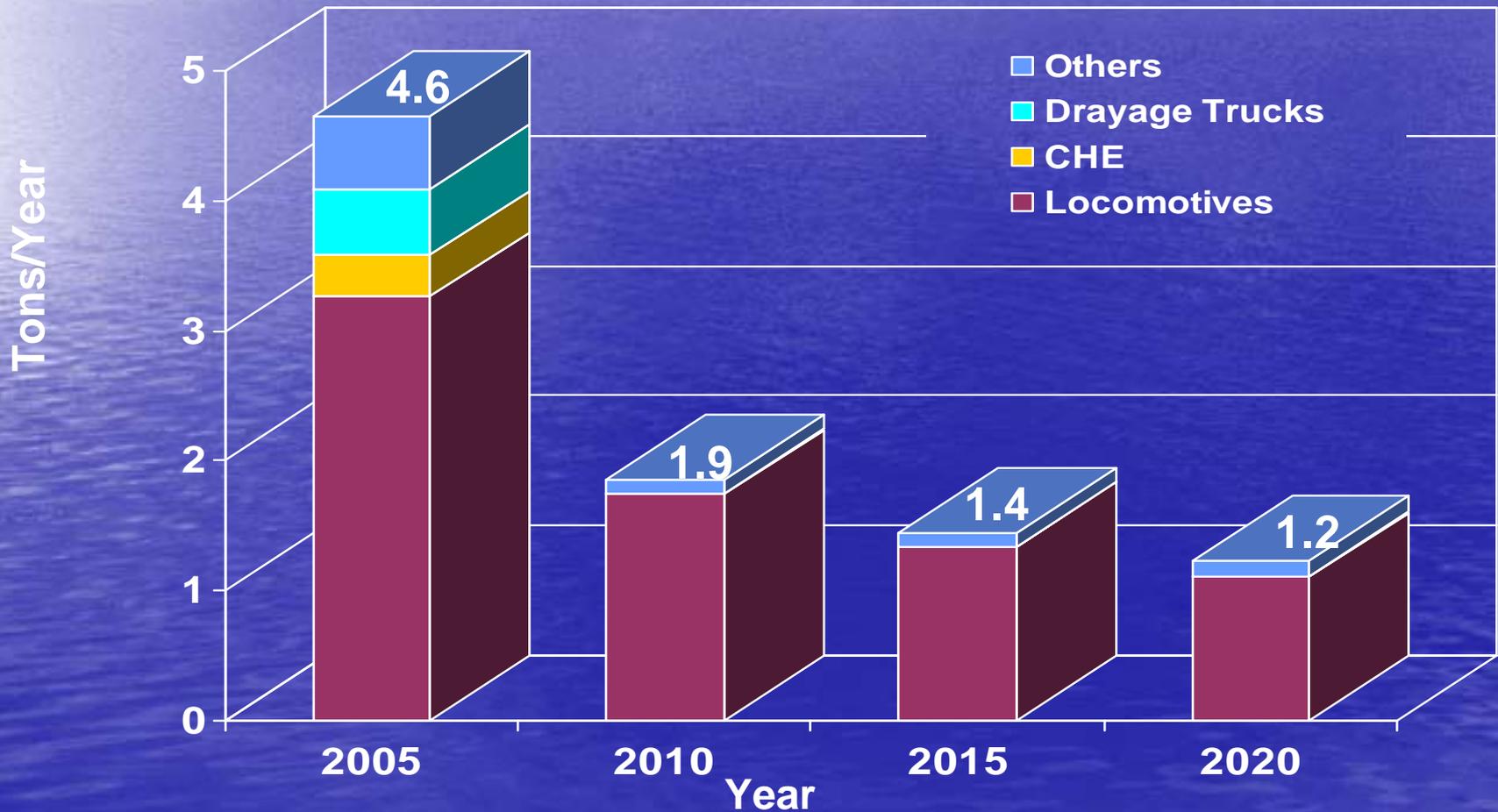
(Tons per year in 2005)

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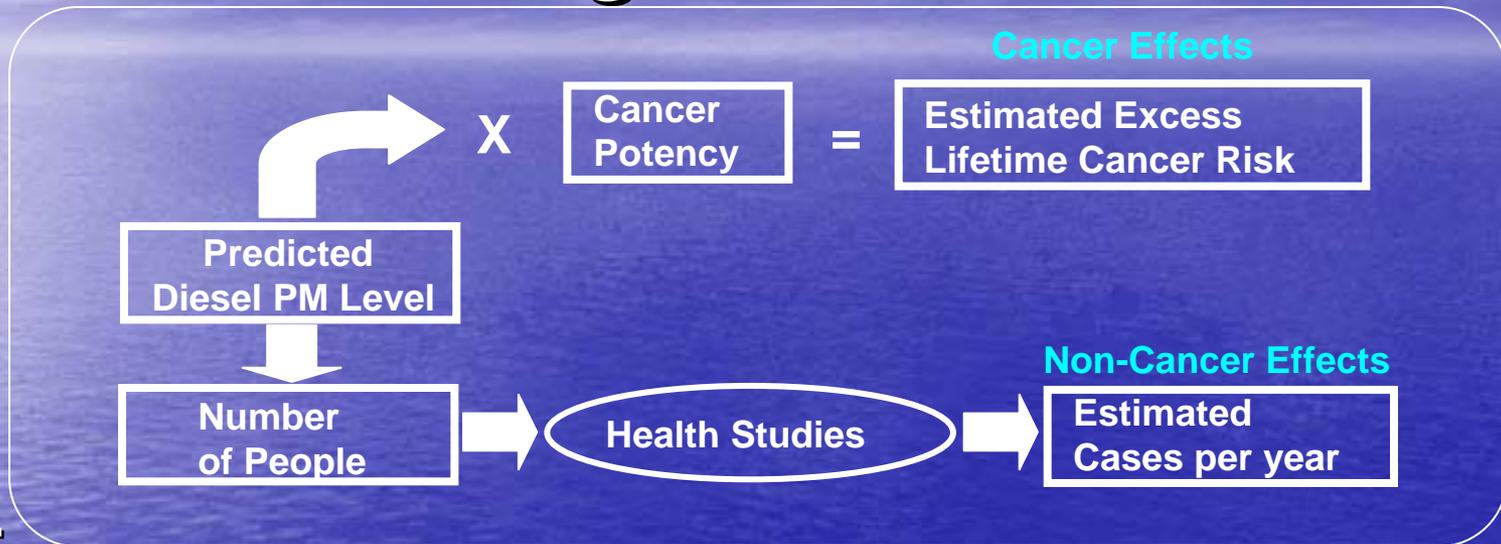
DPM Sources	Locomotives	Cargo Handling Equip.	On-Road Diesel Trucks	Off-Road Diesel Engines and Others (Stationary Sources)	Total
Richmond Air Basin	-	-	-	-	1,800
BNSF Richmond Railyard	3.26	0.28	0.51	0.56	4.62
Nearby Stationary and Mobile Sources			11.7	8.1	19.8

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# BNSF Richmond Railyard Diesel PM Emissions



# Health Risk Assessments: Estimating Health Effects



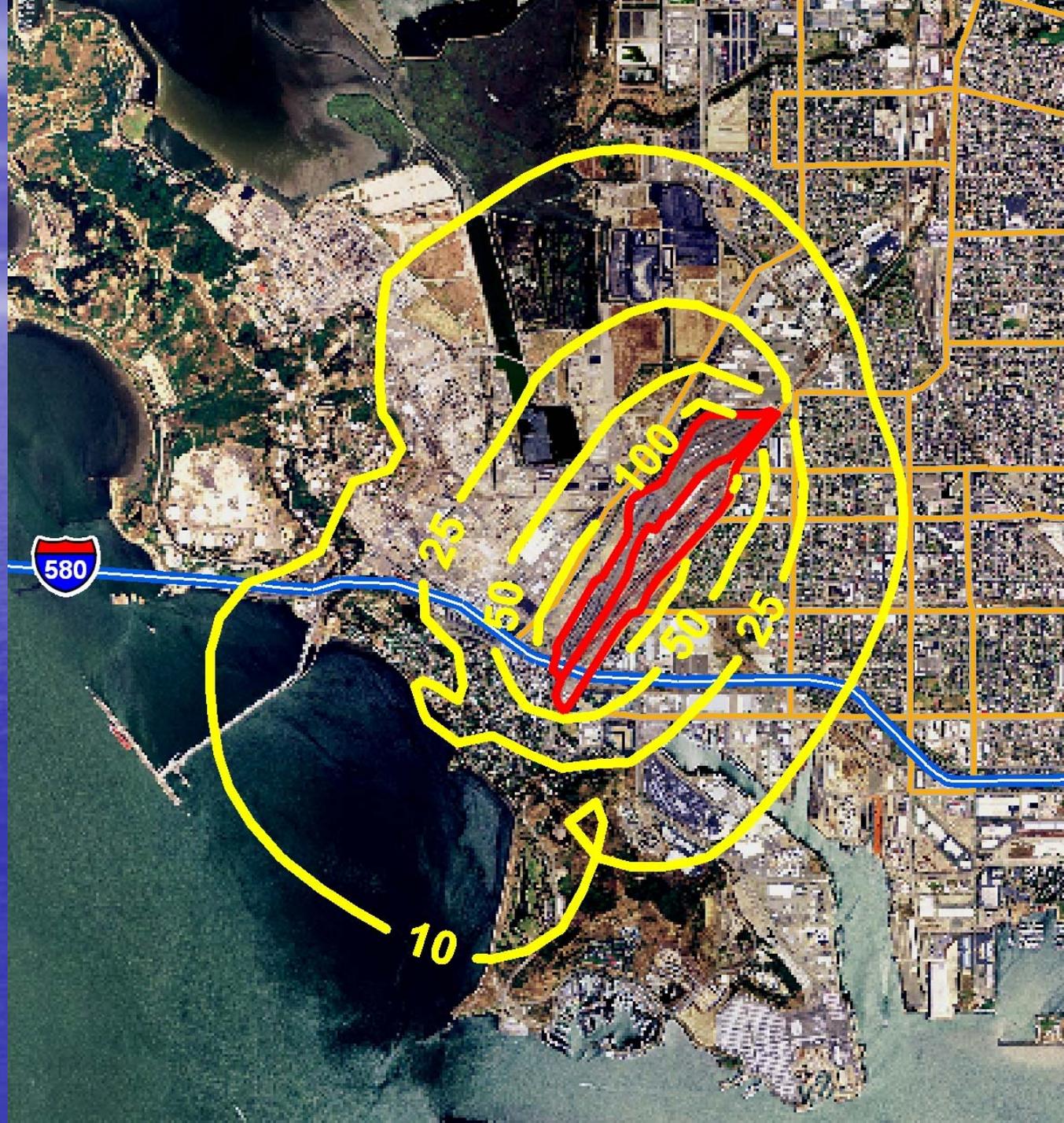
## Do:

- Provide an estimate of the amount of a pollutant in the air
- Predict or estimate the lifetime cancer risk and other health impacts – in this case for diesel PM

## Don't:

- Actually measure amount of diesel PM in the air
- Gather/use health data on local residents

Estimated  
Potential  
Cancer Risk  
in 2005



# BNSF Richmond Railyard

## Estimated Changes in DPM Cancer Risks (from existing measures)

- MICR (Maximum Individual Cancer Risk)



- Exposed Population (> 10 in a million)



# Summary

- The mitigation plan provides significant diesel PM emissions reductions from 2010 to 2015 and later
- Diesel PM public health risks are still high in 2015
- Need to accelerate and provide more diesel PM emission reductions

# ARB Technical Evaluation Document

## Strategies to Accelerate and Further Reduce Railyard and California Statewide Locomotive Emissions

- Separate and complementary effort
- Evaluate potential strategies based on the following criteria:
  - Technical feasibility
  - Potential emission reductions
  - Costs and cost-effectiveness
  - Not intended to address implementation issues (i.e., legal, regulatory, agreement, funding)
- Public comments received
- Now in a process of completing draft report

# Contact Information

## Comments and Questions

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  - [eyang@arb.ca.gov](mailto:eyang@arb.ca.gov)
- ARB Railyard HRA and Mitigation Plan Website
  - <http://www.arb.ca.gov/railyard/hra/hra.htm>
- ARB Locomotive Technical Evaluation Document
  - <http://www.arb.ca.gov/railyard/ted/ted.htm>