

BAY AREA AIR QUALITY MANAGEMENT DISTRICT



Public Workshops on Draft CAP

April 2010



Presentation Overview

- Challenges
- Purpose & Scope of 2010 CAP
- AQ & Health Impacts
- Overview of Draft CAP
- Schedule
- Socio-Economic Analysis
- DEIR





Air Quality Challenges

- Limited authority
- Constrained resources
- Low-hanging fruit has been picked
- More stringent AQ standards
- Future population & economic growth = more VMT
- Need to reduce mobile source emissions
- Climate change will exacerbate air pollution
- How to balance competing objectives?



New Directions in AQ Planning

Traditional AQ planning:

- Single pollutant per plan
- Focus on attaining standard

2010 CAP:

- More holistic & comprehensive approach
- Focus on outcomes: protect public health & climate
- Integrated strategy to reduce multiple pollutants
- Maximize co-benefits; minimize trade-offs



Purpose of 2010 Clean Air Plan

Update state ozone plan (2005 Ozone Strategy)

- Include all feasible control measures
- Reduce transport to neighboring air basins

Develop **multi-pollutant** plan to address:

- Ozone
- Particulate matter (PM)
- Air toxics
- Greenhouse gases



CAP Goals

Three key goals:

- **Improve air quality;** attain AQ standards
- **Protect public health &** reduce exposure both at regional scale & in impacted communities
- **Protect the climate**



Multi-Pollutant Evaluation Method (MPEM)

- Emissions → Concentration → Exposure
→ Health Effects → \$ Value of Benefits
- MPEM technical doc: updated April 2010
- Developed MPEM Probability Analysis
- Used MPEM to analyze health & climate benefits of control measures on MP basis
- Estimated \$ value of health & climate benefits



CAP Progress to Date

- Extensive public outreach, many workshops
- Collaborated with regional agency partners
- Consulted with CARB & neighboring air districts
- Issued draft Control Strategy in August 2009
- Issued for public review on March 11:
 - Draft CAP
 - Draft EIR
- Issued Draft Socio-Economic Analysis: April 5



Questions / Comments



CAP & Public Health

- Protecting public health is a key CAP goal
 - emphasis on reducing population exposure in priority communities
- CAP performance objectives re: reducing population exposure to PM_{2.5} and diesel PM
- Performed analysis to evaluate health burden from air pollution in Bay Area: past v. present

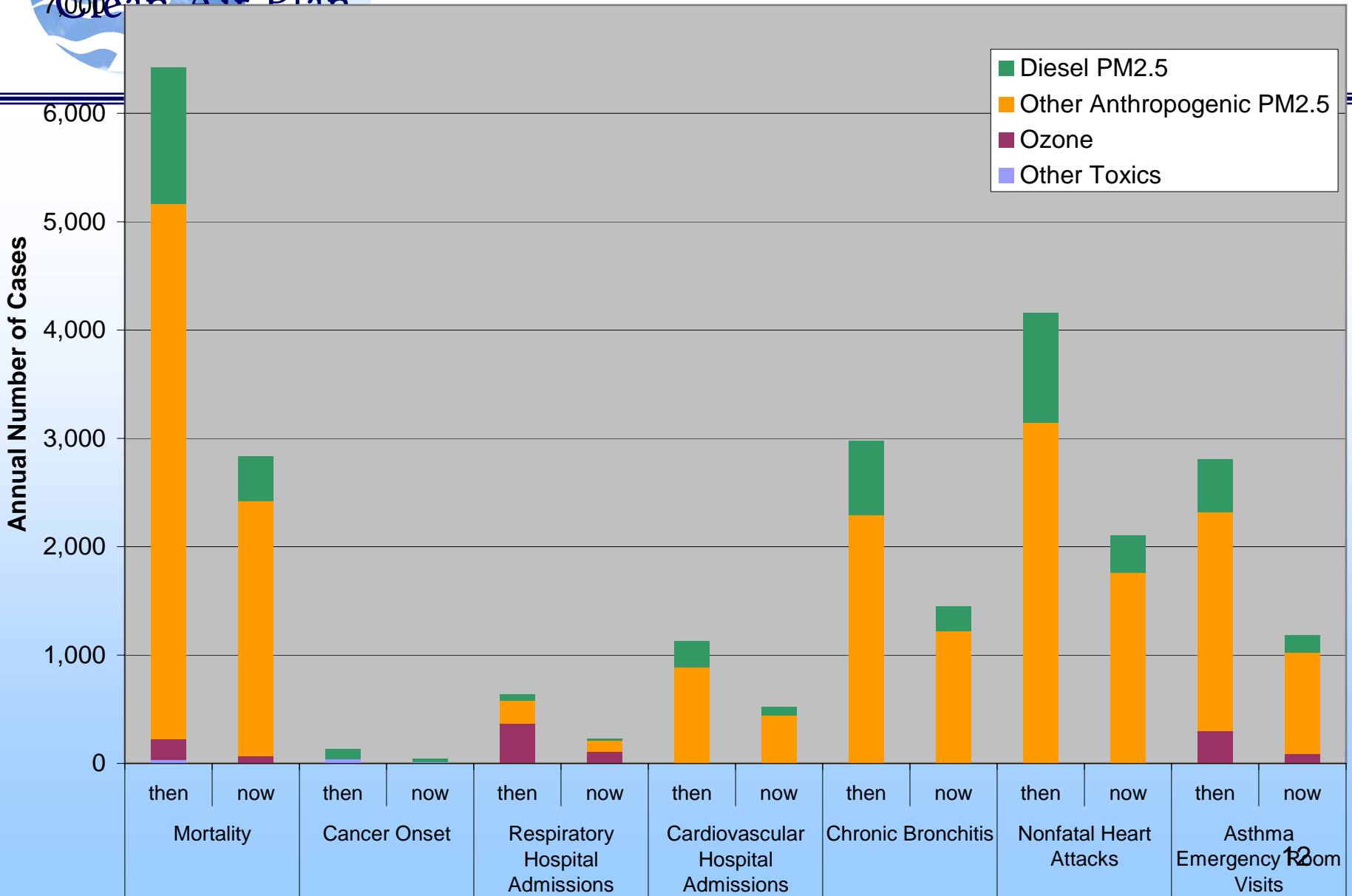


Key Pts: AQ & Health

- Bay Area AQ has improved in recent decades
 - Ozone
 - PM
 - Air toxics
- Emissions, ambient concentrations & population exposure have all been greatly reduced
- Health effects have also been reduced
- Air pollution still has negative health impacts
- PM_{2.5} is the most hazardous pollutant



Health Burden: Past v. Present





Benefits of Improved AQ

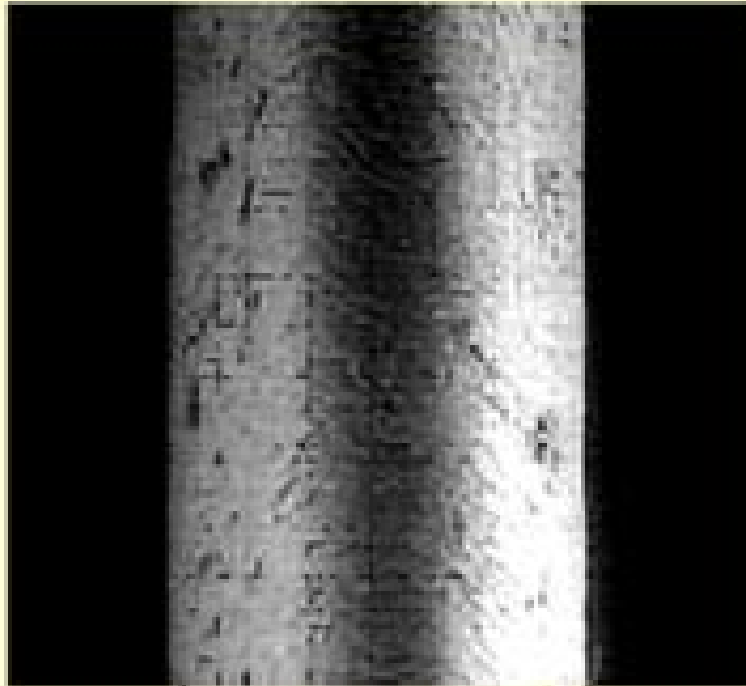
- Health effects related to air pollution have been greatly reduced:
 - Premature mortality reduced 55-60%
 - Cancer risk reduced 70%
- Improved AQ contributes to increase in average life expectancy:
 - Bay Area life expectancy increased by 5 yrs since 1990
 - Improved AQ has added ~6 months to avg. lifespan
- Health benefits are worth multiple \$ billions/yr



Current Health Effects

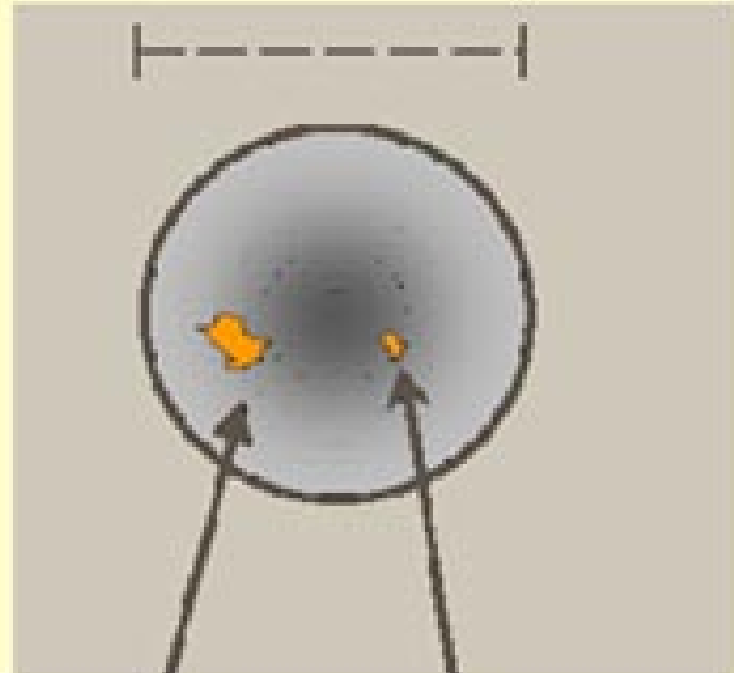
- Air pollution still has negative health impacts
 - Air pollution linked to ~ 2800 premature deaths per year (v. ~ 6400 in past)
 - Premature death is related to exposure to PM_{2.5}
 - PM_{2.5} is also leading cause of other effects
 - Diesel PM: two roles as pollutant:
 - 1) leading carcinogenic air toxic
 - 2) component of PM_{2.5}
- Most dangerous as component of PM_{2.5}

Fine PM



Human Hair (70 μm diameter)

Hair cross section (70 μm)



PM
(10 μm)

PM
(2.5 μm)



PM Formation

	Emitted Pollutants	Ambient Pollutants
PM _{2.5}	Ammonia NO _x ROG	Ammonium Nitrate
	Ammonia SO ₂ Sulfate	Ammonium Sulfate
	Carbonaceous PM _{2.5}	Carbonaceous PM _{2.5}

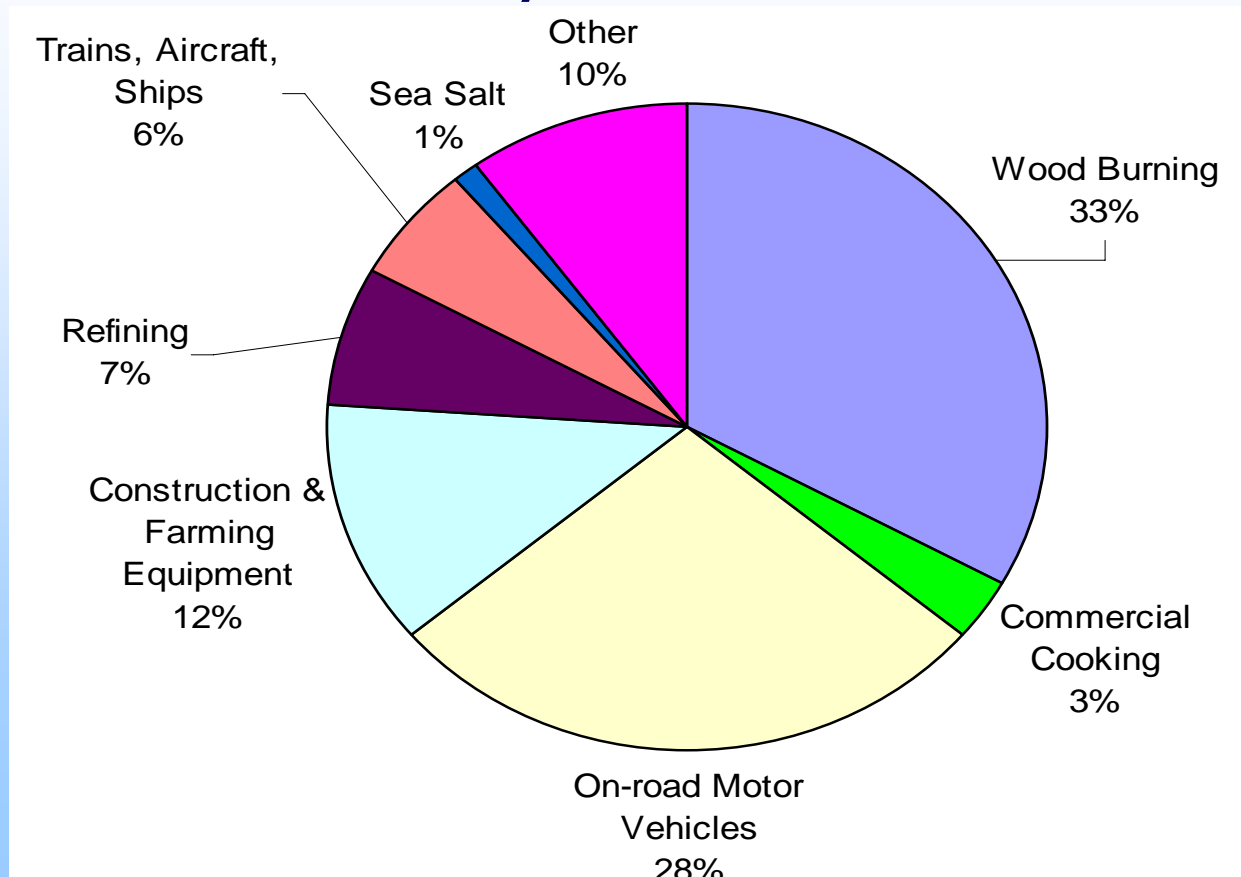


Key points re: PM_{2.5}

- Fine PM penetrates deep into lungs & bloodstream
- On-going research re: health effects & biological mechanisms
- EPA tightened 24-hr PM_{2.5} std in 2006
- Bay Area designated non-attainment Dec '09
- Must prepare PM SIP by Dec. 2012

PM2.5 Sources

- Estimated contributions to peak PM2.5 concentrations in Bay Area





Policy Implications

- Focus on reducing PM_{2.5} emissions & population exposure to protect public health
- Reduce PM_{2.5}, both direct and precursors, from all sources: fossil fuels, wood-burning, commercial cooking, etc.
- Prioritized measures to reduce PM in designing CAP control strategy



Questions / Comments



Key CAP Themes

- Attack root causes
- Reduce fossil fuel combustion
- Reduce vehicle emissions:
 - drive less
 - drive cleaner
 - drive smarter
- Land use & community design
- Energy efficiency / renewable energy



CAP Structure

- Volume I
 - Introduction: Framing the Challenge
 - Chapter 1: Scope & Purpose
 - Chapter 2: Technical Foundation
 - Chapter 3: Planning Context
 - Chapter 4: Control Strategy
 - Chapter 5: Summary
 - Appendices (7)
- Volume II: Control Measure Descriptions



Approach to Control Strategy

- Use full range of tools & resources at our disposal
- Maximize reductions of multiple pollutants via traditional types of control measures
- Consider new types of control measures that make sense in a multi-pollutant context



Overview of Control Strategy

55 control measures:

- Stationary sources measures (18)
- Mobile sources measures (10)
- Transportation control measures (17)
- Land use & local impacts measures (6)
- Energy & climate measures (4)

CAP also includes:

- Further study measures (17)
- Leadership Platform



Stationary Source Measures

SSM 1: Metal Melting Facilities (*PM, odor, TAC*)

SSM 2: Digital Printing (*ROG*)

SSM 3: Livestock Waste (*PM, ROG, GHG*)

SSM 4: Natural Gas Process & Dist. (*ROG, GHG*)

SSM 5: Vacuum Trucks (*ROG*)

SSM 6: General Particulate Matter (*PM*)

SSM 7: Open Burning (*PM*)

SSM 8: Petroleum Coke Calcining (*SO_x*)

SSM 9: Cement Kilns (*NO_x, SO_x*)



Stationary Source Measures

- SSM 10: Refinery Boilers & Heaters (*NO_x*)
- SSM 11: Residential Fan-type Furnaces (*NO_x*)
- SSM 12: Space Heating (*NO_x*)
- SSM 13: Dryers, Ovens, Kilns (*NO_x*)
- SSM 14: Glass Furnaces (*NO_x*)
- SSM 15: GHG in Permits – Energy Efficiency (*GHG*)
- SSM 16: New Source Review: PM_{2.5} (*PM*)
- SSM 17: New Source Review: Air Toxics (*TAC*)
- SSM 18: Air Toxics Hot Spots/CARE (*TAC*)



Mobile Source Measures

Promote clean vehicles & fuels

Replace /repair high-emitters; accelerate turnover

Reduce emissions in advance of regulations

Via incentives & partnerships

10 MSMs proposed:

- 4 light & medium-duty MSMs
- 3 heavy-duty MSMs
- 3 off-road MSMs





Transportation Control Measures

Reduce vehicle travel & emissions

TCMs grouped into 5 categories:

- Improve transit services
- Improve system efficiency
- Encourage sustainable travel behavior
- Support focused growth
- Implement pricing strategies





Improve Transit Service:

TCM A-1: Improve Local & Areawide Bus Service

TCM A-2 Improve Local & Regional Rail Service

Improve System Efficiency:

TCM B-1: Freeway & Arterial Operations

TCM B-2: Transit Efficiency & Use Strategies

TCM B-3: Bay Area Express Lane Network

TCM B-4: Goods Movement Improvements



Encourage Sustainable Travel Behavior:

TCM C-1: Voluntary Employer Trip Reduction

TCM C-2: Safe Routes to School & Transit

TCM C-3: Rideshare Services & Incentives

TCM C-4: Conduct Public Outreach & Education

TCM C-5: Smart Driving / Speed Moderation



Support Focused Growth:

TCM D-1: Bicycle Access & Facility Improvements

TCM D-2: Pedestrian Access Improvements

TCM D-3: Local Land Use Strategies

Implement Pricing Strategies:

TCM E-1: Value Pricing Strategies

TCM E-2: Parking Pricing & Policies

TCM E-3: Transportation Pricing Reform



Land Use & Local Impacts

- Promote focused growth
- Protect public health
- Multi-faceted effort that draws on a wide range of tools & policies

LUM 1: Goods Movement

LUM 2: Indirect Source Review Rule

LUM 3: Enhanced CEQA

LUM 4: Land Use Guidelines

LUM 5: Reduce Cumulative Risk in Impacted Communities

LUM 6: Enhanced AQ monitoring





Energy & Climate Measures

- ECM 1: Energy Efficiency
 - promote green building codes & practices
- ECM 2: Renewable Energy
 - promote solar power & other renewables
- ECM 3: Urban heat islands
 - cool roofing & cool paving
- ECM 4: Tree-Planting
 - promote planting of low VOC emitting trees





Revisions to Draft Control Strategy

SSMs:

- Composting measure moved to Further Study Measure
- Revised SSM re: New Source Review for air toxics to reflect amendments adopted 1/6/10 by District Board



Revisions to Draft Control Strategy

TCMs:

- Ferry system expansion moved to Further Study Measure
- Added text to TCMs B-1 & B-3: Air District will perform independent review of AQ impacts of these measures
- TCM C-3: Added car-sharing to ridesharing
- Revised measures to reflect STP/CMAQ Cycles 1 & 2 funding for Transportation Climate Action Program
- Revised TCM E-1 to reflect Bay Bridge congestion pricing plan approved by Bay Area Toll Authority



Revisions to Draft Control Strategy

Land Use & Local Impacts Measures:

LUM 4: Land Use Guidelines:

Added Community Risk Reduction Plans

LUM 5: Reduce Health Risk in Impacted

Communities: Cumulative health risk tracking system will include stationary, area, and mobile sources



Further Study Measures

FSM 1: Adhesives & Sealants

FSM 2: Reactivity in Coatings & Solvents

FSM 3: Solvent Cleaning & Degreasing

FSM 4: Cooling Towers

FSM 5: Equipment Leaks

FSM 6: Waste Water from Coke-Cutting

FSM 7: SO₂ from Refinery Processes

FSM 8: LPG, Propane, and Butane



Further Study Measures

FSM 9: GHGs in Permitting - BACT

FSM 10: Commercial Cooking

FSM 11: Magnet Source Rule

FSM 12: Wood Smoke

FSM 13: Energy Efficiency & Renewables

FSM 14: Winery Fermentation

FSM 15: Composting Operations

FSM 16: Vanishing Oils & Rust Inhibitors

FSM 17: Ferry System Expansion



Questions / Comments



CAP Benefits

- CAP measures will avoid an estimated 85 premature deaths per year
- Will reduce bronchitis, asthma emergency room visits, hospital admissions, etc.
- Reduce ~ 15,000 metric tons of GHGs/day
- Estimated \$ value of CAP benefits: \$770 million/yr
- Reductions in PM_{2.5} & diesel PM account for ~ 80% of estimated \$ benefit of CAP
- Add'l reductions from ARB measures & fleet turnover



Socio-Economic Analysis

- CAP will result in costs & benefits
- CAP control strategy as a whole will provide net economic benefit to Bay Area
- SSM compliance costs will not impose significant burden on any regulated industry
- CAP measures will not impose significant costs or unfunded mandate on local government

- Initial Study focused EIR to five resource areas:
 - Air Quality, Hazards and Hazardous Materials, Hydrology and Water Quality, Utilities, Solid and Hazardous Wastes
- Impacts less than significant with mitigation
 - Use/transport of aqueous ammonia used for SCR (SSM 9, SSM 13, SSM 14, MSM B-2)
 - Reduced to less than significant by requiring aqueous ammonia concentrations less than 20 percent

- Significant impacts after feasible mitigation
 - Localized CO emissions (LUM 3, LUM 4)
 - Reduced by encouraging non-drive access to transit and development conducive to walking/bicycling
 - Cannot be quantified: remains significant
 - Water demand due to add-on control equipment (SSM 6, SSM 8, SSM 9)
 - Reduced by use of reclaimed water
 - Reduced by minimizing water use in wet gas scrubbers



CAP Schedule

- 45-day public comment on draft CAP, DEIR & Socio-Economic Analysis ends on **April 26**
Submit comments:
2010 CAP: Alison Kirk at AKirk@BAAQMD.gov
DEIR: Greg Tholen at GTholen@BAAQMD.gov
- Public hearing & BAAQMD Board action on CAP & Final EIR: 3rd quarter 2010



Bay Area 2010 Clean Air Plan website:

<http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Clean-Air-Plans.aspx>

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