

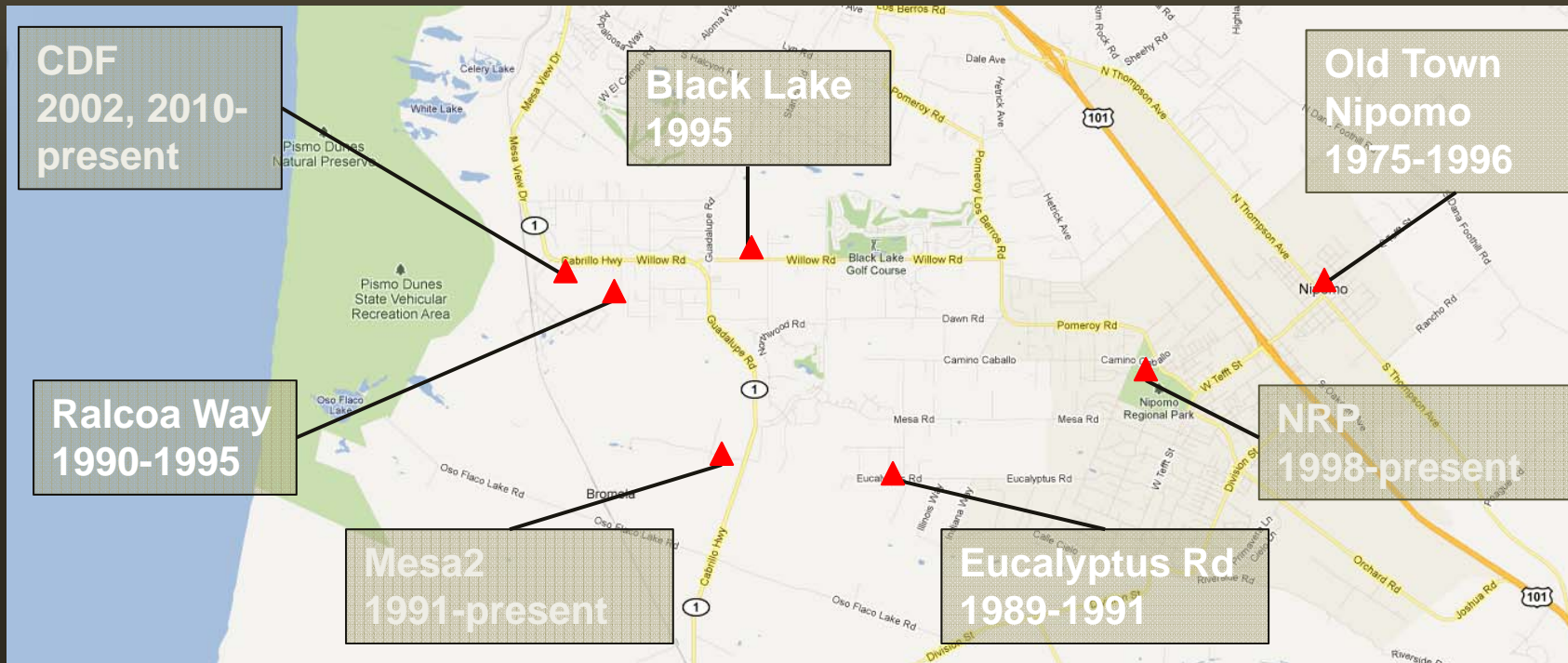
# APCD Fugitive Dust Rule 1001: Background & Purpose

APCD Board Hearing  
November 16, 2011

# PM Air Quality On Nipomo Mesa

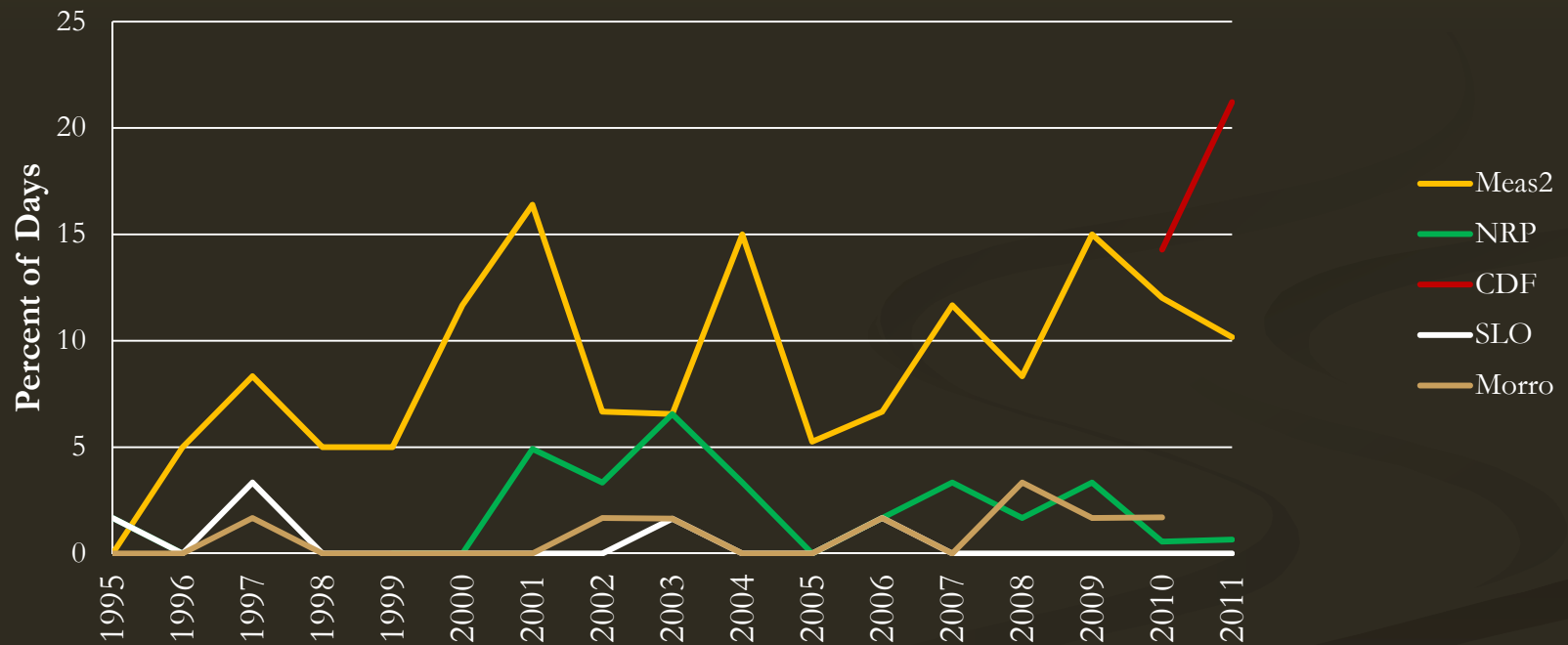
- PM10 monitoring on Mesa over 20 years
  - Health-based State 24-hour standard = 50 ug/m<sup>3</sup>
- Significantly more exceedances of State PM10 standards than elsewhere in County
  - Over 60 exceedances/yr on Mesa
  - PM10 standard rarely exceeded elsewhere in County
- Significantly higher peak levels than elsewhere in County
  - Hourly concentrations from 200 – 600 ug/m<sup>3</sup> on episode days

# History of Mesa PM Monitoring



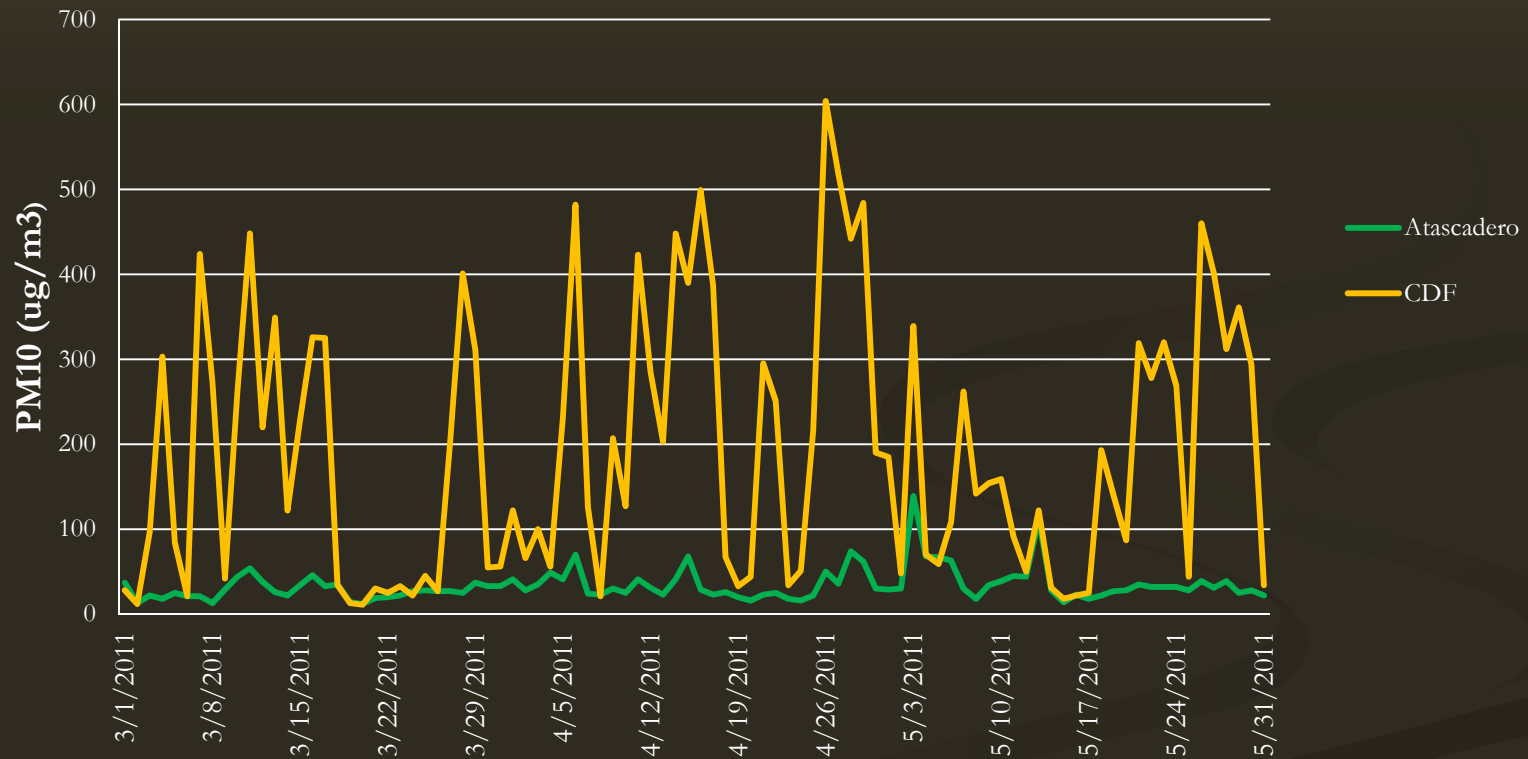
# Countywide PM10 Levels

Percent of Days in Violation of State PM10 Standard



# Peak Hourly PM10

## Maximum Hourly PM10 Concentration, Spring 2011



# Health Risk to Downwind Residents

**Dr. Borenstein**

Airborne  $PM_{10}$  causes health impacts, regardless of composition

- Respiratory problems in children & adults
  - Asthma, bronchitis, pneumonia
- Increase in heart attacks and other cardiac conditions
- Impaired lung development in newborns
- Increased hospitalizations & emergency room visits
- School absenteeism and work loss
- Premature death
- Health care economic impacts

# Phase 1 Study

- PM10 & PM2.5 sampling throughout Mesa 2004-2005
- Both state and federal PM health standards exceeded
  - State 24-hour PM10 standard exceeded 28% of sample days.
- Primary Cause: NW wind events carrying sand particles from Oceano Dunes
- Study not designed to assess impact of off-road vehicles on the dunes
- Board direction in 2007 to conduct additional research

# Phase 2 Study

- Primary Study Goals
  - Determine OHV contribution, if any, to high PM levels
  - Determine potential contributions of refinery coke piles, agricultural activities, other possible sources
- Study Designed & Implemented to meet goals
  - **UC Davis Delta Group** – internationally recognized experts in particulate studies
  - **Great Basin Unified APCD** – experts in dune and open source emissions evaluation & mitigation
  - **SLO APCD** – experts in air monitoring and data analysis
  - **University of Texas** – experts in soils & particle sizing
  - **California Dept of Parks & Recreation** – fully involved in study design and responsible for selecting control sites



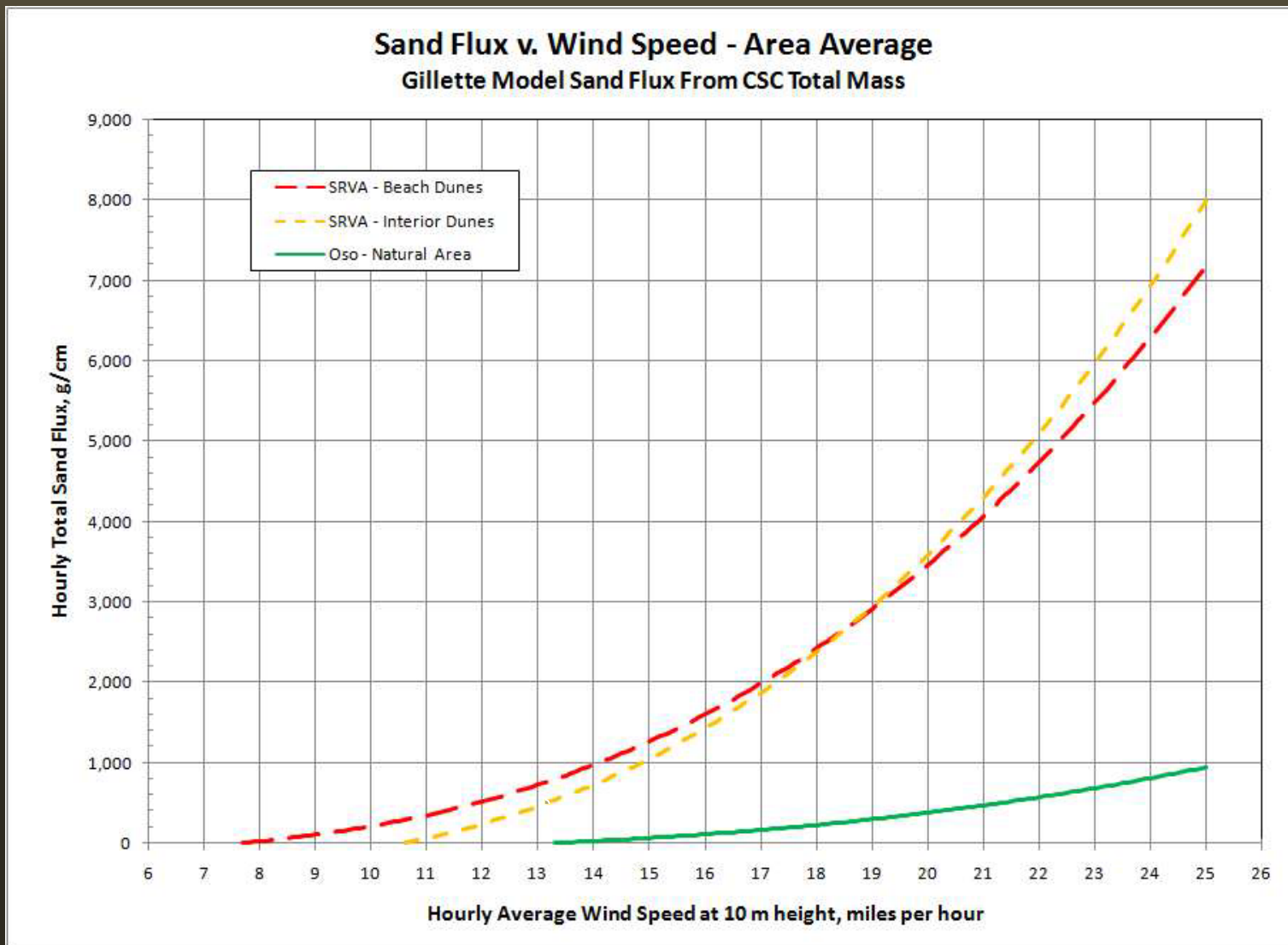
# Depth of Study Analysis

- Three independent studies to measure differences between riding & non-riding areas:
  - GBUAPCD – sand flux measurements
  - Delta Group – particle size, composition & mass
  - APCD – ambient PM10 sampling
- Approximately 2 million data points gathered
- Three independent analyses of data
  - Data validated with calibrations and QA/QC checks
  - Countless hours looking at how the data fits together

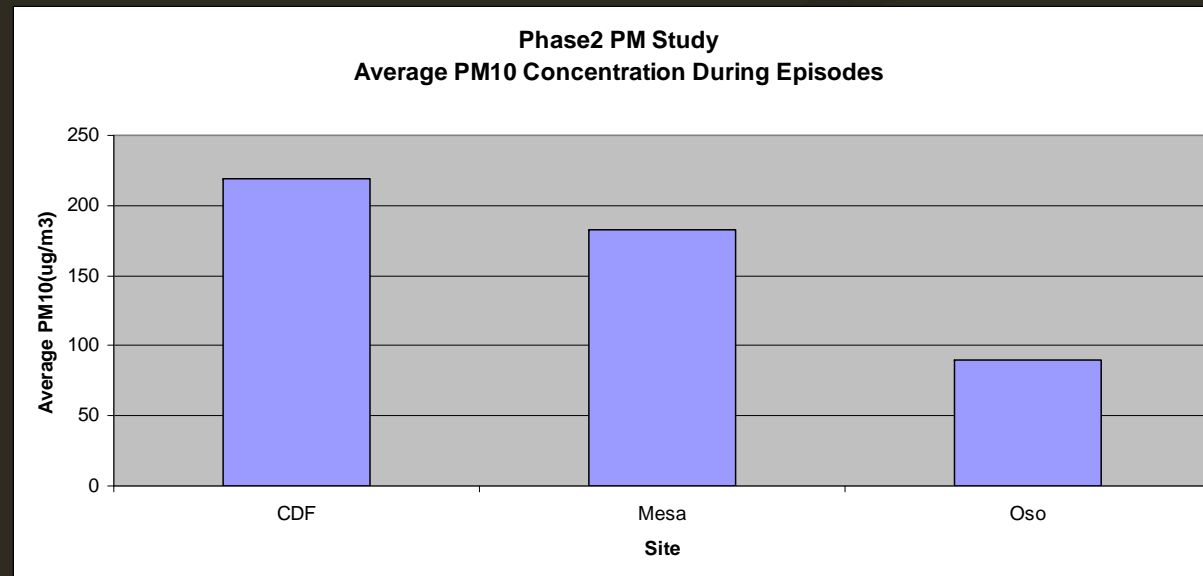
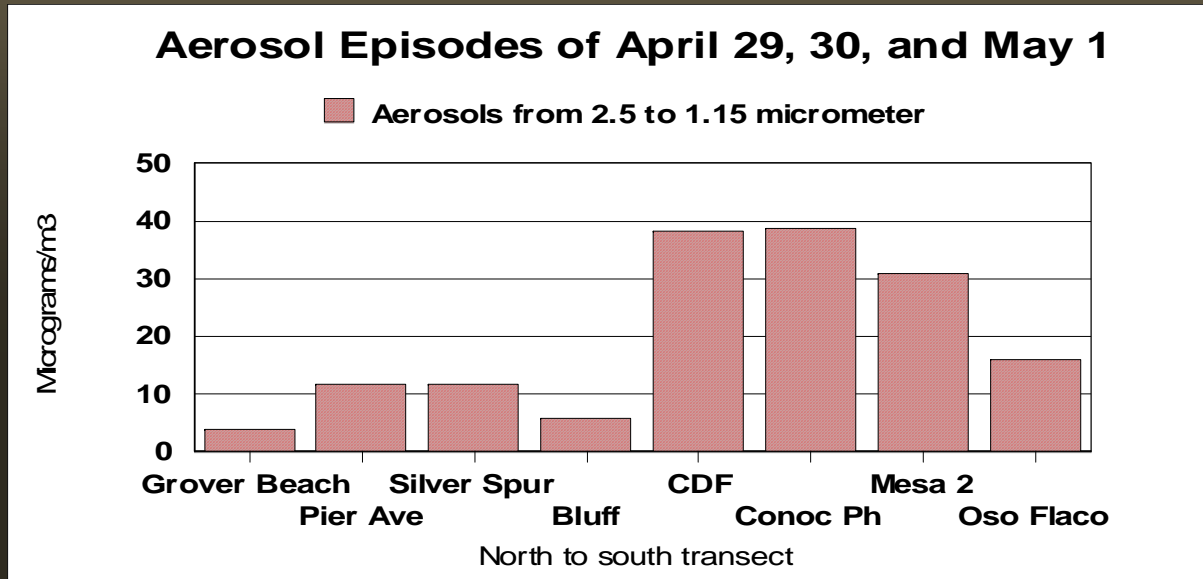
# Consistent Findings

- Great Basin analysis showed wind moves sand in SVRA easier than in control area
- Delta Group drum samplers showed fine PM levels downwind from SVRA higher than control area
- APCD air monitoring showed PM levels downwind from SVRA are higher than control area
- Ruled out refinery, agriculture, roads and all other possibilities as significant sources of emissions on high PM days with NW winds

# Difference in Sand Movement



# Higher PM With OHV Activity



# Phase 2 Conclusions

- *OHV activity in SVRA is major contributing factor to high PM concentrations observed on Mesa*
  - Unanimous support of findings by peer reviewers
  - Weight of evidence gives confidence in findings
- APCD Board accepted study findings in Mar 2010
  - Directed staff to work w/State Parks on solutions
  - Directed staff to move forward with Rule

# Collaboration with State Parks

- Worked w/SP on solutions for past year
- Collaborated on DRI pilot project study
  - Assessed effectiveness of PM reduction measures in coastal environment
- DRI study and numerous other PM research studies show variety of available strategies to reduce emissions from riding area

# Summary

- Nearly a decade researching issue
  - Countless staff hours, considerable funds
- Have addressed all questions related to Rule & Phase 2 study
- Rule designed to reduce violations of health standards to natural background levels
  - Expect ~ 75% reduction in PM10 std exceedances based on Phase 2 data





# **Rule 1001**

## **Coastal Dune Dust Control Requirements**

November 16, 2011

# Process

- \* PM Studies
- \* MOA process
- \* Review of other fugitive dust regulations
- \* Performance standard research
- \* Public workshop on September 7<sup>th</sup>
- \* Press releases and website postings
- \* Rule Concept Presentation to Board September 28<sup>th</sup>

# Rule Elements

- \* Rule based on:
  - \* State 24 hr PM10 standard & natural background
  - \* Riding area and non-riding area monitoring locations
  - \* Particulate Matter Reduction Plan (PMRP)
    - \* Emission reduction projects and timelines
      - \* Includes Pier Ave track-out plan
- \* Compliance based on PM10 monitoring differences between riding area & non-riding area after the PMRP is implemented

# Changes from September Version

- \* Board Direction - Earlier Monitoring
  - \* Feb 28, 2012 -Temporary Baseline Monitoring Plan Due
  - \* Feb 28, 2013 - Monitoring Begins
- \* Board Direction for Draft PMRP submittal
  - \* May 31, 2012 - Draft PMRP due to District

# Changes Continued

- \* Exceptional Events Exemption (Fires, etc.)-Blue Scape
- \* No penalties for failure to Meet Interim Timelines Caused by Regulatory Permitting Delays – State Parks and others
- \* Performance Measure changed from 10 ug/m<sup>3</sup> above the control site to 20% above - State Parks

# Performance Measure

- \* Utilizes monitors downwind of the SVRA and a control site downwind of a similar non-riding area
- \* Compliance based on PM<sub>10</sub> monitoring differences between riding & non-riding area
  - \* Compare readings when the State 24 hr PM<sub>10</sub> Std is exceeded by 5 ug/m<sup>3</sup> (=55 ug/m<sup>3</sup>)
  - \* If the riding area monitor is >20% above the non riding area monitor, a violation of the rule occurs
- \* Does not apply until May 2015, after PMRP projects are well established

# Performance Measure Examples

Vehicle Activity Area Monitor	Control Site Monitor	ug/m <sup>3</sup> Difference	Percent (%) Difference	Violation	Reason
54 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>	24 ug/m <sup>3</sup>	44%	No	Vehicle Activity Area monitor does not exceed 55 ug/m <sup>3</sup>
56 ug/m <sup>3</sup>	46 ug/m <sup>3</sup>	10 ug/m <sup>3</sup>	18%	No	Difference is less than 20%
100 ug/m <sup>3</sup>	75 ug/m <sup>3</sup>	25 ug/m <sup>3</sup>	25%	Yes	Difference > 20% & value above 55ug/m <sup>3</sup>
150 ug/m <sup>3</sup>	120 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>	20%	No	Difference is not greater than 20%

# Compliance Milestones

- \* Feb 28, 2012 - Monitoring Site Selection plan due
- \* May 31, 2012 – Draft PMRP due
- \* Nov 30, 2012 - PMRP project applications to other agencies
- \* Feb 28, 2013 - monitoring begins
- \* May 31, 2013 -PMRP agency approvals due
- \* July 31, 2013 - PMRP approval required
- \* May 31. 2015- PM10 performance measure compliance begins



# Cost Effectiveness

- \* Cost effectiveness procedures in H&SC designed for basin-wide reductions of multiple source categories with defined control strategies
  - \* One source only in this instance
- \* Specific control measures not required – PMRP allows operator select the most cost effective choices
- \* Known costs include monitoring ~ \$69,000/site + annual monitoring costs ~ \$15,500/site
- \* PMRP development ~\$200,000 to \$400,000
- \* PMRP project implementation – unknown; could be significant

# CEQA

- \* Rule is not a project under CEQA
- \* If it were a project it would be categorically exempt because the rule includes requirements for the protection of the environment
- \* Compliance with Environmental Analysis required for rule adoption (PRC 21159) has been demonstrated

# Comments

- \* All issues raised in the comments have been addressed
- \* Changes made based upon comments
- \* State Air Resources Board had no comment

# Board Findings

- \* All findings required by the Health and Safety Code have been met
  - \* *Necessity - Necessary to promote attainment*
  - \* *Authority - H&SC sections 40001 and 40702*
  - \* *Clarity - Rule Language was crafted to be as easily understood as possible*
  - \* *Consistency - Does not conflict with other Air Quality Requirements*
  - \* *Non-duplication - the requirements of the Rule does not duplicate any other regulation*
  - \* *Reference - implementing requirements of the H&SC*

# Conclusion and Recommendation

- \* Recommend the Board make the findings and adopt Rule 1001
- \* Questions