SIP Components

MARAMA SIP Workshop May 16, 2023

Marc Cone P.E., MARAMA

SIP Technical/Regulatory Components

- Ambient Air Quality Monitoring
- Emissions Inventories
- Air Quality Modeling
- Control Strategies

Ambient Air Quality Monitoring

Objectives of the National Air Quality Monitoring Network:

- **-Supports compliance with the NAAQS**
- **-Provides timely air quality data to the public**
- **-Supports air pollution research studies**

Validates emissions models and verifying control strategy effectiveness

Network Operators: Federal and State, Tribe and/or Local agencies

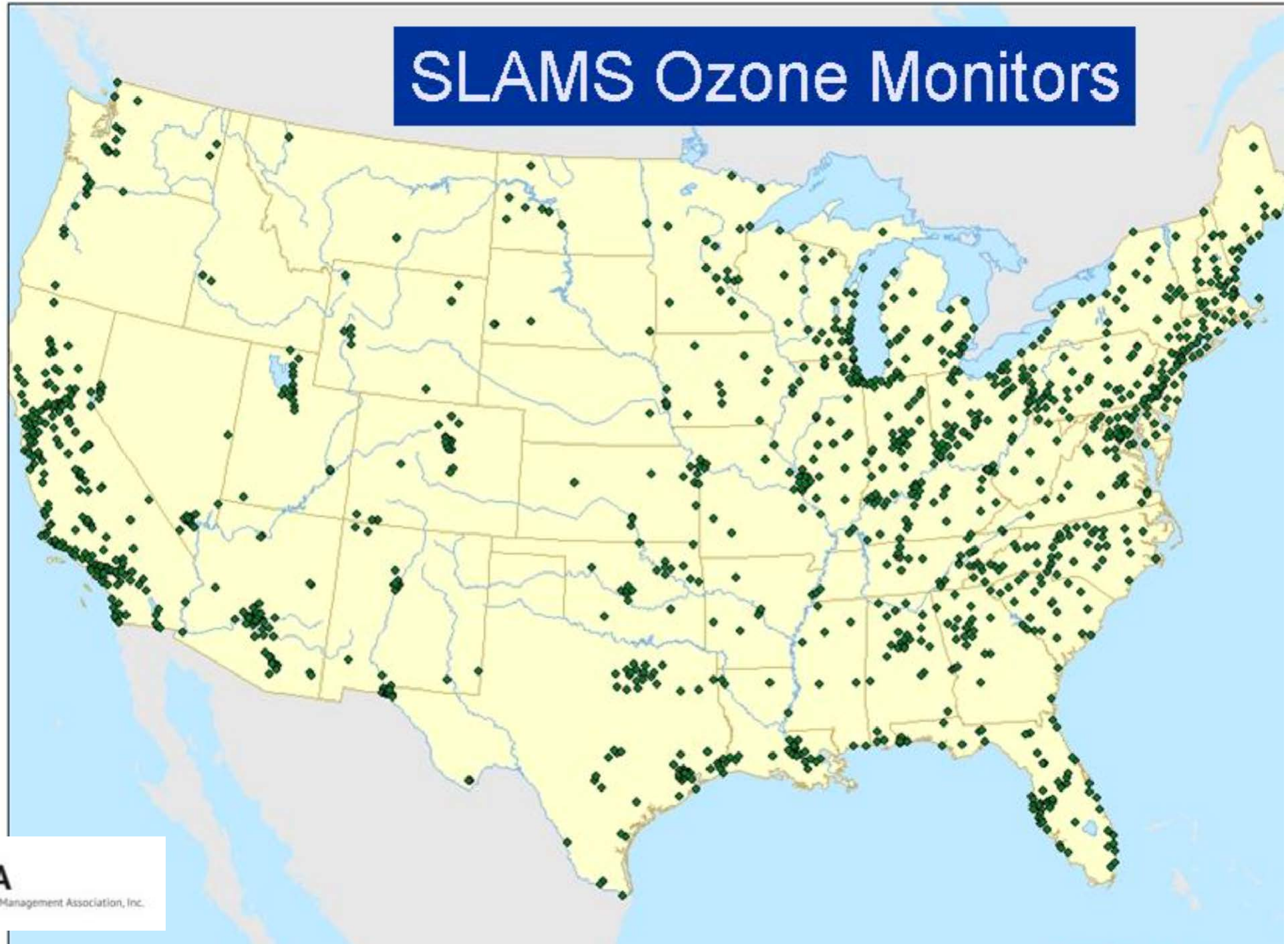
MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Air Monitoring

Ozone, CO, SO_2, NOx, PM_{10}, $PM_{2.5}$ SLAMS, NAMS,	Air Toxics NATTS) (National Air Toxics Trends Stations)	Ncore (National core monitoring sites)
Regional Haze IMPROVE (Interagency Monitoring of Protected Visual Environments Monitors)	Chemical Speciation PAMS (Photochemical Assessment Monitoring Stations)	Lead Monitoring
Meteorological Measurements	Near Road Monitoring CO, NO_2, $PM_{2.5}$	Susceptible and Vulnerable Populations NO_2 Monitoring

MARAMA
Mid Atlantic Regional Air Management Association, Inc.

SLAMS Ozone Monitors



MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Monitoring Requirements

40 CFR Parts 53 and 58

method approvals, sampling frequency, network design, annual plans, network assessments, monitoring locations, quality assurance and data reporting

Tomorrow – Nick Lazar and Christine Robbins PA DEP

MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Emission Inventories

Requirements:

Section 110(a)(2)(F)

Section 172(c)(3)

Section 169(a)

Compiling Air Pollutants Amounts for:

CO, NOx, SO2, NH3, VOC, PM2.5, PM10

Hazardous Air Pollutants

Greenhouse Gases

MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Emissions Inventories

Source Types

- Area
- Mobile on-road and non-road
- Stationary Sources
- Biogenic
- Event Sources (wildfires, volcanoes, etc.)

Types of Inventories

- National Emissions Inventory (NEI)
- SIP Planning
- SIP Modeling
- Future Projections

National Emissions Inventory (NEI)

Inclusive Estimate of Air Emissions

Currently Released Every Three Years

https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Emission Inventories

Several emission models are used to help develop and maintain inventories, ERTAC, EMF, others…

Emission inventories are used in modeling that provides strategies for maintaining compliance or attaining an ambient air quality standard

More Details to come tomorrow

MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Air Quality Modeling

Air Quality modeling developed as a way to estimate pollutant concentrations in a geographical area rather than to have monitors everywhere

The models use meteorological data, chemical reactions and emissions data in computational algorithms to achieve pollutant concentrations at ground level

The first models were relatively crude and challenging to run on existing computers. The models continue to improve and today there is much better correlation between models and monitored values. Computers are much more powerful today.

Air Quality Modeling

Guideline on Air Quality Models found in “Appendix W”

Support Center for Regulatory Atmospheric Modeling (SCRAM) https://www.epa.gov/scram

Stay tuned for the details later in our program by Zac Adelman from LADCO

Control Strategies

Control Strategy Development

1. Determine priority pollutants
2. Identify control measure options
3. Work with affected stakeholders to determine control measures
4. Incorporate final control measures into SIP

Control Strategies

- Varies depending on attainment designation or non-attainment designation for a pollutant
- Non-attainment status requires more requirements than an area attaining a pollutant standard.
- Federal Measures- Mobile Source Standards, New Source Performance Standards etc…
- State measures such as open burning, minor source controls or residential outdoor wood boiler setbacks

Control Strategies Attainment Areas

Prevention of Significant Deterioration/New Source Review (PSD/NSR)- Best Available Control Technology (BACT)

Minor New Source Review, Mobile Source Strategies

Other state measures may or may not want to be included

MARAMA
Mid Atlantic Regional Air Management Association, Inc.

Control Strategies Nonattainment Areas

- **Reasonably Available Control Measures (RACM) Adopt all reasonable measures to demonstrate attainment**
- **Control Techniques Guidelines (CTGs)-control technology option guidelines provided by EPA**
- **Alternative Control Techniques (ACT) EPA document that describe available control technologies and their cost effectiveness**
- **Control Strategy Tool (CoST) integrates inventories, control technologies, and costs to develop control strategies.**

Control Strategies Nonattainment Areas

Lowest Achievable Emissions Rate (LAER) applied to new or modified sources

Reasonably Available Control Technology (RACT) applied to existing sources considering technological and economic feasibility.

Nonattainment New Source Review

Control Strategies Nonattainment Areas

Mobile Source Strategies, Road and Non-Road Inspection/Maintenance, Fuel Standards, etc.

Transportation Conformity

General Conformity

Public Review Processes

Need to incorporate opportunity for public comment

EPA, General Public, Regulatory Community may voice concerns about your conclusions

Air*Knowledge* (http://airknowledge.gov)

EPA's Learning Management System (LMS)

Self Instructional(SI) and Instructor Led (CL) Courses and Materials for Basics, Planning, Modeling, Monitoring, Emissions Inventories, Permitting, and Source Testing and Monitoring can be found here.

By participating in this workshop you are registered on the LMS and have access to much more information.

Questions?

Not your last opportunity….you have time to think of more questions since ….

The rest of the workshop has much more detailed information to be had!
SO, DON”T MISS IT!

MARAMA
Mid Atlantic Regional Air Management Association, Inc.