Overview of the Proposed Multiple Air Toxics Exposure Study VI

Board Meeting
October 6, 2023

MATES Program Overview

- Board Environmental Justice Initiative
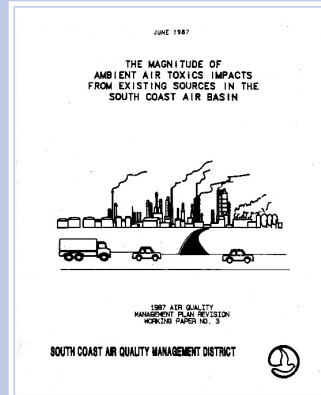- Focuses on regional air toxics impacts

Goals:

- Provide public information about air toxics and associated health risks throughout the region

- Evaluate progress in reducing air toxics exposure

- Provide direction to future toxics control programs
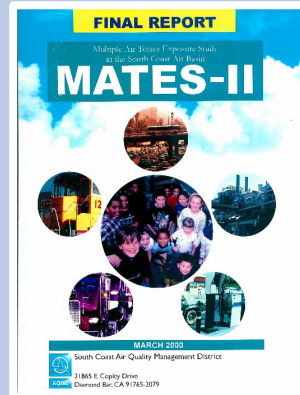
Previous MATES Campaigns

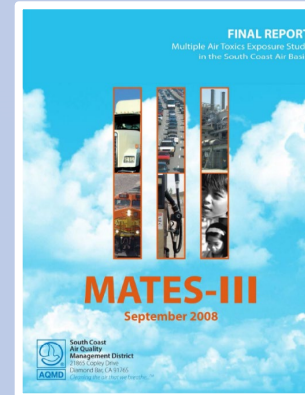| 1986-1987	1998-1999	2004-2006	2012-2013

MATES I

Limited Measurements

Impacts of benzene and Cr6

MATES II

Downward trend for certain air toxics

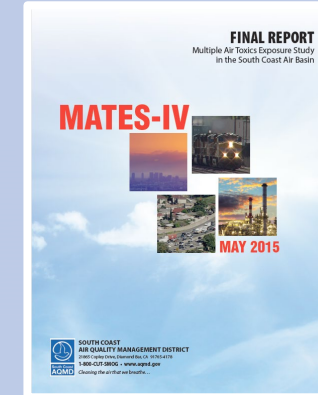Diesel exhaust accounted for 71% of cancer risk from air toxics

MATES III

Continuing downward trends, other than Diesel PM

Increased Diesel PM risk near ports

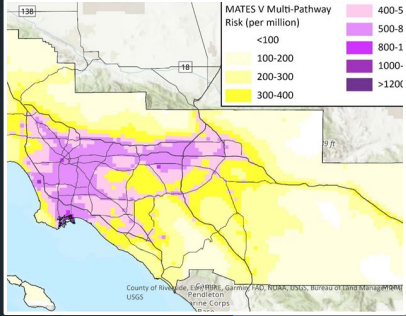Cr6 traced to cement plant emissions

MATES IV

>50% decrease in air toxic cancer risk since MATES III

2/3 of air toxics cancer risk from Diesel PM

Continuous UFP and BC measurements

MATES V: Summary of Results
(2018-2019 Monitoring, 2021 Report)

Air toxics cancer risk decreased by ~50% since 2012, but risks are still high

Highest air toxics cancer risk in and around the ports. Risk also elevated along goods movement corridors and major freeways

Diesel PM is the largest contributor to air toxics cancer risk

EJ communities also had decreased air toxics levels, but still higher compared to Basin averages

Advanced air monitoring methods and techniques were evaluated at and near refineries

Chronic non-cancer health impacts were estimated for the first time, with a chronic hazard index of 5-9 across the 10 stations

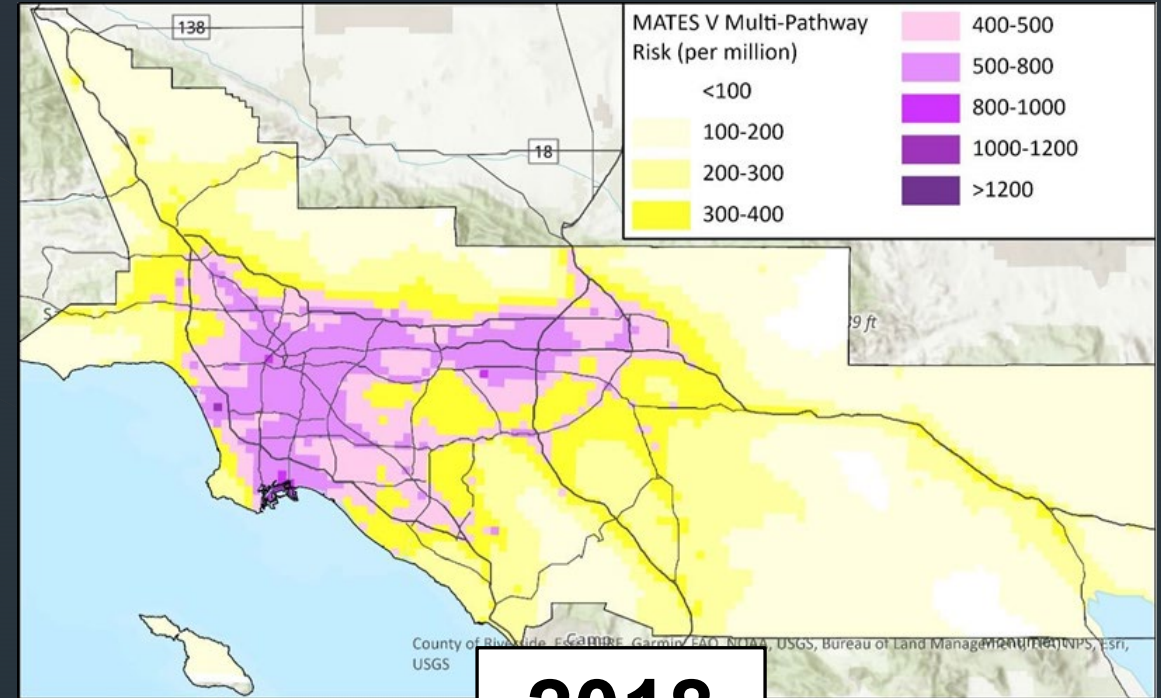MATES V webpage: http://www.aqmd.gov/MATES5

Air Toxics Cancer Risk – Modeling Data

MATES IV (population-weighted):
South Coast Air Basin: **997-in-a-million**
Coachella Valley: **357-in-a-million**

MATES V (population-weighted):
South Coast Air Basin: **455-in-a-million**
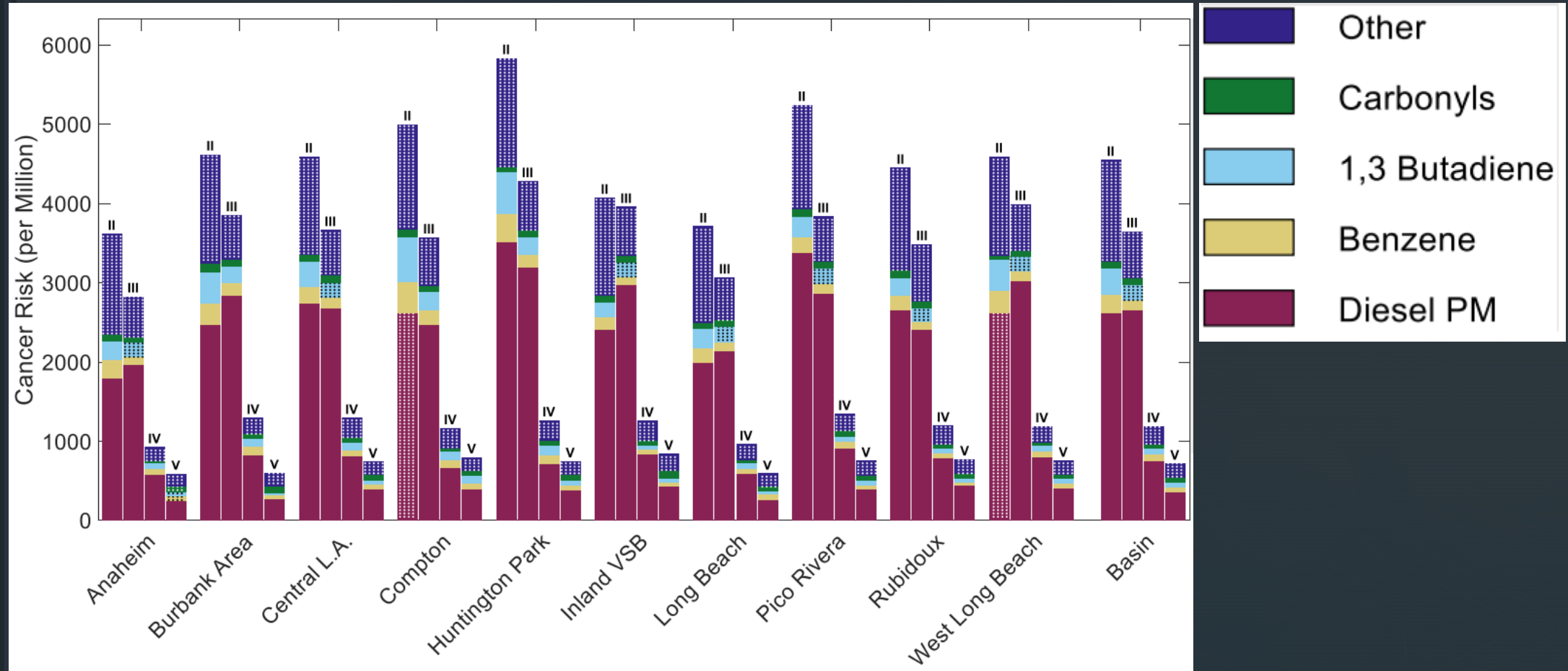Coachella Valley: **250-in-a-million**
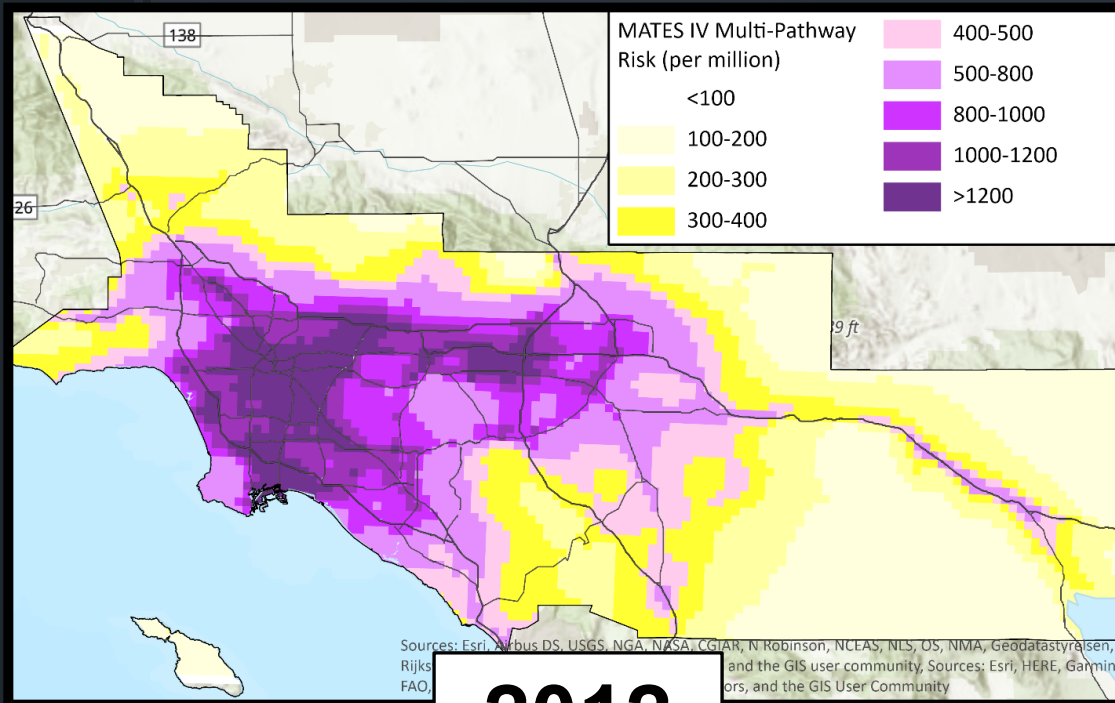
2012

2018

MATES V Cancer Risk Trends
(based on monitoring data)

MATES VI Approach

Solicit Feedback from 20 Member Technical Advisory Group
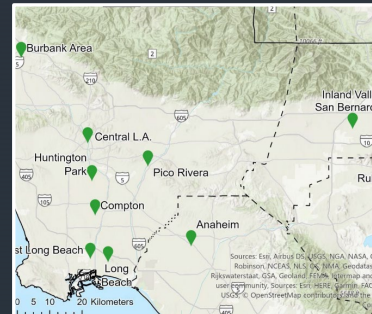
Air Monitoring Campaign at 10 Locations

- South Coast Air Basin and Coachella Valley
- Two Near-Road Sites
- One Year
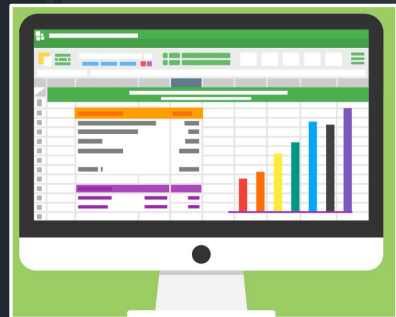
Comprehensive Modeling Analysis of Air Toxics Cancer Risk with Updated Emission Inventory

Analysis of Trends in Concentrations and Health Risk Over Past MATES Studies

Cancer Risk and Chronic Non-Cancer Health Impacts Determined with Measurement Data
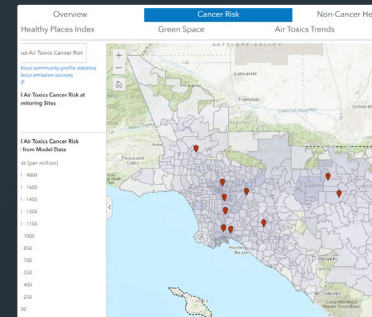
Online Interactive Data Display to Visualize Risk and Concentration Data

MATES VI webpage: http://www.aqmd.gov/MATES6

What's New for MATES VI?

Measurements at Two Near-Road Sites

Expansion of Measurements to the Coachella Valley

Source Apportionment Study to Capture Air Toxic Sources
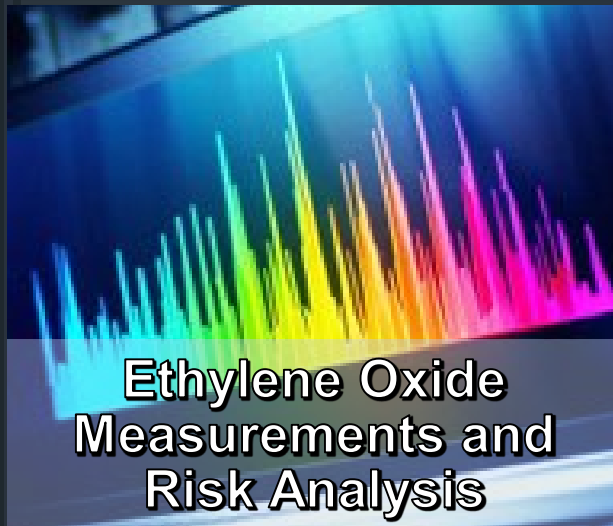
Ethylene Oxide Measurements and Risk Analysis

Improvements to Emission Inventory and Air Quality Model
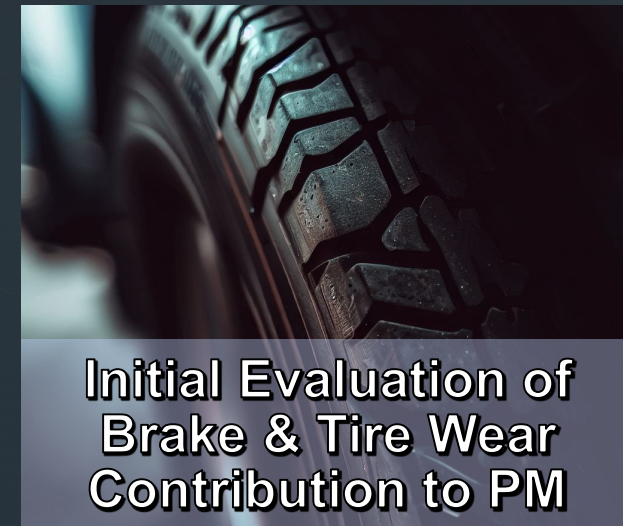
Initial Evaluation of Brake & Tire Wear Contribution to PM

How are MATES Results Used?
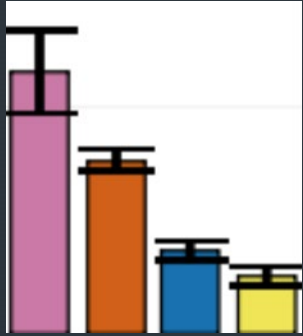
- Evaluate progress of air toxic control programs

- Help prioritize policy-making by determining major contributors to toxic risk

- Help interpret data from special air toxics monitoring studies and community air monitoring projects

- Identify unknown air toxics sources

- Help address public inquiries related to air toxics impacts

MATES VI Process

Planning & Preparation Stage (~1.5 years)

Consultation with TAG	Obtaining Equipment & Supplies	Monitoring Site Preparation	Instrument Deployment & Testing

Field Measurements & Air Quality Modeling (~1.5 years)

Instrument Operation & Maintenance	Collection & Lab Analysis of Samples	Emission Inventory Preparation	Meteorology & Air Toxics Modeling

Data Analysis (~1 year)

Data QA/QC	Measured & Modeled Data Comparison	Cancer & Chronic Risk Calculation	Comparison to Past MATES Data	Source Apportionment Study

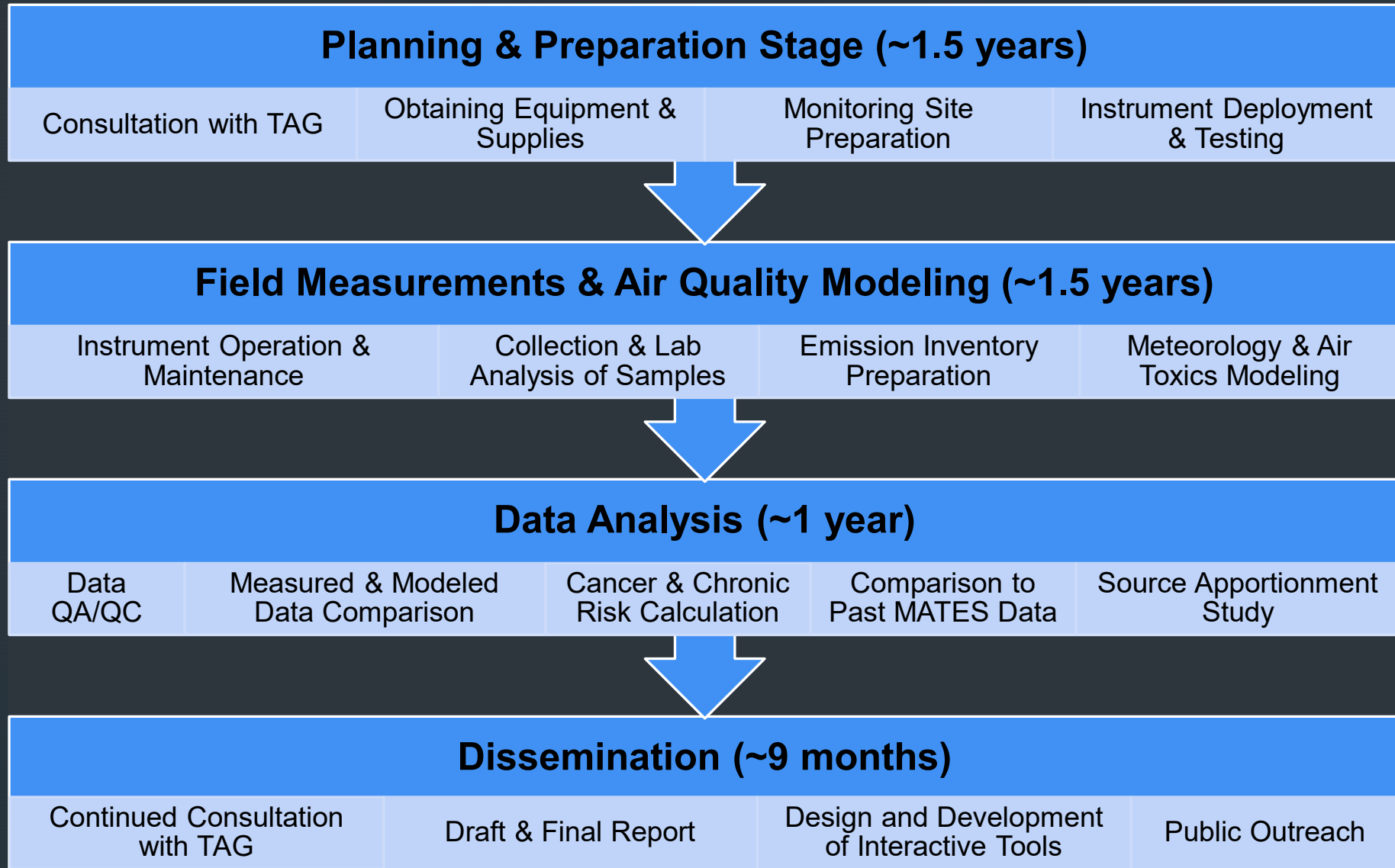**Dissemination (~9 months)**

Continued Consultation with TAG	Draft & Final Report	Design and Development of Interactive Tools	Public Outreach

Public Process

Why is MATES Conducted at Long Intervals?

- Multi-year process to prepare a MATES analysis and report

  - Much of the work must be done sequentially

- Very complex analysis – only agency in the nation that conducts a regional air toxics analysis of this scale (>60 staff involved in MATES V)

  - Extensive input from and coordination between field staff, laboratory staff, modeling staff, air quality assessment staff, and advanced monitoring staff

- Some modeling inputs are based on AQMP (e.g., vehicle activity)

- Trends are difficult to observe on short intervals

Resource Requirements

Infrastructure

- 10 Fixed monitoring stations
- Expansion of Near Road sites to accommodate additional equipment
- Computational resources and storage

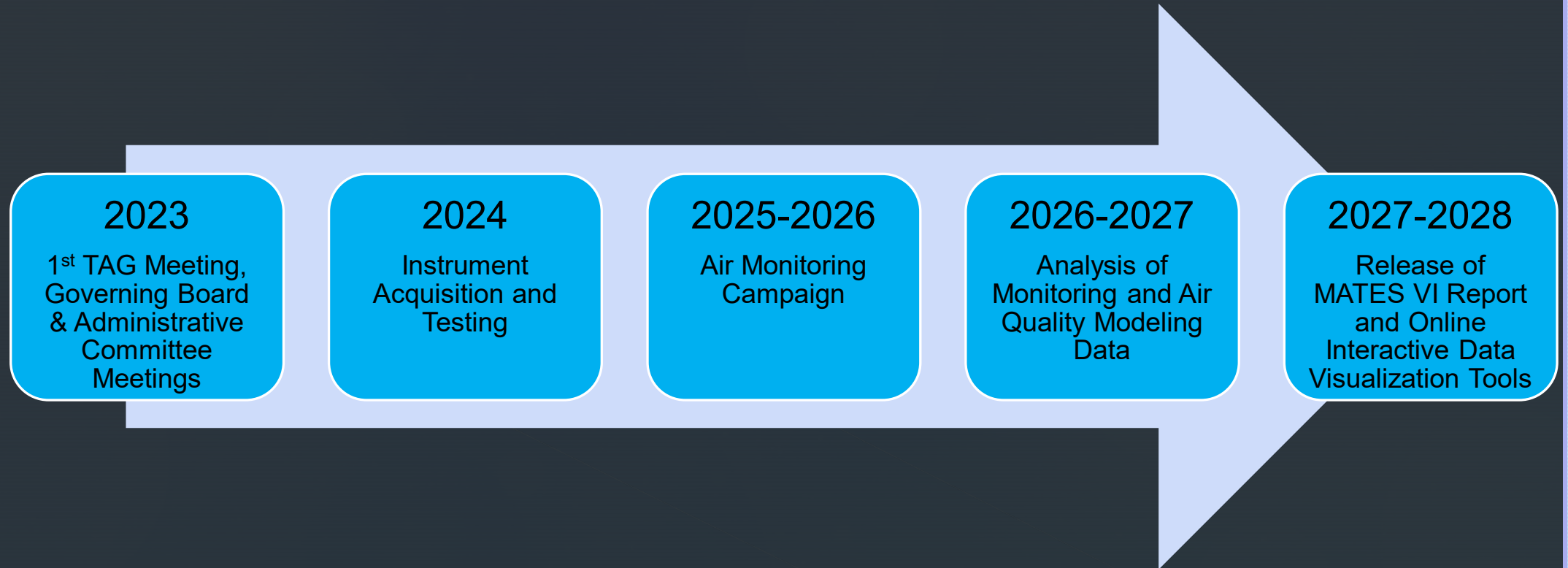## Air Monitoring Equipment, Maintenance, and Supplies

- Real-time and time-integrated measurements
- Over 50 real-time monitors, samplers, and meteorology stations
- Weekly visits to all sites for the operation and maintenance of the monitoring equipment and sample collection

Laboratory Equipment, Maintenance, and Supplies

- Over 2500 samples to be collected and analyzed in the lab
- Replacement and maintenance of laboratory VOC analysis equipment
- Contract lab analyses for specific pollutants

Tentative Timeline* & Next Steps

2023	2024	2025-2026	2026-2027	2027-2028
1st TAG Meeting, Governing Board & Administrative Committee Meetings	Instrument Acquisition and Testing	Air Monitoring Campaign	Analysis of Monitoring and Air Quality Modeling Data	Release of MATES VI Report and Online Interactive Data Visualization Tools

- November 9th Administrative Committee Meeting
- December 1st Governing Board Meeting
- MATES VI homepage: www.aqmd.gov/MATES6.

* Schedule subject to change