Monitoring Project Option #3: Identify Air Toxics Hotspots

The Steering Committee identified several air quality questions and concerns related to stationary pollution sources in the Richmond-San Pablo area, including:

- What are pollution levels in neighborhoods adjacent to large industrial facilities? Some example large facilities include Chevron and refinery-related operations, waste and water management facilities, and metal scrapyards.
- Where are pollution levels unusually high, especially near vulnerable populations or where people spend time outdoors, and what sources contribute to those pollution hotspots?
- What impact do certain small businesses have on neighborhood air quality, such as auto body shops, restaurants, gas stations, and dry cleaners?
- What sources are odors coming from and what pollutants are associated with them?

An air monitoring project using multiple measurement technologies to identify and better understand areas with higher levels of air toxics can help inform the concerns described above. Air toxics represent a group of pollutants that may cause serious health effects. This monitoring project would focus on gaseous air toxics, such as the gases listed on CARB's Toxic Air Contaminant[1] page, as instrumentation equipped on the Air District's mobile monitoring van is designed for gaseous air toxics monitoring.

Potential Monitoring Objectives

- Identify where air toxics levels are unusually high and determine if those hotspots are near schools, childcare centers, senior centers, and recreational areas
- Evaluate air toxics levels around facilities identified and prioritized by the Steering Committee. This may include facilities like wastewater treatment plants, landfills, metal facilities, refinery operations, or small businesses like auto body shops, restaurants, dry cleaners, and gas stations.
- Identify sources and pollutants associated with odors

Desired Actions

- Identify and implement measures to reduce emissions that contribute to identified hotspots
- Develop additional emissions reductions actions

Data Products

- Mobile air monitoring by the Air District van to drive through communities and near facilities to measure levels of air toxics through location and time-stamped data
- Portable air monitoring to measure air toxics concentrations at specific locations over longer durations of time
- Meteorological conditions (wind speed and direction, temperature, humidity)

Considerations and Expected Challenges

- There are many potential and overlapping sources of air toxics in the Richmond-San Pablo area, which may complicate the identification of individual sources.
- Some air toxics hotspots may be short in duration and/or frequency, making them more difficult to characterize and trace.
- Weather conditions, such as wind direction and precipitation, may not be conducive for short-term studies, possibly requiring additional time to collect sufficient measurement data.
- Logistical considerations such as access to possible monitoring locations, should portable or short-term stationary measurements be needed.

[1] CARB's Toxic Air Contaminant website: https://ww3.arb.ca.gov/toxics/id/summary/summary.htm

Project Phases

PHASE 0: Project planning (approximately 1-2 months)

- Define specific monitoring objectives needed to inform emissions reduction efforts, including specific measurement area or facilities
- Gather updated air toxics emissions inventory data for the facilities in the study area
- Design detailed measurement plan for air toxics hotspots that includes selected monitoring objectives, timeline, location and duration of monitoring, instrumentation, analysis methods, quality assurance and quality control measures, data reporting and intended data uses

PHASE 1: Hotspot screening measurements (approximately 3-6 months)

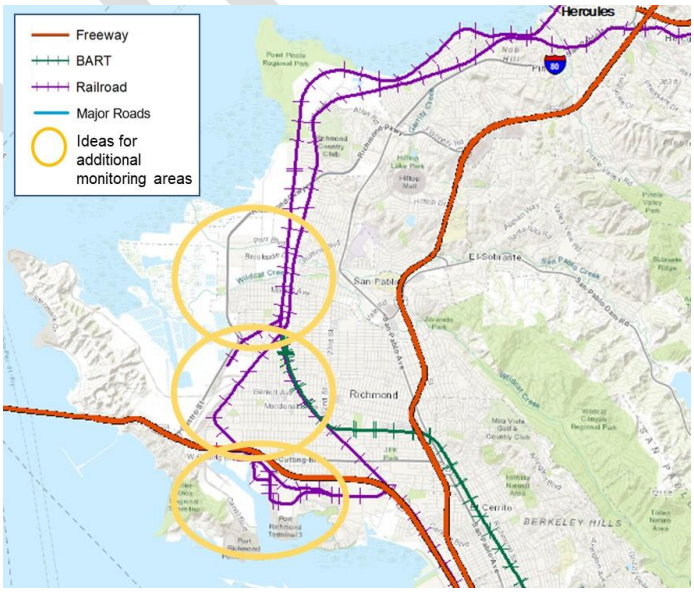
- Conduct measurements using the Air District's mobile van to measure gaseous air toxics throughout the study area
- Analyze those data to locate hotspots and evaluate potential sources
- Determine if identified hotspots are near schools, childcare centers, senior centers, recreational areas, or other locations where people gather
- Refer identified hotspots to Air District enforcement when applicable to a permit limit or other emission limit

PHASE 2: Follow-up measurements (approximately 3-12 months)

- Understanding some hotspots may require data over longer periods of time to understand the variability of the issue or more specific pollutant information from analysis methods that are not feasible using the Air District's mobile van. Portable samplers and/or short-term monitoring platforms may be deployed to obtain additional measurements
- Instrumentation and duration for follow-up measurements will be determined based on what variability and/or source contribution is being investigated

Defining a Study Area

The Steering Committee will define the study area for this project. Study areas could include communities where there are several large industrial sources near residential areas, such as North Richmond, the Iron Triangle, and around Richmond Harbor. While there are many uncertainties, the Air District expects initial monitoring of one area to take approximately two months. This project may be able to cover more than one area depending on how quickly results are achievable.



Ideas for additional monitoring areas for identifying air toxics hotspots