Public Workshop for 2022 Air Monitoring Network Plan

August 16, 2022

webcast@valleyair.org

Workshop Overview

- District's Core Values Exhibited in the Air Monitoring Network
- Overview of San Joaquin Valley air monitoring network
- Air monitoring siting requirements
- Overview of *2022 Air Monitoring Network Plan (ANP)*
- Open for comments/questions

The District's Core Values Exhibited in the Air Monitoring Network

- Protection of public health
- Support active and effective air pollution control efforts
- Outstanding customer service and accountability to the public
- Open and transparent public processes
- Respect for the opinions and interest of all Valley residents
- Ingenuity and innovation
- Continuous improvement
- Recognition of the uniqueness of the San Joaquin Valley
- Effective and efficient use of public funds

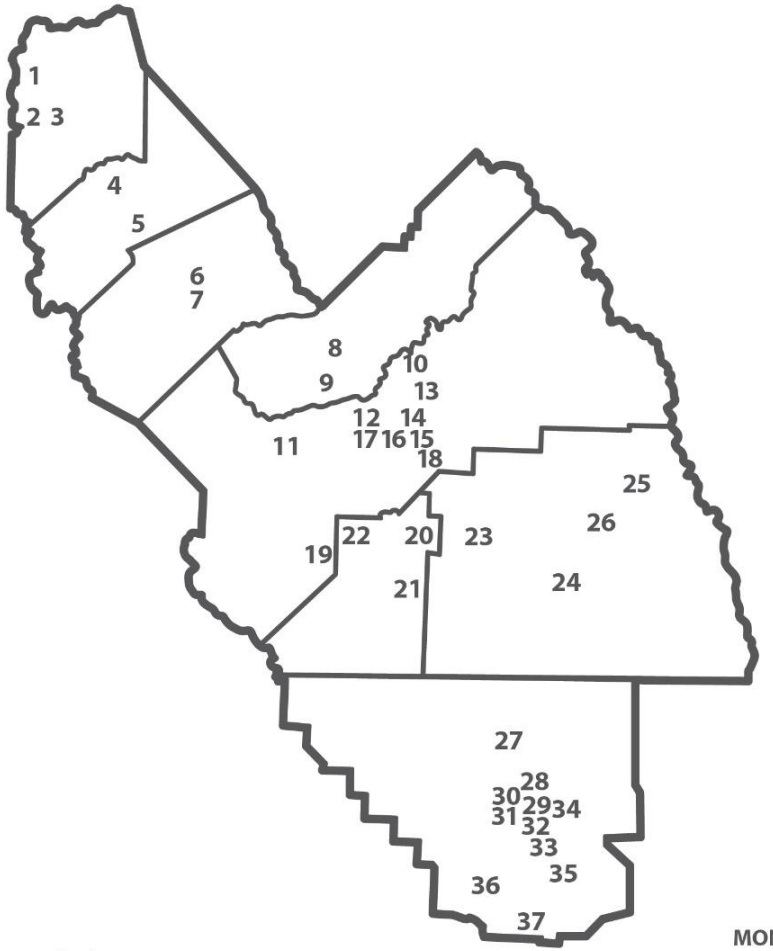
Valley Air Quality Progress

- San Joaquin Valley is designated as attainment area for number of National Ambient Air Quality Standards (NAAQS or standards):
  - Lead (Pb)
  - Nitrogen Dioxide (NO2)
  - Sulfur Dioxide (SO2)
  - Carbon Monoxide (CO)
  - PM10
  - 1-hour ozone (clean data determination)
  - 1997 24-hour PM2.5 standard of 65 $\mu g/m^3$ (clean data determination)
  - Developing clean data determinations for 1997 annual PM2.5 standard of 15 $\mu g/m^3$ and 1997 8-hour ozone standard of 84 ppb

Valley's Air Monitoring Network

- District and CARB invest significant resources and effort operating and maintaining extensive air monitoring network
  - Operated in partnership with CARB, who serves as Primary Quality Assurance Organization (PQAO) to ensure compliance with state/federal requirements
  - Numerous sites (37 total) throughout Valley measuring various pollutants, providing timely information to the public
  - Follow strict federal guidelines for regularly scheduled maintenance, calibrations, and certifications
  - Regular independent audits by CARB and EPA
  - Extensive training to staff who maintain, operate, and calibrate air monitoring equipment
  - Efforts ensure that collected data is high quality and defensible when compared against federal air quality standards

Air Monitoring Sites in Operation



As of July 2022

SAN JOAQUIN COUNTY^
- ■ 1 Stockton-University Park: G, P, F, M, T
- ★ 2 Tracy-Airport: G, M, P, F
- ★ 3 Manteca: P, F, M

STANISLAUS COUNTY
- ■ 4 Modesto-14th St: G, M, P, F
- ★ 5 Turlock: G, M, P, F

MERCED COUNTY
- ★ 6 Merced-M St: P, F
- ★ 7 Merced-Coffee: G, F, M

MADERA COUNTY
- ★ 8 Madera City: G, P, F, M
- ★ 9 Madera-Pump Yard: G, M

FRESNO COUNTY

Other[1]:

Monache Tribe/Foothill Yokut Indians
- ▲ 10 Table Mountain AMS+: G, F, P, M
- ★ 11 Tranquillity: G, F, M
- ★ 12 Fresno-Sky Park: G, M
- ★ 13 Clovis: G, M, P, F
- ■ 14 Fresno-Garland: G, M, P, F, T, N
- ★ 15 Fresno-Pacific: F
- ★ 16 Fresno-Drummond: G, P, M
- ★ 17 Fresno-Foundry: G, M, F
- ★ 18 Parlier: G, M
- ★ 19 Huron: F, M

KINGS COUNTY
- ★ 20 Hanford: G, F, M, P
- ★ 21 Corcoran: F, M, P

Other[1]:

Tachi Yokut Tribe
- ▲ 22 Santa Rosa Rancheria: G, M, P

TULARE COUNTY*
- ■ 23 Visalia-W. Ashland Ave: G, P, F, M
- ★ 24 Porterville: G, F, M

Other[2]:
- ▲ 25 Lower Kaweah: A, G, M
- ▲ 26 Ash Mountain: A, G, M, F

KERN COUNTY
- ● 27 Shafter: G, M
- ■ 28 Oildale: G, M, P
- ★ 29 Bakersfield-Golden/M St: F, P
- ★ 30 Bakersfield-Westwind: G, M
- ■ 31 Bakersfield-California: G, M, P, F, T
- ★ 32 Bakersfield-Muni: G, M
- ■ 33 Bakersfield-Airport (Planz): F
- ■ 34 Edison: G, M
- ■ 35 Arvin-Di-Giorgio: G, M
- ★ 36 Maricopa: G, M
- ★ 37 Lebec: F, M

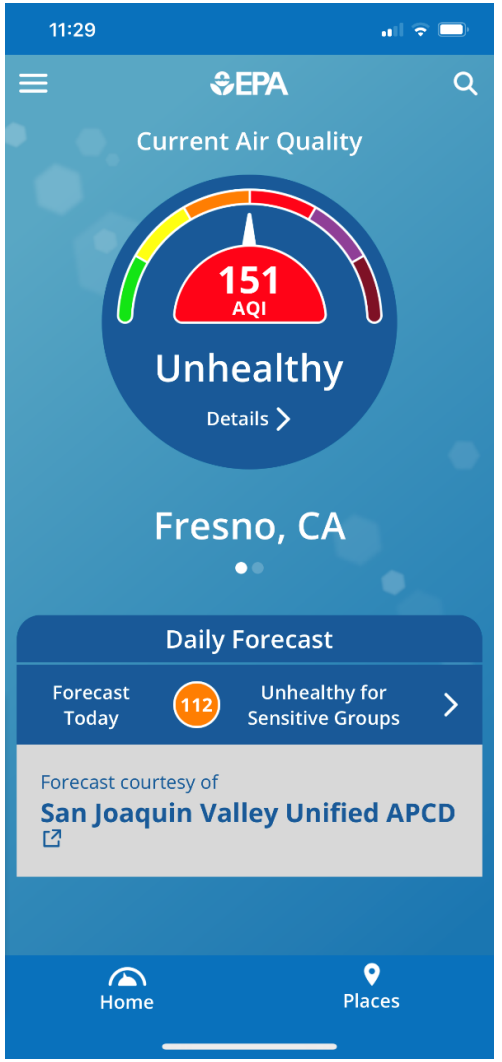
MONITORING DESIGNATIONS
- F Fine Particulate (PM2.5)
- G Gaseous
- M Meteorological
- P Particulate (PM10)
- N National Core
- T Toxins

MONITORING OPERATION
- ★ Sites operated by the District
- ● Sites operated by the District & CARB
- ■ Sites operated by CARB
- ▲ Sites operated by other agencies
  - Other[1] Tribal
  - Other[2] National Park Service
- + Air Monitoring Station (AMS)
- ^ Stockton-University Park replaced Stockton-Hazelton
- * Visalia-W.Ashland Ave replaced Visalia-Church St

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Wide Use of Air Monitoring Data

- Real-time air quality data collected throughout network used by number of District processes and tools:
  - Publicly available Real-time Air Advisory Network (RAAN) tool and mobile app
  - Data used to inform and develop daily air quality forecasts for the region
  - Used for critical air quality planning and regulatory actions
  - Informs the District and public of impacts from extreme air quality events, e.g. wildfires
  - Air quality data used by other external tools, such as AirNow, CARB AQMIS, and various weather apps



RA-AN Real-time Air Advisory Network

AQMIS

Air Monitoring Resources

Air Monitoring Siting Requirements and Considerations

- Regulatory air monitoring sites must meet number of strict federal siting requirements
  - Appropriate distance from trees and supporting structures
  - Equipment inlets must be placed to ensure the capture of unrestricted air flow
  - Appropriate distance from major sources of emissions, data must represent air quality on a regional basis
- Other siting considerations
  - Secure location for shelter and equipment
  - Access to consistent electrical power and mobile network connectivity
  - Identify locations that would facilitate long-term air monitoring
  - Approval from landowners, negotiate lease agreements
- Often difficult to have all requirements satisfied in a needed area

What is in the Air Monitoring Network Plan?

- Federal requirements
  - Definition of minimum monitoring requirements and Valley compliance
  - Quality assurance requirements
- Site information
  - Detailed information on each site and monitor
  - Recently implemented and proposed changes
  - Supporting documents

Federal Minimum Monitoring Requirements

- Each pollutant requires a minimum number of monitors based upon certain criteria

Pollutant	Minimum Monitoring Criteria
Ozone, PM10, PM2.5	MSA[1] Population, Design Value Concentration
NO2	MSA Population
Near Road NO2	MSA Population, Annual Average Daily Traffic
SO2	MSA Population, SO2 Emissions (tons/year)
Lead	Lead Emissions
CO	NCore[2] Sites, PAMS[3] Sites, Near Road Sites

[1]MSA = Metropolitan Statistical Area (i.e. County)
[2]NCore = National Core Multi Pollutant Network
[3]PAMS = Photochemical Assessment Monitoring Station

Example: Federal Minimum Monitoring Requirements for Ozone

MSA population	Number of monitors required per MSA:	
	Most recent 3-year design value concentrations ≥85% of any ozone NAAQS	Most recent 3-year design value concentrations <85% of any ozone NAAQS
> 10 million	4	2
4 - 10 million	3	1
350,000 - < 4 million	2	1
50,000 - < 350,000	1	0

Example: Federal Minimum Monitoring Requirements for PM2.5

MSA population	Number of monitors required per MSA:	
	Most recent 3-yr design value % ≥85% 24-Hr: ≥29.8 Annual: ≥10.2	Most recent 3-yr design value % <85% 24-Hr: <29.8 Annual: <10.2
>1,000,000	3	2
500,000 - 1,000,000	2	1
50,000 - <500,000	1	0

Detailed Site Information

- ANP includes details on site background, pollutants monitored, surrounding conditions

Site name	Clovis-Villa		
AQS ID (XX-XXX-XXXX)	06-019-5001		
Representative statistical area Name (i.e. MSA, CBSA, other)	Fresno		
County	Fresno		
Collecting (Operating) Agency	SJVAPCD		
Analytical Lab (i.e. weigh lab, toxics lab, other)	Varies based on which laboratory is contracted with the SJVAPCD: Speciated VOC	CARB: PM10 FRM, PM2.5 FRM	
Reporting Agency	SJVAPCD: PM2.5 FRM, PM2.5 FEM, PM10 FRM, PM10 FEM, Ozone, CO, NO_2, NMH, Speciated VOC, Meteorology	CARB: PM10 FRM, PM2.5 FRM	SJVAPCD contracts out so Reporting lab varies from year to year: Speciated VOC
Site Start Date	09/01/1990		
Pollutant Parameters	Ozone, PM10 FRM, PM10 FEM, PM2.5 FEM, PM2.5 FRM, CO, NO_2, NMH, Speciated VOC		
Meteorological Parameters	Wind speed, wind direction, outdoor temperature, relative humidity, barometric pressure, solar radiation		
Address	908 N. Villa Ave., Clovis CA 93612		
GPS Coordinates (decimal degrees)	36.8194 N, -119.7160 W		
Distance to roadways (meters)	260 m (east)		
Traffic Count/Year	6,480/2008 (Raw traffic count in a 24-hour period: Northbound Villa Avenue south of Bullard Avenue. Source: Fresno COG Fresno County Regional Traffic Monitoring Report 2013 (latest available))		
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Paved		

Detailed Equipment Information

- ANP includes details on equipment operated at each site, including model, method, probe height, etc.

Clovis-Villa (1)					
Pollutant	**Ozone**	**PM2.5**	**PM10**	**PM10 LC**	**PM10 STP**
Parameter Code	44201	88101	81102	85101	81102
Spatial scale	N	N	N	N	N
Site type	Max PEI, HC	HC	PE	HC	HC
Basic monitoring objective(s)	NC, RS, TP	NC, RS, TP	NC, RS	RS, TP	NC, RS, TP
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple)	PAMS	None	None	None	None
FRM/FEM/ARM/Other	FRM	FEM	FRM	FEM	FEM
POC	1	3	1	3	3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as “N/A”.)	N/A	Primary	Primary	Primary	Primary
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A	Y	N/A	N/A	N/A
Instrument manufacturer and model	Teledyne API T265	Met One BAM 1020	Ecotech HiVol 3000	Met One BAM 1020	Met One BAM 1020
Analysis method	Chem.	Beta Attenuation	Gravimetric	Beta Attenuation	Beta Attenuation
Method code	199	170	162	122	122

Recent and Planned Network Changes

- Transition of filter-based PM2.5 monitors to real-time instruments
  - Merced-M, Fresno-Pacific, Bakersfield-Golden/M: Filter-based PM2.5 monitors replaced by real-time monitors in January 2021
- Transition of filter-based PM10 monitors to real-time instruments
  - Bakersfield-California: Filter-based PM10 monitors replaced by real-time monitor in April 2021
  - Turlock, Merced-M, Fresno-Drummond, Bakersfield-Golden/M: Filter-based PM10 monitors replaced by real-time monitors in early 2022

Recent and Planned Network Changes (cont'd)

- Stockton-Hazelton/Stockton-University Park
  - CARB air monitoring site at Stockton-Hazelton was transitioned in November 2021 to new Stockton-University Park air monitoring site during same month
- Visalia-Church/Visalia-Ashland
  - CARB air monitoring site at Visalia-Church was transitioned in December 2021 to new Visalia-Ashland air monitoring site in January 2022
- Bakersfield-Airport (Planz)
  - CARB and District evaluating siting challenges at the property, impact of significant activities by the airport, including aircraft activities, next steps forward

CALIFORNIA
AIR RESOURCES BOARD

Proposed Relocation of the CARB Bakersfield-Planz Air Monitoring Site

Accurate Air Quality Monitoring is Important

- Monitoring that provides accurate and representative data is critical because it…
  - Helps improve air quality and public health
  - Provides residents with reliable information about the air they breathe
- Real-world implications for Valley residents if data are not accurate and representative

EPA Air Monitor Siting Criteria

- Code of Federal Regulations and EPA handbook specifies criteria for siting monitors
- Range of spatial scales: microscale, middle, neighborhood, urban, regional
- Monitor probe inlet height: 2-15 meters above ground
- PM sites should not be located in unpaved areas without ground cover

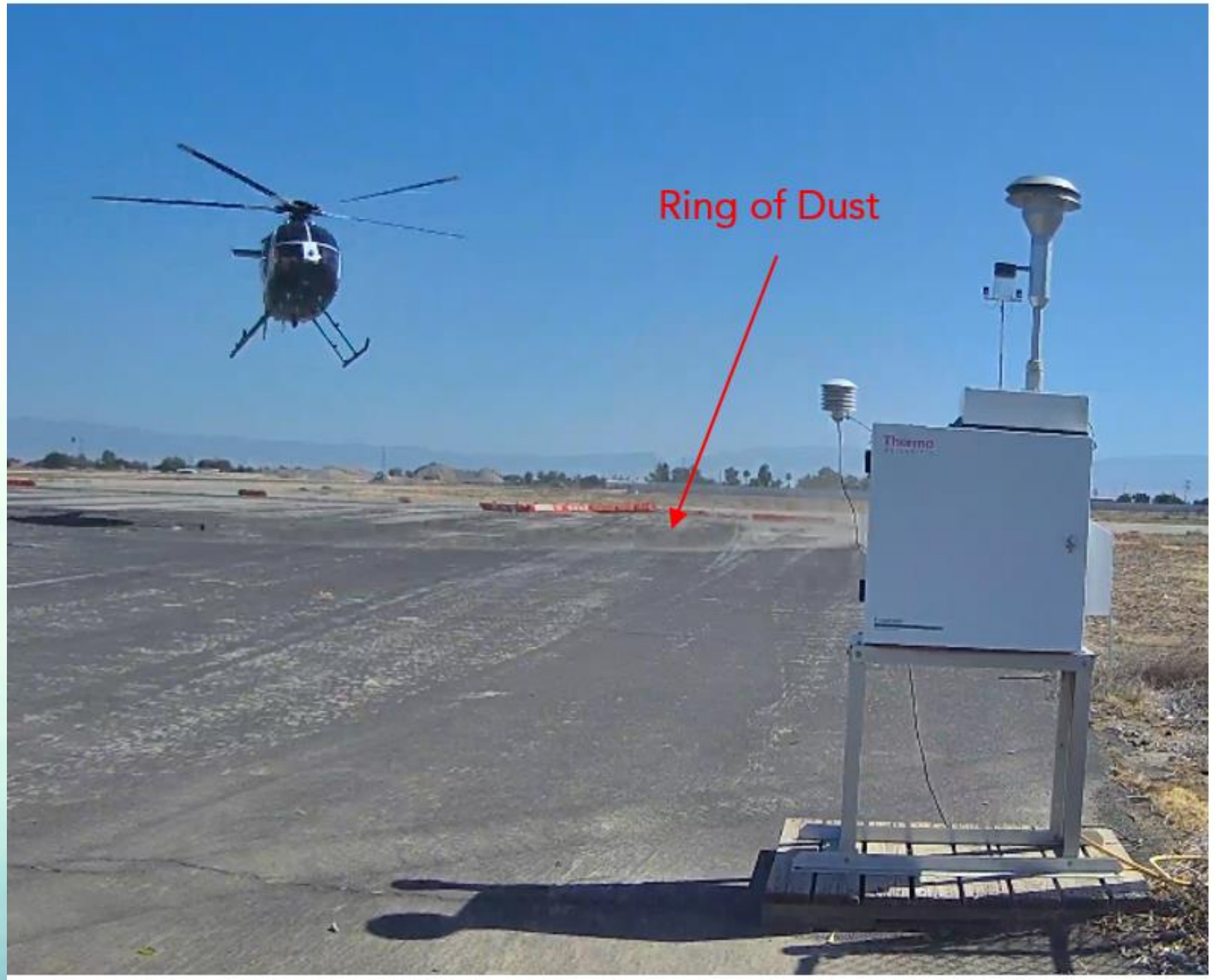
Planz Monitoring Site

- Operated by CARB since 2000
- Meant to represent air quality in Bakersfield region
- Unique challenges with site location and nearby localized sources
  - On a pallet powered by an extension cord
  - Near airport runway, helicopter landing area, and flight training and aircraft refueling facility
  - Near unpaved dirt areas

Aerial view of Bakersfield Planz monitor, and nearby emissions sources

Increased helicopter activity near monitor

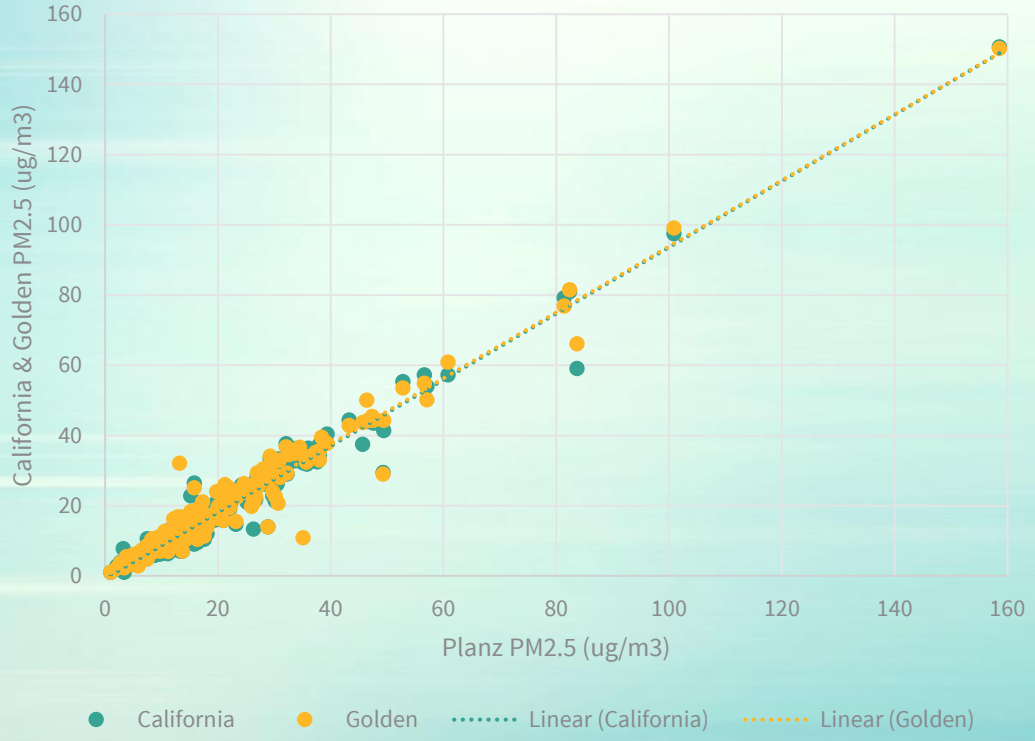
Photo shows visible ring of dust approaching monitor



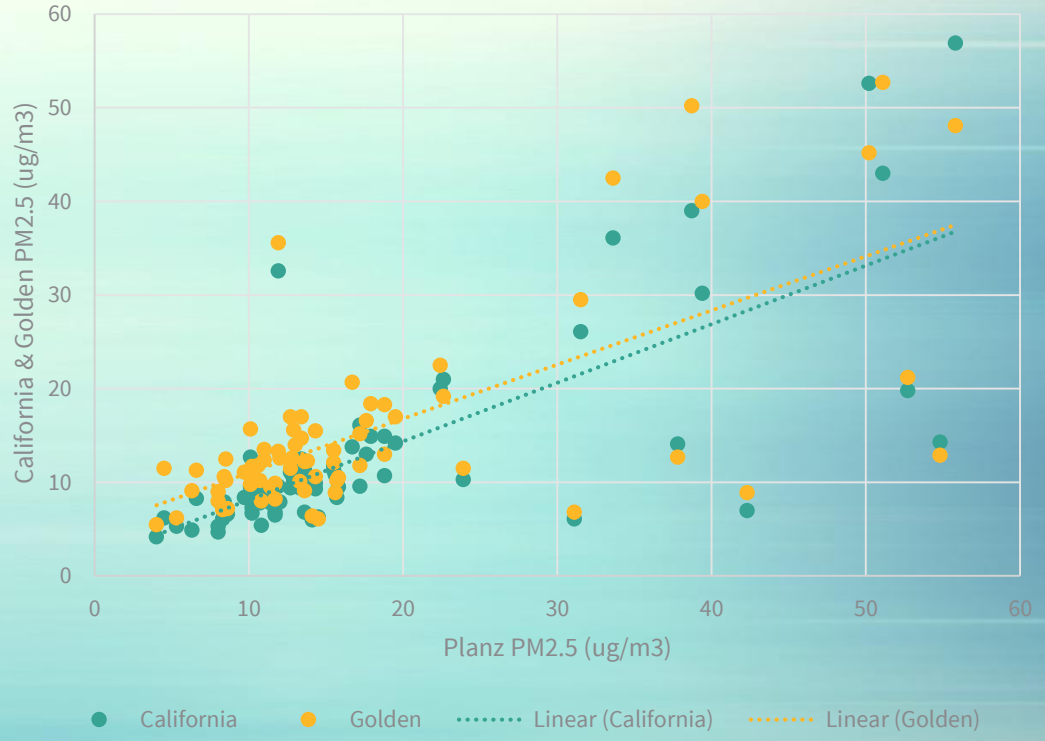
CARB

Data Changed in 2021

2018-2020



2021



CARB

Proposed Path Forward

- Network Plan includes initial analysis of why values changed at Planz
- Consider reclassifying Planz site as microscale monitor that is impacted by local sources
- Provide open and transparent public process through working with the community and EPA to find a replacement monitoring site that measures air quality levels that people breathe

Next Steps

Public Review Process

- Draft of *2022 Air Monitoring Network Plan* published on August 1, 2022 for public review
- Comments on draft document requested by August 31, 2022
- District to submit Final *2022 Air Monitoring Network Plan* to EPA following comment period

Contact

Contact: Robert Gilles
Mail: San Joaquin Valley APCD
1990 E. Gettysburg Ave
Fresno, CA 93726
Phone: (559) 230-5800
Fax: (559) 230-6064
Email: airqualityplanning@valleyair.org

Visit https://ww2.valleyair.org/about/sign-up/ to sign up for the District's Air Monitoring Network Listserv for updates

Comments/Questions

webcast@valleyair.org