Update on South Central Fresno Community Air Monitoring

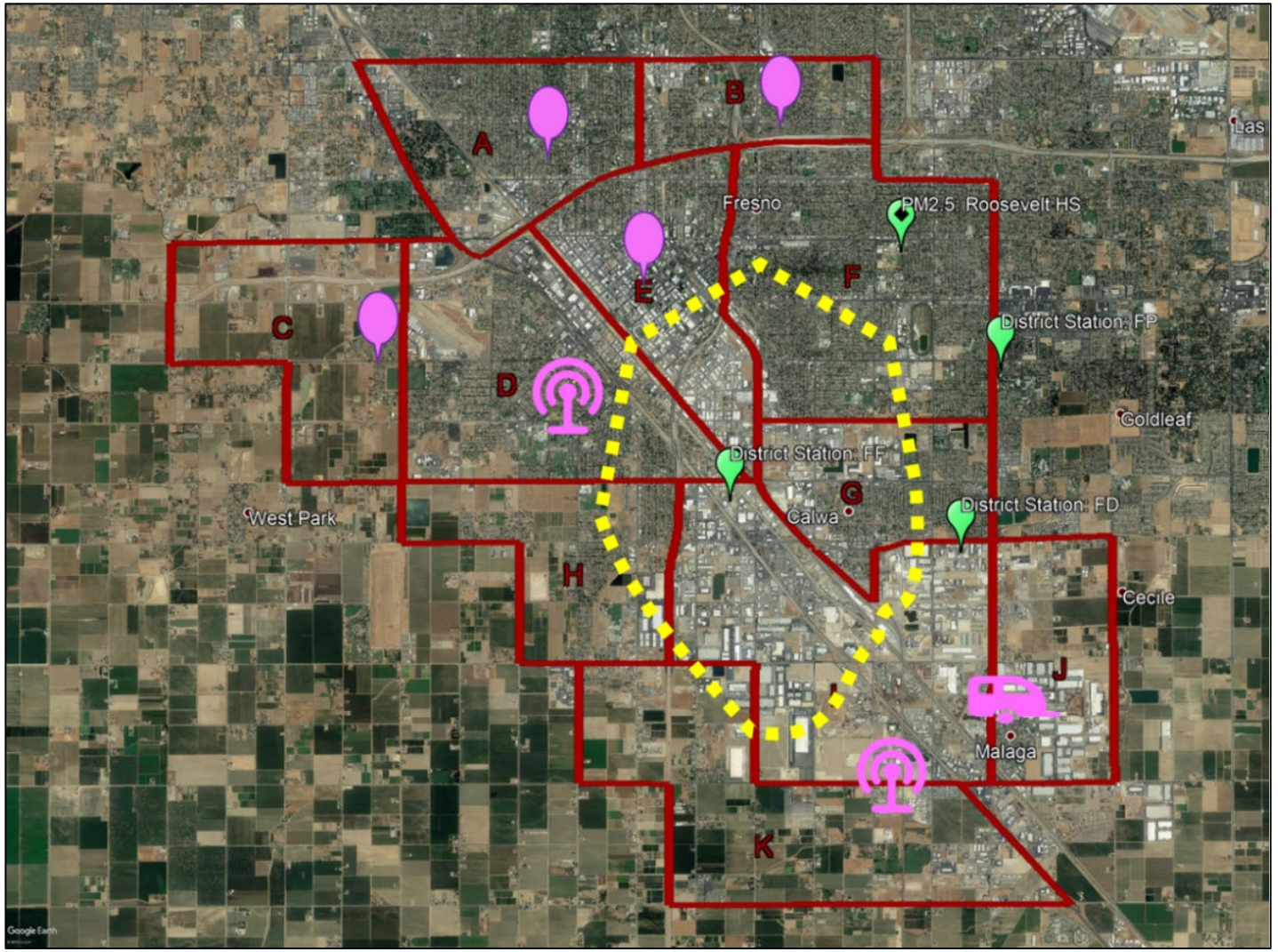
South Central Fresno CSC
Air Monitoring Subcommittee Meeting

July 13, 2022

Air Monitoring Update

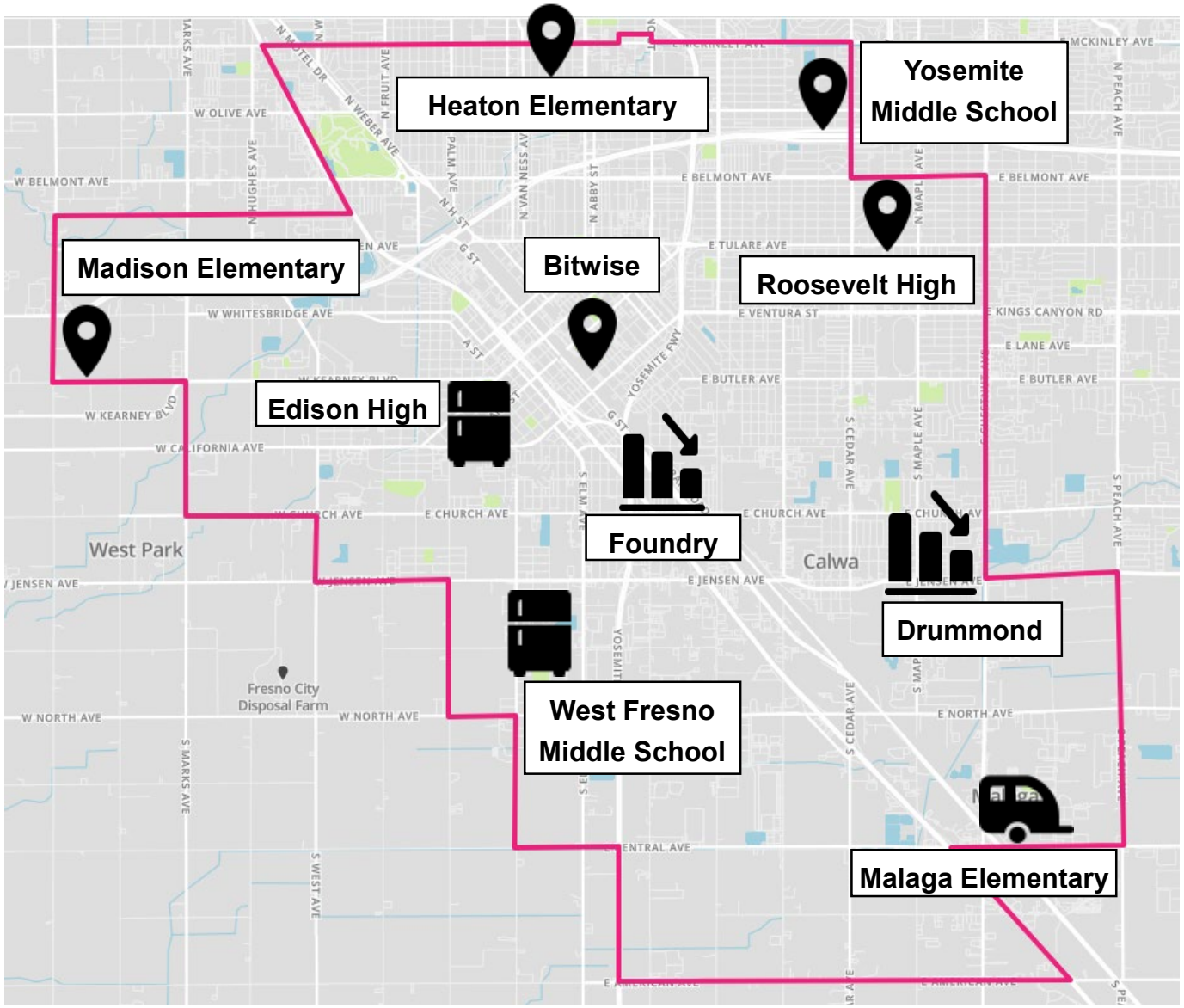
- Air Monitoring Network Status
- Analysis of Air Monitoring Data Collected
- Enhancements to Website and Reports
- Subcommittee Actions and Discussion with Schools

South Central Fresno
Community Air Monitoring Network Design



- **Stand-Alone PM2.5**
- **Compact Air Monitoring System**
- **Trailer**
- **Mobile Monitoring Van**
  - Drive on a regular schedule throughout entire boundary all year
  - Respond to community concerns
  - Recommended focus route

CAMP Fully Deployed



PM2.5 Monitor

Compact System: PM2.5, Black Carbon, Ozone, BTEX, NOx, VOC, CO (Edison), Toxics (Edison), SO2 (West Fresno)

Regulatory Air Monitor: Foundry (PM2.5), Drummond (Ozone, NO2, PM10)

Trailer: PM2.5, Black Carbon, Ozone, CO, NO2/NO, H2S/SO2, BTEX

Mobile Monitoring

Van: respond to community concern

Community Air Monitoring Platforms

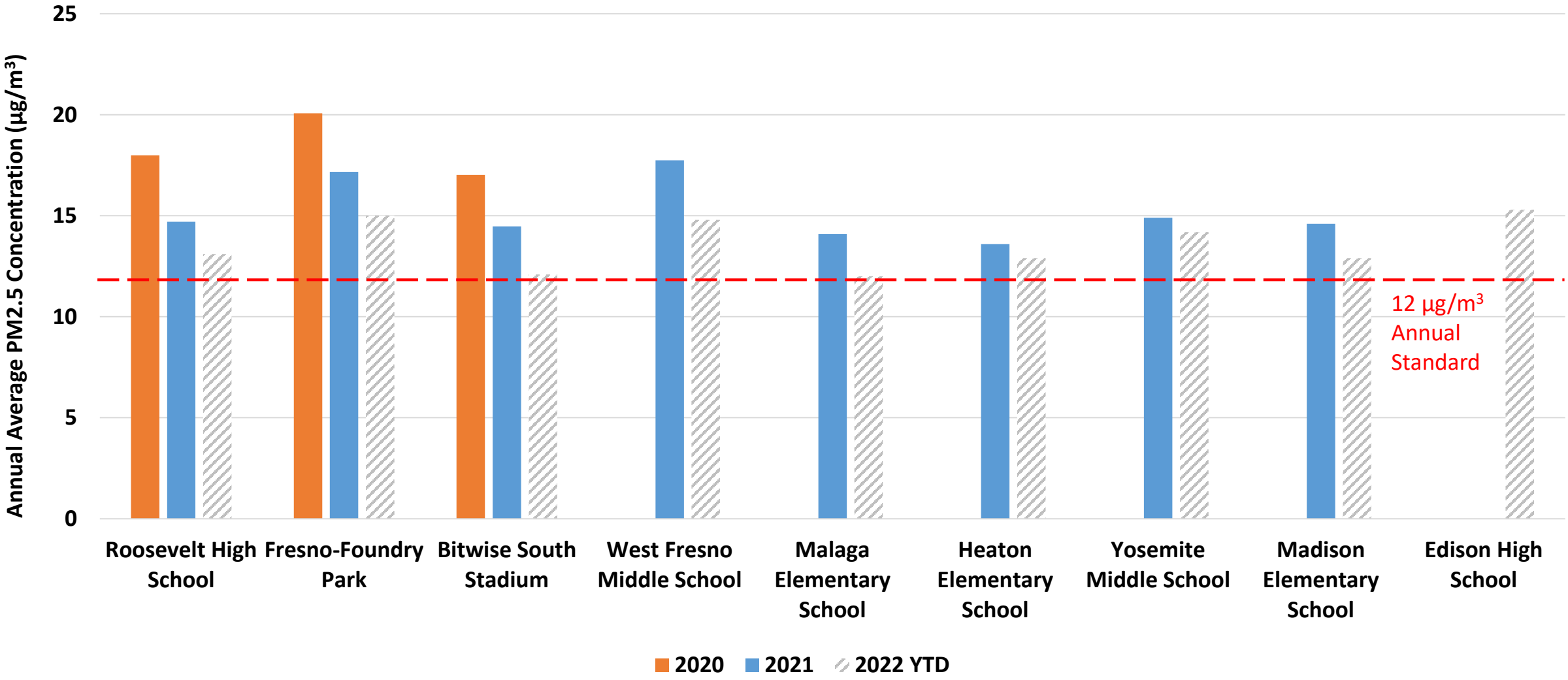
Community Air Monitoring Platforms (cont'd)

Community Air Monitoring Platforms (cont'd)

Ongoing Community Air Monitoring

- District continuing to conduct localized air monitoring in the South Central Fresno community
- Fully deployed air monitoring platforms across the community, according to Community Steering Committee recommended network design
- Air monitoring van actively being used to regularly monitor pollutants in areas of interest of the community
- Extensive PM2.5 and VOC speciation sampling and laboratory analysis being conducted since late 2019
- Continue to seek input from CSC for suggestions

Annual Average PM2.5 Comparison

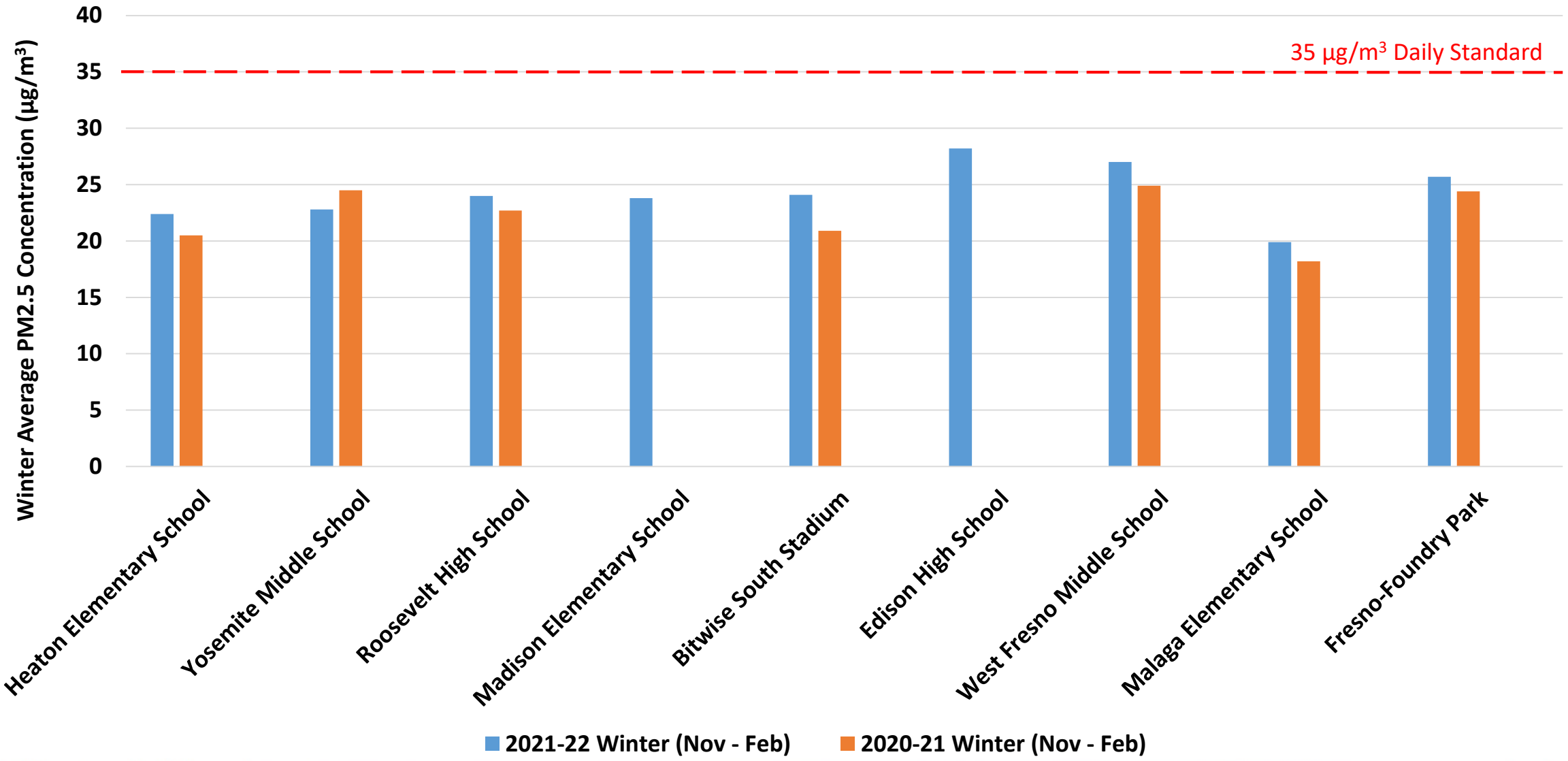


Annual Average $PM_{2.5}$ Comparison (µg/m3)

	2020	2021	2022 YTD
Fresno Community Monitors			
Roosevelt	18.0	14.7	13.1
Bitwise	17.0	14.5	12.1
West Fresno	-	17.8	14.8
Malaga	-	14.1	12.0
Heaton	-	13.6	12.9
Yosemite	-	14.9	14.2
Madison	-	14.6*	12.9
Edison	-	-	15.3
Nearby Regulatory Monitors			
Foundry	20.1	17.2	15.0

**Site was not online for entire year*

2021-22 Winter Average $PM_{2.5}$ Comparison (Nov - Feb)

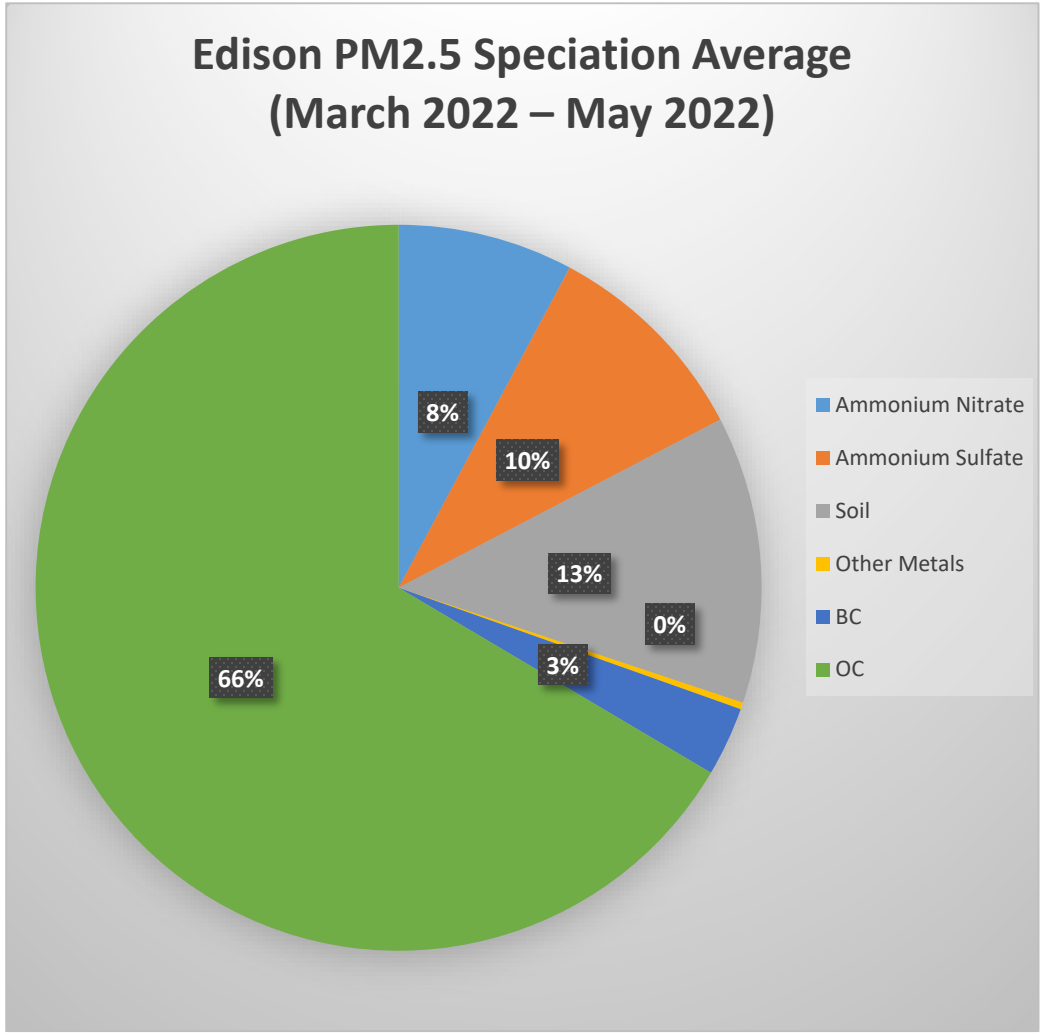


2021-22 Winter Average $PM_{2.5}$ Comparison ($\mu g/m^3$)

	2020-21	2021-22
Fresno Community Monitors		
Roosevelt	22.7	24.0
Bitwise	20.9	24.1
West Fresno	24.9	27.0
Malaga	18.2	19.9
Heaton	20.5	22.4
Yosemite	24.5	22.8
Madison	-	23.8
Edison	-	28.2
Nearby Regulatory Monitors		
Foundry	24.4	25.7

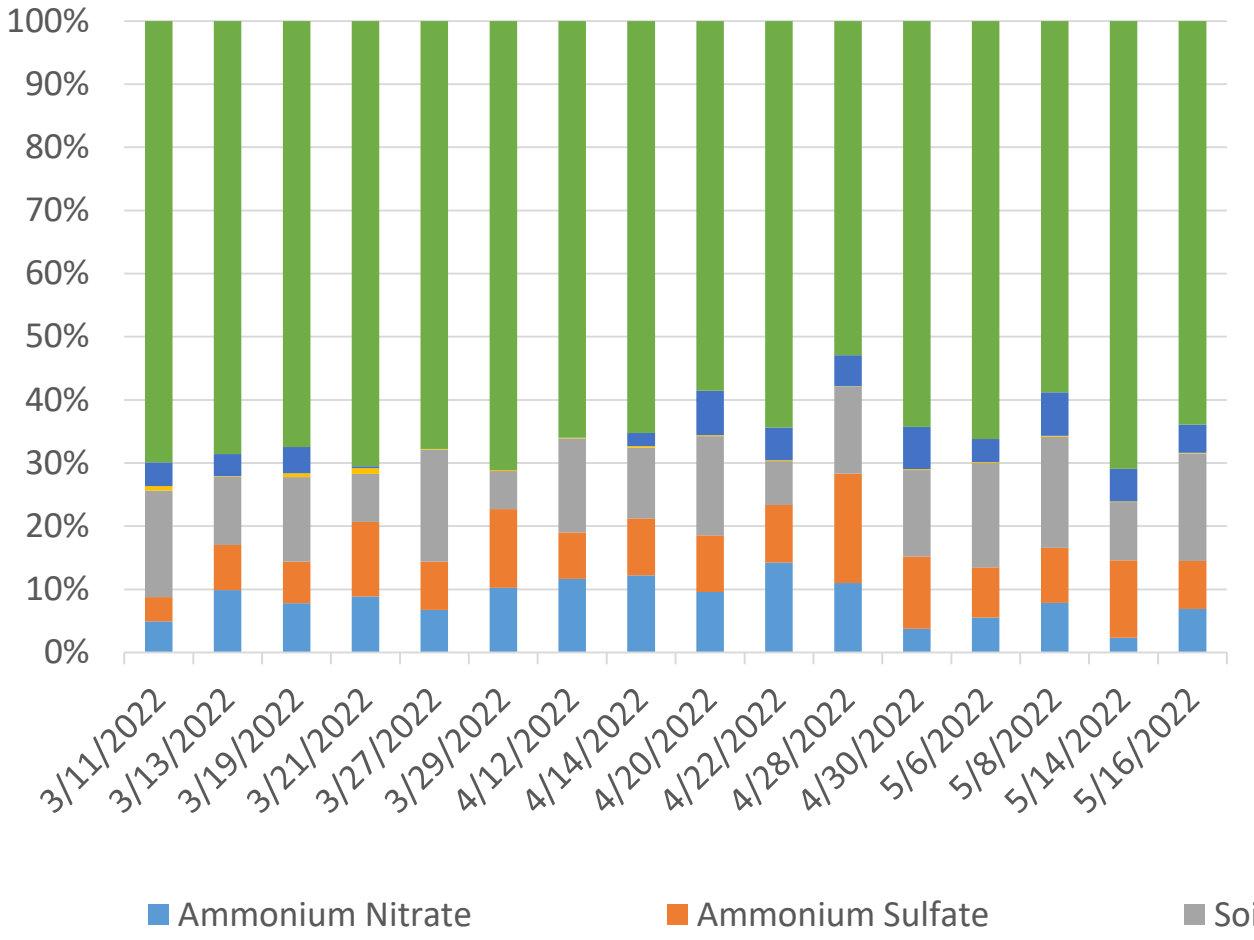
PM2.5 Speciation at Edison High School

- Began speciation in March 2022 to help assess potential sources of elevated PM2.5
- Lower PM2.5 concentrations recorded during this period
- Edison values more in line with other sites outside of the winter season, could be an indicator of residential wood burning impacts
- Planning to continue speciation monitoring and analysis through 2022-2023 winter season to observe potential differences

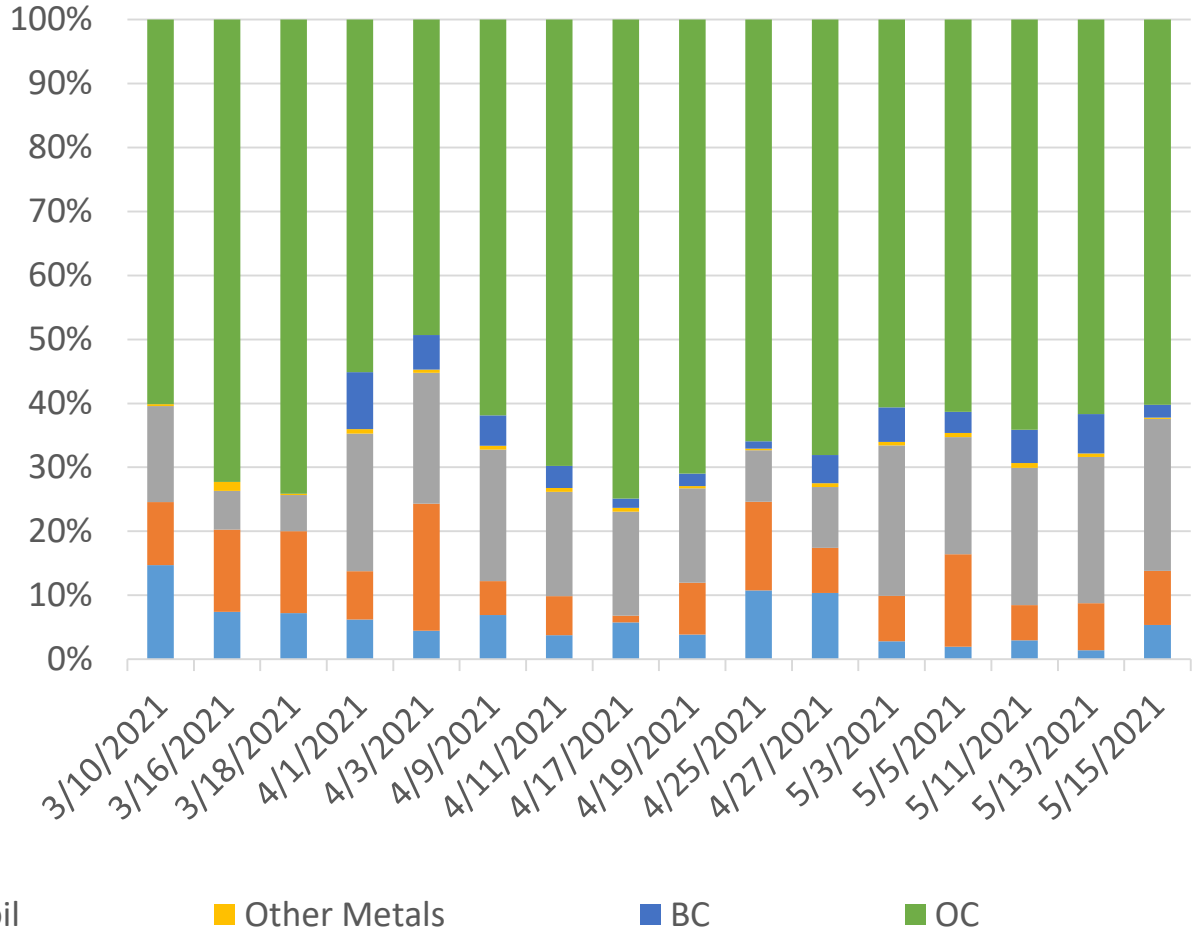


$PM_{2.5}$ Speciation Data Comparison

Edison High School (2022)



Malaga Elementary School (2021)



Ammonium Nitrate | Ammonium Sulfate | Soil | Other Metals | BC | OC

$PM_{2.5}$ Speciation Data Comparison

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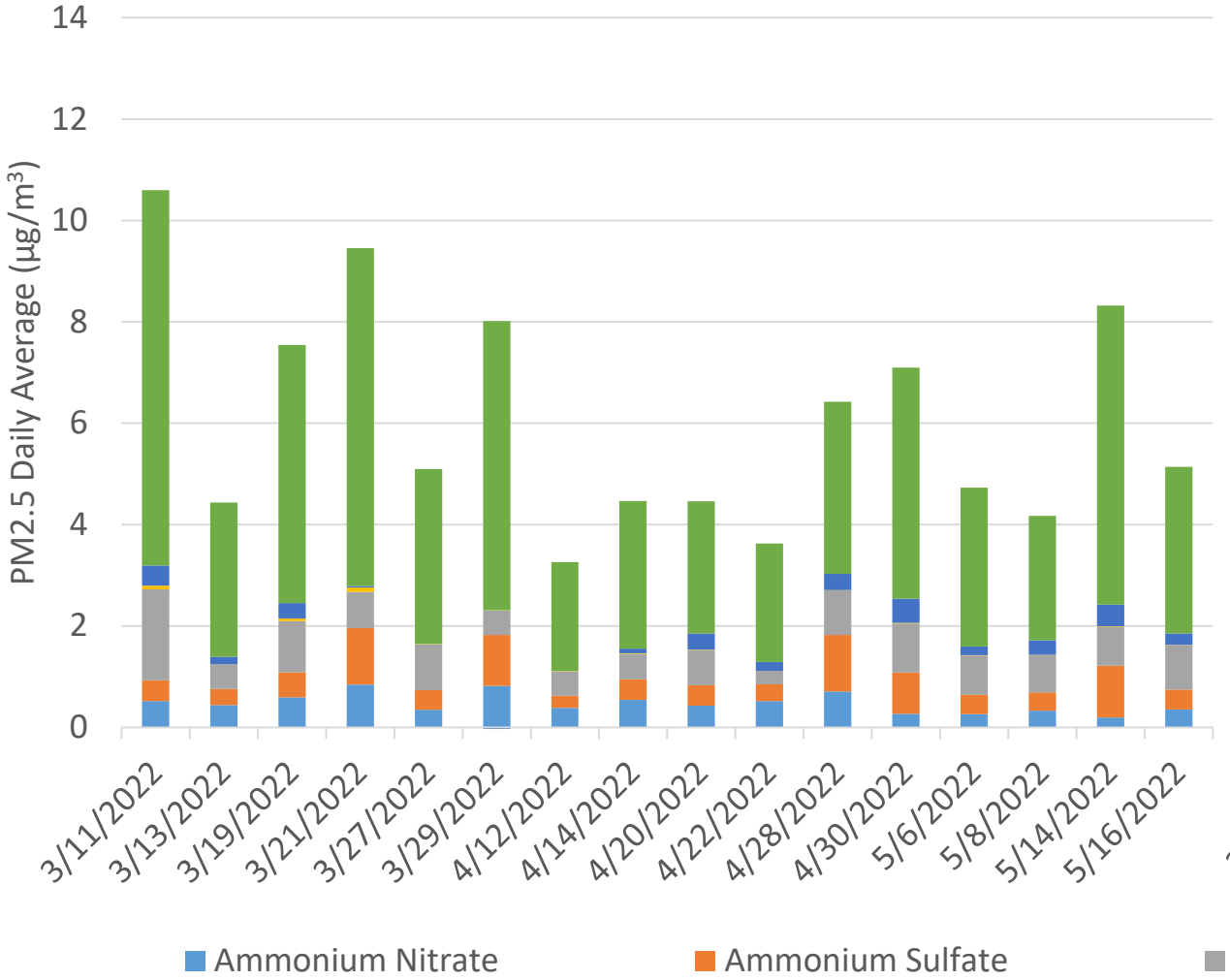
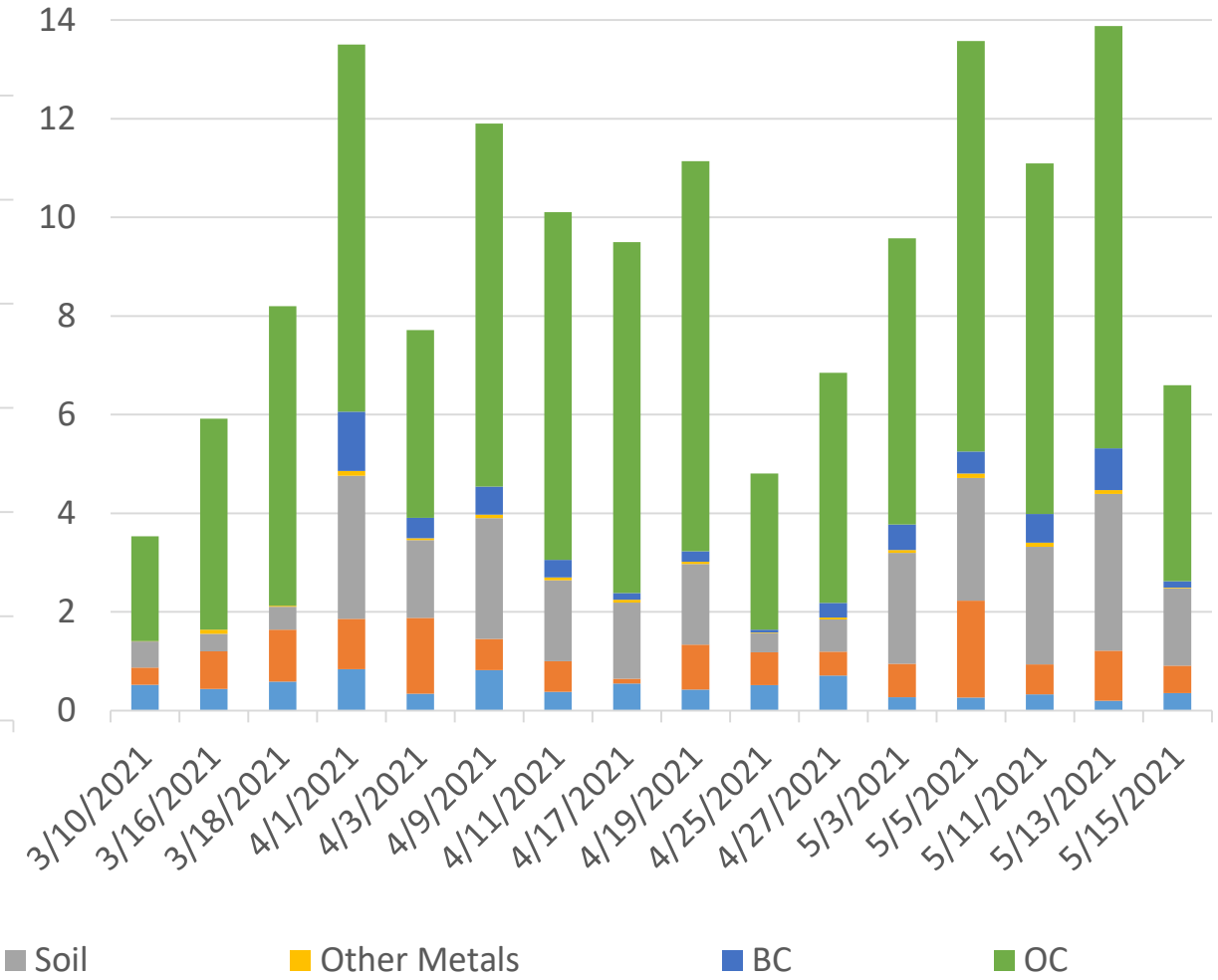


Malaga Elementary School (2021)



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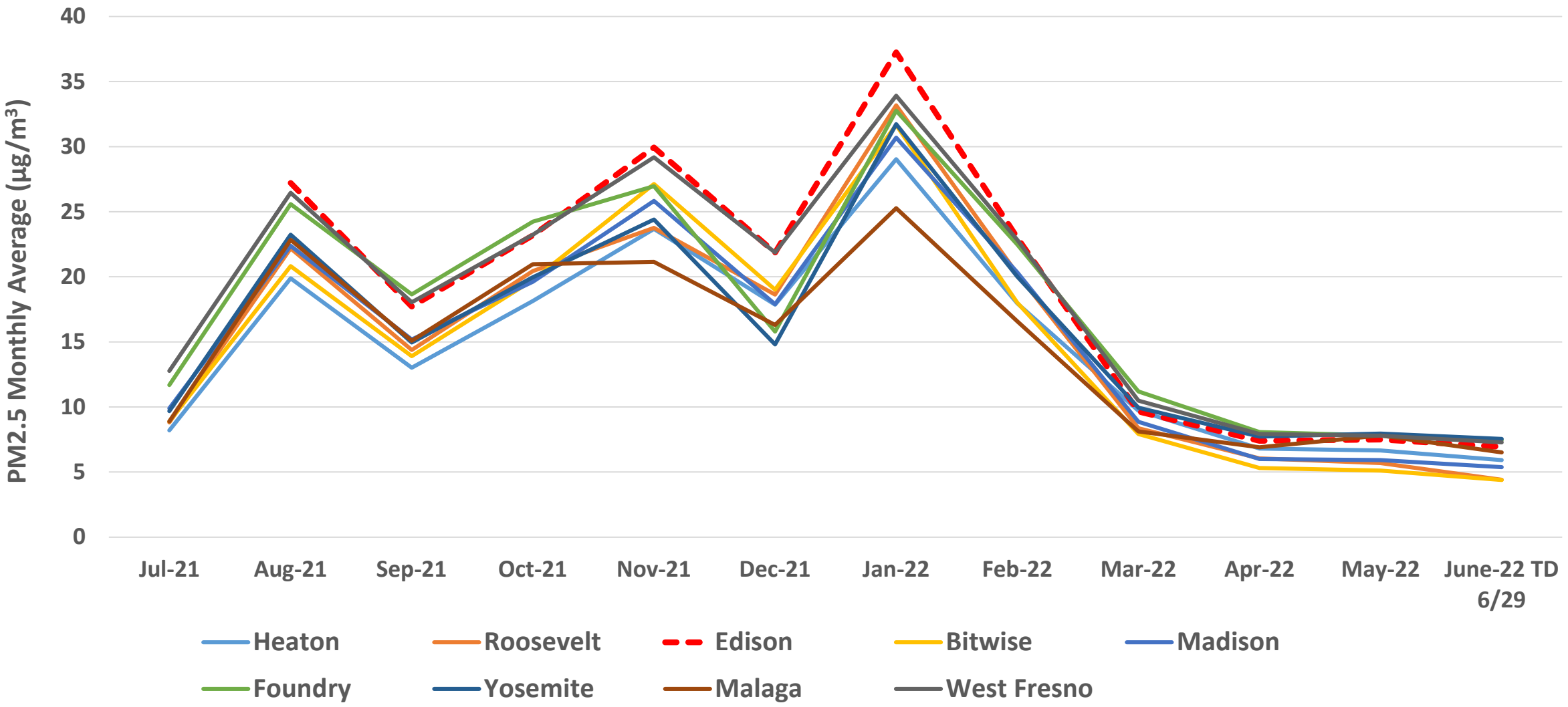
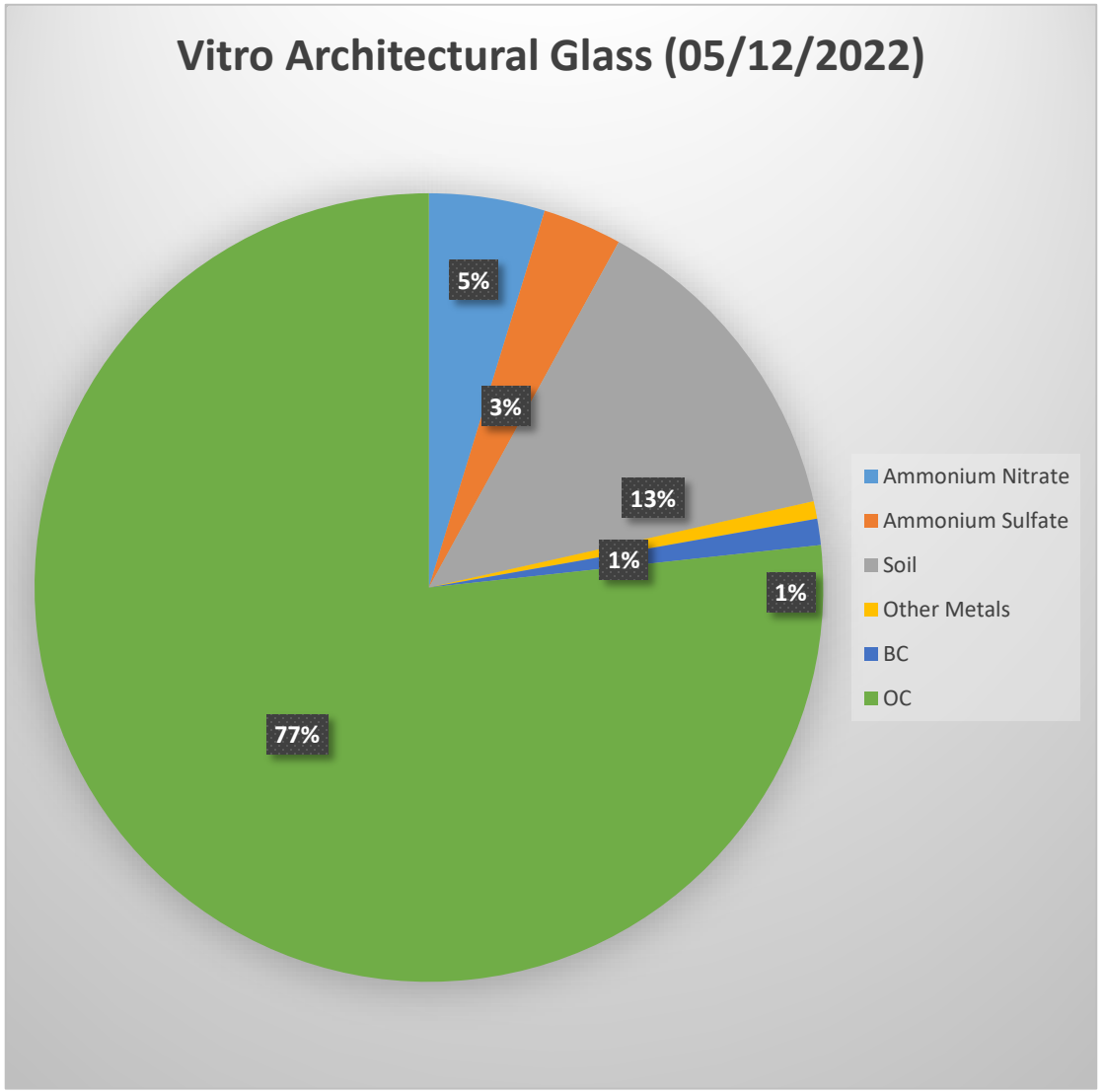
PM2.5 Monthly Average at Edison High School



PM2.5 Speciation Nearby Vitro



Speciation Breakdown Comparison

	Dates Monitored	Average Silica Concentration (µg/m³)	Average 24-hour Silica/Total PM2.5	Average Wind Speed (mph)	Average Wind Direction
Malaga	Thursday 5/13/21	0.65	1.4%	5.4	Southeast ↘
Edison	Sunday 5/08/22	0.16	3.8%	6.3	Southeast ↘
Vitro	Thursday 5/12/22	0.34	3.0%	4.2	Southeast ↘

- No significant amount of silica detected (less than 4% of total PM2.5)
- Annual average silica concentration in ambient air of U.S. cities range from 0 to 1.9 µg/m^3
- Silica content of PM2.5 comparable to other locations at similar times with similar weather conditions
- Silica is naturally in dust, and may be elevated when windblown dust is present
- Will continue with additional PM2.5 sampling near Vitro, particularly during wind events

VOC Speciation Summary at Malaga and Edison

July 1, 2021 –July 1, 2022

- Acetaldehyde, methanol, ethanol, 2-proponal, and acetone were the primary VOCs detected.
- Only acetaldehyde and methanol have an associated Reference Exposure Level (REL), a health risk metric established by the Office of Environmental Health Hazard Assessment (OEHHA).

Pollutant	Potential Sources of Emission	Short Term Impact		Long Term Impact	
		Max Measured [24-hour] (ppb)	OEHHA Acute REL [1-hour] (ppb)	Average Measured [Annual] (ppb)	OEHHA Chronic REL [Annual] (ppb)
Methanol	Automobile exhaust, solvent use, and naturally from vegetation and microbes	**636**	21,367	34	3,052
Acetaldehyde	Wood combustion in fireplaces and woodstoves, coffee roasting, burning of tobacco, vehicle exhaust fumes, and coal refining and waste processing	**104**	261	8	78

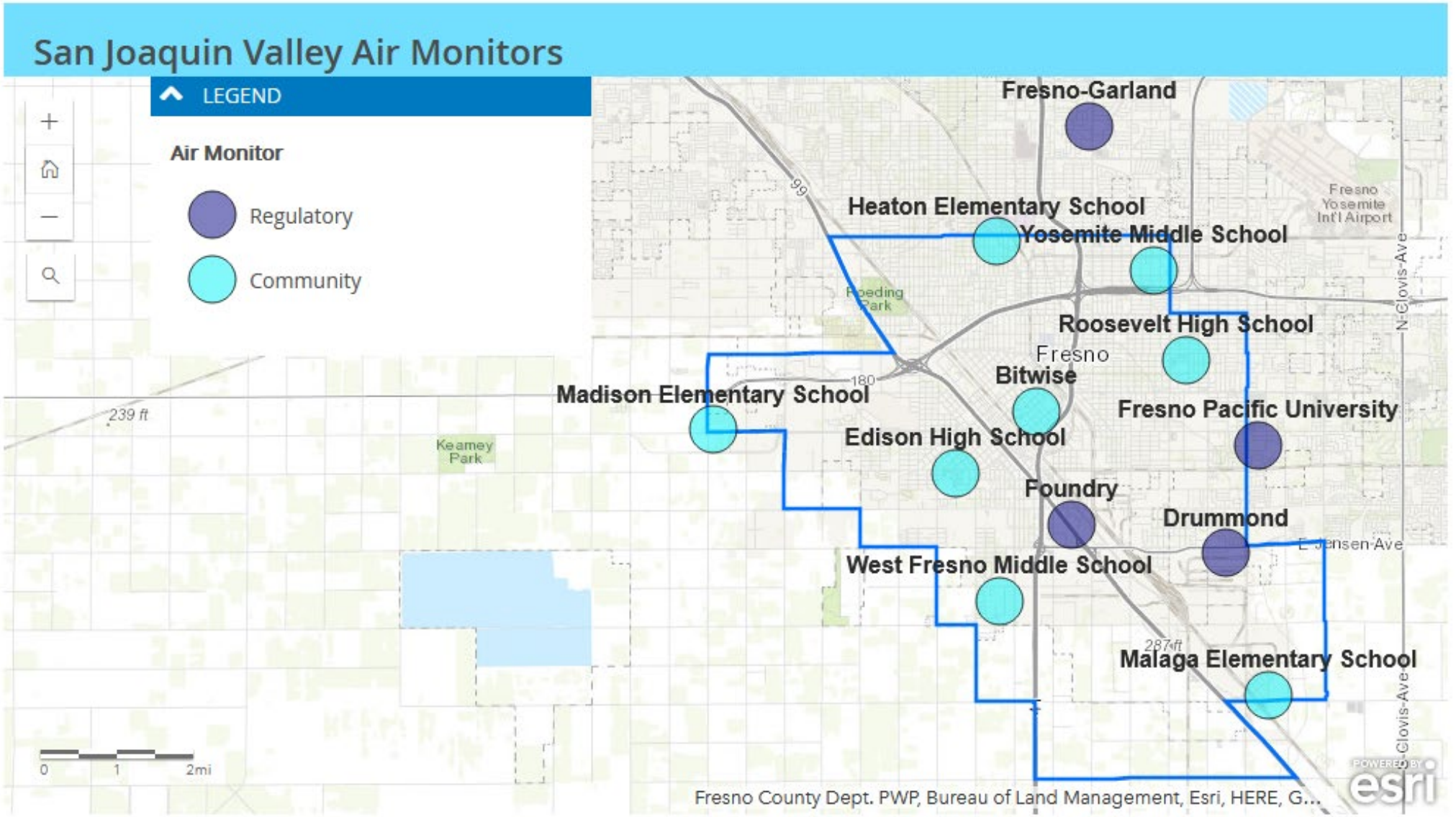
Summary of Air Monitoring Van Data

July 1, 2021 –July 1, 2022

(As of 6/27/22)

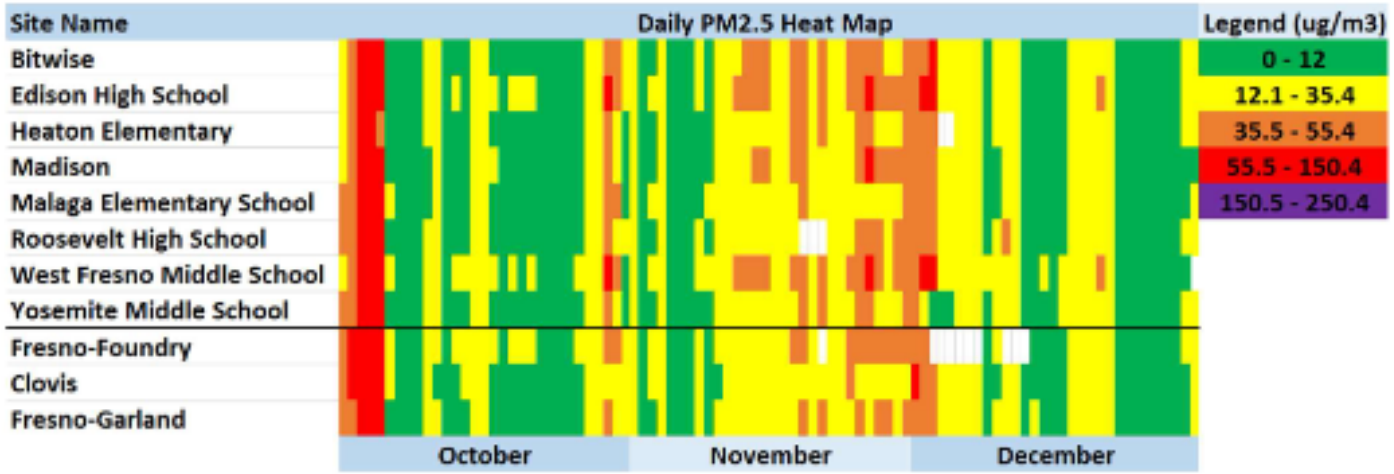
Pollutant	1- Hour Average		Annual Average	
	Measured	Applicable Standard	Measured	Applicable Standard
Benzene (ppb)	2.8	8	<0.1	1
Toluene (ppb)	2.3	1,327	0.1	111
Ethylbenzene (ppb)	1.7	--	<0.1	461
Xylene (ppb)	4.8	5,067	<0.1	161
PM2.5 ($\mu g/m^3$)	56.0	--	16.3	12
Ozone (ppb)	99.5	70 (8-hr ozone standard)	41.8	--
CO (ppm)	0.6	35	--	--
NO2 (ppb)	37.5	100	--	--
SO2 (ppb)	8.0	75	--	--

Interactive Map



Enhanced Quarterly Reports

- New visualizations to better understand air pollution across multiple sites
- Spatial comparison of PM2.5 Quarterly Averages
- Heat Maps

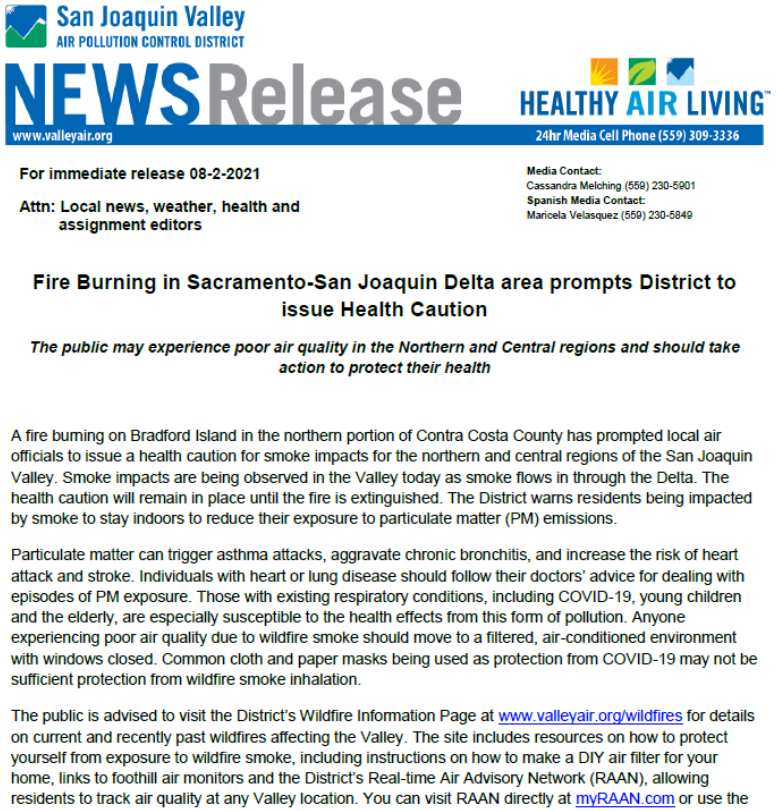


Next Steps

- Continue with current air monitoring efforts with stationary sites, speciation analysis, and air monitoring vans, responding to community needs and concerns
- Triggers established for timely action to investigate spikes in emissions
  - Deploy staff to site to determine potential causes
  - Reviewing data to ensure validity and that equipment operating optimally
- Continue public outreach to ensure community aware of AB 617 monitors and know how to access

Communicating with Public During Wildfire Events

- Providing accurate and timely health-protective air quality information to the public is a priority
- Utilize social media platforms, mobile apps and local English- and Spanish-language media to get the word out
- Communicate with Valley schools to ensure accurate information to make decisions for their students
- Communicate directly with public through phone calls, email, events throughout Valley to discuss air quality, including wildfire impacts



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

NEWS Release

HEALTHY AIR LIVING

www.valleyair.org | 24hr Media Cell Phone (559) 309-3336

For immediate release 08-2-2021

Attn: Local news, weather, health and assignment editors

Media Contact:
Cassandra Melching (559) 230-5901
Spanish Media Contact:
Maricela Velasquez (559) 230-5849

Fire Burning in Sacramento-San Joaquin Delta area prompts District to issue Health Caution

The public may experience poor air quality in the Northern and Central regions and should take action to protect their health

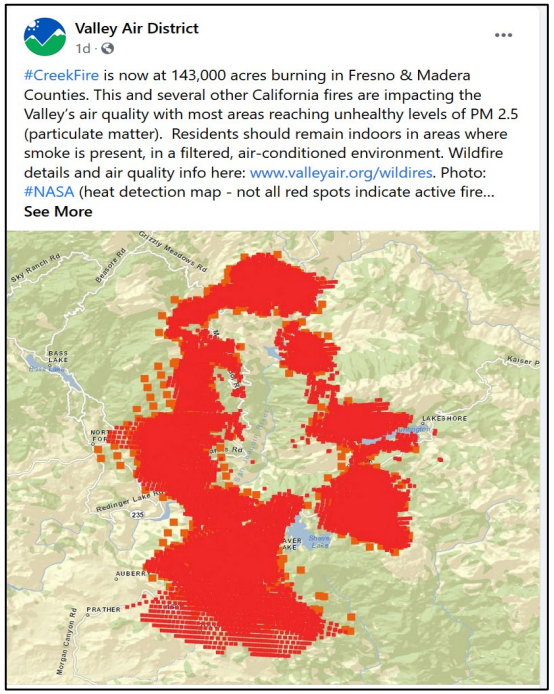
A fire burning on Bradford Island in the northern portion of Contra Costa County has prompted local air officials to issue a health caution for smoke impacts for the northern and central regions of the San Joaquin Valley. Smoke impacts are being observed in the Valley today as smoke flows in through the Delta. The health caution will remain in place until the fire is extinguished. The District warns residents being impacted by smoke to stay indoors to reduce their exposure to particulate matter (PM) emissions.

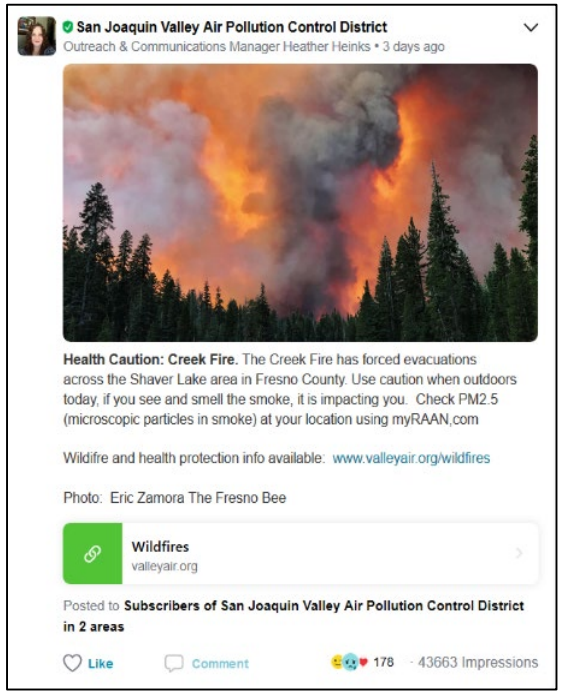
Particulate matter can trigger asthma attacks, aggravate chronic bronchitis, and increase the risk of heart attack and stroke. Individuals with heart or lung disease should follow their doctors' advice for dealing with episodes of PM exposure. Those with existing respiratory conditions, including COVID-19, young children and the elderly, are especially susceptible to the health effects from this form of pollution. Anyone experiencing poor air quality due to wildfire smoke should move to a filtered, air-conditioned environment with windows closed. Common cloth and paper masks being used as protection from COVID-19 may not be sufficient protection from wildfire smoke inhalation.

The public is advised to visit the District's Wildfire Information Page at www.valleyair.org/wildfires for details on current and recently past wildfires affecting the Valley. The site includes resources on how to protect yourself from exposure to wildfire smoke, including instructions on how to make a DIY air filter for your home, links to foothill air monitors and the District's Real-time Air Advisory Network (RAAN), allowing residents to track air quality at any Valley location. You can visit RAAN directly at myRAAN.com or use the

Increasing Importance of Social Media

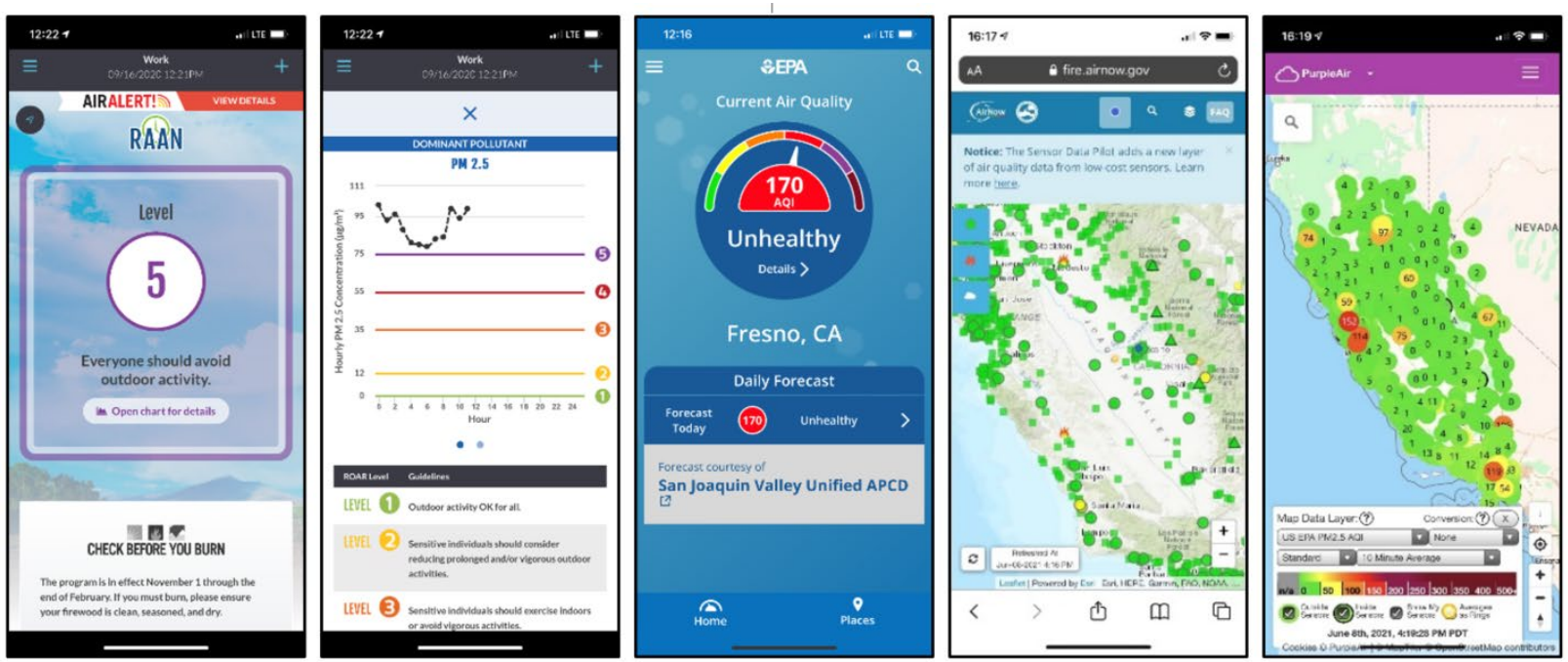
- Posting in both English and Spanish on four primary social media accounts
  - Facebook, Twitter, Instagram and Nextdoor



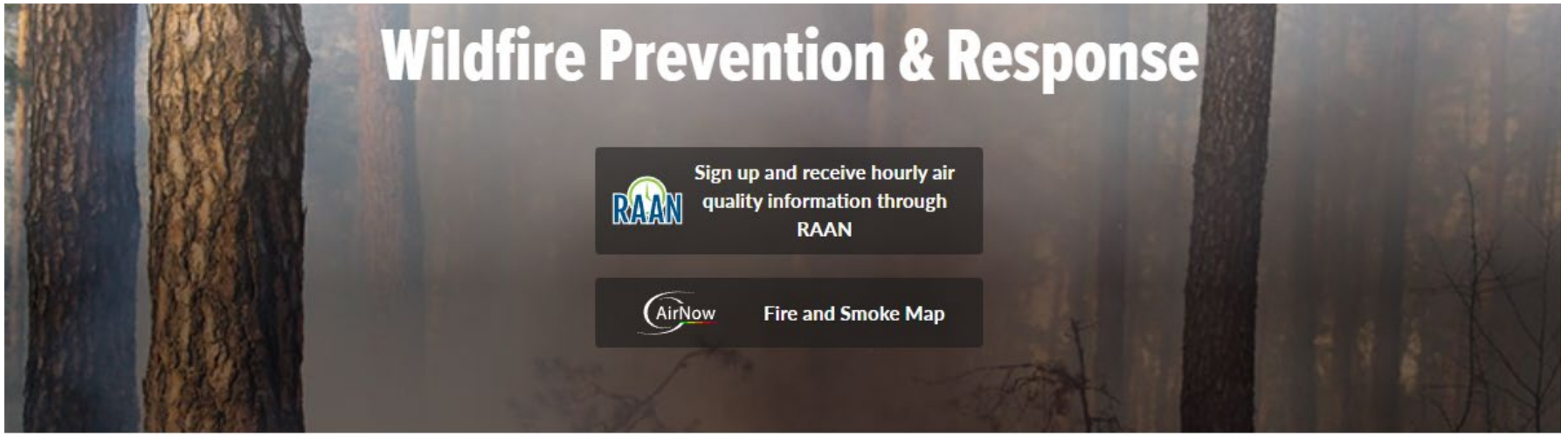


Educating Residents on Available Air Quality Tools

- Residents have found mobile applications useful as they provide real-time air quality information in an easily consumable way
- The Valley Air application has been downloaded over 42,000 times
- New air quality tools have become available in recent years
  - District promotes these tools to ensure public has full range of information



District's Wildfire Prevention and Response Webpage



- Wildfire Information
- How to Protect Yourself from Wildfire Smoke
- Efforts to Prevent and Minimize Wildfires
- Air Quality Information
- Cal/OSHA Worker Safety
- Foothill & Mountain Communities
- Resources

If you can smell smoke and see ash, that is an indication that you are being affected by poor air quality.

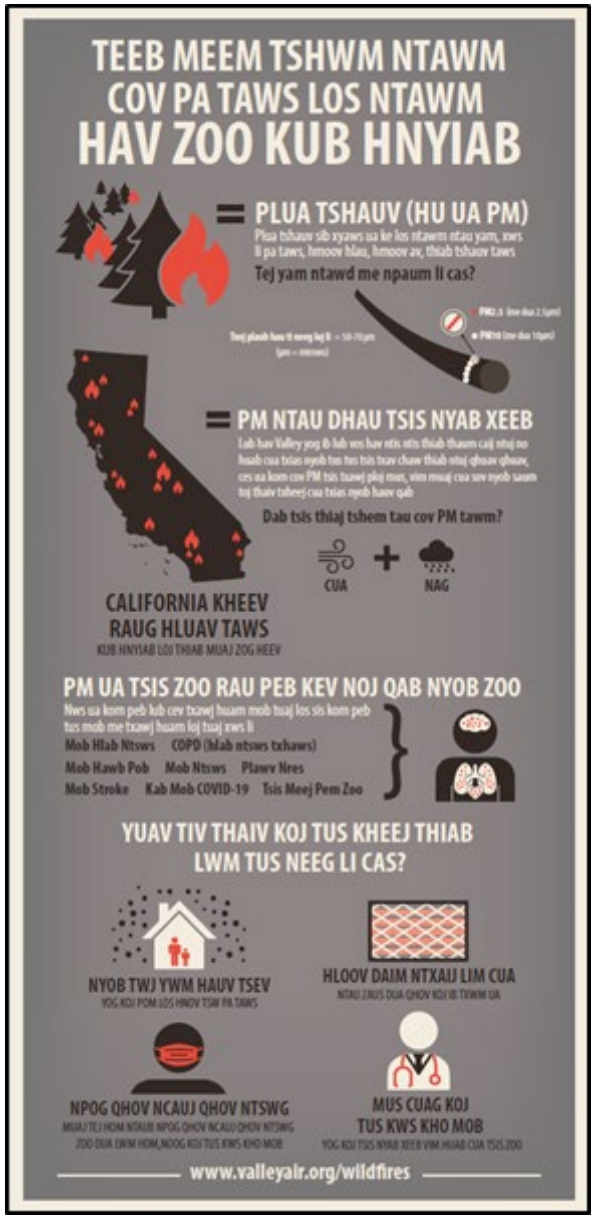
Wildfires that may be impacting air quality in the San Joaquin Valley:

There are currently no wildfires impacting the Valley air quality

Check back often for updated information.

Wildfires with prior impacts to air quality in the San Joaquin Valley:

Wildfire Trilingual Infographic



Clean Air Centers Pilot Program

- District recently launched new Clean Air Centers Pilot program
  - Offers vulnerable populations a respite from wildfires and other smoke events
- Guidelines established by CARB provide Valley with resources to assist in creating clean air centers at schools, community centers, senior centers, sport centers, libraries and other publically accessible buildings

“Clean Air Rooms” Pilot Program

- HEPA air filtration devices can reduce particulate matter in well-sealed indoors environments by more than 90 percent
  - District has increasingly encouraged use of air filtration devices during wildfires to ensure that the home has dedicated space with safe indoor air quality during smoke events
- Clean Air Rooms pilot program to provide residential air filtration units to residents in Valley disadvantaged communities
  - Goal of pilot program is to partner with local Valley businesses and organizations to distribute air filtration units to residents of low-income/disadvantaged communities free of charge

Residents interested in this program can sign up for the email notification list:
ww2.valleyair.org/about/sign-up

Comments/Questions?