

The Vallejo Citizen Air Monitoring

Network

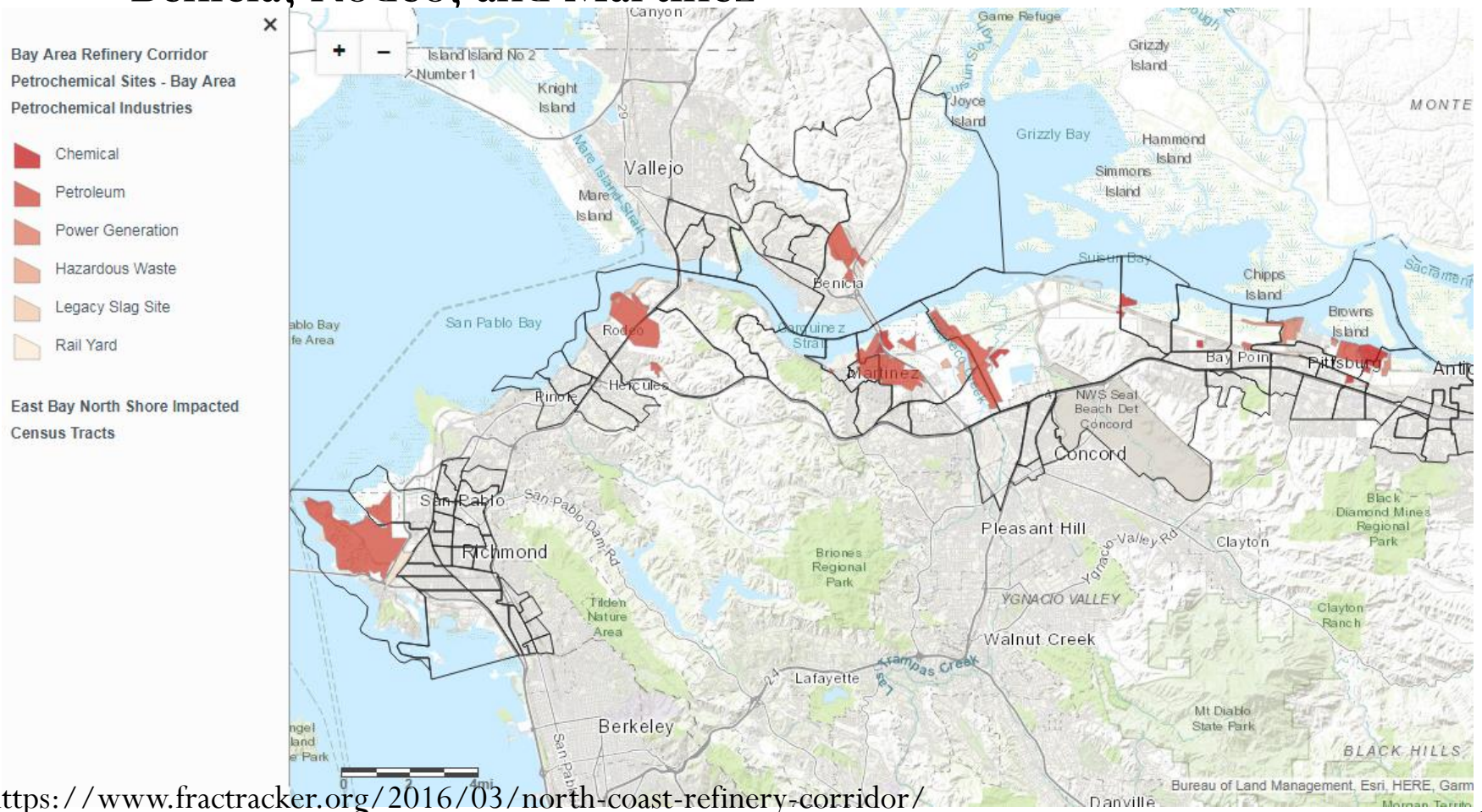
Building Awareness and Strengthening Advocacy for
Environmental Justice

Purposes of Citizen Air Monitoring

- Prevent industrial accidents
- Understand and improve air quality
- Learn about health effects of exposures
- Make air quality information more available to all

Specific Concerns in Vallejo

- No refineries in Vallejo, but impacted by nearby refineries in Benicia, Rodeo, and Martinez



Specific Concerns in Vallejo

- No refineries in Vallejo, but impacted by nearby refineries in Benicia, Rodeo, and Martinez
- Dry docks for maintenance and repair of large sea vessels
- Unexplained releases (e.g. 9/20/16 odor event)

Coast Guard Locates Oil Sheens in San Pablo Bay After Odor Sickens Vallejo Residents

A shelter in place was lifted Wednesday morning after reports of a strong smell sent multiple people to the hospital

By Riya Bhattacharjee and Wire Reports

Published at 6:37 AM PDT on Sep 21, 2016 | Updated at 12:56 AM PDT on Sep 22, 2016



Two large oil sheens on San Pablo Bay Wednesday morning, after a mysterious odor prompted shelter-in-place orders in Vallejo Tuesday night, might have come from a refinery tanker, authorities said. Terry McSweeney reports. (Published Wednesday, Sept. 21, 2016)

TRENDING STORIES

- 1 VIDEO Video: Muni Bus Crashes Into Building in SF, Injuring 2
- 2 VIDEO Thousands 'Rise for Climate, Jobs, Justice' in San Francisco
- 3 Nearly 20K PG&E Customers in San Jose Lose Power
- 4 Warner Gets Solid Reviews for His 49ers Debut

WEATHER FORECAST

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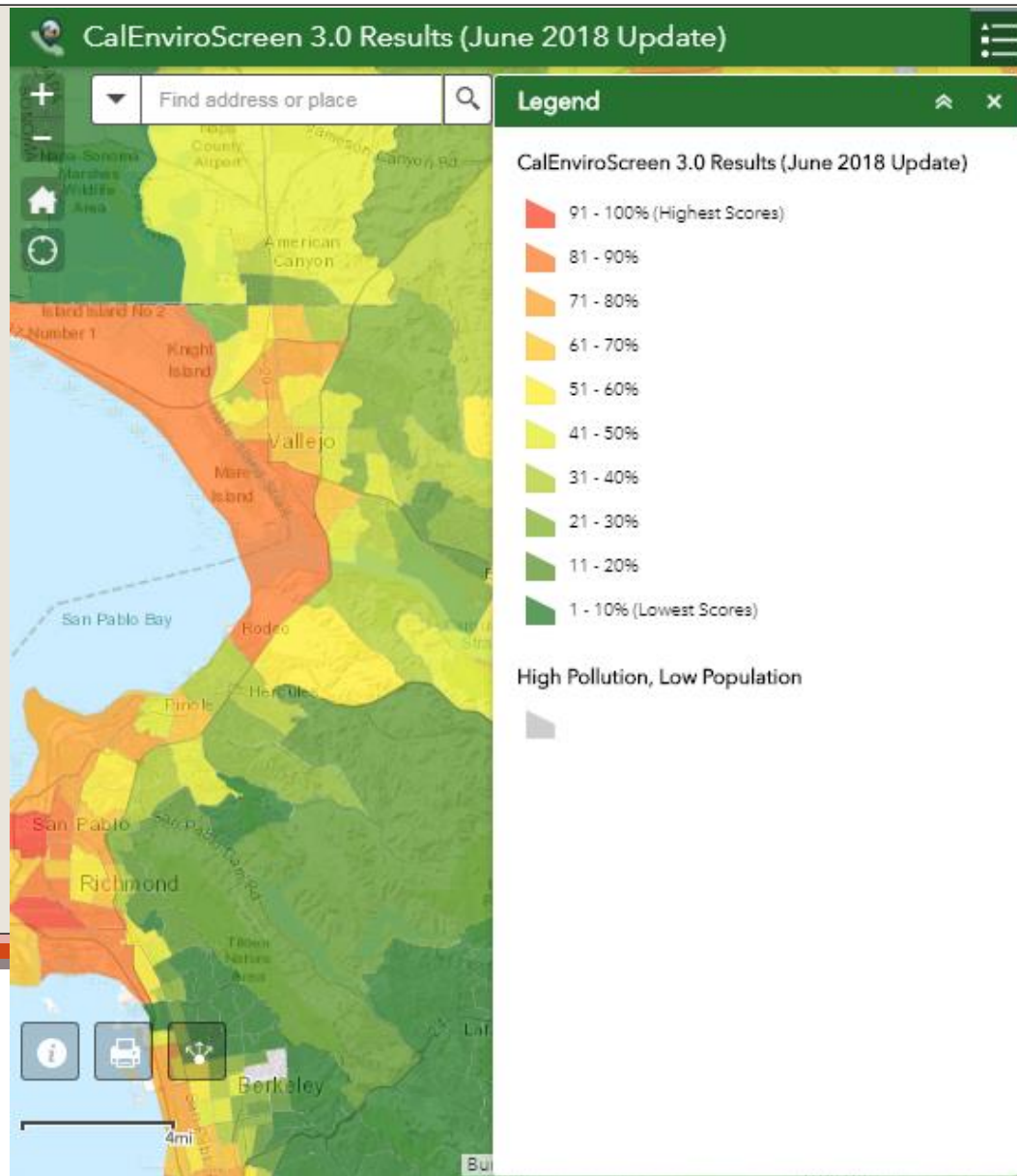
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Coast Guard Locates Oil Sheens in San Pablo Bay After Odor Sickens Vallejo Residents - NBC Bay Area

Questions raised by the 9/16 event

- How do you detect these events?
- How do you identify the source?
- Who monitors Vallejo air quality and how?
- How and what should be communicated to the public?

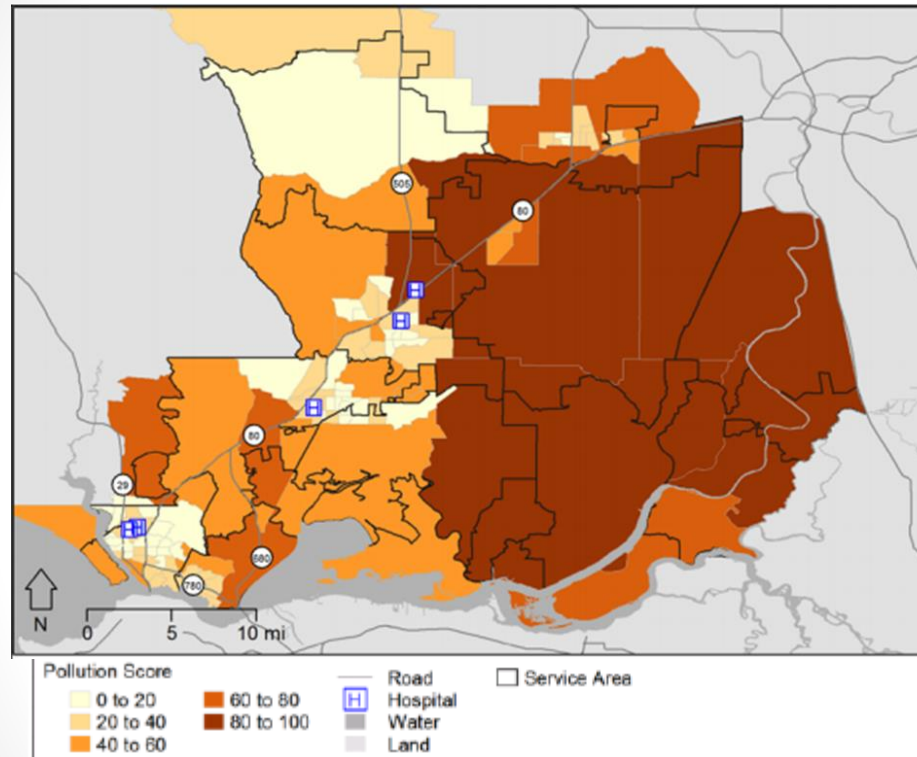
The Vallejo Community



CalEnviroScreen 3.0 | OEHHA

Solano County Health Burdens

Pollution Burden



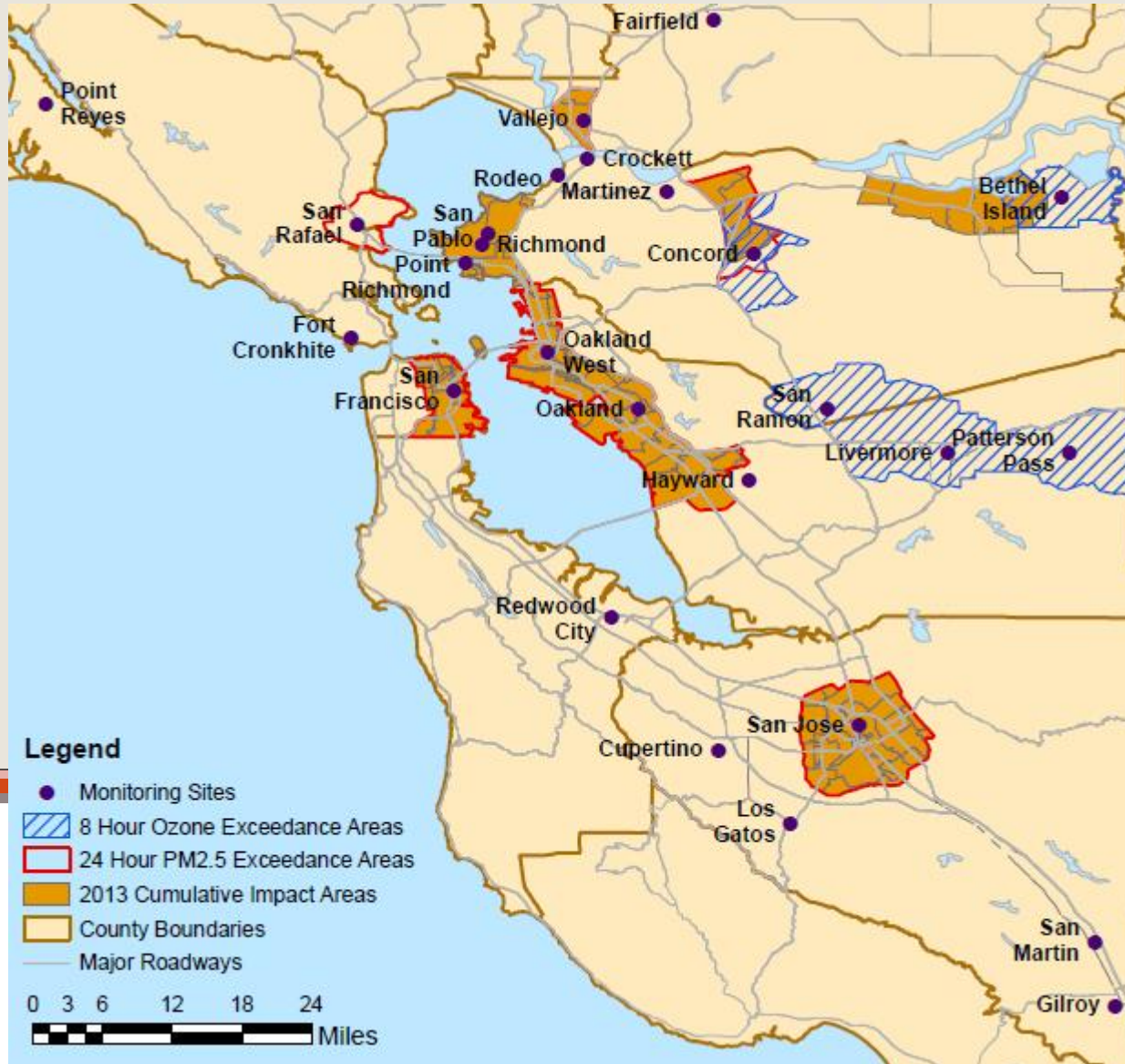
13 Pollution factors:

- Ozone
- [PM2.5]
- Diesel PM emissions
- Pesticide use
- Toxic releases
- Traffic density
- Drinking water
- Cleanup sites
- Impaired water bodies
- Groundwater threats
- Hazardous waste facilities & generators
- Solid waste sites & facilities.

Figure 23: Pollution burden score by census tracts in the HSA

Source: California Office of Environmental Health Hazard Assessment, 2014

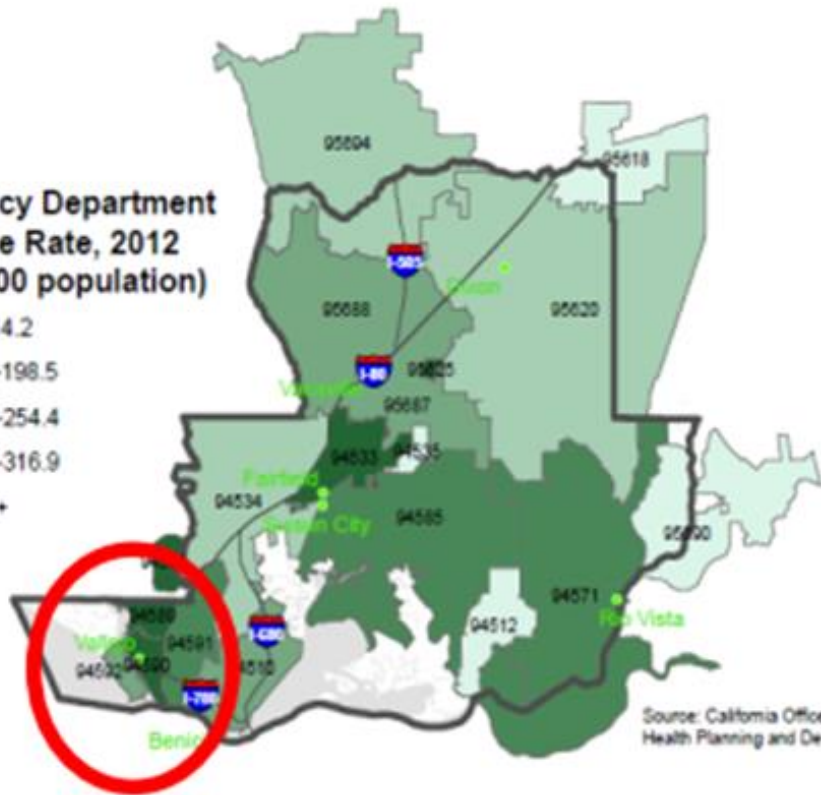
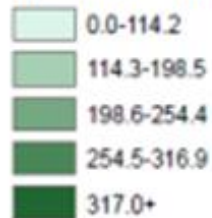
BAAQMD CARE Communities



Solano County Health Burdens

Asthma

Emergency Department Discharge Rate, 2012 (per 10,000 population)



Source: California Office of Statewide Health Planning and Development (OSHPD)

ED DISCHARGE RATE:

Solano County ED discharge rate for asthma is almost **1.9X** the California rate.

Ethnicity	ED Visits/10,000
White	271
Hispanic	181
Asian/Pacific Islander	148
Black	625
Solano County	276
CA	148

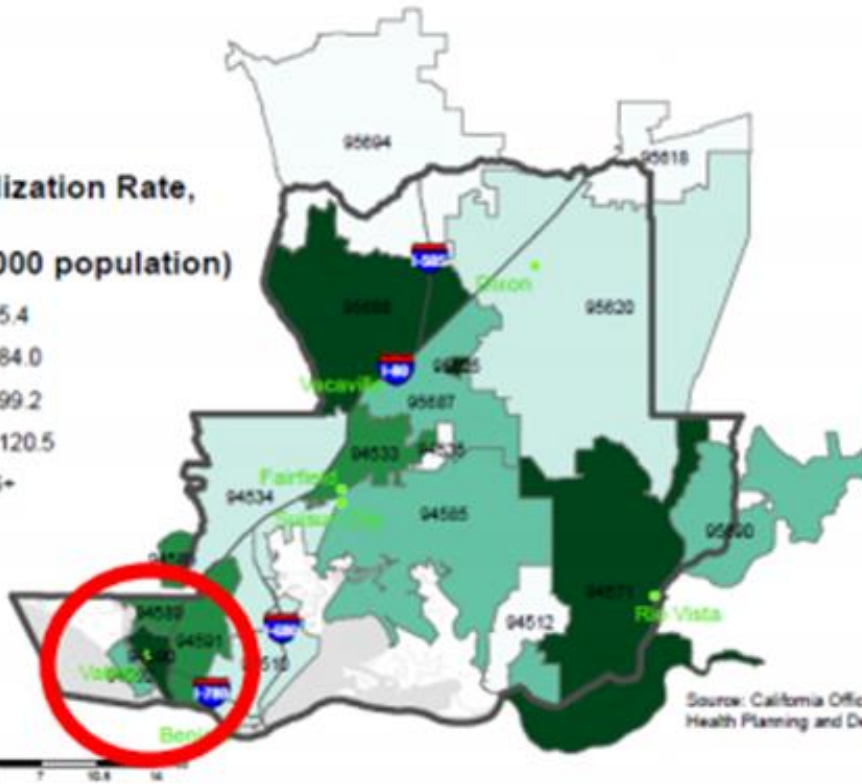
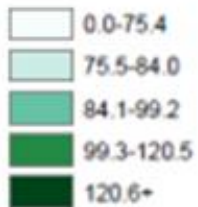
South/Central Vallejo Asthma ED Rate (470.83 per 10,000) is **more than triple** CA Rate

% Adults that had ever been told by a doctor that they have asthma is **double** CA rate

Solano County Health Burdens

Asthma

Hospitalization Rate,
2012
(per 10,000 population)



HOSPITALIZATION RATE:

Solano County hospitalization rate for asthma is almost **1.4X** the California rate.

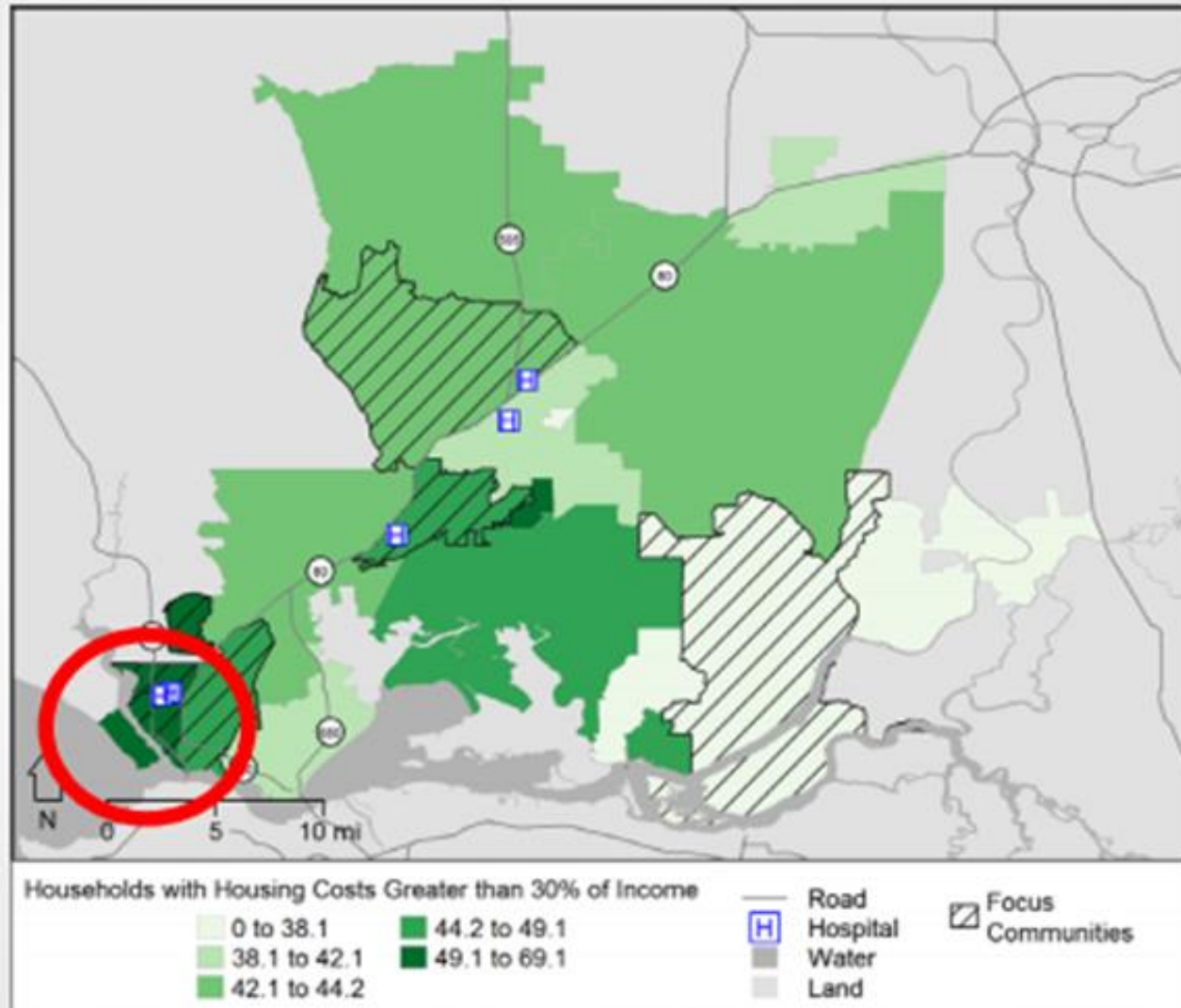
Ethnicity	Hospitalizations/10,000
White	123
Hispanic	57
Asian/Pacific Islander	77
Black	167
Solano County	102
CA	70.55

Source: California Office of Statewide Health Planning and Development (OSHPD)

Prepared by Solano County Public Health Epidemiology Unit, March 2016

Social Determinants of Health

Housing Burden



Social Determinants of Health

Housing Burden

ZIP Code	Percent Under 100% Federal Poverty Level	Percent Families with Children in Poverty	Percent Single Female Headed Households in Poverty	Percent Elderly in Poverty
North Vallejo 94589	17.7	21.6	34.5	2.74
South/ Central Vallejo 94590	25	29	41.6	3.53
East Vallejo 94591	12.5	16.6	35.3	1.5
Mare Island 94592	6	11.1	100	0
Solano County	13	15.4	34.2	1.8
State of CA	15.9	17.8	36.8	2.26

“There’s kind of like a cycle of poverty because there’s not a lot of resources, so people grow up and they don’t have the resources so they end up being poor again.”

Social Determinants of Health

Employment

Zip Code	Percent Unemployed	Median Income
Benicia - 94510	7%	\$88,930
North Vallejo - 94589*	13%	\$56,068
South/Central Vallejo - 94590*	17%	\$41,819
East Vallejo - 94591*	13%	\$73,509
Solano County	11%	\$67,177
CA State	9%	\$61,094

Sources: ¹US Census, American Community Survey, 2011-2015 5-year estimates

Coming Together

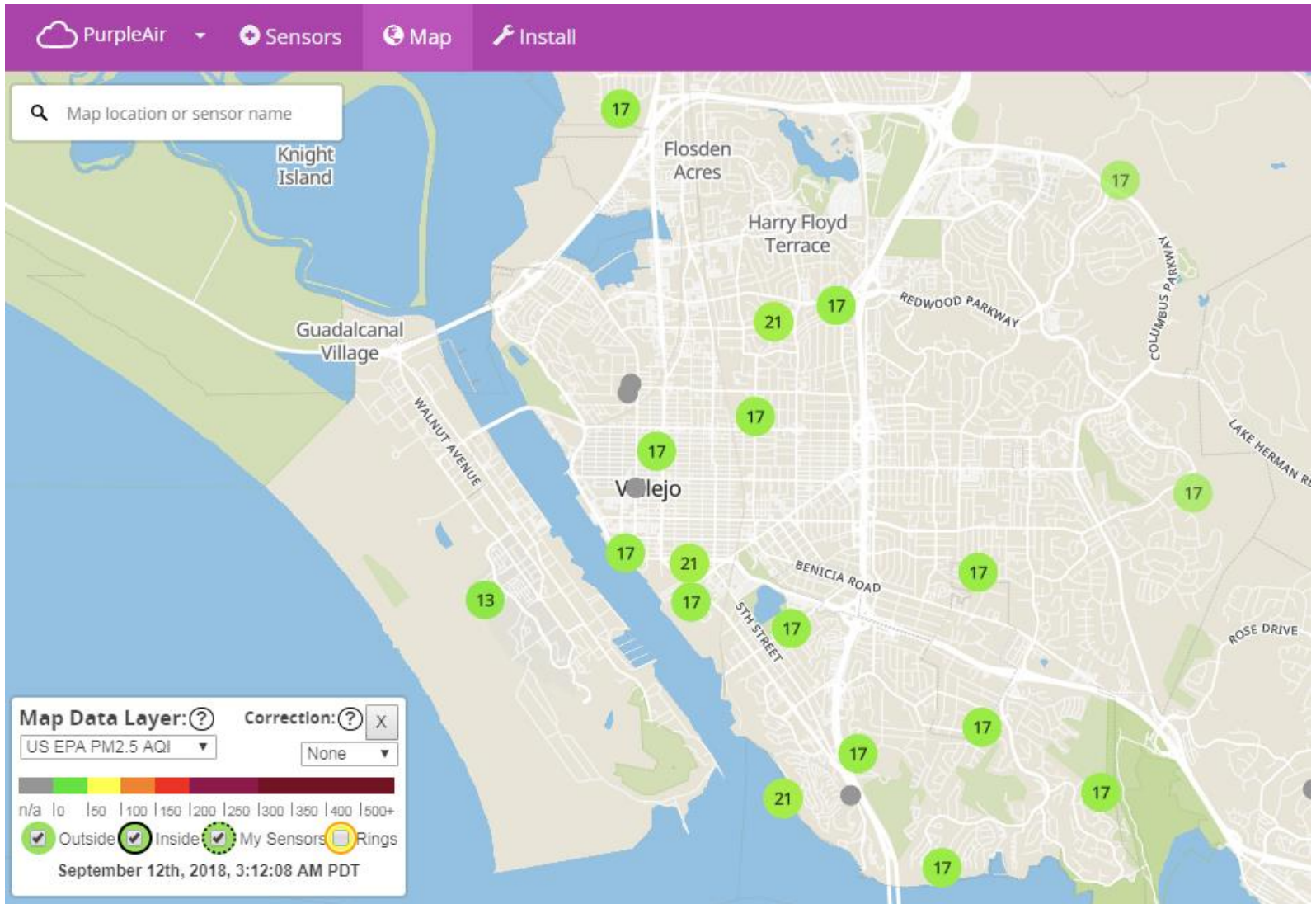


Vallejo Citizen Air Monitoring Network

Goals

- More monitoring to better capture variation and hotspots
- Ability to collect data to help the city identify pollutants of concern and support health recommendations, if such an event occurred in the future. – Need for rapid response
- Inform need and plan for other air monitoring.

Vallejo Citizen Air Monitoring Network



Vallejo Citizen Air Monitoring Network

Steps

- Network formation – monthly meetings
- Network members in attendance at agency forums
- Community funded purchase and installation of 21 PM_{2.5} monitors.
- Training community members to use the monitors
- Secure outdoor locations (primarily residences)
- Reconnaissance tour with BAAQMD
- Ongoing communications with BAAQMD and development of grant support.

PM Levels is just a starting point

- The VCAMN data can identify when and where residents are safe outside
- To advocate for policy to further reduce PM sources.
- But... PM was not primary concern of residents.

Data Analysis

- Monthly averages
- 24-hr average
- Highest 24-hr average

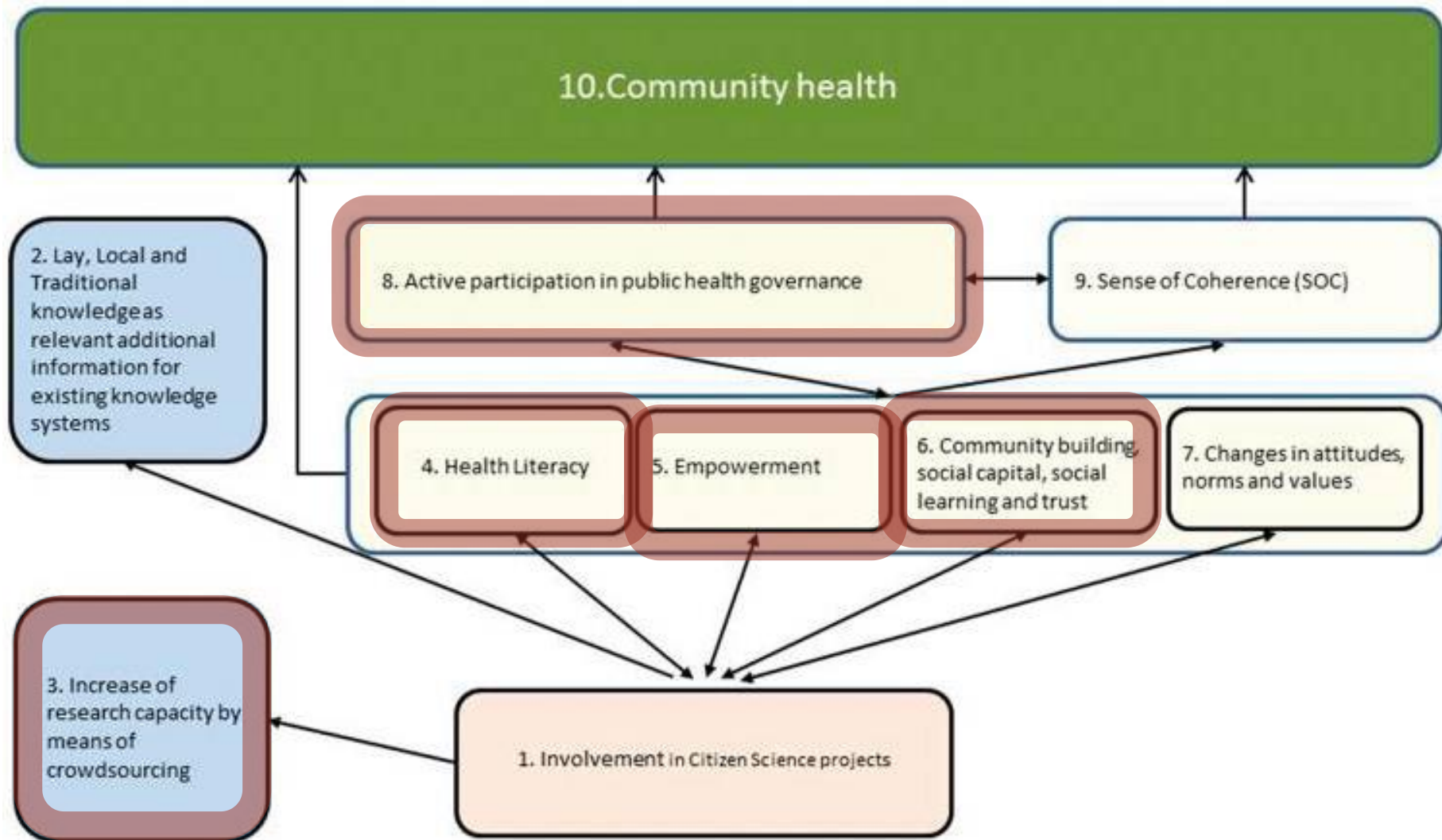


Figure 1 from Den Broeder, L., Devilee, J., Van Oers, H., Schuit, A. J., & Wagemakers, A. (2018). Citizen Science for public health. *Health Promotion International*, 33(3), 505–514.

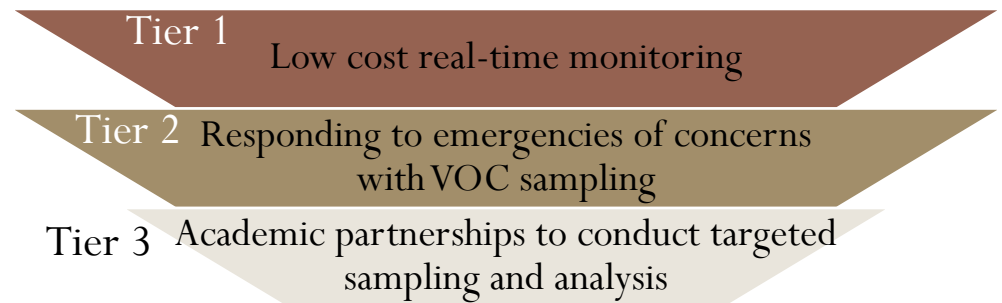
<http://doi.org/10.1093/heapro/daw086>

Beyond Particulates

- VCAMN wants:
 - To be better able to respond to unplanned air quality events.
 - Learn more about sources and pollutants.
 - VOC: real-time and canister sampling

Growing Partnerships

- Building infrastructure for data storage, access and interpretation.
- Community and agency partnership will build opportunities for creative solutions to reduce air pollution sources and reduce risk.
- Tiered approach



Special thanks and credit to:

- Ken Szutu, Chair of the VCAMN
- Nancy Piotrowski, PhD
- The rest of the dedicated members of VCAMN

