Sacramento Environmental Justice Community Air Monitoring Project Survey Snapshot







SACRAMENTO COUNTY

PUBLIC

HEALTH



ClimatePlan







valley vision





HEALTH EDUCATION COUNCIL

DRAW

BRIDGE

RUS

MAY USE FULL LAN

Background

Air pollution is a known cause of poor respiratory health, and children, the elderly, and people with pre-existing cardiopulmonary disease are at greater risk. Significantly, poorer communities and under-represented minorities live most where air pollution is worst, making this public health issue an environmental justice priority.

The Sacramento County Vehicle Emissions Project (VEP)¹ established a multi-sector coalition to design and implement a community-driven, dynamic, and mobile air-monitoring network in communities located in the West Arden Arcade, North Highlands, South Sacramento, and Gardenland regions to assess public health and environmental impacts due to vehicle emissions.²

The VEP was initially funded by the Department of Justice through December 2023, but the Sacramento County Department of Public Health and the VEP coalition successfully advocated for an extension through September 30, 2024, in order to collect more air quality data and have time to share the findings back in the community.

Community educational sessions in 2023 provided informative and often entertaining information to neighbors about the impacts of vehicle emissions. Meetings planned for 2024 will focus on sharing information back and engaging community members to get involved in policy and systems change to reduce the impact of vehicle emissions in their neighborhoods.

² This project complements the work that the Sacramento Air Quality Management District (SAQMD) is doing in response to AB 617, which mandates the SAQMD place air monitors and engage with Environmental Justice (EJ) communities.



¹ United Latinos created an educational website for the project: <u>https://sites.google.com/view/airpollution-112/home</u>

Vehicle Emissions Project Outcomes

While activities will continue through the extension period, by the end of 2023, the Sacramento County Vehicle Emissions Project was on track to complete each of the five stated outcomes:



Understand factors influencing adverse health effects attributable to vehicle emissions in identified Sacramento communities within Sacramento County.

Build a coalition to extend beyond the timeline of this grant, with the purpose of **building people power** with an EJ focus to push decision makers to allocate dollars and make decisions focused on improving community health and reversing climate change.



Conduct a **community-specific assessment** of the impact of car emission pollutants in the four identified communities: Gardenland, North Highlands, South Sacramento/Vineyard, West Arden-Arcade.



Create a **template for the community-based study** of air quality and respiratory health that can be applied to other urban communities in California.



Develop **policy recommendations** to reduce the health risks in these communities due to vehicle emissions.

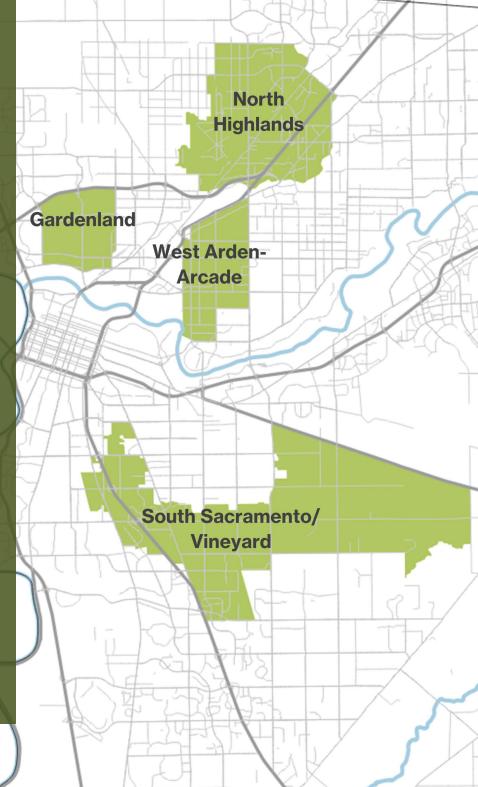
This summary presents findings from the Community Respiratory Wellness Survey (#1 and #3 above). Activities planned during the 2024 extension period will address the remaining outcomes.

Environmental Justice Communities

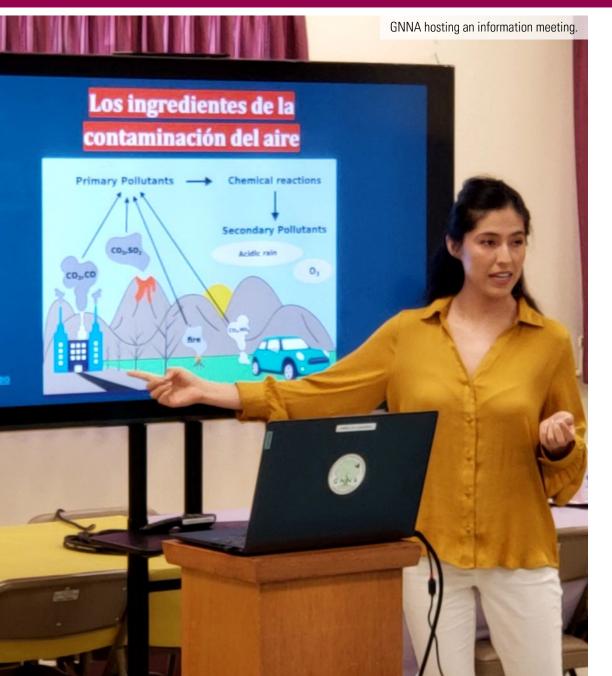
In response to California State Senate Bill 1000 (SB 1000) passed in September 2016, Sacramento County used the California Communities Environmental Health Screening Tool (more commonly known as <u>CalEnviroScreen</u>) and the Sacramento Area Council of Governments' (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) to identify priority disadvantaged communities (see map). Sacramento County Office of Planning and Environmental Review developed a new stand-alone Environmental Justice Element of the Sacramento County General Plan to address topics including pollution exposure and air quality. Similarly, the City of Sacramento has utilized a similar strategy and is currently in the process of incorporating the Environmental Justice Elements into their General Plan update.

The Environmental Justice Elements in the County and the City identify the North Highlands, West Arden Arcade, and South Sacramento/Vineyard regions as disadvantaged communities. These communities all have major goods transport, distribution centers, and busy freeways traversing through them, which increases their risk of air pollutant exposure and adverse health outcomes. In addition, the Gardenland neighborhood in North Sacramento falls between two major freeways and is included in the City of Sacramento's Communities Identified for Community Air Monitoring Program in their General Plan 2020 update.

The Sacramento County Vehicle Emissions Project combined the Sacramento County EJ zones and the Gardenland Northgate Neighborhood Association footprint to identify four priority EJ communities: North Highlands, Gardenland, West Arden-Arcade, and South Sacramento/Vineyard.



Partners & CBOs



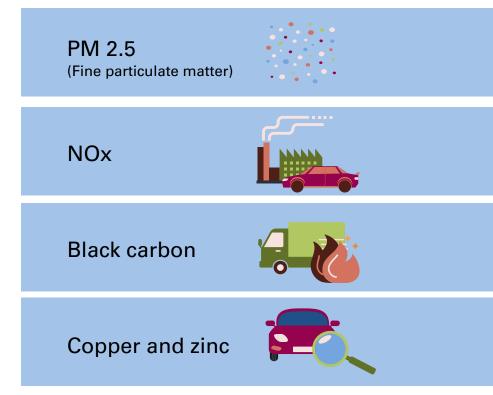
Sacramento County Public Health partnered with several organizations to build a coalition for the project, including Breathe California Sacramento Region, Health Education Council (HEC), Valley Vision, United Latinos, and the Sacramento State University Department of Environmental Studies, which conducted and analyzed air quality monitoring data. LPC Consulting Associates, Inc. served as the external evaluator, managing the Community Survey. As trusted messengers, community-based organizations (CBOs), including ClimatePlan, Gardenland Northgate Neighborhood Association (GNNA), Mutual Assistance Network, and Teatro Nagual, Inc. conducted educational meetings and collected Community Surveys.

The CBOs were critical to create authentic community engagement, education, and ensure that the project partners were responsive to communityidentified needs as they relate to air quality concerns and vehicle emissions. CBOs also assisted with recruitment of participants and involved residents in data collection and policy development. Teatro Nagual, Inc. developed several theatrical performances in English and Spanish and partnered with several CBOs to use entertainment to share information about air quality and vehicle emissions.

Air Quality Monitoring

Early in the project, the coalition agreed that this project provided a unique opportunity to gather mobile air guality monitoring data, as opposed to static data from stationary monitors affixed to buildings or power poles. Devices that can be mobile had the advantage of enabling more strategic air quality sampling designs using fewer and less expensive devices. The mobile devices took multiple readings at many points while stationary, rather than sampling continuously while moving. In collaboration with subject matter experts from the California Air Resources Board (CARB), a technical committee convened to decide on equipment, sampling methods, and technical details. The technical committee reached consensus around measuring PM 2.5, NOx,³ black carbon, and copper and zinc (two (carcinogenic) metals in particulate matter) as metrics of air pollution.⁴ To measure these substances, the VEP purchased mobile Toxic-metal Aerosol Real-Time Analysis (TARTA)⁵ instruments, and Distributed Sensing Technologies (DS-Tech) "ObservAir"⁶ devices.

Air pollution metrics:



³ NOx refers to Nitric oxide (NO) and Nitrogen Dioxide (NO2) as a family of gases.

⁴ NOx and black carbon are from fuel combustion, whereas aerosol copper and zinc are from vehicle wear.

⁵ Developed by the University of California, Davis (UCD) under contract the California Air Resources Board (CARB); not yet commercially available.

⁶ <u>https://www.dstech.io/_files/ugd/18a7e0_1fc027bb66e6419f8747f672d861c940.pdf</u> The devices also include an internal GPS, allowing for data to be geocoded.



Sacramento State team planning air quality monitoring routes.

The emphasis on variation informed the coalition's decision to collect air quality monitoring data collection over an entire full calendar year – through spring 2024 - to describe the seasonal cycles in air pollutants in additional to describing the typical daily and weekly cycling. Detailed air quality findings will be forthcoming during the extension period, but preliminary data analysis has shown concentrations of black carbon and PM2.5 around many of the transit hubs and busy highways within each of the EJ communities.

After several delays due to post-COVID supply chain issues, the devices arrived and were calibrated to begin data collection in February 2023 (DS-Tech) and March 2023 (TARTA). The Sacramento State team developed maps and a sampling plan for interns to drive along the routes, stopping to take measurements. Measurements were focused in the four EJ communities, but also included comparison measurements in adjacent areas. The sample was designed to measure both where air pollution is expected to be present, as well as where vehicle counts are expected to be low. Therefore, the sampling plan was designed to measure pollution variation (i.e., how it changes in space and time from low to high), enabling changes in air pollution to be attributable to vehicle emissions.





Community Outreach

Community engagement is at the core of the Vehicle Emissions Project, with several community partners educating residents on current conditions and engaging residents to help them identify the perceived problems and solutions in their own words.

Early in the project, partners created an infographic to explain the project and the partners, which was translated into six languages.⁷ A trifold pamphlet summarized the purpose of the project and provided information about health impacts and ways to protect oneself from air pollution. United Latinos also coordinated the development of a community educational website (see footnote 1) and slideshow presentation, which all project partners could use.

Partners and CBOs identified their region(s) of focus and conducted educational outreach activities at a variety of events. For example, ClimatePlan held pop-up events, including at an apartment complex in South Sacramento. Health Education Council (HEC) distributed information at a variety of events, including in partnership with Twin Rivers Unified School District during food distributions. United Latinos conducted educational activities at several events across the county, including at the Climate Justice Festival. GNNA held well-attended informational meetings as part of their neighborhood association. MAN participated in events reaching a broad swath of the community, including an Earth Day and a pre-Thanksgiving/Veterans Day event.

⁷ The VEP infographic and Community Wellness Survey were translated into Farsi, Dari, Hmong, Vietnamese, Russian, and Spanish.

Community Respiratory Wellness Survey

In order to understand the impact of air pollution from vehicle emissions, LPC, in collaboration with the entire coalition, developed a Community Respiratory Wellness Survey. The survey asked questions regarding the respondent household's concerns or problems with pollution from cars, trucks, or motorcycles (vehicle emissions), as well as any respiratory health symptoms. The survey was translated by CBOs and partners into six languages,⁷ collected online or via pencil and paper, and respondents had an opportunity to receive a \$20 gift card incentive. The Community Respiratory Wellness Survey - DOJ-funded environmental justice and air guality research received exemption from the Sacramento State Institutional Review Board (#Cayuse-22-23-169) on March 1, 2023. CBOs and partners collected 1,276 surveys from Sacramento County residents between May and December 2023.

LPC organized and analyzed findings for the entire County (all valid respondents), as well as identified respondents who reported living in one of the EJ communities. While many respondents did not live within one of the specific EJ communities, 49% of respondents lived within one of the communities, and each community had at least 86 surveys.

The Sacramento County survey summary is presented in the next few pages, and summaries for the four EJ communities are included as appendices.



49% of surveys (624) were collected from residents of the EJ communities.

Respondents who South Sacramento/ Vineyard resident lived outside an EJ community 19% (246) **51%** (652) Gardenland resident 15% (197) West Arden-North Arcade Highlands resident resident 7% (95) 7% (86)

Breathing Together:

Insights from the Community Respiratory Wellness Survey in Sacramento County

Sacramento residents face various public health challenges due to poor air quality. Some communities are more impacted than others due, in part, to their proximity to major roads and the resulting vehicle emissions exposure.

In 2023 the Sacramento Environmental Justice Community Air Monitoring Project surveyed residents in four priority communities to understand the link between health and vehicle pollution. A coalition of Sacramento-based organizations collected the **1,276 surveys** from Sacramento County residents summarized in this report.

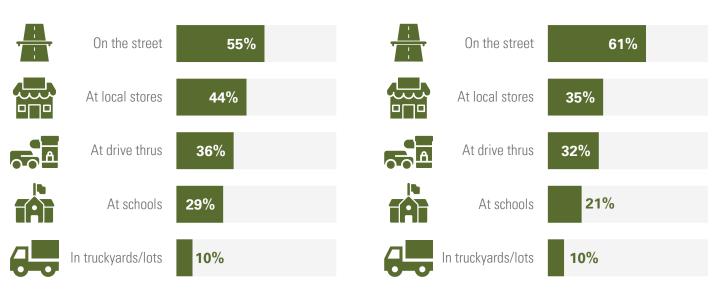
Where do residents see and smell vehicles?



of Sacramento residents have seen vehicles idling....

65%

of Sacramento residents have smelled odor from vehicles....



Some Sacramento residents said they had these **symptoms** in the past month.

	Headache	22%
	Nose irritation	18%
	Throat irritation or soreness	17%
0	Eye irritation	16%
64	Difficulty breathing	12%
Ĩ,	Nausea	11%



18%

of residents had someone from their household go to the ER for allergy or asthma symptoms in the past year. Some Sacramento residents see black dust/soot around their home....

22% have seen soot inside their home

30% have seen soot outside their home රාධාරාධාරාධාරාධාර රාධාරාධාරාධාර



29%

of residents had someone from their household go to a clinic or doctor's office for allergy or asthma symptoms in the past year.

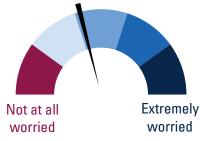
How do residents feel?

Sacramento residents rated their level of air pollution knowledge as "fair".



Residents are also **moderately worried** about the environment.



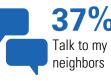


What would residents like to do about pollution?



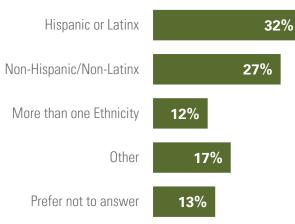
said they want to work with their community to reduce air pollution. Sacramento residents are most interested in doing these activities to help reduce air pollution.



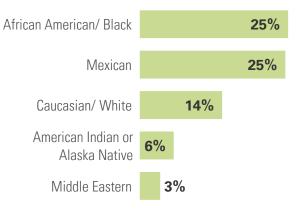




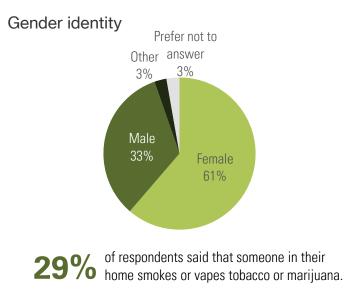
Ethnicity



Race (top 5 selections)*

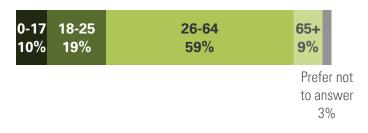


*includes respondents identifying as more than one race.

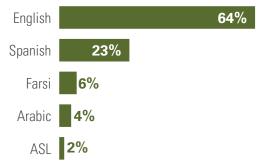


living at home.

Age



Languages spoken at home (top 5)



Interested in more information/getting involved? Contact Breathe California Sacramento Region at engage@sacbreathe.org



55%





HEALTH EDUCATION COUNCIL

SACRAMENTO COUNTY

of respondents said that they have children













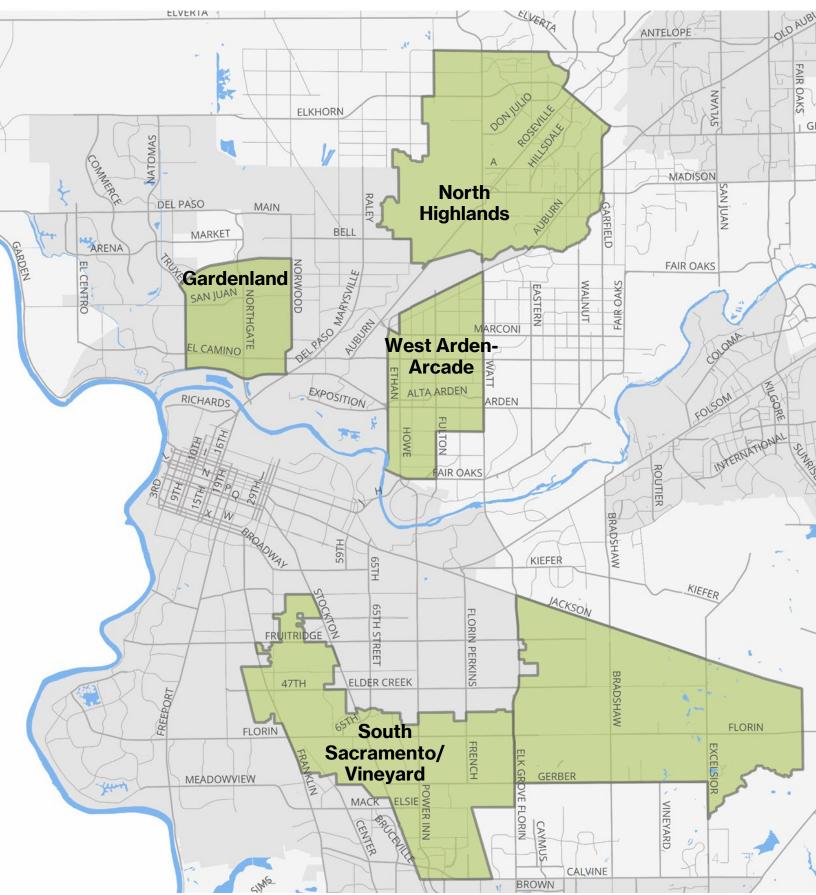
Going Forward

With the project extension through September 2024, VEP partners and CBOs will integrate the Community Respiratory Wellness Survey findings in community education sessions, Town Halls, and Community Forums to demonstrate the need for new policies, programs, and resources to improve the overall community well-being and engage residents to advocate on behalf of their communities. Specifically, GNNA hopes to share data with the City of Sacramento for incorporation into the City's Climate Action Plan.

The Sacramento State team plans to collect air quality data through spring 2024, in order to have an entire year of seasonal data to analyze. The model will inform and support subsequent mitigation efforts and serve as a template for similar community-driven efforts in other Californian cities.

The air quality monitoring data gathered will be utilized to build a geographic and algorithmic model to assess the relationships between air quality and respiratory health and its contributing causes in these neighborhoods.

Appendix 1



Appendix 2

Breathing Together: Insights from the Community Respiratory Wellness Survey Summaries

- A. Sacramento County-wide
- B. Gardenland
- C. North Highlands
- D. South Sacramento/Vineyard
- E. West Arden Arcade

Breathing Together:

Insights from the Community Respiratory Wellness Survey in Sacramento County

Sacramento residents face various public health challenges due to poor air quality. Some communities are more impacted than others due, in part, to their proximity to major roads and the resulting vehicle emissions exposure.

In 2023 the Sacramento Environmental Justice Community Air Monitoring Project surveyed residents in four priority communities to understand the link between health and vehicle pollution. A coalition of Sacramento-based organizations collected the **1,276 surveys** from Sacramento County residents summarized in this report.

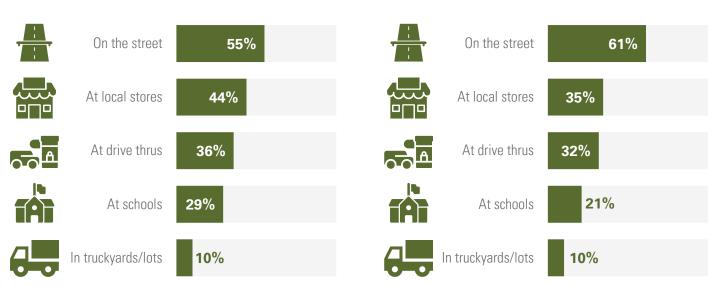
Where do residents see and smell vehicles?



of Sacramento residents have seen vehicles idling....

65%

of Sacramento residents have smelled odor from vehicles....



Some Sacramento residents said they had these **symptoms** in the past month.

	Headache	22%
	Nose irritation	18%
	Throat irritation or soreness	17%
0	Eye irritation	16%
64	Difficulty breathing	12%
Ĭ,	Nausea	11%



18%

of residents had someone from their household go to the ER for allergy or asthma symptoms in the past year. Some Sacramento residents see black dust/soot around their home....

22% have seen soot inside their home

30% have seen soot outside their home රාධාරාධාරාධාරාධාර රාධාරාධාරාධාර



29%

of residents had someone from their household go to a clinic or doctor's office for allergy or asthma symptoms in the past year.

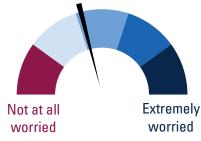
How do residents feel?

Sacramento residents rated their level of air pollution knowledge as "fair".



Residents are also **moderately worried** about the environment.



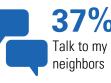


What would residents like to do about pollution?



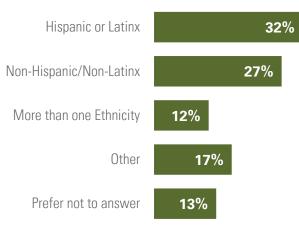
said they want to work with their community to reduce air pollution. Sacramento residents are most interested in doing these activities to help reduce air pollution.



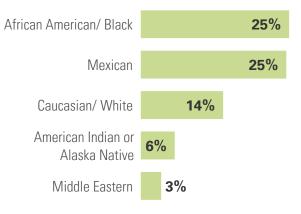




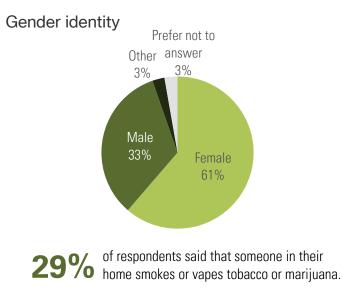
Ethnicity



Race (top 5 selections)*



*includes respondents identifying as more than one race.

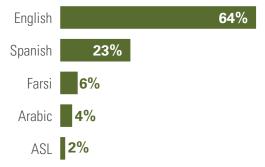


living at home.

Age



Languages spoken at home (top 5)



Interested in more information/getting involved? Contact Breathe California Sacramento Region at engage@sacbreathe.org



55%





SACRAMENTO COUNTY

PUBLIC

of respondents said that they have children













ARENA)

Breathing Together: Insights from the Community Respiratory Wellness Survey in Gardenland

Sacramento residents face various public health challenges due to poor air quality. Some communities are more impacted than others due, in part, to their proximity to major roads and the resulting vehicle emissions exposure.

In 2023 the Sacramento Environmental Justice Community Air Monitoring Project surveyed 1,200 residents, focusing on four priority communities to understand the link between health and vehicle pollution. The Gardenland Northgate Neighborhood Association (GNNA) spearheaded the survey outreach, collecting the **197 surveys** from Gardenland residents summarized in this report.

Where do residents see and smell vehicles?



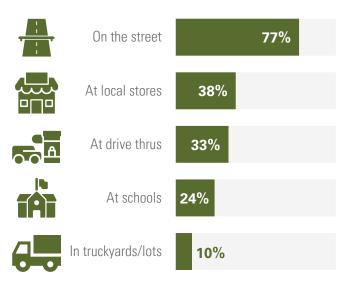
of Gardenland residents have seen vehicles idling....

Image: Constraint of the street60%At local stores46%At drive thrus36%At schools36%Image: Constraint of the street16%

70%

of Gardenland residents have smelled odor from vehicles....

RICHARDS



GRAND

FORD

LEANOR

Some Gardenland residents said they had these **symptoms** in the past month.

Headache	24%
Throat irritation or soreness	21%
Nose irritation	18%
Eye irritation	17%
Difficulty breathing	13%
Nausea	13%



14%

of residents had someone from their household go to the ER for allergy or asthma symptoms in the past year. Some Gardenland residents see black dust/soot around their home....

29% have seen soot inside their home

36% have seen soot outside their home 谷谷谷谷谷谷谷谷谷谷谷谷谷谷



28%

of residents had someone from their household go to a clinic or doctor's office for allergy or asthma symptoms in the past year.

How do residents feel?

Gardenland residents rated their level of air pollution knowledge as "fair".



Residents are also **moderately worried** about the environment.



What would residents like to do about pollution?



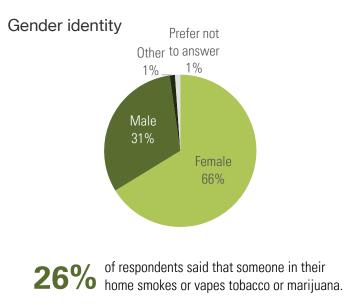
said they want to work with their community to reduce air pollution. Gardenland residents are most interested in doing these activities to help reduce air pollution.

56% Learn more about the issue.



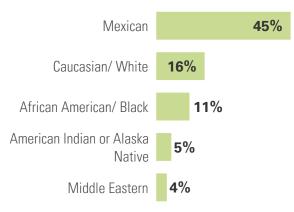


Ethnicity Hispanic or Latinx Non-Hispanic/Non-Latinx 15% More than one Ethnicity 9% Other 12% Prefer not to answer 9%



living at home.

Race (top 5 selections)*

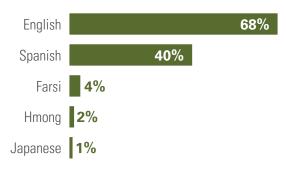


*includes respondents identifying as more than one race.

Age

18-25 12%	26-64 68%	65+ 10%
0-17		Prefer not
9%		to answer
		1%

Languages spoken at home (top 5)



Interested in more information/getting involved? Contact GNNA at <u>Gnnaboard@gmail.com</u> or contact Breathe California Sacramento Region at <u>engage@sacbreathe.org</u>



56%





SACRAMENTO COUNTY

PUBLIC

HEALTH

Prevent · Protec

of respondents said that they have children









ClimatePlan





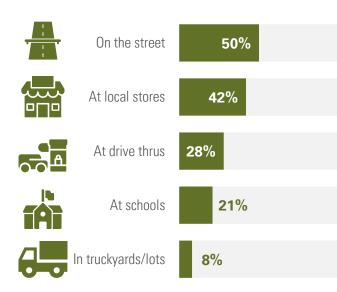
Breathing Together: Insights from the Community Respiratory Wellness Survey in North Highlands

Sacramento residents face various public health challenges due to poor air quality. Some communities are more impacted than others due, in part, to their proximity to major roads and the resulting vehicle emissions exposure.

In 2023 the Sacramento Environmental Justice Community Air Monitoring Project surveyed 1,200 residents, focusing on four priority communities to understand the link between health and vehicle pollution. The Health Education Council (HEC) spearheaded the survey outreach, collecting the 86 surveys from North Highlands residents summarized in this report.

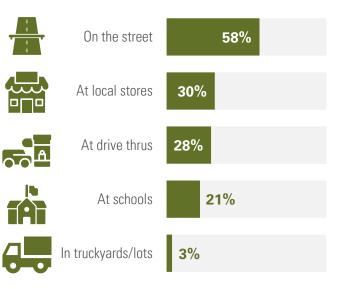
Where do residents see and smell vehicles?

of North Highlands residents have seen vehicles idling....



71%

of North Highlands residents have smelled odor from vehicles....



Some North Highlands residents said they had these **symptoms** in the past month.

	Nose irritation	19%
Š	Headache	19%
•	Eye irritation	16%
	Throat irritation or soreness	14%
63	Difficulty breathing	13%
j,	Nausea	10%



27%

of residents had someone from their household go to the ER for allergy or asthma symptoms in the past year. Some North Highlands residents see black dust/soot around their home....



28% have seen soot outside their home



33%

of residents had someone from their household go to a clinic or doctor's office for allergy or asthma symptoms in the past year.

How do residents feel?

North Highlands residents rated their level of air pollution knowledge as "fair".



Residents are also **moderately worried** about the environment.

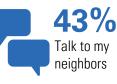


What would residents like to do about pollution?

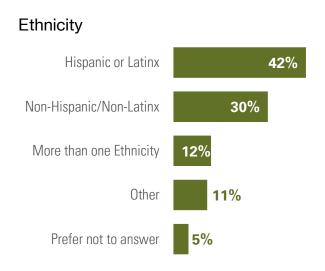


said they want to work with their community to reduce air pollution. North Highlands residents are most interested in doing these activities to help reduce air pollution.

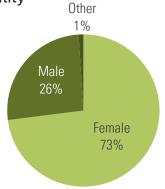








Gender identity

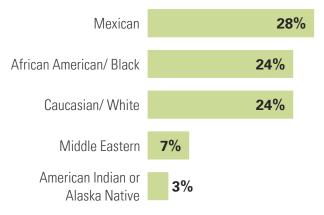


19% of respondents said that someone in their home smokes or vapes tobacco or marijuana.

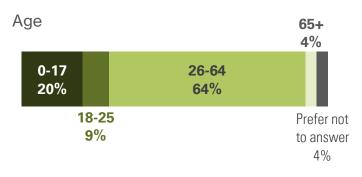
living at home.

of respondents said that they have children

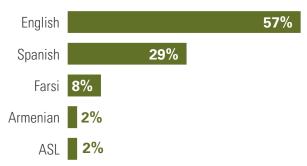
Race (top 5 selections)*



*includes respondents identifying as more than one race.



Languages spoken at home (top 5)



Interested in more information/getting involved? Contact HEC at admin@healthedcouncil.org

STATE



71%





SACRAMENTO COUNTY









ClimatePlan



Breathing Together: Insights from the Community Respiratory Wellness Survey in South Sacramento/Vineyard

Sacramento residents face various public health challenges due to poor air quality. Some communities are more impacted than others due, in part, to their proximity to major roads and the resulting vehicle emissions exposure.

In 2023 the Sacramento Environmental Justice Community Air Monitoring Project surveyed 1,200 residents, focusing on four priority communities to understand the link between health and vehicle pollution. United Latinos, Valley Vision, and Climate Plan spearheaded the survey outreach, collecting the **246 surveys** from South Sacramento / Vineyard (South Sac./Vineyard) residents summarized in this report.



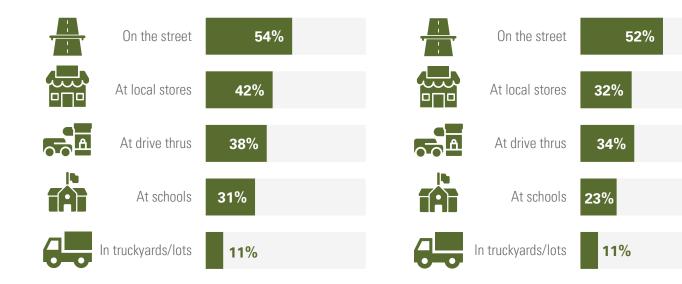
Where do residents see and smell vehicles?

60%

of South Sac./Vineyard residents have seen vehicles idling....

56%

of South Sac./Vineyard residents have smelled odor from vehicles....



Some South Sac./Vineyard residents said they had these **symptoms** in the past month.

¥.	Headache	18%
	Nose irritation	17%
0	Eye irritation	13%
	Throat irritation or soreness	11%
	Difficulty breathing	11%
Į,	Nausea	9%



20%

of residents had someone from their household go to the ER for allergy or asthma symptoms in the past year. Some South Sac./Vineyard residents see black dust/soot around their home....

21% have seen soot inside their home

29% have seen soot outside their home



28%

of residents had someone from their household go to a clinic or doctor's office for allergy or asthma symptoms in the past year.

How do residents feel?

South Sac./Vineyard residents rated their level of air pollution knowledge as "fair".



Residents are also **slightly worried** about the environment.



What would residents like to do about pollution?

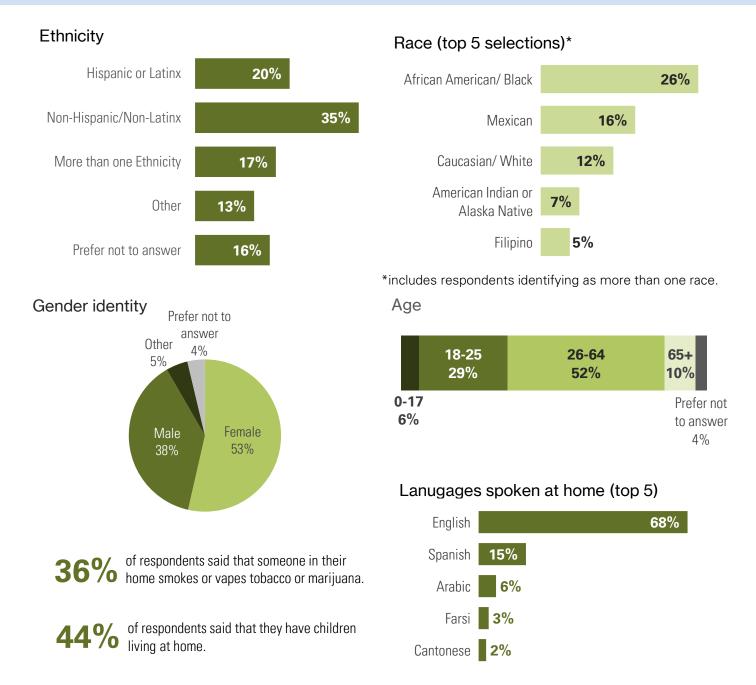


said they want to work with their community to reduce air pollution. South Sac./Vineyard residents are most interested in doing these activities to help reduce air pollution.









Interested in more information/getting involved? Contact United Latinos at <u>hello@unitedlatinos.org</u> and Valley Vision at <u>communications@valleyvision.org</u>







SACRAMENTO COUNTY

PUBLIC











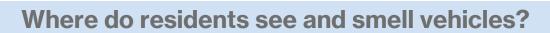


3

Breathing Together: Insights from the Community Respiratory Wellness Survey in West Arden-Arcade

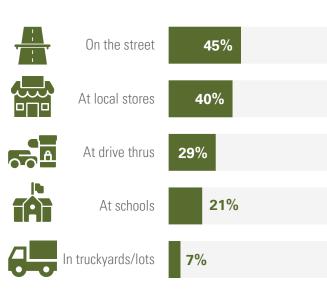
Sacramento residents face various public health challenges due to poor air quality. Some communities are more impacted than others due, in part, to their proximity to major roads and the resulting vehicle emissions exposure.

In 2023 the Sacramento Environmental Justice Community Air Monitoring Project surveyed 1,200 residents, focusing on four priority communities to understand the link between health and vehicle pollution. Mutual Assistance Network spearheaded the survey outreach, collecting the **95 surveys** from West Arden-Arcade residents summarized in this report.



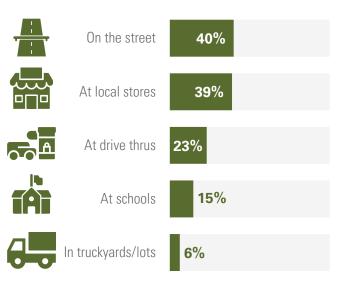
65%

of West Arden-Arcade residents have seen vehicles idling....



63%

of West Arden-Arcade residents have smelled odor from vehicles....



POPE

COTTAGE

80

HURLEY

τοù

80

Some West Arden-Arcade residents said they had these **symptoms** in the past month.

Ĭ	Headache	21%
	Nose irritation	18%
	Throat irritation or soreness	16%
•	Eye irritation	15%
	Difficulty breathing	11%
J.	Nausea	9%



14%

of residents had someone from their household go to the ER for allergy or asthma symptoms in the past year. Some West Arden-Arcade residents see black dust/soot around their home....



29% have seen soot outside their home



29%

of residents had someone from their household go to a clinic or doctor's office for allergy or asthma symptoms in the past year.

How do residents feel?

West Arden-Arcade residents rated their level of air pollution knowledge as "fair".



Residents are also **slightly worried** about the environment.

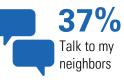


What would residents like to do about pollution?

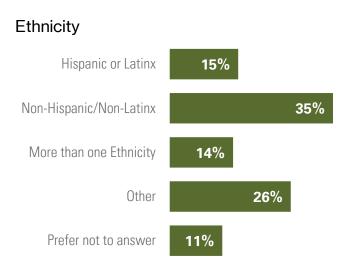


said they want to work with their community to reduce air pollution. West Arden-Arcade residents are most interested in doing these activities to help reduce air pollution.

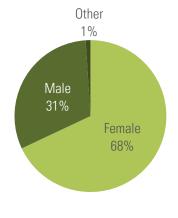
53% Learn more about the issue.



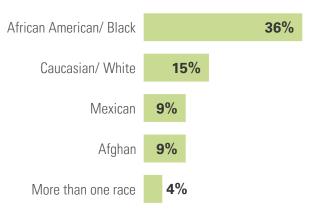




Gender identity



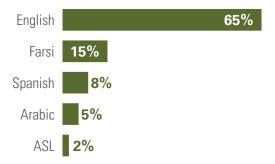
Race (top 5 selections)*



*includes respondents identifying as more than one race.



Lanugages spoken at home (top 5)



27% of respondents salu that someone home smokes or vapes tobacco or marijuana. 73%

of respondents said that they have children living at home.

of respondents said that someone in their

Interested in more information/getting involved? Learn more about Mutual Assistance Network at https://www.mutualassistance.org/







SACRAMENTO COUNTY

PUBLIC

HEALTH









ClimatePlan



