

A REPORT ON THE FIRST PHASE OF AIR QUALITY ASSESSMENT IN SOUTH CENTRAL LOS ANGELES, 2019-2020



SOUTH CENTRAL
LOS ANGELES
PROJECT TO
UNDERSTAND
THE SOURCES AND
HEALTH IMPACTS
OF LOCAL
POLLUTION

SEPTEMBER 30, 2020



The SCLA-PUSH team would like to acknowledge the commitment and hard work provided by our project partners and allies who contributed to the production of this report, including:

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SCLA-PUSH is part of California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment — particularly in disadvantaged communities.

ABOUT US

South Central Los Angeles Project to Understand the Sources and Health Impacts of Local Air Pollution (SCLA-PUSH) is a collaborative initiative led by Physicians for Social Responsibility-Los Angeles aimed to mobilize stakeholders to assess the scale and gravity of local air pollution in the South and Southeast Los Angeles community plan areas in order to identify viable community-grounded solutions. The project brings together residents of South Central Los Angeles, community advocates, and academics to shape a community air training and monitoring program rooted in a local understanding of the multi-faceted dimensions of air pollution burden. Our project is grounded in the experiences and expertise of South Central Los Angeles residents, and our collective capacity to assess local environmental conditions.

PROJECT LEAD



Physicians for Social Responsibility-Los Angeles

(PSR-LA): an environmental health advocacy organization that advances policies and practices that improve public health, eliminate environmental and nuclear threats, and address health inequalities.

Strategic Concepts in Organizing and Policy Education

(SCOPE): a South Central LA organization that builds grassroots power to create social and economic justice for low-income, women and women identifying, immigrant, Black, and Brown communities in LA.

Community Health Councils (CHC): a community-based health policy and systems change organization. CHC engages all levels of stakeholders and contributes to systems change in two distinct ways: 1) through coalition building and mobilization and 2) by utilizing robust community-based participatory research.

Esperanza Community Housing Corporation

(Esperanza): a community organization that develops affordable housing, promotes accessible health care,

MEMBERS



and pursues economic development in the Figueroa Corridor neighborhood of South Central Los Angeles.

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EXECUTIVE SUMMARY

Air pollution in South Central Los Angeles emanates from a variety of sources, both stationary and mobile. Peppered among residential homes, schools, recreational facilities, and commercial establishments are auto body shops, metal manufacturing facilities, oil and gas extraction sites, and other industrial land sites. Freeways and high-volume thoroughfares surround and crisscross this urban landscape. These pollution sources regularly emit harmful gases and particles, often above health standard levels, which combined with other socio-economic and environmental determinants of health, significantly impact the health and well-being of South Central LA's residents.

Having witnessed, researched and mobilized around the challenge of air pollution for many years, particularly within the broader framework of environmental justice and health equity, the members of the SCLA-PUSH project assembled in January 2019 to address the legacy of air pollution in South Central Los Angeles, with the long-term goal of improving the quality of life and health of residents.

This report details the accomplishments and successes achieved by the project since its inception in 2019: community outreach and capacity building efforts, air quality data collection and analysis, engagement around air quality regulation at the regional and state level, and emission reduction technology case studies to be used toward a community-centered regenerative plan. The two primary goals of this report are to **present measurable progress** toward project goals, and to **provide preliminary assessments** of the collective work in order to forecast the future direction of the project.

The content of this report is presented in several sections. Following the introduction, a brief history of South Central Los Angeles' engagement around issues of environmental justice and subsequent mobilizations are explored. The following two sections dive into the particular challenges of air quality and the specific methodologies employed by the SCLA-PUSH project to begin moving toward cleaner air. In the next section, preliminary data results are presented and evaluated for four dimensions of air quality: an evaluation of the industrial facilities regulated by the South Coast Air Quality Management District (SCAQMD), localized data collected through the community air monitoring program, qualitative data on cumulative burden and risk drawn from community narratives cross-referenced against CalEnviroScreen, and an assessment of Best Available Control Technology for particular industrial facilities-of-concern. The report concludes with reflections on SCLA-PUSH's next steps.

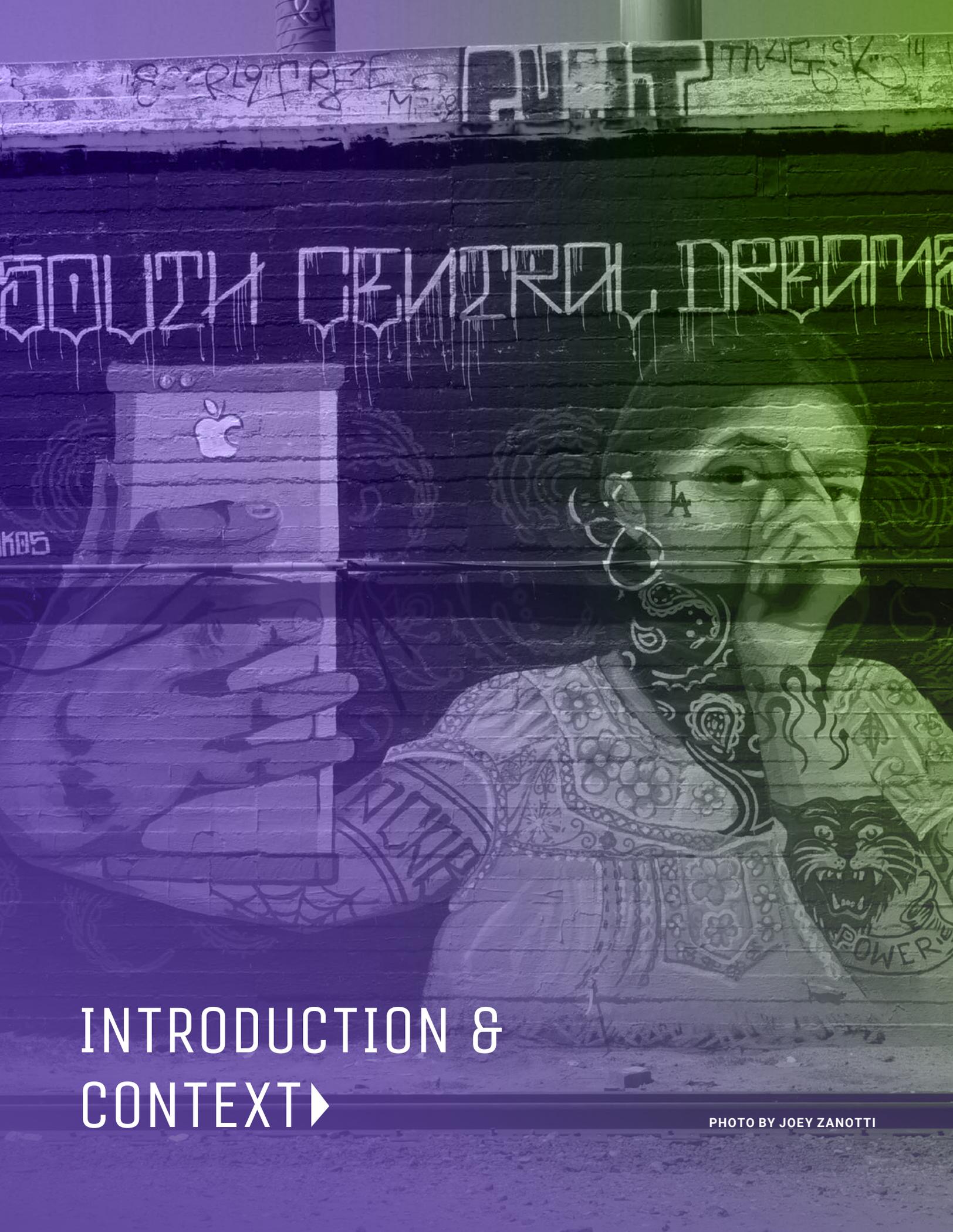
We are proud of the work we have accomplished in the short time since our creation, and energized by the next phase of this initiative.



We are fighters – we mobilize, and South Central LA deserves the opportunity to breathe clean air.



– PATRICIA JONES, RESIDENT
OF SOUTH CENTRAL LA



INTRODUCTION & CONTEXT ▶

PHOTO BY JOEY ZANOTTI

INTRODUCTION & CONTEXT

The SCLA-PUSH project was launched in January 2019 and led by Physicians for Social Responsibility–Los Angeles (PSR–LA) in collaboration with South Central Los Angeles organizations [Strategic Concepts in Organizing and Policy Education \(SCOPE\)](#) and [Community Health Councils \(CHC\)](#), academic partners from University of Southern California and Occidental College, technology consultant Peter Sinsheimer and design consultant Omar Ureta. **The project aims to build the capacity of South Central LA organizations and community residents to better understand the state of air quality and health in their community, and to engage in air monitoring and data analysis to advance community-driven solutions in air quality policy.**

While project members have a long history of working on environmental justice issues across Los Angeles, the establishment of a new state program—the [AB 617 Community Air Protection Program](#)—provided the impetus for the formation of a new initiative to address the legacy and current landscape of localized air pollution in South Central LA.

The AB 617 Community Air Protection Program directs the [California Air Resources Board \(CARB\)](#) and all local air districts to take measures to protect communities disproportionately impacted by air pollution. AB 617 uses [CalEnviroScreen 3.0](#)¹ to select communities that will implement either a Community Air Monitoring Plan, a Community Emissions Reduction Plan, or both.

As part of the AB 617 Community Air Protection Program, our project was awarded a community air grant in 2018 prompting the creation of the SCLA-PUSH project. However, the communities that encompass South Central LA have not been designated as an AB 617 community to implement an air improvement plan. To date, CARB has selected [13 communities](#) to benefit from this program and for the past three years South Central Los Angeles has been left out of this opportunity. Although the AB 617 program has provided communities with funding to engage around air quality regulation, the process has prompted criticism from advocacy and community-based organizations involved.

Primarily, reflecting on the last three years, it is clear that AB 617 needs to focus on actual emission reductions and stricter air quality measures and metrics that reflect community concerns and priorities, if the program is to achieve improved air quality. Furthermore, given that all AB 617 communities are the most vulnerable in California according to CalEnviroScreen, emission reduction strategies should go above and beyond the “bare minimum” thresholds required by current regulation.

Second, successful implementation of the program has largely been gauged on the robustness of community engagement rather than participation coupled with tangible strategies. While it is commendable that the program has included communities as stakeholders at the table, this should not be a substitute for strategies that lead to measurable emission reductions. Additionally, the program has overlooked conflicts of interest of stakeholders involved who represent industries uninterested in reducing their pollution burden in the most impacted communities.

For these reasons, we continue to push California Air Resources Board and the [South Coast Air Quality Management District \(SCAQMD\)](#) to implement a more just and equitable approach to selecting areas for air improvement that truly aims to reduce air pollution in the most impacted communities. Although the AB 617 program presents challenges, it also offers a potential opportunity for communities to directly engage in the decision-making process and implementation of solutions to improve air quality—South Central Los Angeles deserves that opportunity.

1. CalEnviroScreen 3.0 is a tool created and managed by the Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA). The tool identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution. <https://oehha.ca.gov/calenviroscreen>

Despite not being selected as an official AB 617 community, the SCLA-PUSH project secured two rounds of [Community Air Protection Grants](#) and as a result, SCLA-PUSH is advancing community-driven solutions to reduce pollution burden and health impacts in South Central LA.

Over the span of 18 months, the SCLA-PUSH coalition developed and implemented a collaborative and creative process for building our community's capacity to understand and assess the state of air quality and its impacts on community health and well-being. Our work is rooted in community residents' wisdom and concerns, because they are experts in understanding the physical and environmental landscape needs of their neighborhoods. The project has achieved numerous accomplishments in the advancement of our four goals, including the following:



To build **community engagement** and **shared capacity** to understand the character and scale of air pollution and its health impacts, the SCLA-PUSH team:

- Successfully completed three two-day **Air Quality Academies** over the span of one year
- Trained a strong cadre of 70 residents to become South Central LA **Air Quality Ambassadors**
- Taught the science of air pollution, the process of collecting air monitoring data, and qualitative data observation and mapping skills through collectively designing the **community air monitoring network**
- Coached Ambassadors to engage in policy and regulatory advocacy work



To mobilize our collective power to conduct **community-driven science** to address systemic failures in air pollution data collection, the SCLA-PUSH team:

- Installed 5 stationary, community air monitors in South Central LA
- Conducted three community **Mapping Workshops** to identify the community's treasures and pollution hot spots
- Coordinated five community-led **Ground-Truthing and data collection walks** through targeted South Central LA neighborhoods to record observable environmental stressors and collect data using portable air monitoring equipment
- Combined and analyzed the data results from the Mapping Workshops, Ground-Truthing Walks, and portable and stationary air monitoring equipment to develop our **StoryMap**
- Synthesized and analyzed regulatory data on **polluting facilities-of-concern** located in our catchment area against data of cumulative burden and risk from CalEnviroScreen
- Began development of the **EnviroReport App**—a bilingual, mobile environmental reporting app designed to increase the community's engagement in the environmental reporting process, to add collective power to individual experiences, and to bridge the gap between communities and regulatory and policy decision-making

3.



To ensure that South Central LA communities advocate for and receive a fair share of the resources available to improve air quality and community health, the SCLA-PUSH team:

- Secured two rounds of funding and are actively pushing the SCAQMD and CARB to select South Central LA as a future AB 617 community
- Co-powered and mobilized residents, advocates, organizations, and elected officials in South Central LA to support the communities call for an air quality improvement plan
- Led Air Quality Ambassadors and the community in policy advocacy: presented public comments at regulatory hearings and wrote more than 200 letters

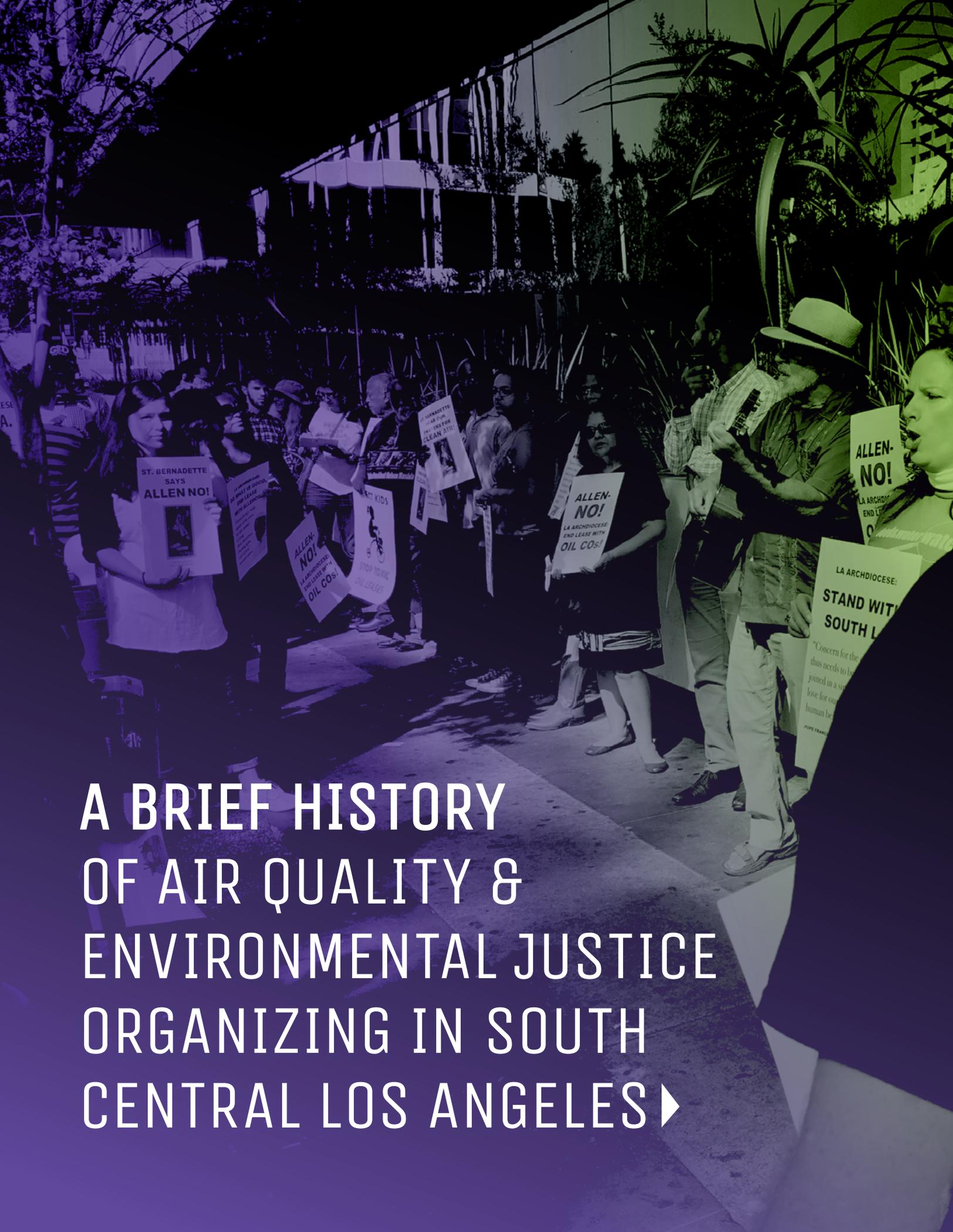
4.



To advance a community-centered Just Transition toward cleaner air and healthier communities, the SCLA-PUSH team:

- Leveraged our knowledge and collective technical capacity to develop Best Available Control Technology (BACT) case studies for three primary industries, auto body shops, dry cleaners, and metal manufactures.

This report details both the journey of the SCLA-PUSH initiative since January 2019, and presents analysis and reflections on the data the project yielded. It concludes with a preliminary blueprint for the next phase of the work that will build upon what has already been created—the highly active and trained cadre of residents, the data and research, and the cultivated community interest—to galvanize further participation in air quality improvement strategies and develop a plan that will lead to direct emissions reductions, and consequently, improve air quality and public health.



**A BRIEF HISTORY
OF AIR QUALITY &
ENVIRONMENTAL JUSTICE
ORGANIZING IN SOUTH
CENTRAL LOS ANGELES ▶**

ST. BERNADETTE
SAYS
ALLEN NO!

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END LEASE WITH
OIL COs!

**ALLEN-
NO!**
LA ARCHDIOCESE
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OIL COs!

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ST. BERNADETTE
SAYS
ALLEN NO!

**ALLEN-
NO!**
LA ARCHDIOCESE
END LEASE WITH
OIL COs!

**ALLEN-
NO!**
LA ARCHDIOCESE
END LEASE WITH
OIL COs!

LA ARCHDIOCESE:
**STAND WITH
SOUTH L**

"Concern for the
thus needs to be
joined in a spirit
love for our
human be

POPE FRANCIS

A BRIEF HISTORY OF AIR QUALITY & ENVIRONMENTAL JUSTICE ORGANIZING IN SOUTH CENTRAL LOS ANGELES

South Central Los Angeles is the traditional land of the Tongva and Gabrielino peoples, original caretakers of Tongvaar (The LA Basin). Also, SCLA is a historic Black community that has a rich history shaped by immigration, shifts in labor markets, and housing policy that have led to economic displacement and gentrification. Social forces, discriminatory practices such as redlining and environmental racism, immigration, changing heritage, and community fights for justice have shaped the broader narrative of South Central LA. Our community is now predominantly Black and Brown and low-income with a variety of backgrounds and stories. Decades of sophisticated and progressive political organizing and successful mobilizations against oppressive structures speak to a rich history of activism that undoubtedly shape the identity of South Central LA today.

Beside the abundant cultural and political legacy is an ignored story—the staggering environmental health and justice problems facing the community, including the co-location of industrial facilities, continued oil extraction, poor air, contaminated land, and poor urban infrastructure.

Today, the South Central LA community continues to battle ongoing environmental injustices on a daily basis, while demonstrating tremendous power and resilience through impactful activism and community-wide mobilizations. Residents and advocates have pushed forward numerous successes and achievements, including advancing oil and gas regulation, securing public sector careers for residents, and envisioning a Just Transition for South LA. In this section, we present a brief timeline of the history that led up to the launch of the SCLA-PUSH initiative. The timeline reflects the two sides of the environmental justice struggle: the legacy of poor air quality and environmental racism on the one hand, and energetic and impactful movement building on the other.





1943: The *Los Angeles Times* reported that a pall of smoke and fumes descended on downtown, cutting visibility. Striking in the midst of a heat wave, the “gas attack” was nearly unbearable. As a result, the city implemented [the creation of an air pollution permit system](#).

1947: The **Los Angeles County Air Pollution Control District** was formed—the first such body in the nation.

1890S

1890s: At the turn of the nineteenth century, the [automobile arrived in Los Angeles](#).

EARLY 1900S

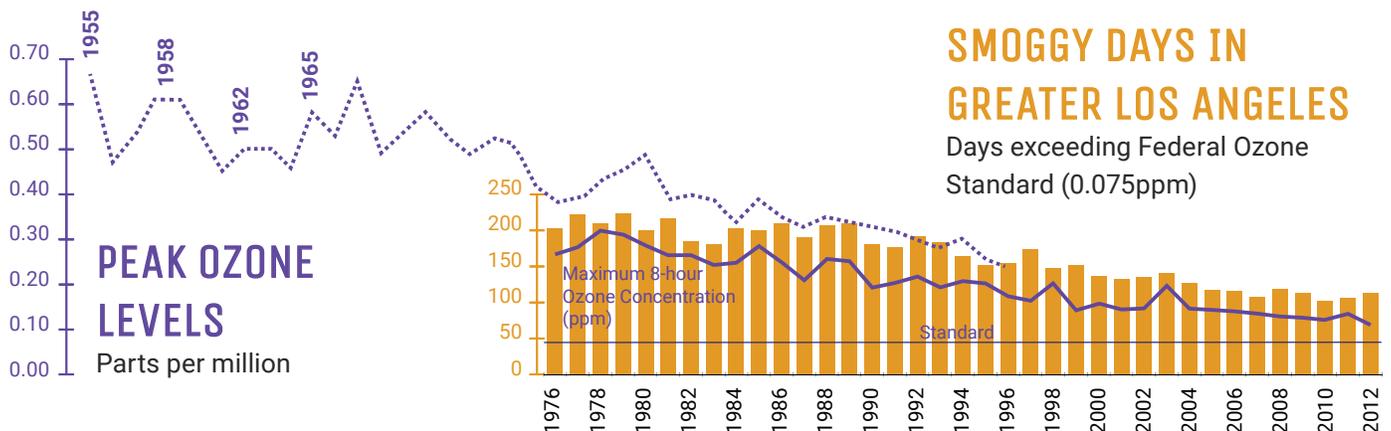
Early 20th century: [Discriminatory real estate practices](#) such as redlining cemented a pattern of exclusionary development that allowed for White home ownership in suburban neighborhoods of Los Angeles, while **concentrating industrial activity** in non-White and immigrant neighborhoods, including in and around South Central LA. During this time of rapid growth, several national firms established plants: Goodyear, Firestone, Phelps Dodge, and U.S. Steel.

1943

1945

1945: To address the growing challenge of smoke and fumes, Los Angeles County Board of Supervisors appointed a Smoke and Fumes Commission. Following their recommendations, the supervisors banned emissions of dense smoke and established an office of the [Director of Air Pollution Control](#). The City of Los Angeles adopted a similar smoke regulation that same year, but the other 45 cities in the county took little or no action.

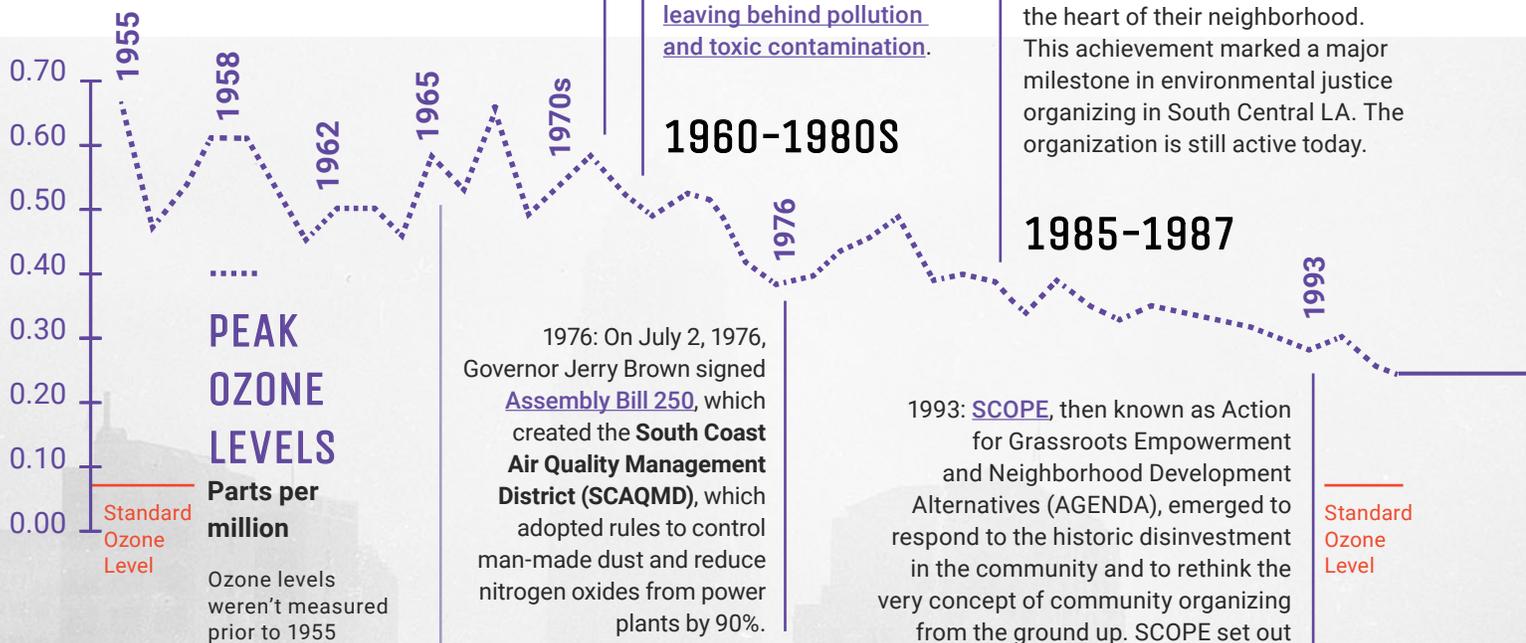
1947



1970s: A dense, visible smog hung over Los Angeles making it hard to see the mountains. This prompted the passage of the 1970s legislation at the height of the national environmental movement—the [Clean Air Act](#). This pivotal policy required the Environmental Protection Agency (EPA) to establish standards for common and widespread pollutants, including particulate matter, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead.

1960-1980s: Middle income White populations began to leave the urban core—a phenomenon known as “white flight.” Mimicking this out-migration, industries also began to leave central city communities to relocate on the peripheries of cities, [leaving behind pollution and toxic contamination](#).

1985-1987: A community group called the [Concerned Citizens of South Central LA](#), comprised primarily of African American women, [successfully blocked the construction of a waste-to-energy incinerator](#) (LANCER) in the heart of their neighborhood. This achievement marked a major milestone in environmental justice organizing in South Central LA. The organization is still active today.



1976: On July 2, 1976, Governor Jerry Brown signed [Assembly Bill 250](#), which created the **South Coast Air Quality Management District (SCAQMD)**, which adopted rules to control man-made dust and reduce nitrogen oxides from power plants by 90%.

1967: A diverse group of California leaders came together to unify statewide efforts to address severe air pollution to create the State Air Resources Board, committing California to a unified, statewide approach to aggressively address the serious issue of air pollution in the state.

1993: [SCOPE](#), then known as Action for Grassroots Empowerment and Neighborhood Development Alternatives (AGENDA), emerged to respond to the historic disinvestment in the community and to rethink the very concept of community organizing from the ground up. SCOPE set out to build the capacity of residents through political education, leadership development and civic engagement.

Standard Ozone Level



2012: With the [RePower LA Coalition](#), SCOPE successfully advocated for LADWP to: 1) increase its energy efficiency budget from \$55 million to \$128 million; 2) increase its renewable energy portfolio from 10% to 15%; and 3) adopt a set of principles for investment priorities in LADWP's energy efficiency budget.

2005: As an alternate member of the **California Environmental Protection Agency's Environmental Justice Advisory Committee** that oversaw the creation of Environmental Justice plans for each Cal EPA board and departments, PSR-LA and other Environmental Justice groups advanced recommendations around the implementation of precautionary approaches and the development of working definitions of cumulative impacts.

2006: Assembly Bill 32, the [California Global Warming Solutions Act](#), was passed by the California legislature, requiring CARB to implement strategies to reduce California's greenhouse gas emission. A central measure is the Cap-and-Trade program, which sets a declining cap on emission from industries producing the highest GHGs. PSR-LA and environmental justice organizations engaged in education, organizing and advocacy efforts to ensure AB 32 is rooted in equity, does not overly focus on market-based mechanisms and actually reduces emissions at the source.

2009: [A South LA immigrant mother led the fight](#) to relocate Palace Plating, a metal finishing facility generating hazardous waste across the street from one of the largest elementary school campuses in the nation. South LA students, teachers, and families were the determining factor in forcing city government and state regulators to take action after over a decade of testing and fines resulted in little improvement.

2000 2005 2006 2007 2008 2009 2010 2012

2000: As a leading environmental health organization in Los Angeles, [PSR-LA](#) sponsored and organized the first precautionary principle conference—a seminal event which greatly influenced PSR-LA's future work and led to the introduction of the precautionary principle to Cal EPA, and a precautionary principle conference sponsored by the South Coast Air Quality Management District.

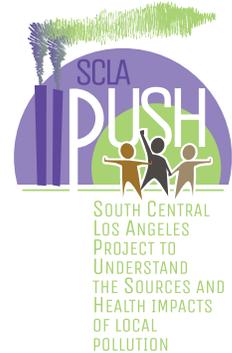
2007: **Environmental Justice organizations sue CARB over Cap-and-Trade** impacts on communities of color and low income communities.

2008: PSR-LA and SCOPE co-led the Los Angeles Apollo Alliance campaign to connect residents to healthy and sustainable green jobs.

2010: **The South LA Building Healthy Communities (South LA BHC)** initiative is launched, and aimed to build the capacity of the community to core drivers of health disparities, including environmental challenges. This collaborative successfully engaged new voices in air quality and climate policies and campaigns (including AB 32), advanced affordable housing, and advocated for health-based anti-displacement policies.

2006 – 2008: The Greater Baldwin Alliance was convened to bring attention to the need for a Community Standards District (CSD) to counter the uncontrolled emissions of noxious gases related to oil extraction, to eliminate adverse health, safety and environmental impacts from the Baldwin Hills Oil Field. The [final plan](#) established [the Community Advisory Panel \(CAP\)](#). To address remaining concerns, Community Health Councils joined one of four lawsuits against Los Angeles County that resulted in [an agreement](#) to strengthen health and safety protections for households living near drilling operations.

2014: PSR-LA actively promoted community driven advocacy for the South and Southeast Los Angeles community plans.



2013: South Central LA organizations engaged in the implementation of SB 375, the [Sustainable Communities and Climate Protection Act](#), that aims to reduce statewide greenhouse gas emission through innovative transportation and land use policy.

2016: At the AllenCo oil drilling site in the South Central LA University Park neighborhood, nearby residents filed hundreds of complaints (while production at the site increased by 400%) and formed People Not Pozos as a vehicle to address the impacts of this drilling site and to sustain community pressure.

2017: **Creation of the LEAP-LA Coalition** led by PSR-LA in collaboration with Councilmember Paul Koretz, Communities for a Better Environment (CBE), SCOPE, Esperanza Community Housing, and Pacoima Beautiful. LEAP-LA seeks to transition the City of Los Angeles from being an extractive, fossil-fuel-based economy to one that is rooted in the principles of restoration, ecological balance and intersectional justice.

2019: PSR-LA led the creation of the **SCLA-PUSH initiative**.

2013

2014

2016

2017

2018

2019

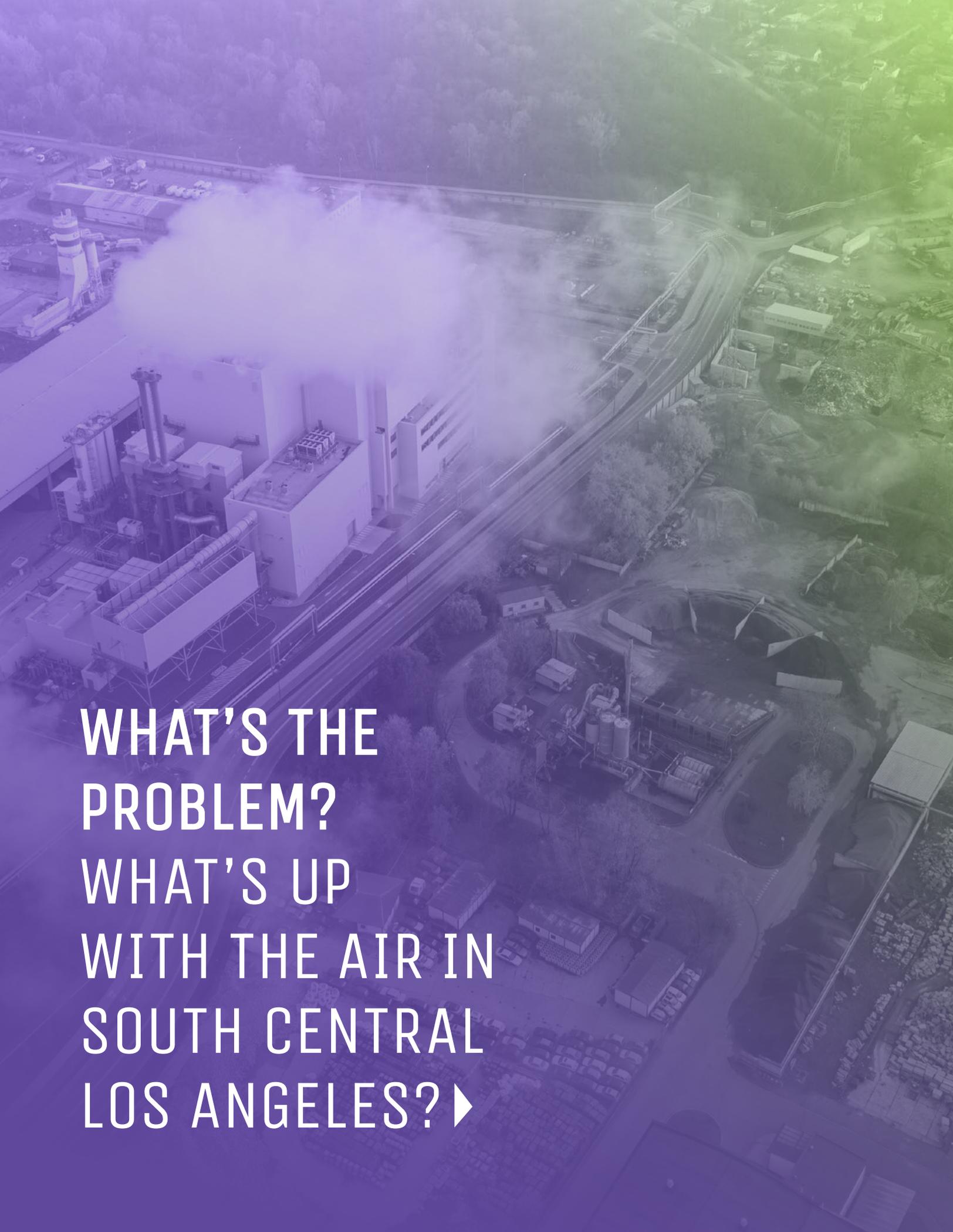
2013: PSR-LA, SCOPE, Communities for a Better Environment (CBE), Esperanza Community Housing, Redeemer Community Partnership, Black Women for Wellness (BWW), and Holman United Methodist Church created [Standing Together Against Neighborhood Drilling-LA \(STAND-LA\) coalition](#). STAND-LA's intent is to end neighborhood oil drilling in the City of Los Angeles.

2016: With statewide coalition partners in CA Climate Equity Coalition and the [California Environmental Justice Alliance](#), we successfully advocated to pass a set of landmark climate bills (SB 32, AB 197, AB 1550, and AB 2722) that set targets to reduce greenhouse gases by 2030; bring accountability and transparency to state climate agencies and top polluters; and address the need for targeted climate investments in communities on the frontlines of poverty and pollution.

2018: Environmental Justice organizations in South LA were instrumental in pushing CARB to change a key program rule. State agencies will now have to report on key indicators of job quality and access, including the number of workers from frontline and low-income communities who are hired and trained on Greenhouse Gas Reduction Fund (GGRF) projects, as well as wages paid and benefits provided.

2019: the LEAP-LA Coalition established the world's first [Climate Emergency Mobilization Office \(CEMO\)](#) at the City of Los Angeles. This office will be guided by a Climate Emergency Commission with strong Indigenous and frontline representation, in close coordination with Community Assemblies that will identify local priorities, clean production, Just Transition models, and economic justice.





**WHAT'S THE
PROBLEM?
WHAT'S UP
WITH THE AIR IN
SOUTH CENTRAL
LOS ANGELES? ▶**

WHAT'S THE PROBLEM?

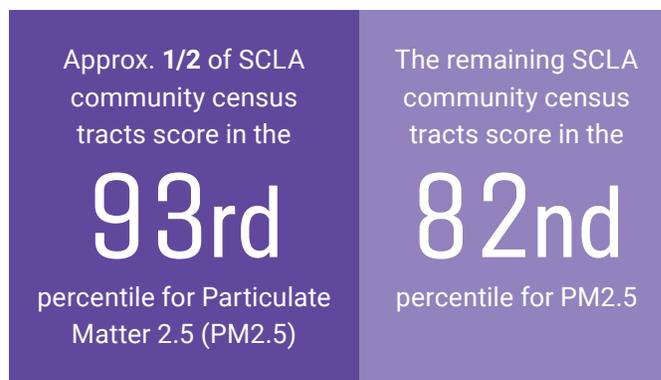
WHAT'S UP WITH THE AIR IN SOUTH CENTRAL LOS ANGELES?

The Community of South Central Los Angeles (as defined in this report) encompasses the South and Southeast Community Plan areas, and is home to more than half a million people in about 30 square miles of land. These communities face multiple, synergistic and cumulative stressors, and hazardous exposures that, when combined with existing vulnerability, lead to adverse health consequences. Environmental factors that contribute to poor health conditions include the presence of four freeways, clusters of industrial sources of pollution, legacy contaminants, and currently operating oil and gas extraction. Although residents and advocates have fought and won many victories in the battle to clean up the air in recent decades, the lack of regulatory oversight and air monitoring creates a gap in air quality data, no significant emission reductions, and adverse community health impacts. In this section, we explore factors in the broader air quality story, factors that we incorporated into SCLA-PUSH's overall assessment.

It is important to note that South Central LA community boundaries have historically been established arbitrarily by city jurisdictions, and do not reflect the residents' own conception of their community. By community standards, South Central LA also includes the communities of Leimert Park, Crenshaw, Jefferson Park, West Adams, Baldwin Hills and Hyde Park. However, our SCLA-PUSH project collected data from the boundaries defined by the South and Southeast LA community plans in order to match the city and regulatory agencies boundaries.

AIR QUALITY PROFILE

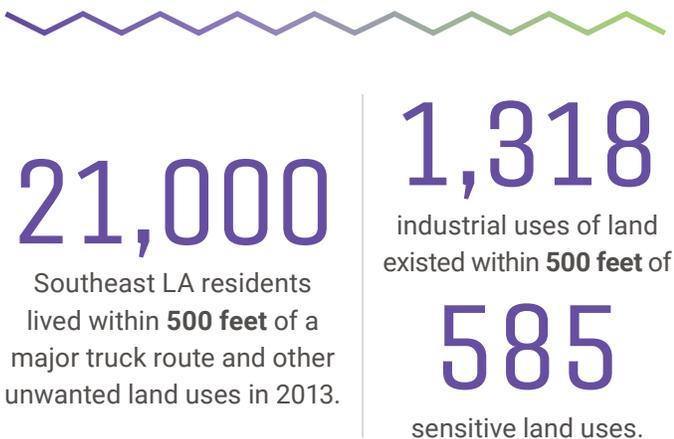
South Central Los Angeles communities are breathing some of the most polluted air in California and the country. Approximately half of census tracts in the community score in the 93rd percentile for Particulate Matter 2.5, and the remaining score in the 82nd percentile. The majority of the community scores in the 79th percentile for diesel and 53rd percentile for ozone.² While state databases, alongside numerous studies, reveal the presence of all six criteria air pollutants regulated by the EPA in South Central LA (i.e., particulate pollution, ground-level ozone, lead, carbon monoxide, nitrogen oxides and sulfur oxides), current monitoring provides an incomplete picture of the state of air quality in part because there are no regulatory-grade air monitors located in South Central Los Angeles.



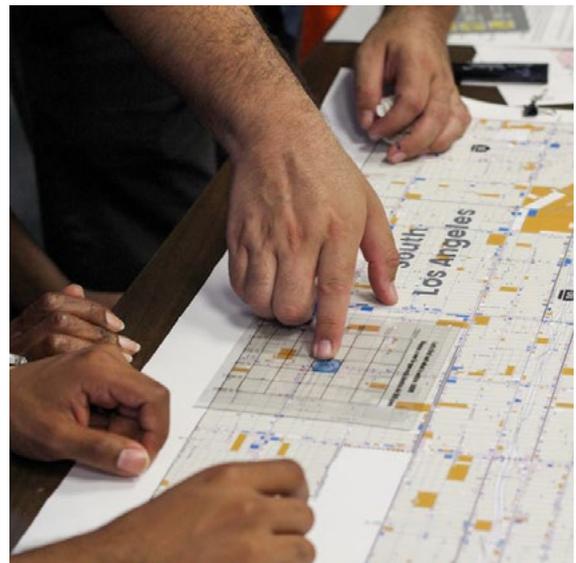
2. CalEnviroScreen 3.0 indicators:
<https://oehha.ca.gov/calenviroscreen/indicators>

INCOMPATIBLE LAND USE

Air quality is intrinsically linked to land-use patterns where the designation of land often dictates the type of industry located there. Historically city planning did not prioritize the separation of hazardous land uses from sensitive populations. As such, the result is clusters of incompatible land uses that are disproportionately concentrated in South Central LA. In 2013, more than 21,000 Southeast LA residents lived within 500 feet of a major truck route and other unwanted land uses, such as manufacturing, oil refining and chemical plants.³ Furthermore, PSR-LA's own research through the 500 Feet Project revealed that 1,318 industrial uses of land existed within 500 Feet of 585 sensitive land uses.⁴ The state of California acknowledges that sensitive use spaces such as schools, homes, and medical facilities should not be closer than 500 feet to hazardous uses such as dry cleaners, metal plating facilities, or distribution centers.⁵



3. Los Angeles County Department of Public Health. (2015). *Plan for a healthy Los Angeles*. Los Angeles County Department of Public Health. https://planning.lacity.org/odocument/7f065983-ff10-4e76-81e5-e166c9b78a9e/Plan_for_a_Healthy_Los_Angeles.pdf
4. The 500 Feet Tool is a hazard mapping tool for the South Central Los Angeles community to identify sensitive areas in proximity to hazardous land uses. 500 Feet Project. <http://500ft.psr-la.org/>
5. California Air Resources Board. (2005). *Air quality and land use handbook: a community health perspective*. California Environmental Protection Agency. <https://ww3.arb.ca.gov/ch/handbook.pdf>



COMMUNITY HEALTH PROFILE

Research links industrial pollution exposure to significant health impacts, including low birth-weight, heart attack, stroke, and the development of chronic diseases such as asthma, cancers, learning disabilities, and reproductive problems and now heightened mortality for COVID-19.^{6,7} Sensitive receptors, such as overexposed low-income and communities of color, children, pregnant women, and seniors are most at risk of long-term exposure to air pollution and are more likely to develop or exacerbate chronic diseases such as asthma.^{8,9} CARB estimates that in California 9,000 deaths a year, 7,200 premature deaths, 1,900 hospitalizations, and 5,200 emergency room visits are attributed to particulate matter pollution exposure.^{10,11}

Unsurprisingly, disparities between South LA and the rest of Los Angeles exist in each of these health outcomes.¹² In 2013, more than 8% of babies were born with low birth-weight in South LA, compared to 7% countywide. However, some zip codes within South LA had low birth-weight rates between 11% and 12%. For African Americans in South LA, the low birth-weight rate was almost double that of the general population in the county at 13%. The coronary heart disease death rate in South LA was also among the highest in the county at about 148 per 100,000 residents. Similarly, the stroke death rate for South LA was the highest in the county—40 per 100,000 residents versus the county’s average of 33 per 100,000 residents. Ultimately, on average a South Central LA resident will live 5 years less and a Watts resident will live nearly 8 years less than the average LA City resident.¹³ In 2015, 8% of children ages 0-17 living in South LA were diagnosed with asthma, which was slightly higher than the county’s rate 7%. While the prevalence rate was similar, evidence suggests that the asthma conditions in South LA are more severe, as rates of asthma hospitalization and asthma-related emergency room visits for both adults and children were among the highest in the county and state in 2015.¹³

9,000

deaths a year,

7,200

premature deaths,

1,900

hospitalizations, and

5,200

emergency room visits are attributed to particulate matter exposure in California.

8+%

of babies were born with low birth-weight in South LA, compared to 7% countywide.

13%

low birth-weight rate for African Americans in South LA, almost double that of general population in LA county.

148 PER 100,000

coronary heart disease death rate in South LA.

40 PER 100,000

stroke death rate in South LA, higher than LA County average of 33 per 100,000.

5 YEARS

average reduced lifespan of South Central LA resident compared to average LA City resident.

NEARLY 8 YEARS

average reduced lifespan of Watts resident.

6. Office of Environmental Health Hazard Assessment. (2017). *Update to the California communities environmental health screening tool*. California Environmental Protection Agency. <https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf>

7. Xiao, W., Nethery R.C., Sabath B.M., Braun D., Dominici F. (2020). Exposure to air pollution and COVID-19 mortality in the United States: a nationwide cross-sectional study. *MedRxiv*. Article 04.05.20054502. <https://doi.org/10.1101/2020.04.05.20054502>

8. Peden, D.B. (2020). Pollutants and asthma: role of air toxics. *Environmental Health Perspectives* 110, no. Suppl 4 (August 2002): 565–68.

9. Kim, K., Ara Jahan S., Kabir E. (2013). A review on human health perspective of air pollution with respect to allergies and asthma. *Environment International* 59. 41–52. <https://doi.org/10.1016/j.envint.2013.05.007>

10. California Air Resources Board. *Health & Air Pollution*. <https://ww2.arb.ca.gov/resources/health-air-pollution>

11. Los Angeles County Department of Public Health. *Criteria air pollutants - toxicology and environmental assessment*. County of Los Angeles. <http://publichealth.lacounty.gov/eh/tea/toxicepi/criteriaairpollutants.htm#:~:text=A%20recent%20study%20by%20the,9%2C000%20deaths%20in%20California%20annually>

12. Los Angeles County Department of Public Health. (2013). *Key indicators of health by service planning areas*. County of Los Angeles. <http://publichealth.lacounty.gov/docs/keyindicators.pdf>

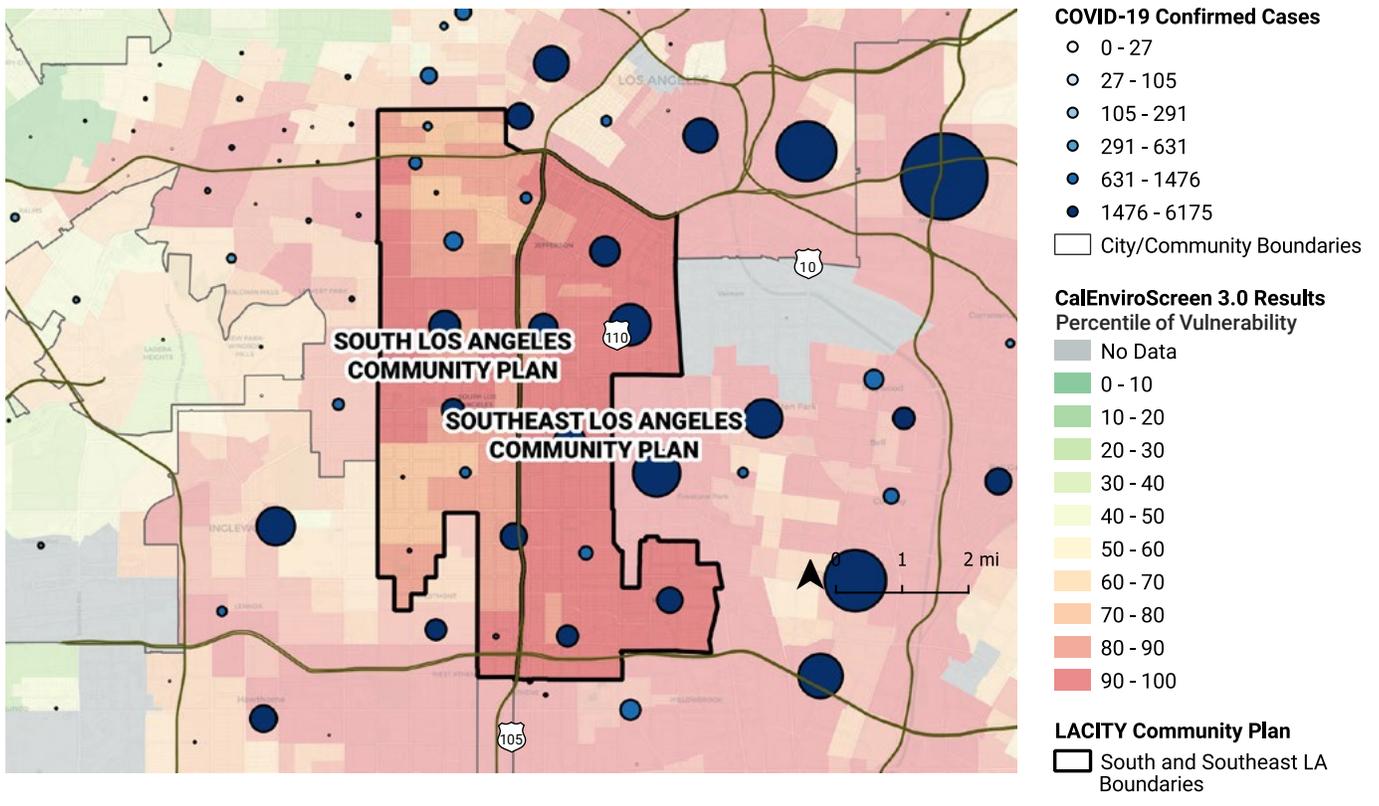
13. Los Angeles County Department of Public Health. (2013). *Health atlas for the City of Los Angeles*. Los Angeles County Department of Public Health. https://planning.lacity.org/odocument/7f065983-ff10-4e76-81e5-e166c9b78a9e/Plan_for_a_Healthy_Los_Angeles.pdf

CUMULATIVE IMPACTS & VULNERABILITY

South Central LA census tracts consistently and overwhelmingly score in the top 5-10% of the most vulnerable communities, according to CalEnviroScreen 3.0. Vulnerability to socio-economic stressors, such as under- or unemployment, lack of affordable housing, unsafe working conditions, racism, and social exclusion, can make residents less able to cope with health problems and more susceptible to disease, morbidity, and premature mortality. Health disparities found among vulnerable communities are not attributable to biological factors alone but can be explained by social and environmental contributors.¹⁴ For instance, a study suggests that environmental factors account for 30% of the total childhood asthma burden in California, but in places where pollution is acute, they could be responsible for up to 41% of that burden.¹⁵

Many recent studies show that SCLA communities bear a higher risk of COVID-19 mortality and infection because they breathe the highest levels of dangerous air pollution in the country.¹⁶ A recent study by Harvard University’s School of Public Health found that a small increase in long-term exposure to particulate matter was associated with a 15% increase in the COVID-19 death rate.¹⁷

FIGURE 1: CALENVIROSCREEN 3.0



14. National Academies of Sciences. (2017). *The state of health disparities in the United States*. National Academies Press (US); 2017 Jan 11. 2. <https://www.ncbi.nlm.nih.gov/books/NBK425844/>

15. Centers for Disease Control and Prevention. (2013). *Asthma in California a surveillance report*. California Department of Public Health. https://www.cdph.ca.gov/Programs/CCDPHP/DEOD/CE/CDPH%20Document%20Library/Asthma_in_California_2013.pdf

16. Pansini R., et al., Initial evidence of higher morbidity and mortality due to SARS-CoV-2 in regions with lower air quality. *MedRxiv*. Article 2020.04.04.20053595; (pre-print) <https://doi.org/10.1101/2020.04.04.20053595>

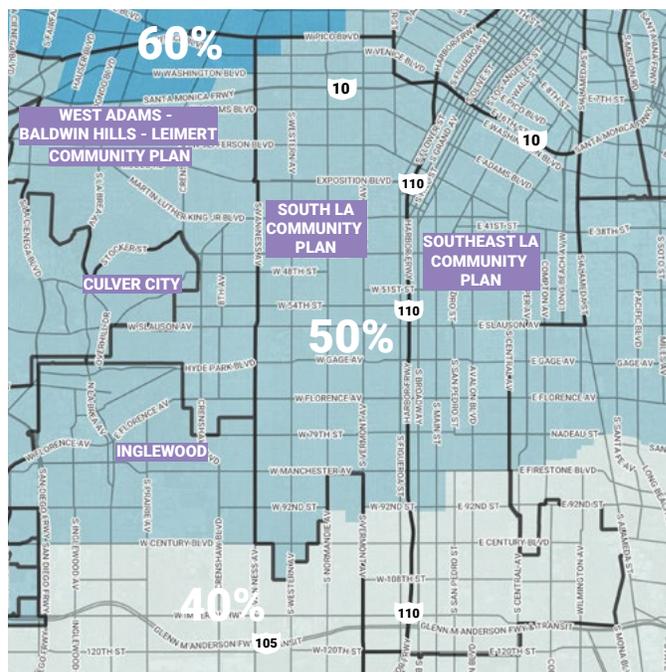
17. Xiao, W., Nethery R.C., Sabath B.M., Braun D., Dominici F. (2020). Exposure to air pollution and COVID-19 mortality in the United States: a nationwide cross-sectional study. *MedRxiv*. Article 04.05.20054502. <https://doi.org/10.1101/2020.04.05.20054502>. See <https://www.hsph.harvard.edu/news/hsph-in-the-news/air-pollution-linked-with-higher-covid-19-death-rates/>. We cite preprint studies undergoing peer-review due to the recency of COVID-19 pandemic.

Crude and Adjusted Rates are per 100,000 population (2018 Population Estimates). Adjusted Rate is age-adjusted by year 2000 US Standard Population. Adjusted rates account for differences in the distribution of age in the underlying population. Adjusted rates are useful for comparing rates across geographies (i.e., comparing the rate between cities that have different age distributions). [Source](#).

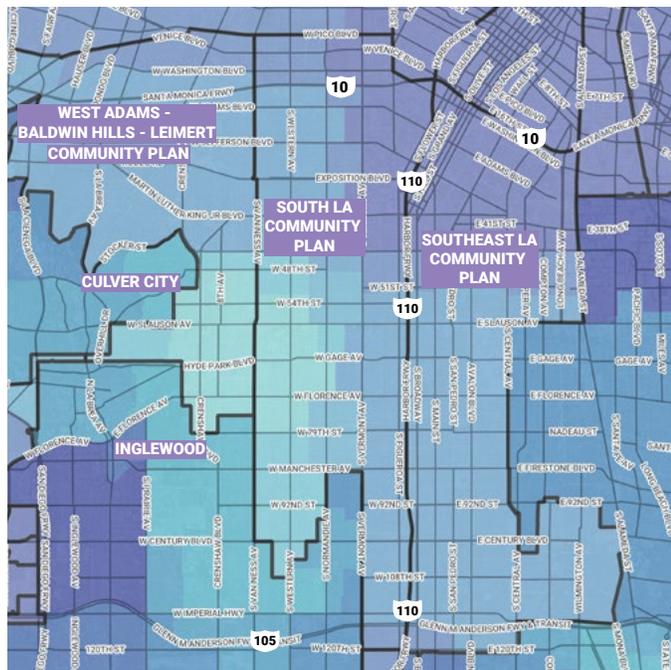
This series of maps shows what we know about air pollution in South Central LA. The three types of pollution represented are ozone, diesel, and particulate matter. The darker the color, the higher the concentration of air pollution.

- 0 - 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

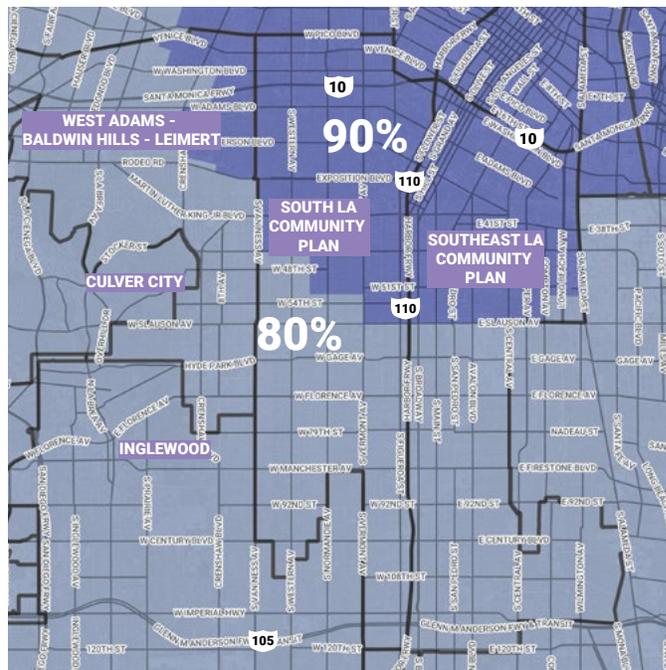
FIGURE 2: CALENVIROSCREEN 3.0 MAPS



OZONE
Concentration | CalEnviroScreen 3.0



DIESEL
Particulate Matter | CalEnviroScreen 3.0



PM 2.5
Concentration | CalEnviroScreen 3.0

WHAT'S THE SOLUTION? OUR PRESCRIPTION FOR CLEANING UP THE AIR ▶



WHAT'S THE SOLUTION?

OUR PRESCRIPTION FOR CLEANING UP THE AIR

The following section describes the methods utilized to achieve our project goals. SCLA-PUSH utilized a three-pronged methodological approach to clarify and enhance the picture of air quality in South Central LA. The three primary methods are Community Engagement and Capacity Building, Ground-Truthing, Data Collection and Analysis, and Regulatory & Policy Engagement.

In this section, we emphasize the importance of community-based research methods, describe each method in detail and provide an accompanying timeline to elaborate further on particular activities, tactics, and resources created to advance the project's work.

COMMUNITY-BASED RESEARCH METHODS

The process of community science and centering on community residents' local expertise is crucial to addressing the data gap in government air quality monitoring, especially given the lack of regulatory air monitoring in South Central LA. Participatory community air monitoring in neighborhoods not only helps characterize local air quality, but can help to increase environmental health literacy, raise awareness, inform policymakers and contribute to decisions to improve public health. SCLA-PUSH's community engagement program is key to strengthening community leadership and demonstrating to policy makers and regulators that communities living next to incompatible land uses continue to breathe toxic air.

METHOD 1: COMMUNITY ENGAGEMENT & CAPACITY BUILDING

SCLA-PUSH designed a number of trainings and activities to advance community engagement and capacity building. Two **informational sessions** were held on May 18, 2019, and August 10, 2019, to inform the South Central LA community about the SCLA-PUSH initiative and about AB 617, and to recruit residents and advocates primarily to join our **Air Quality Academy**—an innovative two-day training session that teaches community members the science of air pollution, the process of collecting data, and how to engage in policy and regulatory change. The process of working together to design the **community air monitoring network** had the added benefit and building strong community connections. Also, learning qualitative data observation skills and the value of their lived experiences co-powers community members to map their own neighborhoods rather than depend on the regulatory agencies' maps.

Through our **Air Quality Academy**, we trained a strong cadre of 70 graduates to become **Air Quality Ambassadors, Radical Scientists, Creative Mappers, and Community Researchers**. Each role represents a skill set that graduates attained by completing the training.

METHOD 2: GROUND-TRUTHING, DATA COLLECTION & ANALYSIS

SCLA-PUSH utilizes a number of approaches to collect data on air pollution, community health, and the physical stressors of health for the South Central LA catchment area. During and following the Air Quality Academy, trained graduates conducted three community **Mapping Workshops** to identify community treasures and pollution hot spots.

THE AIR QUALITY AMBASSADOR

A DEEPER DIVE INTO AB 617



The *Air Quality Ambassador* is charged with fostering, protecting, and preserving the rights of the community to breathe clean air and live in areas free of toxic exposure. The *Air Quality Ambassador* is a keeper of the community's voices and translates community wisdom into positive health outcomes by being an agent of change in policy and regulatory decision-making spaces.

THE COMMUNITY RESEARCHER

MOVING BEYOND MONITORING



The *Community Researcher* is a resident who shares personal experience of overexposure to air pollution and meaningfully represents the community by participating in crucial research that identifies key air pollution monitoring issues and persistent health inequalities. The *Community Researcher* designs, interprets air quality data, and identifies culturally appropriate solutions to improve air quality.

THE RADICAL SCIENTIST

CONNECTING THE AIR QUALITY DOTS



The *Radical Scientist* elevates the community's interests through research. Radical Scientists understand that science is for the people and not for industrial profits. The *Radical Scientist* revolutionizes science by incorporating qualitative data on daily stressors and quality of life issues into applied research and subsequent policy solutions.

THE CREATIVE MAPPER

POWER OF MAPPING IN TELLING COMMUNITY STORIES



The *Creative Mapper* deeply understands the community's treasures and challenges, both historically and geographically. A *Creative Mapper* carefully translates the voices and experiences of community. The *Creative Mapper* is able to tell compelling stories through maps that can support research and policy decision-making.

They collected air quality data using low-cost portable sensors, AirBeam and Ptrak, and stationary PurpleAir monitors. In addition to the monitored data, **Ground-Truthing Workshops and Walks**—called “Air Pollution, Community Health, and the Power of Community Science”—guided graduates to identify air pollution sources and environmental stressors in targeted areas through community walks culminating in the **StoryMap**, which describes cultural treasures, pollution hot spots, community air monitoring data, traffic volume counts, and identification of incompatible hazardous land uses. The data collected by the community was complemented by and analyzed against official regulatory data by academic partners, including polluting **facilities-of-concern** and air emissions data from the South Coast Air Quality Management District and cumulative burden data from the California Environmental Protection Agency's CalEnviroScreen 3.0 tool. In addition, the team leveraged our knowledge and collective technical capacity to assess **Best Available Control Technology (BACT)** and develop pollution reduction case studies for three primary industries, auto body shops, dry cleaners, and metal manufacturers.

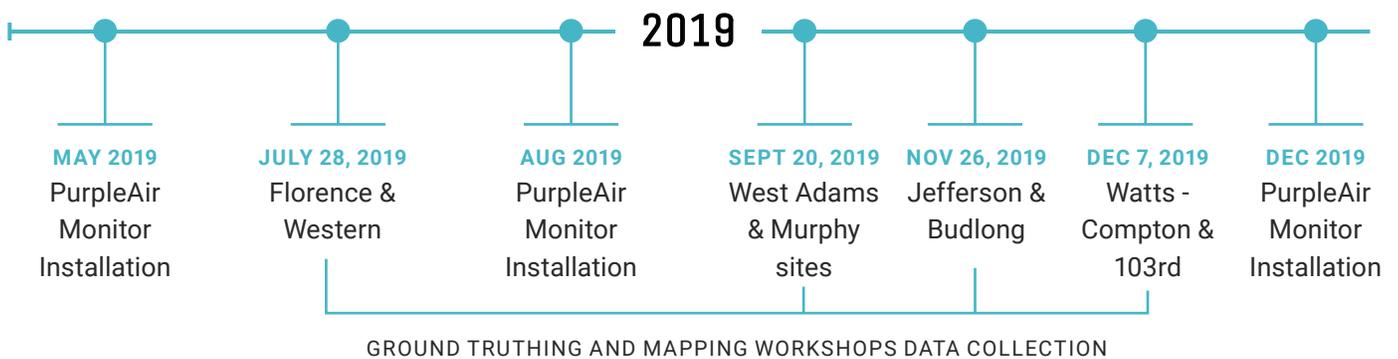
METHOD 3: REGULATORY & POLICY ENGAGEMENT

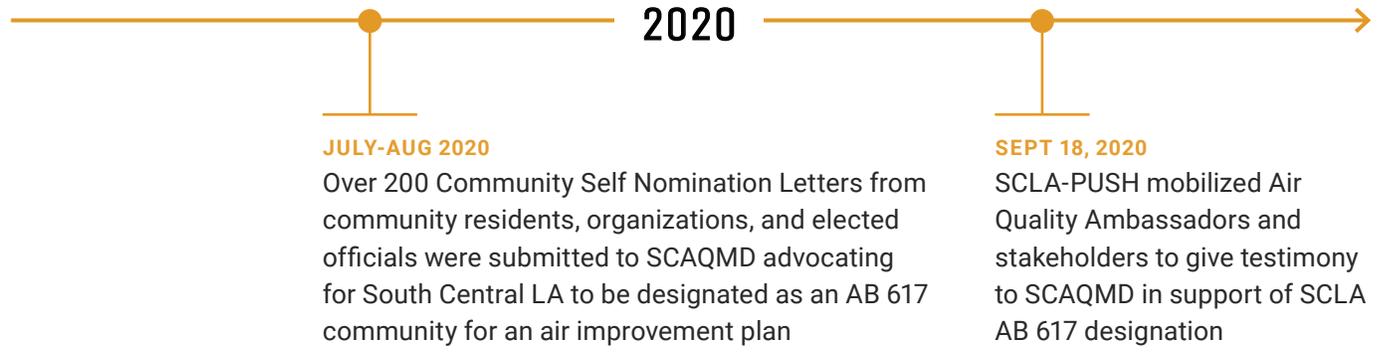
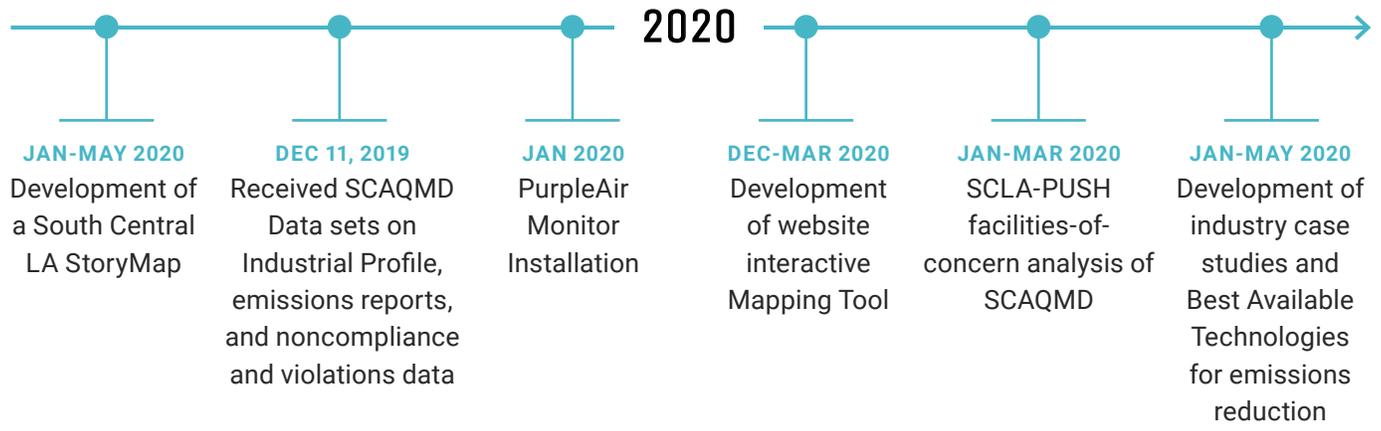
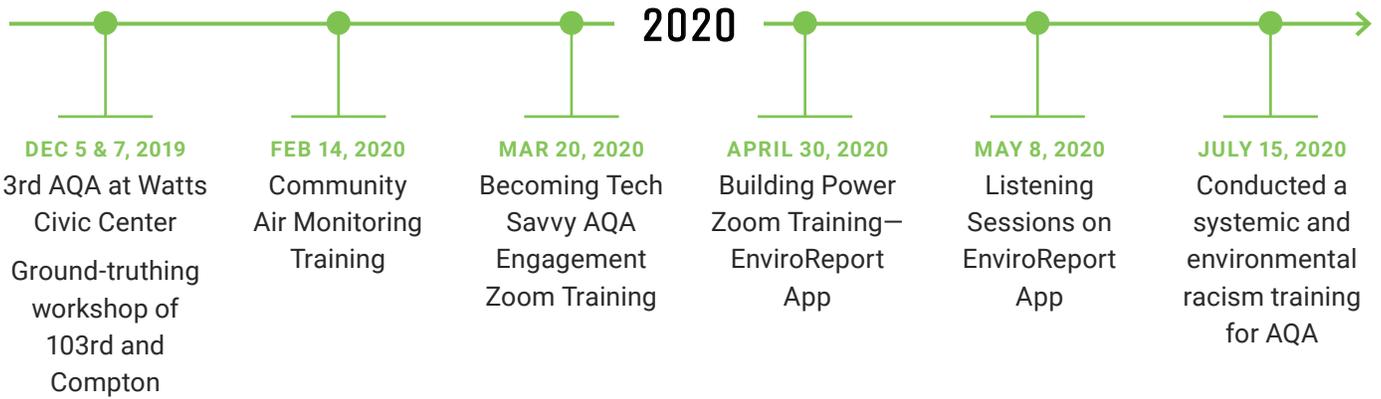
While the SCLA-PUSH team acknowledges the unique opportunities presented by the AB 617 program, we also recognize the program's limitations and challenges. As such, SCLA-PUSH is committed to **engaging in regulatory and policy discussions** in order to improve and strengthen the AB 617 program. Air Quality Ambassadors were given **policy advocacy training** and joined by environmental justice leaders to provide testimony at local and state hearings. For example, in December 2019, the SCLA-PUSH team mobilized 10 community leaders to attend the CARB board meeting to nominate second-round communities. In the summer of 2020, the SCLA-PUSH team mobilized our Air Quality Ambassadors, allies and elected officials (including Assembly Member Mike Gipson, Senator Holly Mitchel, and LA City Councilmembers Marqueece Harris-Dawson and Herb Wesson) to support a South Central Los Angeles community designation by submitting over 200 nomination letters to the SCAQMD. Also, project members PSR-LA and SCOPE **participate in policy dialogue in coordination with other state allies** through the [California Environmental Justice Alliance](#) in order to improve program design and implementation.

WORK ACTIVITIES TIMELINE

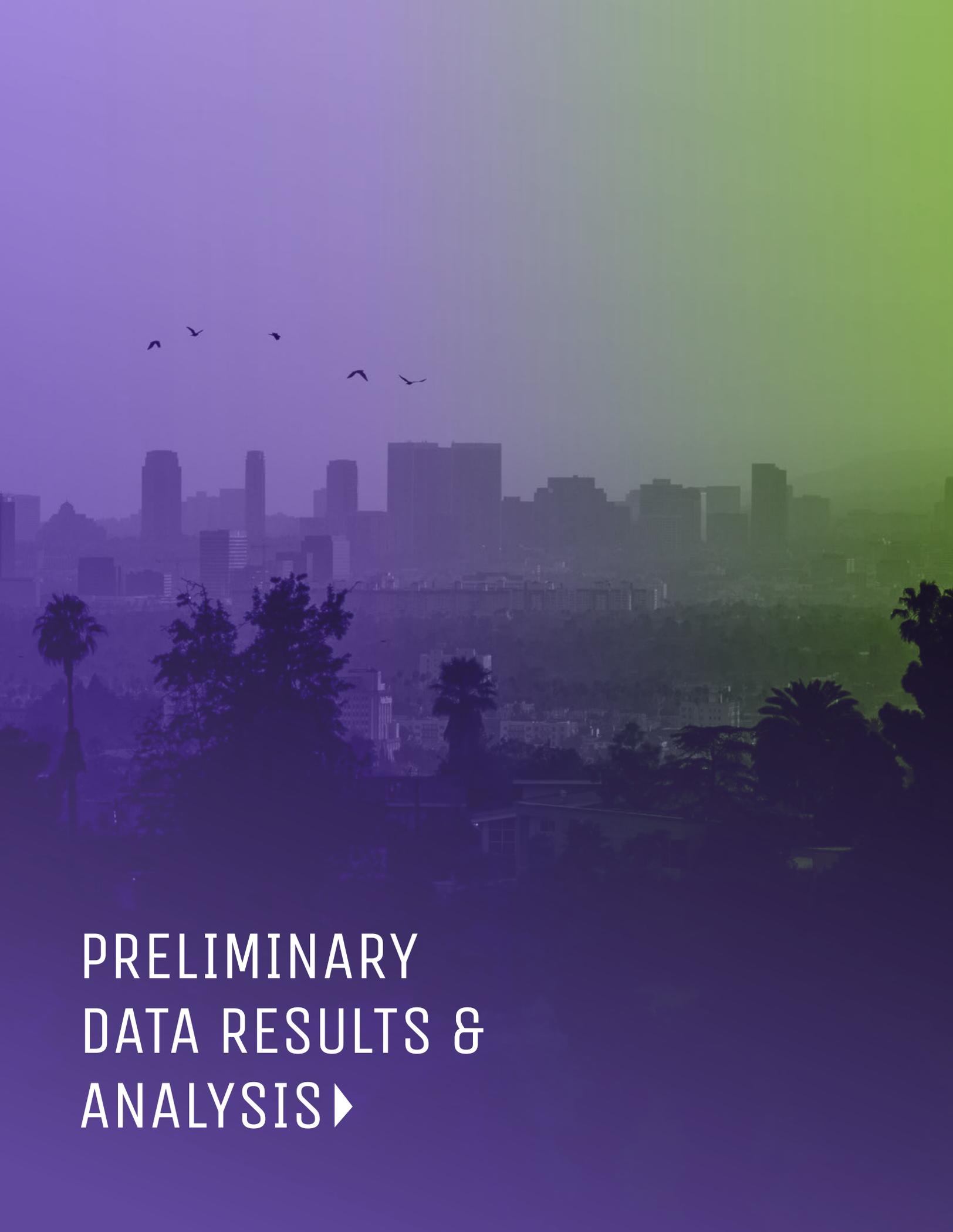
2019 - 2020

- Community Engagement
- Community Science, Data Collection & Analysis
- Policy Engagement









PRELIMINARY
DATA RESULTS &
ANALYSIS ▶

PRELIMINARY DATA RESULTS & ANALYSIS

Since its inception 18 months ago, SCLA-PUSH has yielded an abundance of community-grounded and siphoned regulatory data, in addition to thoughtful analysis of air quality and environmental conditions in the South Central LA catchment area. In this section, we present the particular figures discovered through the four primary data collection methods, which include the following:

1. **Facilities Assessment:** evaluation of facilities-of-concern, and compliance and enforcement data in the catchment area.
2. **Community Air Monitoring:** an assessment of data collected directly by community members utilizing low-cost sensors.
3. **Cumulative Burden and Risk Analysis:** cross-analysis of [CalEnviroScreen](#) data against community resident narratives on environmental and land use conditions.
4. **Technology Assessment:** evaluation of Best Available Control Technology of particular facilities-of-concern.

FACILITIES ASSESSMENT: INDUSTRIAL PROFILE, ENFORCEMENT AND COMPLIANCE

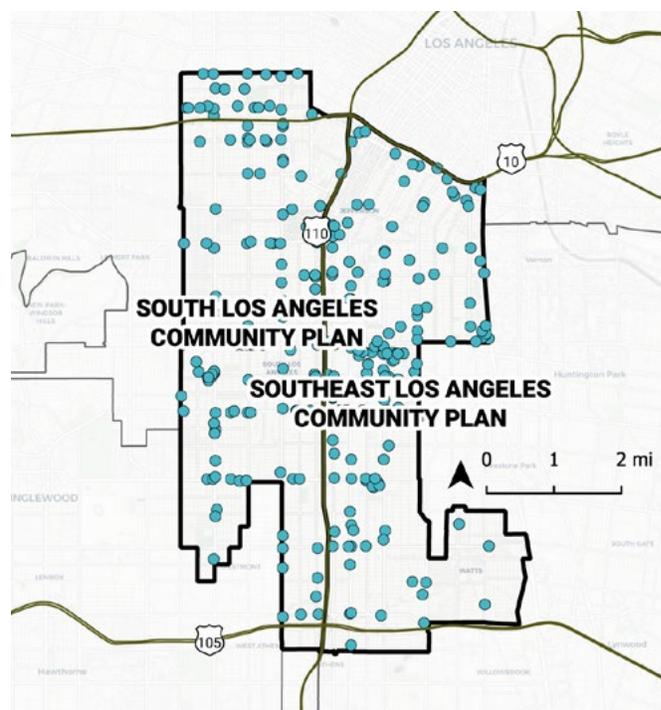
SOUTH CENTRAL LOS ANGELES INDUSTRIAL PROFILE

To better understand the industrial landscape in the project catchment area, the project team was granted access to a Public Records Database (data set) managed by the SCAQMD. This database includes all permitted facilities in South Central Los Angeles, air pollution emissions per facility, noncompliance and enforcement data over the past five years including facility inspections, a list of all facilities in compliance after inspections, and a list of all permit violations identified either via inspection or self-report.

While the content is comprehensive, we also recognize the data set's limitations when conducting our analysis. First, community-science data walks with residents corroborate our hypothesis that facilities are often misidentified or missing from regulatory databases. Second, facility self-reporting of annual pollution emissions creates an information gap because industries may inaccurately report emissions, or choose not to report at all. Nevertheless, the data set paints a preliminary picture of the industrial facility and regulatory landscape in South Central LA, including facility types, air pollutant emissions, and compliance and violation rates beyond allowable health regulation levels.

An initial scan of the data set reveals that a total of **676 facilities** were identified as having one or more SCAQMD air pollution permits. Figure 3 depicts the location and distribution of these facilities both within the catchment area, and in adjacent neighborhoods (e.g., see facility cluster in the central section of the map).

FIGURE 3: SCLA-PUSH IDENTIFIED FACILITIES-OF-CONCERN MAP



FACILITIES-OF-CONCERN

Of the 676 facilities regulated by the SCAQMD, our SCLA-PUSH team identified 280 facilities-of-concern. These facilities-of-concern are industrial facilities that our Air Quality Ambassadors identified as a main concern given the over clustering of these facilities in the community and their potential adverse air quality and health impacts in the community (e.g., oil drilling sites, auto body shops, dry cleaners, metal manufacturing facilities, and gas stations). The facilities-of-concern also include any other industrial facilities identified by our academic research team that could present additional air pollution impacts to the community including (e.g., general, textile, and chemical manufacturing, warehousing and transportation, and construction). **In total, 280 facilities-of-concern were identified.**

In other words, 44% of permitted facilities in South Central LA's industrial landscape are facilities-of-concern that present impacts on the community health.

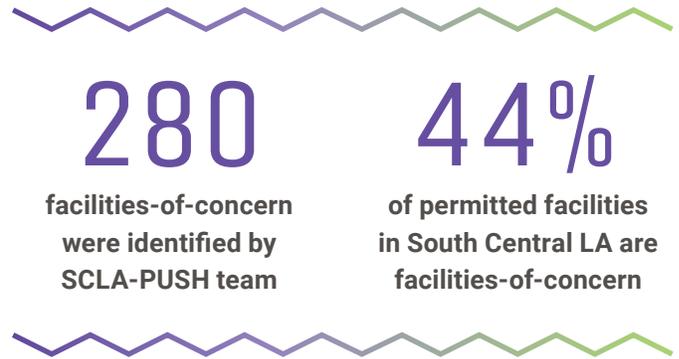
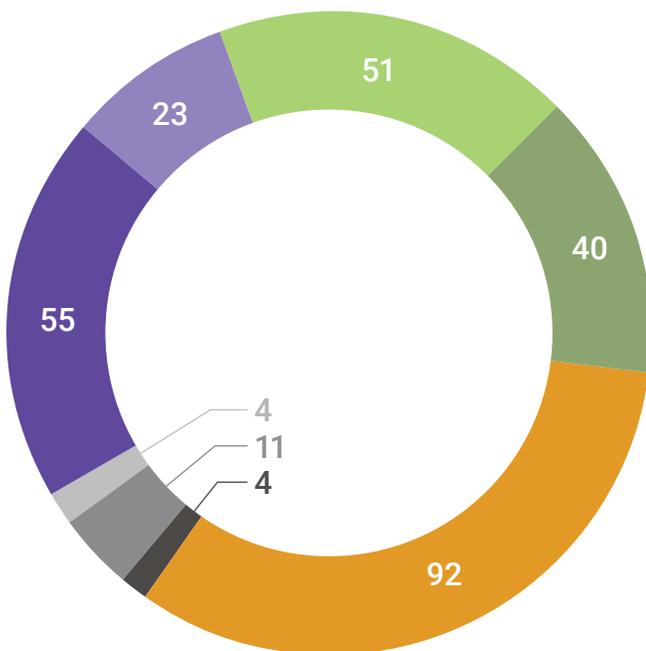


Figure 4 below shows the number of facilities-of-concern classified by SCAQMD by category and the proportion of facilities-of-concern in South Central LA by category.

FIGURE 4: FACILITIES-OF-CONCERN AS CLASSIFIED BY SCAQMD



Auto Body	55
Auto Repair	23
General Auto Repair	21
Other Auto Repair	2
Gas Stations	51
Gas Stations with Convenience Stores	4
Other Gas Stations	47
Dry Cleaners and Laundries	40
Dry Cleaners	36
Coin-Op Laundry	4
Manufacturing (textiles, general, and chemicals)	92
Metals Manufacturing	4
Oil & Gas Extraction, Transport, and Storage	11
Crude Petroleum & Natural Gas Extraction	4
Natural Gas Distribution	1
Fuel Dealers	2
Petroleum Wholesalers	4
Warehousing	4
Total	280

Our ground-truthing efforts suggest that facilities-of-concern may be underestimated because these facilities are at times misidentified, misclassified, or simply missing in official databases. To address this data set challenge, we conducted a rigorous data vetting process that included a detailed review of the SCAQMD facilities classifications, virtual Ground-Truthing Walks, and google map searches of existing facilities to identify missing or misclassified facility data. The vetting process revealed that approximately 20 facilities-of-concern were misclassified by SCAQMD. Out of the 11 “unclassified facilities,” 3 were undoubtedly auto body shops (i.e., Hello Auto Body, Jimenez Body Shop, and Fine Line Body Shop, INC). Also, 3 landmark oil drilling sites (i.e., Murphy, AllenCo, and Jefferson) were misclassified as either construction sites or unrelated industry types.

The SCLA-PUSH academic research team re-classified SCAQMD permitted facilities-of-concern based on the community’s concern and understanding of the operations of such facilities. For example, SCAQMD classifies Metal Manufacturers under the Manufacturing category, but Metal Manufacturers are identified by community members as high concern which is why SCLA-PUSH researched these facilities separately. SCAQMD also classifies Auto Repair and Auto Body industries separately, but both of these are high concern for the community, so our SCLA-PUSH team analyzed these together as “Auto Body facilities.”

FACILITY NONCOMPLIANCE & ENFORCEMENT DATA ANALYSIS

Building on the facility landscape assessment, the research team conducted a complementary analysis of regulatory enforcement activities by the SCAQMD, including on the state of facility compliance, and the role of reporting inaccuracy in noncompliance and permitting. SCAQMD states that the primary goal of enforcement activities, including investigating complaints, responding to breakdowns, and performing facility inspections, is to encourage regulated facilities to comply with air-quality permit conditions in order to protect public health.¹⁸ Inspections can result in one of four outcomes:

1. **Clean Inspection**, no notices or violations
2. **Notices to Comply (NC)** are given after inspection to permitted facilities alleging a minor violation of a SCAQMD rule requirement has occurred; or more information from the facility is needed to determine the facility’s compliance status.¹⁹

3. **Notices of Violation (NOV)** are issued if a facility has failed to comply with a SCAQMD rule or permit, or a state air pollution regulation. Often, these violations involve air pollution emissions above the allowable threshold. The facility is required to correct the problem, and there is usually a fine or penalty associated with the violation.²⁰
4. **Both NC(s) and NOV(s)** are issued.

The database provided by the SCAQMD on enforcement activity of facilities covers data from an 8.25-year period, from January 2012 through March 2020.

TABLE 1: FACILITIES-OF-CONCERN ENFORCEMENT ACTIVITY FROM JANUARY 2012 TO MARCH 2020

Enforcement Activity	Prevalence
Total inspections	541
Total facilities inspected	189
Total Notices to Comply	226
Total facilities received NC	121
Total Notices of Violation	90
Total facilities received NOV	41

Figure 5 on the following page shows SCAQMD inspection rate and prevalence rate per year in facilities-of-concern from January 2012 through March 2020.

18. South Coast Air Quality Management District. (2019). *Community emissions reduction plan: east los angeles, boyle heights, west commerce*. <https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/east-la/ceqp/carb-submittal/final-cep.pdf?sfvrsn=8>

19. We used the South Coast Air Quality Management District definition: <http://www.aqmd.gov/home/rules-compliance/compliance/compliance-notices/notice-to-comply>

20. We used the South Coast Air Quality Management District definition: <https://www.aqmd.gov/home/rules-compliance/compliance/compliance-notices/notice-of-violation>

FIGURE 5: SCAQMD INSPECTION RATE PER YEAR AND INSPECTION OUTCOMES FROM JANUARY 2012 TO MARCH 2020 FOR THE FACILITIES-OF-CONCERN IN SOUTH CENTRAL LA

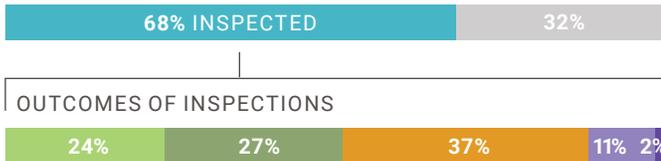


MANUFACTURING (Metals, textiles, general, and chemicals metal)

Inspection rate: **9% per year**

At this rate, number of years it would take to fully inspect all facilities of this type at least once: **12 years**

2012-2020



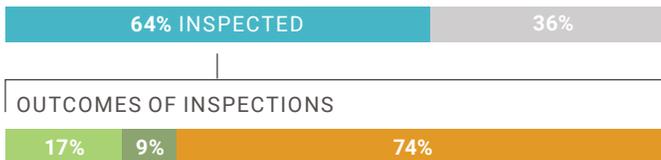
32% were never inspected from 2012-2020.

DRY CLEANERS

Inspection rate: **8% per year**

At this rate, number of years it would take to fully inspect all facilities of this type at least once: **13 years**

2012-2020



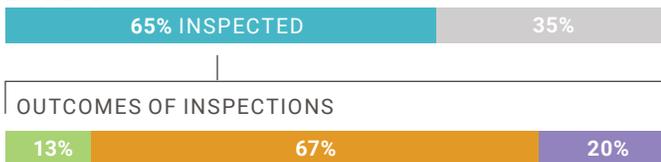
36% were never inspected from 2012-2020.

AUTO REPAIR

Inspection rate: **8% per year**

At this rate, number of years it would take to fully inspect all facilities of this type at least once: **13 years**

2012-2020



35% were never inspected from 2012-2020.

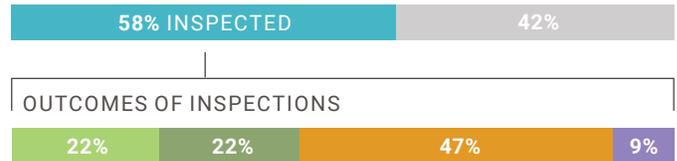
Note: In addition to the facility types shown here, we also analyzed data regarding Gas Stations, Coin-Op Laundries, and Wholesale facilities.

AUTO BODY

Inspection rate: **7% per year**

At this rate, number of years it would take to fully inspect all facilities of this type at least once: **15 years**

2012-2020



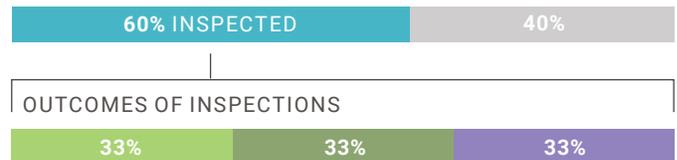
42% were never inspected from 2012-2020.

OIL AND GAS

Inspection rate: **8% per year**

At this rate, number of years it would take to fully inspect all facilities of this type at least once: **14 years**

2012-2020



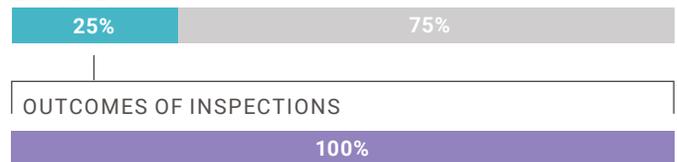
40% were never inspected from 2012-2020.

WAREHOUSE

Inspection rate: **3% per year**

At this rate, number of years it would take to fully inspect all facilities of this type at least once: **34 years**

2012-2020



75% were never inspected from 2012-2020.



Our analysis of SCAQMD's data revealed:

- **Low frequency rate of inspections from Jan 2012 - March 2020:** We found a low average inspection rate across all of the identified facilities-of-concern in South Central LA. Of the 280 total targeted facilities, 189 facilities were inspected, 91 facilities were not inspected resulting in a non-inspection rate of 32.5% (91/280). Over the analyzed inspection period, only 68% received at least one inspection, leaving 32% with no inspections over this 8.25-year period. The total number of inspections conducted in South Central LA (541) far exceeded the number of individual facilities inspected (189) which shows a significant disparity in which some facilities are being repeatedly inspected while others may have never been inspected.
- **Slow average rate of inspections per year:** Only 8% of targeted facilities were inspected per year. At this rate, it would take on average 12 years to visit each facility one time.
- **High percent of facilities with at least one violation:** 65% of targeted facilities received at least one citation over the 8.25-year enforcement window.
- **Increased inspections reveal more NCs and NOV:** Of the 189 distinct facilities receiving one or more inspections over the 8.25-year period, nearly 64% received at least one notice of compliance (NC) and 22% received at least one notice of violation (NOV). After five or more inspections, over 50% of industries had Notices of Violation.
- **Likely underreporting of noncompliance:** The extremely slow pace of inspections (i.e., 8% per year), combined with missing facilities data, and the increase of violations revealed when inspections increased suggests that increasing the pace of inspections would reveal substantially greater noncompliance.

The slow annual inspection rate (only 8% per year) coupled with the extremely long average time between inspections (average 12 years) creates a clear picture of regulatory oversight failure.

Furthermore, the rapid increase in percent of facilities with Notices to Comply and Notices of Violations with repeated inspections suggests that increasing the pace of inspections would reveal substantially greater noncompliance and that pollution emissions are likely higher than what is permitted. The lack of enforcement leads to an increase in emissions and pollution permit violations because facility owners know they probably will not be held accountable, or they are unaware they are violating their permit.

Also, noncompliance is probably underreported in part because the facilities-of-concern have been historically classified as hard-to-reach, because they are small family-owned businesses that need more access to information, loans, training, and support to comply with air permits and move toward clean production and Just Transition.

In summary, an analysis of the data set reveals that the SCAQMD is not meeting its own standard of enforcement, which is necessary to encourage regulated facilities to comply with their air-quality permit conditions. This lack of oversight and proper enforcement results in unnecessary impacts on community health, pointing to the need for stronger regulatory measures and accurate data on pollution levels.

COMMUNITY AIR MONITORING— PRELIMINARY DATA ANALYSIS

Government regulatory monitors do not have the spatial resolution to provide air quality information at the neighborhood or personal scale. Facing environmental hazards, community organizations and the environmental justice movement have turned to gathering their own data to understand their local environment, but there often exist substantive barriers in environmental justice communities to documenting and reporting these hazards to regulatory or public health agencies. Decentralized community monitoring networks can offer timely information to supplement regulatory data and inform strategies to reduce air pollution at the neighborhood scale.

MAPPING WORKSHOPS

Our community-science data collection describes both the community's stories as well as the results of the community data gathered through our Air Quality Academies on community air monitoring, traffic volume, incompatible land uses, and cumulative burden. To document the community's stories, community residents initially participated in mapping workshops that allowed residents to identify areas to be preserved as community treasures and areas to be investigated further as air pollution hot spots.



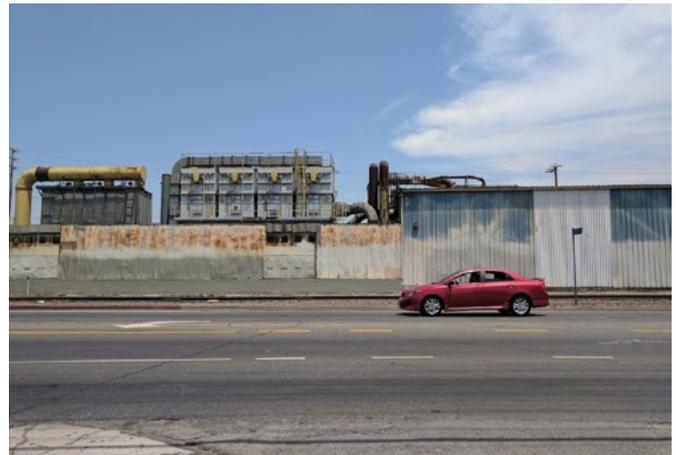
Community Treasures: Community residents identified South Park, churches, schools, murals, and cultural art as community treasures that need to be preserved as historical and cultural identifiers of their community. These treasures are the core of the community's identity and oftentimes are overwhelmingly impacted by pollution burden of nearby industries or heavy traffic highways.



Hot Spot Areas: Community residents also mapped out places where they experience environmental hazards affecting their community's health and quality of life. These places include gas stations, auto body shops, dry cleaners, and oil drilling sites as well as areas within the intersections and locations of Florence & Western, the Slauson Corridor, Vernon & AllenCo Corridor, and Jefferson & Adams. These community challenge areas were identified as priority areas for our Air Quality Ambassadors to conduct ground-truthing and community air-monitoring plans to investigate the root causes of air pollution in our communities.

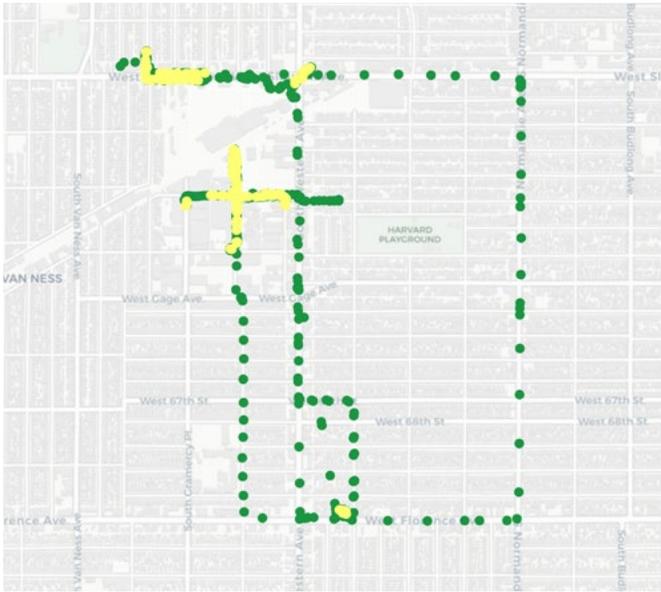
GROUND-TRUTHING & AIR MONITORING WALKS

Between June 2019 and August 2020, the SCLA-PUSH team and Air Quality Ambassadors collected air quality community-science data throughout South Central Los Angeles, guided by the University of Southern California Preventive School of Medicine (USC) research team. Data collection teams comprised of project partners and Ambassadors walked through and ground-truthed targeted communities utilizing various devices, tools, and record keeping processes to document the presence of mobile and stationary sources of pollution, alongside other environmental factors. Direct community observation is critical to understanding the diversity and type of environmental pollution.

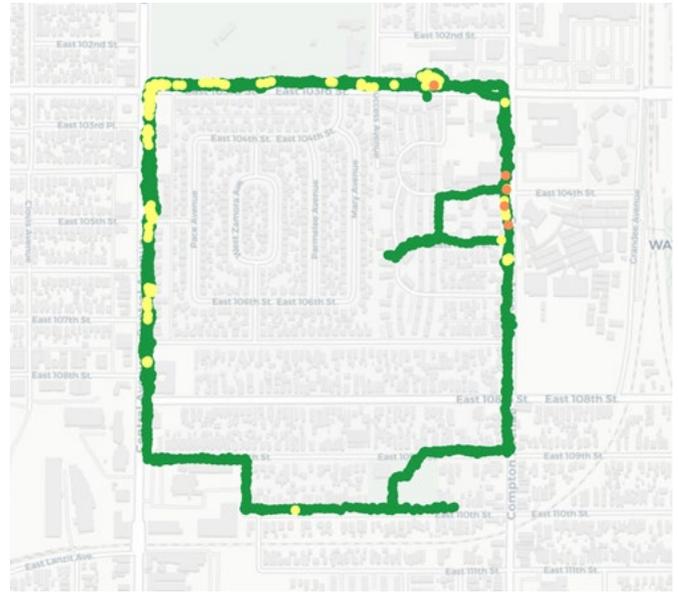


JEFFERSON DRILL SITE | PHOTO COURTESY OF GRIST

FIGURE 6: WALKING MAPS



AIR QUALITY ACADEMY 3 - JEFFERSON



AIR QUALITY ACADEMY 4 - WATTS: COMPTON & 103RD

AIR MONITORING TECHNOLOGY ACCESSIBILITY

Participatory community air monitoring with low-cost sensors can work to deconstruct traditional power dynamics, provide information about environmental hazards important to residents, and democratize knowledge. This work is an example of an approach to bridge the gap between increasingly technical air monitoring data and community expertise and knowledge.

Portable Air Monitors

Portable, low-cost air monitoring equipment offers new opportunities in urban environmental justice communities to gather neighborhood-level, real-time data. Through our Air Quality Academy ground-truthing sessions, residents were trained in using and interpreting data from sensors including AirBeam (portable PM_{2.5}),²¹ and Ptrak (ultrafine particles).

Stationary Air Monitors

PurpleAir monitors measure airborne Particulate Matter (PM), which describes solid particles suspended in air; this includes dust, smoke, and other organic and inorganic particles including particle sizes and pollution concentrations of PM_{1.0}, PM_{2.5}, and PM₁₀.²²



21. AirBeam Monitor: <https://www.habitatmap.org/airbeam>

22. PurpleAir Monitor: <https://www2.purpleair.com/>

COMMUNITY AIR MONITORING RESULTS

The community air monitoring data results are further explored below. The figure to the right shows the AirBeams Monitoring Data from when AQA participants measured PM2.5 during community walks. This graph shows the range of measurements during each community walk. The biggest variability in PM2.5 levels was in Watts during the December AQA where concentrations ranged from very low to over 500 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). **We observed a broad range of exposure to PM2.5 during the AQA community walks.**



AQA monitoring found average levels of PM2.5 ranged from minimum 3 - 10 $\mu\text{g}/\text{m}^3$ (considered healthy levels of air pollution) to maximum levels ranging from 27 - 576 $\mu\text{g}/\text{m}^3$ (unhealthy levels of air pollution). **National Air Quality Standard annually is 12 ($\mu\text{g}/\text{m}^3$).**

During AQA community walks, residents used AirBeam monitors to collect personal PM2.5 measurements. The figure on the right depicts PM2.5 measurements captured on four separate days in four distinct neighborhoods. The mean PM2.5 concentration during each walk was around the National Air Quality Standard of 12 $\mu\text{g}/\text{m}^3$. **However, the measured concentrations (denoted by each purple line) can vary greatly indicating localized events of high exposure that is not captured by regulatory monitoring.**

— PM2.5 Measurement — Mean

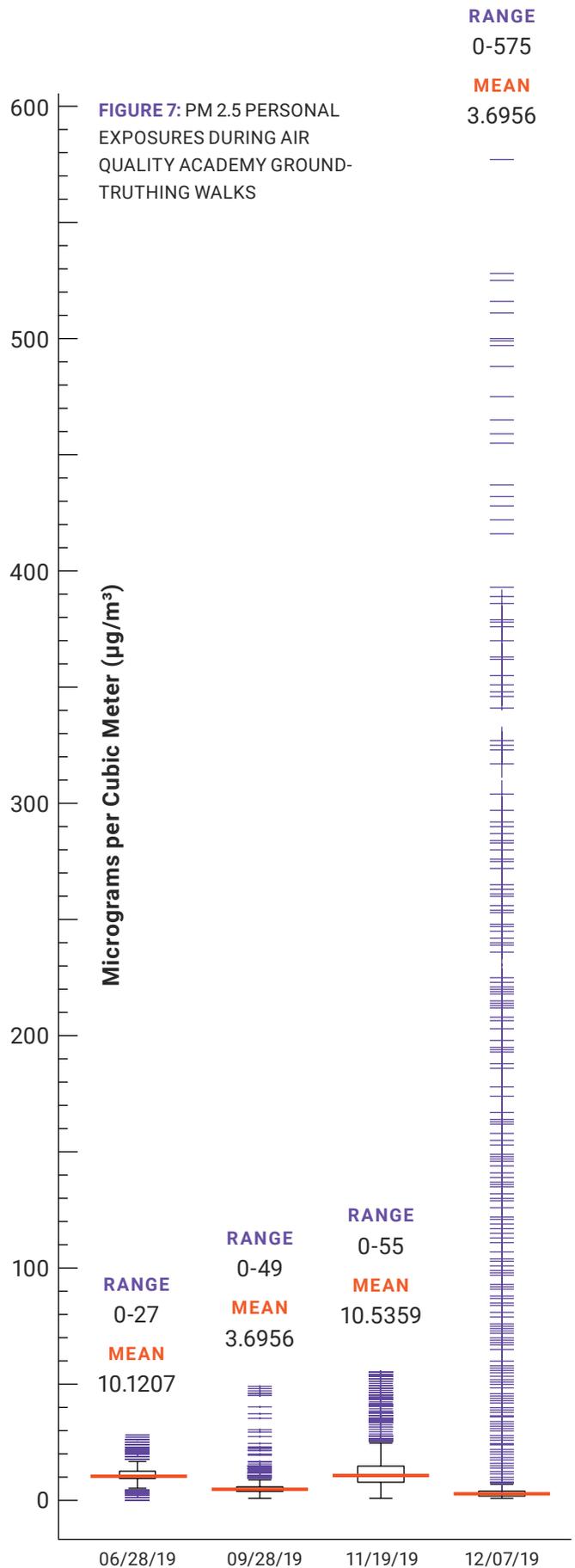


Table 2 below provides references to ultrafine particle counts per cubic centimeter in different environments. The higher the number, the more pollution and potential adverse health impacts. This data reflects how on a daily basis South Central LA residents may be exposed to high levels of ultrafine particulate matter due to existing high-volume traffic and major highways as compared to low exposure levels when near the beach as shown in the table below.

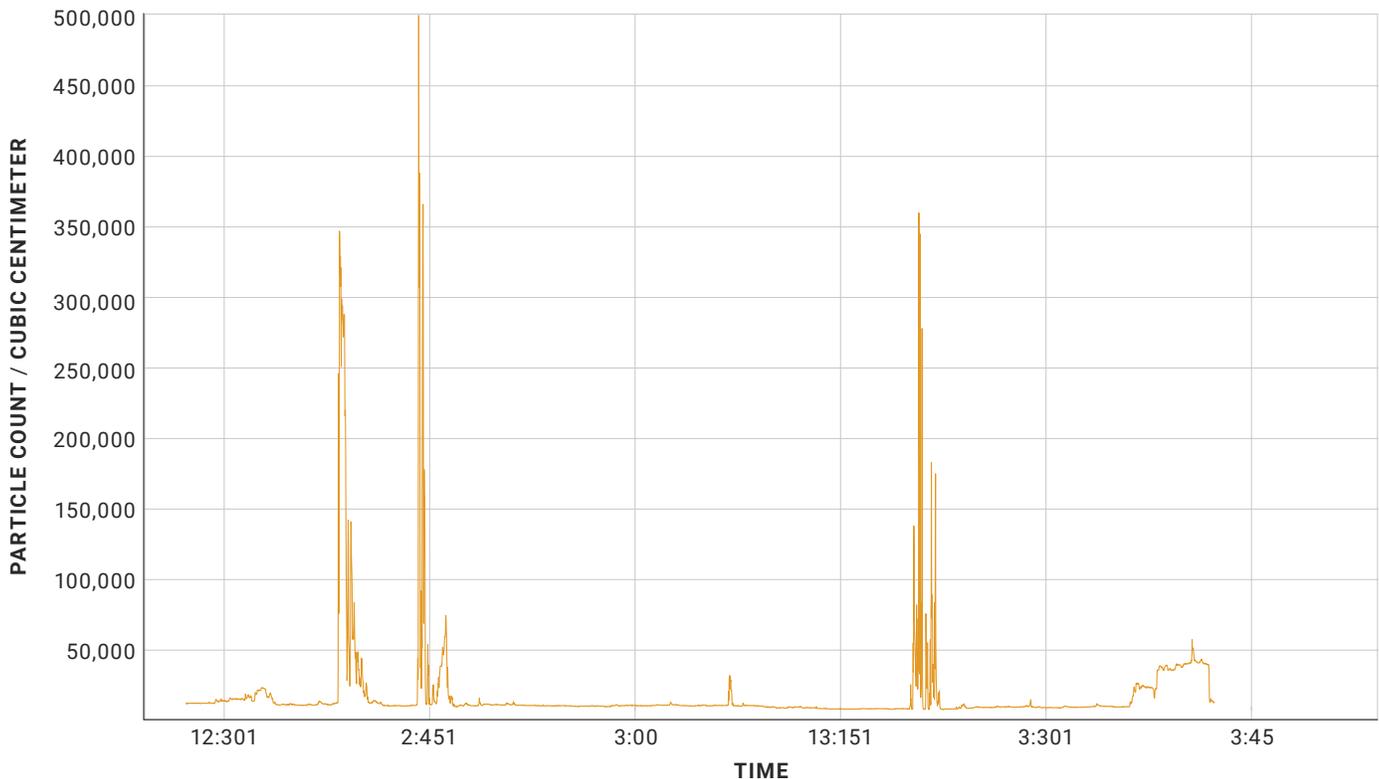
TABLE 2: EXPECTED ULTRAFINE PARTICULATE COUNT BY SPECIFIC AREA

Area	Expected Concentration
Coastal air – near the beach	5,000 pt/cc
Indoor air – home or office	15,000 pt/cc
Outdoor air – near major streets	60,000 pt/cc
Freeway air – diesel truck spikes	300,000 – 600,000 pt/cc

The data from SCLA-PUSH’s community air monitoring walks corroborates how community residents may experience harmful exposure to air pollution even when air pollution daily averages are healthy.

Figure 8 below is an example of measured ultrafine particle counts at an intersection in Watts neighborhood of Los Angeles, CA. As a diesel truck passed nearby, the concentrations spiked to over 300,000. Over the course of an hour, we observed multiple spikes in ultrafine particles on a residential street.

FIGURE 8: ULTRAFINE PARTICULATE COUNTS DURING DECEMBER 7, 2019 WATTS COMMUNITY GROUND-TRUTHING WALK



Over the last year, the SCLA-PUSH in collaboration with the University for Southern California academic research team strategically deployed 5 stationary PurpleAir monitors in locations identified as hot spots and areas of concern by the community. These community air monitors are among the first community air monitors in the neighborhoods as there are no regulatory monitors within the South Central Los Angeles communities. Our team installed the monitors outside community residents' homes and at SCOPE's office headquarters to collect and crowdsource real-time air quality data as shown in the image to the right.



In addition to the 5 SCLA-PUSH PurpleAir monitors, we analyzed the PM2.5 data from all the existing PurpleAir monitors located in South Central LA that other community organizations and residents have installed in their houses including data from 11 total PurpleAir monitors from May 1, 2019 to April 30, 2020. The current EPA National Ambient Air Quality Standards say the concentration of PM2.5 should not exceed an average of 12 µg/m3 over one year. The PurpleAir monitors data showed:

- The average PM2.5 concentrations among the 11 PurpleAir monitors located in the community was 20 µg/m3 with a range from 0 to 498 µg/m3
- 9 monitors exceeded the annual average of 12 µg/m3.
- In general winter months were the highest for PM2.5 levels.

Figure 9 below shows the location of the PurpleAir monitors in the South Central or adjacent neighborhoods in Los Angeles. These stationary monitors are located on volunteer homes or businesses and real-time air pollution data is collected and transmitted wirelessly.

FIGURE 9: PURPLEAIR COMMUNITY MONITOR LOCATIONS

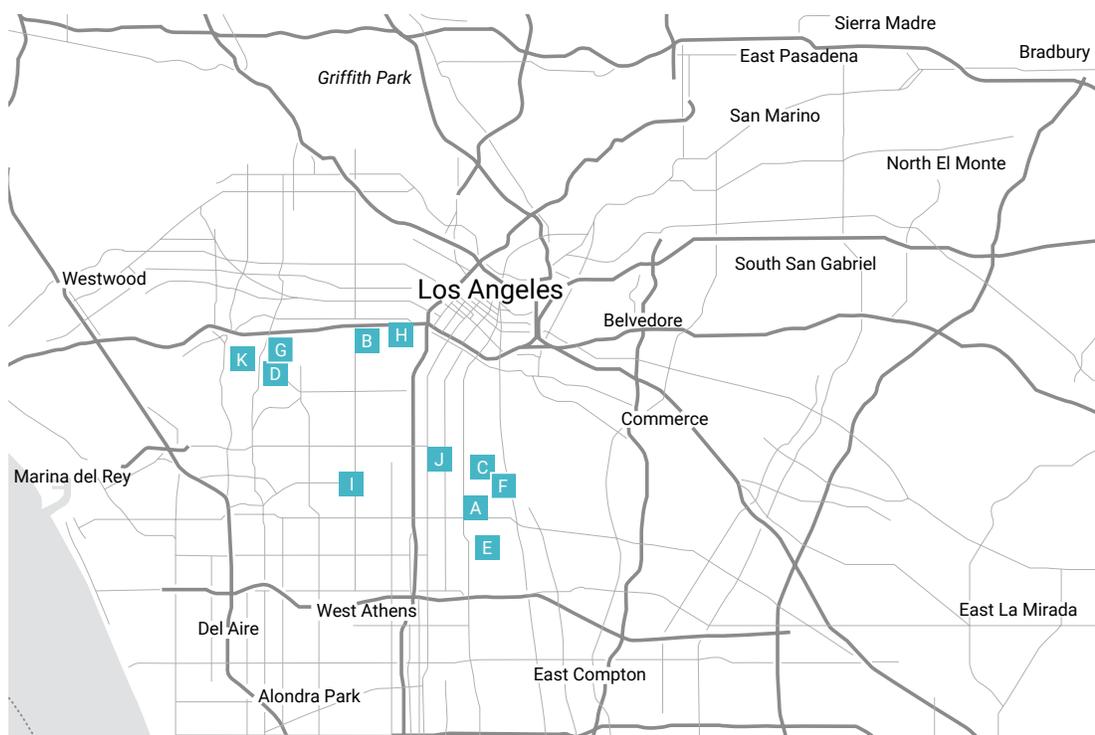
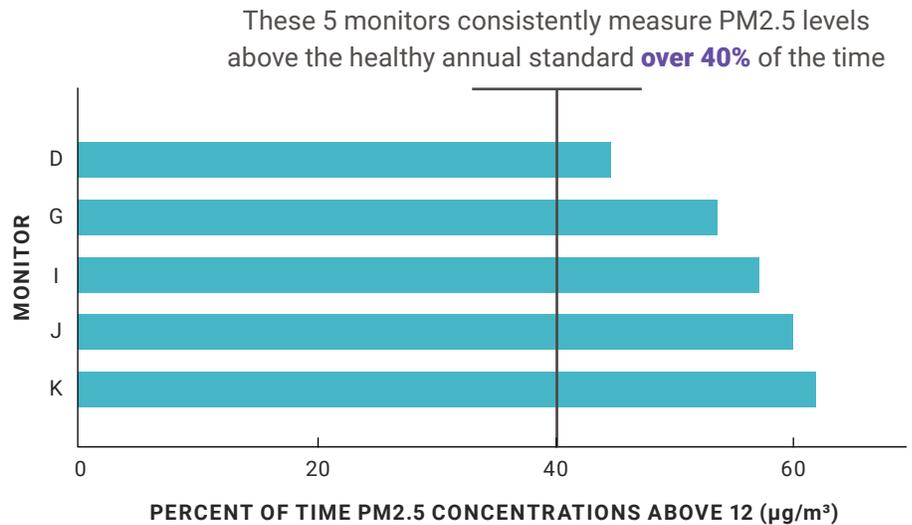


Figure 10 shows that five of the monitors (see previous map) collected data at least 90% of the time from May 1, 2019 - April 30, 2020. During this time period, we calculated the percent of time that the PM2.5 exceeded the 12µg/m³ health-based standards. **We found that 5 monitors consistently measured PM2.5 levels above the healthy annual standard 40-50% of the time indicating how the air quality in the neighborhood fails to meet the annual standard.**

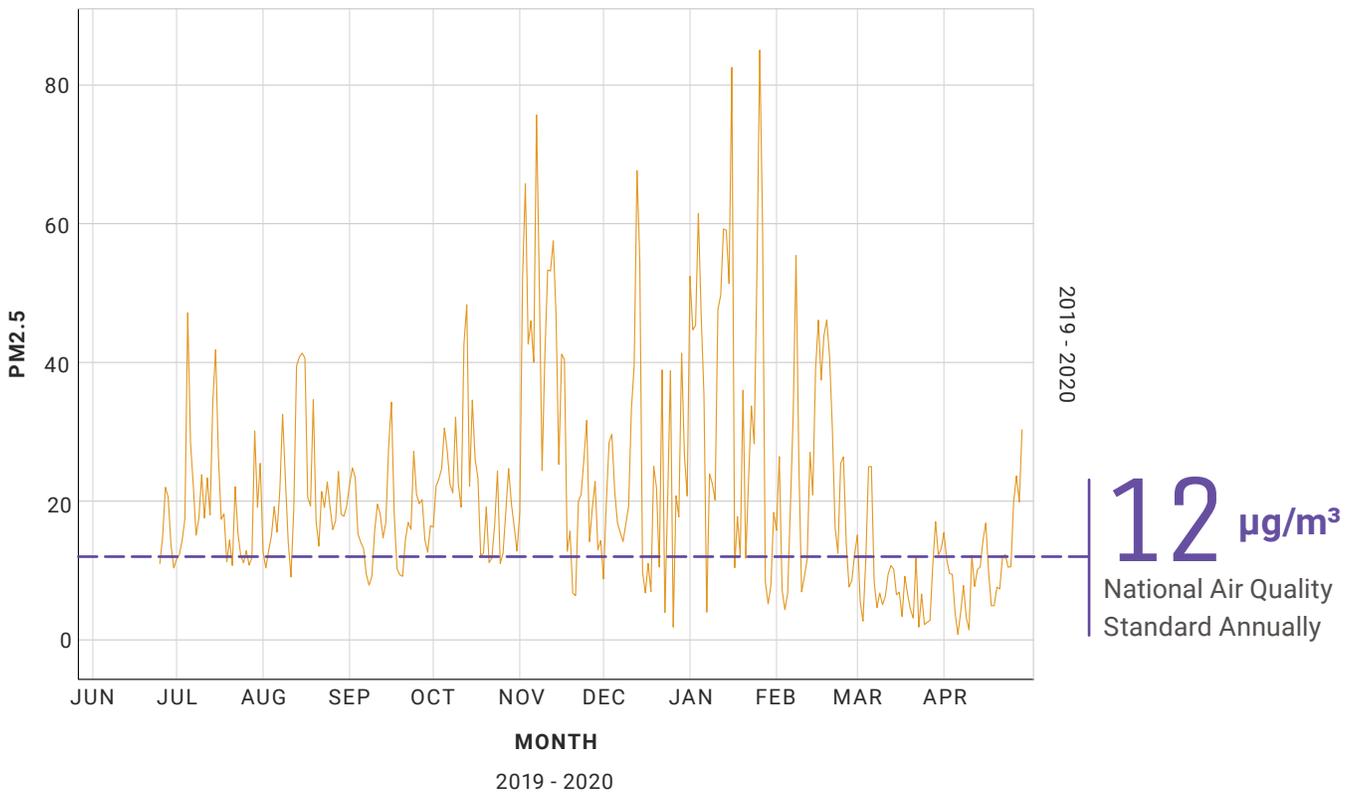
FIGURE 10: PURPLEAIR MONITORS CONSISTENTLY MEASURING PM 2.5 ABOVE NATIONAL AND STATE STANDARDS FROM MAY 2019 - MAY 2020



One of our PurpleAir monitors was installed at our project partner office, SCOPE.

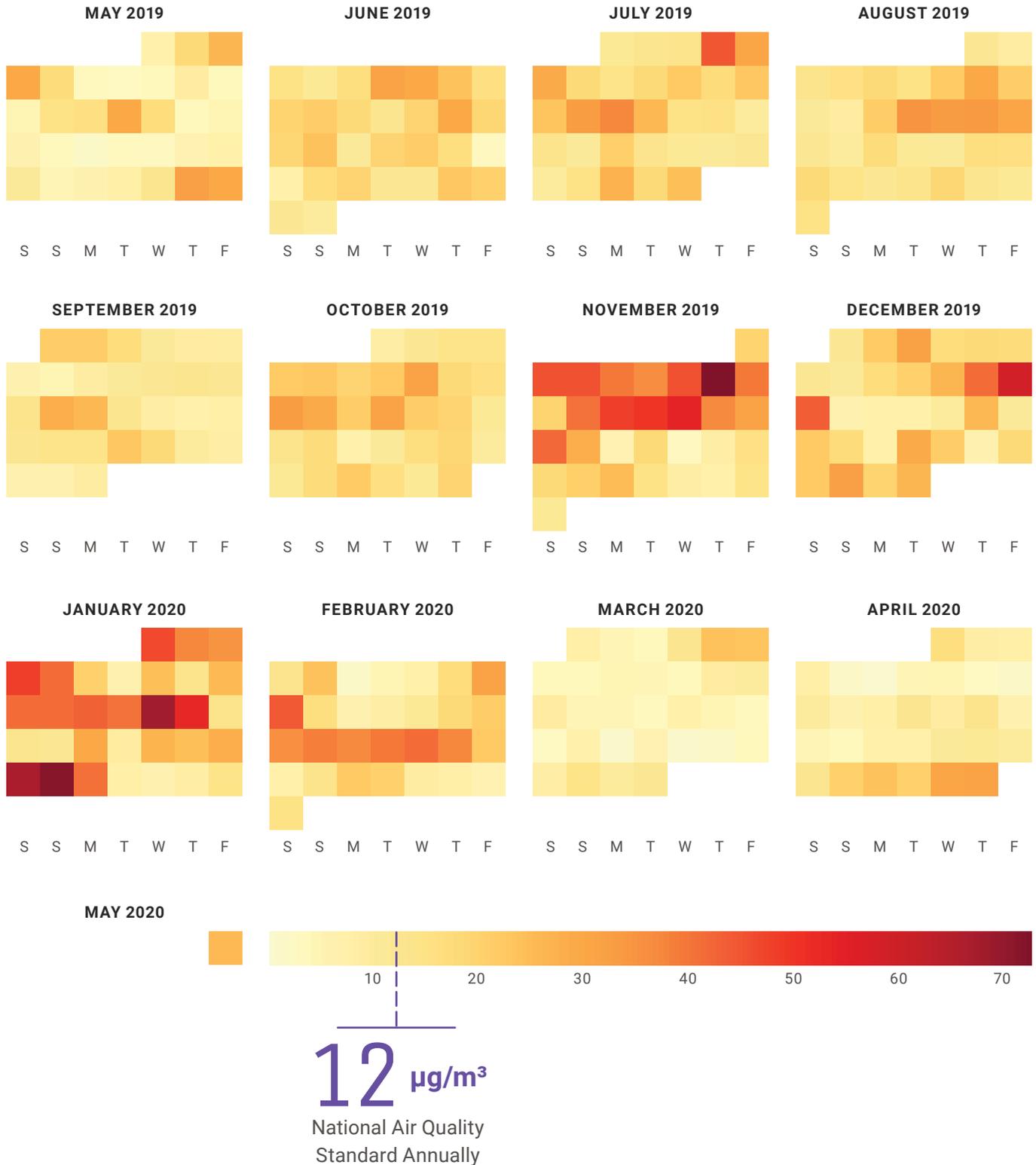
The chart below (figure 11) shows the average daily PM2.5 concentrations for the monitor located at SCOPE's offices. The federal annual standard for PM2.5 is 12 µg/m³ shown by the dotted line. For over the span of a year, we observed that the PM2.5 concentration is consistently above this health-based standard in the neighborhoods adjacent to SCOPE.

FIGURE 11: DAILY PM.25 VARIATIONS FROM SCOPE'S PURPLEAIR MONITOR



Among the monitors in South Central LA, the previous figure shows the average daily concentration of PM2.5 measured by all the PurpleAir monitors located within South Central LA. We observe the highest concentration in the winter months as shown on the calendar below figure 12.

FIGURE 12: AVERAGE PM2.5 FROM ALL PURPLEAIR MONITORS IN SOUTH CENTRAL LA BETWEEN MAY 2019 - MAY 2020



The EPA National Ambient Air Quality Standard (NAAQS) for PM2.5 averaged over a year is 12µg/m3. The standard for PM2.5 over a 24-hour period is 35µg/m3, meaning over any 24-hour period the average PM2.5 concentration should not exceed 35µg/m3. However, human health studies have observed harmful effects at concentrations even below 12 µg/m3.

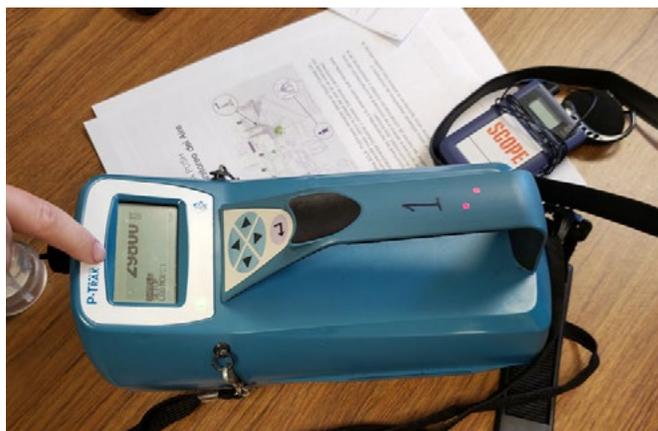
TABLE 3: AIR QUALITY INDEX

PM2.5	Air quality	Who is at risk
0-12.5	Good	Air quality is considered satisfactory and air pollution poses little or no risk.
12.5-35	Moderate	Air quality is acceptable; however, a moderate health concern for people unusually sensitive to air pollution.
35-70	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects.
>70	Unhealthy	Everyone may begin to experience health effects.



The results from the preliminary community air monitoring data show that the air quality in South Central Los Angeles is overall between moderate and unhealthy for sensitive groups. In the next section, we will describe how we corroborated the monitoring results by layering the data from the Mapping Workshop, Ground-Truthing Walks, portable and stationary air monitoring equipment into the **StoryMap** to demonstrate pollution and cumulative burden.

Air pollution in Southern California does not impact all communities equally. People of color in the United States are more likely to live in polluted neighborhoods or near facilities emitting PM2.5. Human exposure to particulate matter, even at low levels, is known to impact health across the lifespan. According to the EPA standards, while air quality may be considered acceptable at moderate levels, if communities are exposed for 24 hours there are health concerns.



CUMULATIVE BURDEN & RISK ANALYSIS

Cumulative burdens structure community health and can exacerbate existing health inequalities while shaping broader health outcomes across a neighborhood. While mapping tools such as [CalEnviroScreen](#) have helped identify *where* burdens are located and *which stressors* can build up toward a cumulative harm by overlaying pollution data (from sources that report directly to the state) and social and economic data (such as linguistic isolation, low-income, and educational attainment), they do not provide firsthand community-collected data about the harms endured.

The narrative of South Central LA is a rich fabric of resident stories interwoven with physical and socio-economic conditions of place. How residents experience air quality and the built environment in this neighborhood goes beyond simply what exists in the air. It includes how long a resident has to wait for a bus to arrive at a busy commercial intersection due to lack of transit service, and youth walking past multiple auto body shops to get to school. These stories describe truck idling, lack of trash service, and noise pollution. But they also portray strong community bonds, cultural centers and spaces of pride.

COMMUNITY STORYMAP & GROUND-TRUTHING DATA

To deepen and add layers of specificity to the data collected by residents in the Mapping Workshops—cultural treasures and pollution hot spots—we developed the **StoryMap** as an important ground-truthing community-based research method.²³ Over the last 18 months, SCLA-PUSH Air Quality Ambassadors have used this tool to identify existing environmental burdens in the community. The more issues in one area, the higher the cumulative burden these stressors have on residents' health outcomes.

23. Sadd J., Morello-Frosch R., Pastor M., Matsuoka M., Prichard M., Carter V. (2014). The truth, the whole truth, and nothing but the ground-truth methods to advance environmental justice and research—community partnerships. *Health Education & Behavior* 41(3), 281–90. <https://doi.org/10.1177/1090198113511816>

Looking at data across all four academy groups, **12 main concerns and stressors** were frequently noted by residents.

TOP 12 CONCERNS & COMMUNITY STRESSORS RAISED BY RESIDENTS

1. Visible fumes—toxic motor fumes, bad odors, cigarette smoke
2. Smells and fumes from auto body shops and being close to busy freeways
3. Alleyways are a significant stressor, illegal dumping, trash, and odors; litter/trash and dumping of furniture on sidewalks
4. Multiple identifications of streets with cracked broken sidewalks
5. Lack of speed bumps and road protections near community areas and parks
6. Loud noises: automobiles, trucks, sweeper trucks, busy roadways and auto businesses
7. Inhalation of toxic smells and dust that collects in the house (triggers asthma, one mother mentioned their child's frequent nose bleeds)
8. More monitoring needed around gas stations, auto body shops, and factories
9. "Burning smells" from metal, burn oil, plastic, car exhaust / gas odors
10. Exhaust emissions from vehicles at smoke checks/ auto repair shops
11. Trash and tires scattered on sidewalks and around train tracks, auto repair part debris, and oil from auto repair shops on sidewalks
12. Lack of greenspaces and trees

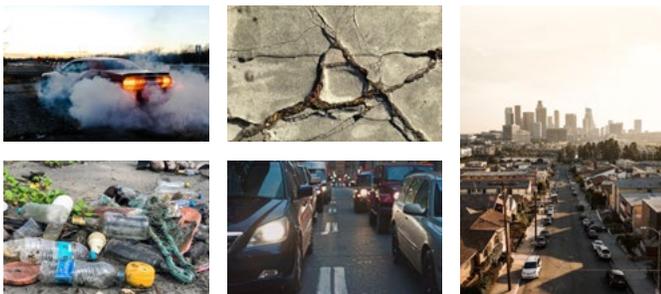
The **top five** concerns and stressors are further explained below:

EXHAUST FUMES

1. **Exhaust Fumes** from motor vehicles were a significant stressor and were worse near auto repair shops, emissions checking facilities and busy roads/freeways. Other visible and foul-smelling fumes included marijuana, cigarette smoke, and various “burning smells” (combination of metal, burn oil, and gasoline odors) and exhaust fumes coming from gas stations and auto body shops. Residents also mentioned smelling marijuana fumes in and around public parks which raised safety concerns, especially in areas with children present.

LITTER

2. **Litter** was another significant stressor. Trash dumping on sidewalks was worse in areas that had few trash cans. Additionally, trash and tires were often found on sidewalks near auto shops along with spilled oil. Furniture left on sidewalks created mobility issues. Trash dumping was worse in areas with homeless people encampments and alleyways; residents noted that unpleasant garbage odors exacerbated by the heat in alleyways would enter their living spaces.



24. Owen N., Humpel N., Leslie E., Buaman A., Sallis J. (2004). Understanding environmental influences on walking: review and research agenda. *Am J Prev Med*, Jul;27(1):67-76. PMID: 15212778. doi: 10.1016/j.amepre.2004.03.006. <https://www.sciencedirect.com/science/article/abs/pii/S0749379704000509>

25. Taylor W.C., Poston W.S.C., Jones L., Kraft M.K. (2006). Environmental justice: obesity, physical activity and healthy eating. *J Phys Activity Health*, 3(s1)S30–S54. PMID: 28834512. DOI: [10.1123/jpah.3.s1.s30](https://doi.org/10.1123/jpah.3.s1.s30)

BROKEN/CRACKED SIDEWALKS

3. **Broken and cracked sidewalks** pose walkability and safety concerns in frontline communities. There is a growing body of evidence to suggest that the environment in which people live can influence walking. For example, people walk more in communities that have sidewalks in good condition with few obstructions and are free from physical disorder (e.g., trash, abandoned buildings, illegal dumping).²⁴ Low-income and communities of color experience disproportionate access to the built-environment features that support physical activity and community safety.²⁵ This disproportionate access is associated with other health disparities related to lack of physical activity and sense of community safety such as diabetes, obesity, cardiovascular and respiratory diseases. Access to safe and green spaces increases positive health outcomes in frontline communities and builds community trust and safety.

LACK OF SPEED BUMPS

4. **The lack of speed bumps** and high traffic along many busy streets were cause for concern, especially near sensitive areas such as community centers, preschools, and parks. Congested thoroughfares, roads with frequent truck routes, and early morning sweeper trucks also contribute to noise pollution issues which can disrupt resident rest and ability to recreate and enjoy outdoor spaces.

LACK OF GREENSPACES

5. **Lack of greenspaces.** Lastly, throughout the four AQAs, residents continually stressed the need for more greenspaces and trees. However, residents with park access were concerned with park safety issues such as high traffic, lack of speed bumps, parking congestion, and proximity to marijuana shops, and the lack of enforcement surrounding drug use in parks.

EMISSION REDUCTION TECHNOLOGIES— PRELIMINARY ASSESSMENT

During our community-science data gathering sessions with our Air Quality Academy Ambassadors, the main concern expressed by communities was the over-clustering of polluting industries such as auto body shops, dry cleaners, and metal manufacturing facilities.

Based on SCAQMD data on facilities technical assessment report, as well as the insights from community-science data, it becomes evident that implementation of **clean production strategies rooted in an economic justice approach** is essential to the reduction of air pollution from facilities-of-concern. A focus on economic justice and clean production strategies could also support overall compliance and enforcement efforts within the SCAQMD.

The first phase of our research includes the consideration of criteria pollutants, and hazardous air pollutants within the specific facilities-of-concern identified by the community. The abovementioned facilities-of-concern (e.g., auto body shops, metal facilities, and dry cleaners) technology-assessment study focuses on identifying the use of specific best available control technologies and emissions reduction technologies that can support community-wide efforts to reduce harmful emissions in already overburdened communities.

Additionally, this approach could support the development of innovative policies that will require the mandatory implementation of emissions control strategies in facilities-of-concern while also requiring the cleanest, safer, and least toxic alternatives to limit the proliferation of regrettable substitutions and move toward clean production and a Just Transition.

JUST TRANSITION TO CLEAN PRODUCTION STRATEGIES



Below is a list of SCAQMD definitions for different technologies and strategies to reduce emissions according to polluting industries:

BEST AVAILABLE CONTROL TECHNOLOGY (BACT):

The most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. The term BACT as used in state law means an emission limitation that will achieve the lowest achievable air emission rates using the most stringent emission limits.²⁶

BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (BARCT)

An air emission limitation that applies to existing sources and is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.

The criteria used by SCAQMD for listing and considering a control technology or emissions limit strategy are the following:

- **Commercial Availability:** At least one vendor must offer this equipment for regular or full-scale operation in the United States and a performance warranty or guarantee must be available.
- **Reliability:** The control technology must have been installed and operated reliably for at least twelve months.
- **Effectiveness:** The control technology must be verified to perform effectively over the range of operation expected for that type of equipment. The verification shall be based on a District-approved performance test or tests, when possible, or other performance data.
- **Cost Effectiveness:** The control technology or emission rate must be cost effective for a substantial number of sources within the class or category.

In the next sections, we will explore three main facilities-of-concern (dry cleaners, auto body shops, and metal manufacturing) as preliminary case studies on potential best practices or best available control technologies to significantly reduce their air emissions.



26. We used the South Coast Air Quality Management District definitions: <http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/glossary.pdf>



**DRY CLEANERS
CASE STUDY**

CLEANERS



THE PROBLEM:

Located in South Central LA near sensitive receptors, there are approximately more than 51 dry cleaners that contaminate the community's air and groundwater.²⁷ The majority of dry cleaners in South Central LA use Perchloroethylene (PERC) for their chemical-based dry-cleaning process. The California Air Resources Board passed a regulation to phase out PERC by 2020. As PERC is being phased out, dry cleaners are being pushed to use other alternatives. The remaining dry cleaners are using hydrocarbons as a transition, which in addition to being combustible, has also been a source of air and water pollution.

POLLUTION BURDEN & HEALTH IMPACTS:

Perchloroethylene (PERC) is a source of significant groundwater contamination and is a hazardous air pollutant that is contributing to the development of chronic diseases in sensitive populations.

Short-term: Breathing high levels of (PERC) for a short time can cause: dizziness, drowsiness, headache, nausea and vomiting, lack of coordination, irritation of the eyes and respiratory tract.

Long-term: The health impacts may include cancer.

REGRETTABLE SUBSTITUTIONS:

The hydrocarbon dry cleaning alternative has not been classified as a non-toxic alternative. While hydrocarbons are toxic and explosive, it continues to be falsely advertised as an environmental or eco-friendly product causing many small dry cleaners owned by mostly immigrants and people of color to switch to hydrocarbons toxic and harmful alternative.

BEST AVAILABLE CONTROL OR EMISSION REDUCTION TECHNOLOGIES:

SCLA-PUSH's preliminary assessment of the available emissions reduction technologies using SCAQMD criteria to identify the most stringent *Non-Toxic Alternative* demonstrated that *Professional Wet Cleaning* and *CO2 Dry Cleaning* are the two best alternative technologies.

SCLA-PUSH's assessment is supported by the 2005 California Air Resources Board (CARB) classification of professional wet cleaning and CO2 dry cleaning as non-toxic and non-smog forming alternatives based on their relatively benign human health, environmental, physical property hazard profile.

NON-TOXIC ALTERNATIVES:

Professional Wet Cleaning is a dry-cleaning technology that uses water-based detergents.

CO2 Dry Cleaning is a dry-cleaning technology that uses CO2 as a cleaning solvent. Since this CO2 is captured from recycled sources, it is also considered an environmentally-preferable alternative.

JUST TRANSITION & CLEAN PRODUCTION:

Through the implementation and enforcement of best available control technologies such as Professional Wet Cleaning, garment workers and family-owned dry cleaners will have the opportunity to truly switch to a safer chemical-free alternative that will reduce negative health impacts on workers from exposure to chemicals and benefit the communities around.

27. Sinsheimer P. (2018). *Dry cleaner greenwashing in Los Angeles: need for green business certification & deceptive marketing enforcement to promote environmentally-preferable apparel cleaning technology*. University of California, Los Angeles, Sustainable Technology & Policy Program.



AUTO BODY SHOPS CASE STUDY



THE PROBLEM:

There are approximately more than 55 auto body shops located in South Central Los Angeles. These auto body facilities are classified by SCAQMD as Automotive Body, Paint, and Interior Repair, Maintenance, and General Automotive Repair. In addition, there are countless auto body shops located in South Central LA that are missing or misclassified by regulatory agencies which leads to inaccurate data on air pollution emissions and its impacts on public health.

POLLUTION BURDEN & HEALTH IMPACTS:

The paints or coatings used at auto body shops may cause odors and emit air pollutants, including volatile organic compounds (VOCs) or toxic air contaminants, such as metals. Other operations conducted at auto body shops, such as sanding and grinding, can result in emissions of fine dust from metal compounds (e.g., chromium and nickel). These pollutants can contribute to health problems that may affect shop employees, customers, and the community including a number of respiratory effects and are the leading cause of occupational asthma.

BEST PRACTICES:

According to our literature review on BACT, currently there is no existing BACT for auto body shops. Our technology research team conducted a preliminary study of actions that can potentially reduce adverse health impacts related to auto body shop air emissions. Our study included the US EPA 2008 National Emissions Standard for Hazardous Air Pollutants (NESHAP) on auto body shops and the EPA “Collision Repair Campaign,” which describe efforts to reduce exposure to toxic air emissions from collision repair shops, minimize the negative environmental and health impacts, and encourage compliance by providing training tools to communities and shop owners.

The EPA’s Collision Repair Campaign lists the full array of best practices for auto body shops. The table in the following column shows the result of SCLA-PUSH’s content analysis of the EPA best-practice interventions.

TABLE 4: TOP 6 EPA BEST PRACTICES FOR AUTO BODY SHOPS

Category	Benefits
Requirements:	
Ventilated spray booths with filters that are at least 98% efficient	<ul style="list-style-type: none"> Removes paint overspray from the air Less contact with hazardous coating materials
Prohibit clean spray guns by spraying solvent through the gun, creating an atomized mist	<ul style="list-style-type: none"> Minimizes contact with hazardous solvents Minimizes emissions of hazardous chemicals into the air
Best Practices:	
Use low VOC or water-based cleaners, primers, and base coats	<ul style="list-style-type: none"> Reduces or eliminates VOC emissions
Keep all containers shut when not in use	<ul style="list-style-type: none"> Reduces emissions and occupational exposure
Make Material Safety Data Sheets available to shop workers	<ul style="list-style-type: none"> Increases worker awareness of toxicity of chemicals leading to greater care in chemical use

JUST TRANSITION & CLEAN PRODUCTION:

By making changes in auto body shop work practices, shops can decrease emissions, reduce production costs, and protect employees and public health. Examples of changes in work practices that help reduce air pollution include substituting toxic materials with less-toxic materials. Transitioning auto body shops to best practices can increase workforce development through training workers in techniques to reduce worker’s exposure to toxic air pollutants and benefit the communities around.



METAL MANUFACTURING CASE STUDY



California Metal X Lead-Free Metal Brass Alloys For Water Supply Systems

CONTEXT & BACKGROUND:

For the purpose of this case study, we focused on a specific metal manufacturing facility—California Metal X. CMX is a metals processing facility that supplies metal alloys to potable water systems. CMX operations and equipment are continuously modified to reduce pollution burden.

THE PROBLEM:

Copper-based brass alloys have long been used for potable water supply components due to the durability and corrosion resistance of copper. In the United States, the 1974 [Safe Drinking Water Act \(SDWA\)](#) was enacted to ensure safe drinking water in every community by setting maximum concentration limits for chemicals that adversely impact water quality, including copper and lead.

POLLUTION BURDEN & HEALTH IMPACTS:

Lead is considered an extremely toxic element with no known safety threshold. Lead is a potent developmental toxic and increased evidence has shown that health impacts can arise even at very low concentrations impacting cognitive ability, particularly in children. Lead-bearing brass alloys in water supply systems have contributed to increased exposure to lead and adverse health impacts.

REGRETTABLE SUBSTITUTIONS:

In 2011, the SDWA dictated a phase out of leaded brass potable water supply components. This law enabled metal industries to switch to bismuth brass alloys which was recommended as a safer alternative.²⁸ However, bismuth when extracted contains toxic lead. By enforcing this law, California proliferated a switch to a regrettable substitution—bismuth brass—without considering the impacts of bismuth's extraction, production, and disposal which enable the continued lead-contamination in water and air pollution burden in frontline communities.

BEST PRACTICES & CONTROL TECHNOLOGIES:

CMX implementation of best practices and control technologies has created positive environmental health benefits and reduced air pollution. Some of the best practices include using a water filtration system to prevent toxic metals from entering the environment and using wet sweeping to wash metal particulates into the filtration system to minimize air emissions.

NON-TOXIC SUSTAINABLE ALTERNATIVES:

Silicon brass is a less toxic, more sustainable, lead-free substitute to lead-bearing and bismuth-bearing brass alloys for potable water supply applications. Reducing lead concentration of silicon brass to the lowest achievable level of 0.02% would further reduce adverse impacts.²⁹

JUST TRANSITION & CLEAN PRODUCTION:

By switching to a clean production approach, safer alternative silicon brass, and best available control technologies, metal facilities can reduce frontline community's exposure to lead in water and air pollution impacts related to manufacturing brass alloys and support a Just Transition that reduces upstream impacts for both communities and workers.

28. Sinsheimer P., Edwards M., Rajagopal D., Sarver E., Tang M., Zachariah P., Loughman D., Batteate C. (2017). *Lifecycle-based alternatives analysis of lead-free brass substitutes in the potable water supply system*. University of California, Los Angeles, Sustainable Technology & Policy Program.

29. Loughman E. (2013). *Alternatives analysis on non-lead alloys for public water system applications*. University of California, Los Angeles. <https://www.ioes.ucla.edu/wp-content/uploads/alternative-non-leaded-alloys-for-water-supply-1.pdf>



South Central LA communities continue to experience the health impacts of legacy air pollution and decades of environmental racism. Our communities cannot wait any longer for real and tangible solutions that tackle the root causes of pollution burden. That is why our SCLA-PUSH project is bringing together a collective of progressive residents, organizations, and advocates to start paving a path toward healthier and thriving communities through solutions that are rooted in the Environmental Justice movement and a Just Transition.

PAULA TORRADO PLAZAS

AIR & TOXICS POLICY ANALYST, PROJECT MANAGER, SCLA-PUSH



PUSHING FORWARD— SEIZING MOMENTUM AND BUILDING POWER ▶



PUSHING FORWARD— SEIZING MOMENTUM AND BUILDING POWER

SUMMARY & KEY TAKEAWAYS

In this report we presented the work and accomplishments of the South Central Los Angeles Project to Understand the Sources and Health Impacts of Local Air Pollution. The two principal goals were to highlight measurable progress toward project goals, and to provide preliminary assessments of the collective work in order to present an initial picture of where the work is heading next.

Taken as a whole, a preliminary assessment of the data reveals that the story of air pollution in South Central LA is both a serious and complex matter. A surface analysis of facilities-of-concern showed that while the community does not have a predominance of large-scale point-source pollution facilities, the landscape is littered with clusters of small- to medium-sized industries of concern that cumulatively produce adverse air quality. Furthermore, a lack of regulatory agency oversight of facilities-of-concern and air monitoring in South Central LA both limits our understanding of the air pollution problem and reveals the need for more community co-powerment in research and policy decision-making.

To bridge this data gap, ground-truthing work, conducted by SCLA-PUSH Air Quality Ambassadors, revealed that certain facilities were overlooked or missed by regulatory agencies, thereby potentially under-estimating the aggregate burden posed by facilities-of-concern. These conditions are further exacerbated by poor or uneven compliance and enforcement, with a high percentage of facilities not being inspected regularly, evidence of a slow pace of inspection, and a rapid increase in violation citations over the years.

Information gathered by the Air Quality Ambassadors through the use of stationary and portable air monitoring devices produced some useful insights on the quality of air that South Central LA residents breathe on a daily basis, as well as lessons around creating stronger community-led air monitoring networks. This process also revealed the importance of strengthening the community's capacity to comprehend their neighborhoods and honor local expertise, and co-powering them to hold regulatory agencies accountable.

Unlike their wealthier neighbors in West and Northwest LA, South Central LA residents also face a high level of cumulative burden from socio-economic factors, which exacerbates the conditions of poor air quality.



It is clear that more air monitoring is needed in order for stakeholders to gain a clear and accurate picture of air quality in the South Central LA community. Our accomplishments demonstrate that it is vital for communities to constantly inform agencies about what actually happens on the ground. Our community-based research methods and StoryMap have created our OWN narrative regarding what a day in our community looks like. Even in hard times, our stories help cement our values and find ways to better remake our communities in our vision of healthier and thriving communities. Sharing our stories shows us the way toward change.

The last section explores facilities-of-concern through the lens of technology. The case studies explain the problems, regrettable solutions, and recommendations for the Best Available Control Technologies and demonstrate that pollution emission reduction techniques are within reach and could be implemented with more regulatory and legislative support.

The SCLA-PUSH project team is proud of what we have accomplished to date. Our dynamic cross-stakeholder collaboration has produced successful and insightful outcomes, including strengthening the capacity of South Central LA residents and advocates to understand air pollution in their communities, collectivizing our power through community-science research and analysis, mobilizing our diverse community to advocate for policy change, and to fight for our fair share of resources. We intend to seize this momentum now and push forward meaningful and progressive solutions in the immediate future.



PUSHING TOWARD MEANINGFUL SOLUTIONS

For our project's next phase, we will continue to develop an accurate picture of the complex intersection of air quality, health, cumulative burden, and environmental justice in South Central Los Angeles while identifying potential solutions to reduce air pollution emissions. We expect community voices and their expertise to substantially drive their vision for real change in the physical and social environment as we continue to build on what has already been created to grow and amplify our impact through specific projects and strategies that will lead to direct emissions reductions.

Specifically, we will continue to advance our work through the following efforts:

DEVELOP A COMMUNITY REGENERATIVE PLAN

Through a community visioning and planning process, SCLA-PUSH project members and residents will work together to produce a roadmap for achieving the transformation of South Central LA's air, primarily through creative technology solutions and innovation rooted in a Just Transition framework. The work will build on recommendations presented in this report, which suggest a particular focus on revamping the technologies of three types of industries: auto body shops, dry cleaners, and metal manufacturing facilities. Specifically, we will develop a set of tools to assess the viability of Best Available Control Technologies to reduce air pollution from these targeted industries. The Community Regenerative Plan will synchronize technical capacity building for community residents, small business outreach around clean and green production, and regulatory engagement to achieve our vision of transforming the state of the air in South Central Los Angeles.

LAUNCH THE ENVIROREPORT APP

To address the engagement gap that currently exists between communities and regulatory agencies, we will enhance community-based environmental reporting methods through the development of a new bilingual EnviroReport App. The app will strengthen the capacity of community residents to report hazards in their neighborhoods and ground-truth regulatory data. Furthermore, by linking resident experiences and regulatory reports, we build community agency and power to directly participate in air quality policy and dialogues. The app is being developed in collaboration with Jill Johnson at the University of Southern California Environmental Health Sciences Center, the Chicago Center for Health and the Environment (CACHET) at the University of Illinois-Chicago, and our AQA graduates who provide the local expertise needed for the design.

SECURE AN AB 617 DESIGNATION FOR A SOUTH CENTRAL LA AIR IMPROVEMENT PLAN

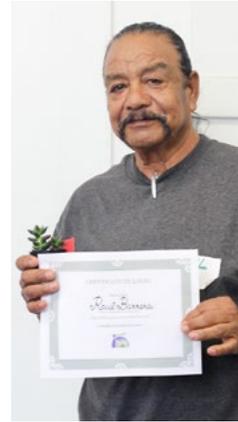
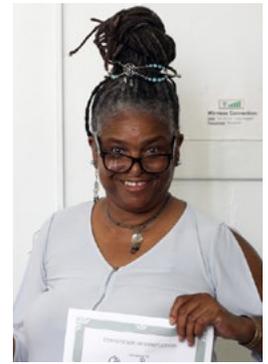
While several environmental justice communities were rightfully selected in the first two rounds, other well-deserving communities were left out, including South Central LA. This is not because South Central LA does not deserve a Community Emission Reduction Plan (CERP), but results from the shortcomings in the AB 617 Program. The program has generated a playing field where communities are forced to fight for resources

that all communities facing air quality challenges should be able to access. Our work to date has shown that South Central LA breathes dirty air on a daily basis, is afflicted by facilities-of-concern, and experiences socio-economic and physical conditions that aggravate poor health outcomes. In the next phase of the work, our team will push for an official community designation under AB 617 and make sure that our community leads the way for a strong and outcome-driven Community Emissions Reduction Plan.

REFOCUS AB 617 TO ACTUALLY REDUCE EMISSIONS

While the AB 617 Program has presented new opportunities for communities to engage in air quality discussions, overall it has fallen short on its promise to reduce pollution burden in the most impacted communities. In order for the AB 617 program to meet the vision of its statutory mandate and to reduce the severe burden many communities face, the program must make concrete improvements to regulatory processes, permits, and rules that support clean production and economic justice. AB 617 should also explicitly develop a framework to ensure that the valuable lessons learned and information gained through the CERP process can be translated into benefits for all the overburdened communities, not just a select few.





ADVANCE A SECTOR-BASED MULTI-POLLUTANT APPROACH

To effectively reduce harmful emissions in highly polluted communities, CARB should pursue a statewide, sector-based, multi-pollutant approach within identified high-priority industry sectors. This should be accomplished by identifying, requiring, incentivizing, and implementing regulations that advance Best Available Control Technologies and emissions reduction technologies. There are many reasons why a sector-based approach to regulating air emissions produces stronger outcomes and alignment with environmental justice communities. First, a focus on sectors, rather than geographical regions, would allow for a simpler regulatory system where emissions are reduced significantly across overburdened communities, and it would streamline compliance and enforcement efforts in air districts. Second, a focus on sectors can support the development of best practices in emissions reduction strategies, which can then be implemented in all communities (regardless of whether that community has a CERP). Lastly, this approach could support the development of innovative policies that would require the mandatory implementation of the cleanest, safest and least toxic emission control strategies to limit the proliferation of regrettable substitutions in frontline communities.

CENTER BLACK AND BROWN LIVES AND LEADERSHIP

At the heart of the SCLA-PUSH project, we center the health, well-being and leadership of Black and Brown lives and experiences. Increasingly, local governments and medical associations are declaring racism a public health crisis. In a time of energized mobilizations against systemic racism and police brutality, of ongoing political turmoil, and the unprecedented and uneven impacts of COVID-19 on communities of color and low-income communities, it is even more imperative that we continue to push for environmental justice. Given these realities, fighting for clean air becomes a crucial pathway in the fight for racial justice. We can't afford to wait for solutions. Now is the time to center Black and Brown leadership, to demand a just recovery, and place the health and well-being of Black and Brown communities at the center of policy change.

VISION FOR THE FUTURE

Our vision for environmental justice communities across California and in South Central LA can be accomplished by demanding direct facility emissions reductions, a Just Transition of key industries-of-concern, holding agencies accountable to communities of color and low-income communities, and collectively advancing a vision for greener, healthier and more just environments across California. A significant body of scientific analyses points to the inevitable conclusion: air pollution must be reduced to protect the most vulnerable communities and to help solve the public health crisis of racism. The current COVID-19 pandemic has increased the urgent need for improved air quality and health protections.

South Central LA is awaiting the opportunity to meaningfully participate in the AB 617 program to continue to push for significant emissions reductions and improvements in air quality. Community residents are shaping the future of South Central LA and lifting up community challenges to ensure their community is selected for an AB 617 air improvement plan.

This plan can provide a stronger regulatory platform to carry out a Just Transition, clean production, and economic justice approach to address air pollution burden and create needed health protections for South Central LA communities. Though we strongly support South Central LA designation as an official AB 617 community, as environmental justice and health advocates, we stand in solidarity and support other environmental justice communities who are also burdened by air pollution—because all communities deserve to benefit from air-quality improvements.

Environmental justice solutions inherently require a systems-change approach in order to fundamentally shift exclusionary decision-making processes and uproot systemic racism. The communities of South Central LA have long stood at the intersections of environmental injustice and health disparities as a result of the pervasiveness of industrial pollution exposure, poor and racialized land-use decisions, and lack of political accountability.

Our SCLA-PUSH collective work is tackling the root causes of systemic and environmental racism to pave the way toward transformative change that can only be attained by centering on communities' experiences and needs. Our Air Quality Ambassadors are the agents of change who validate community science and local wisdom as key factors toward a transformation that is reimagining community health and safety. With SCLA-PUSH, South Central LA continues to push for creative and collective community-driven solutions that are centered in protecting communities while addressing environmental injustice through progressive policy change. South Central LA communities' stories and experiences are cemented in our collective vision of healthier, thriving, and cleaner communities and collectively we are paving the way toward a stronger and more resilient South Central LA.



Fewer toxics
Better health

Harer
Cambios
Toma decisiones
Involucra a la comunidad

Save lives
Healthy communities

Más Arboles

Investments in
new initiatives are
not enough. We
need to do
something to
address the
root causes of
the problem.

Healthier jobs
Healthier
communities

MORE RESPONSIVE
GOVERNMENT

Enforcement of
Laws already on
the books

Distribution
conditions of
funding

The Overage of
the
- Education
- Migration
- Safety

Shut
down
OTSC -
organize a
new organization
with new
ideas -
collaborate
with other
groups

Power
Building

NEW SCIENCE
- new project
managers
- new leaders
- a board with
elected members
- impacted communities
- a review of
the process

Daily phone
to families
with advice
tools

Participation
tools

Get
input
to
the
top

democratic
participatory
processes

improve
strengthen
enforcement

improve
strengthen
enforcement

fees
- reducing

Distribution
conditions
of funding

the
expansion
of funding

community
participatory
processes

OTSC
- new board
- new members
- new leadership
- accountability

OTSC
- new board
- new members
- new leadership
- accountability

salud de
nuestras
familias
reminders

documentos

Transparency

salud 777
numero

desire to
see OTSC
become an
organization
with integrity
rather than
an organization
used by
users to
...

OTSC
- new board
- new members
- new leadership
- accountability



GLOSSARY

AB 617 Community Air Protection Program: In response to Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017), **California Air Resources Board (CARB)** established the Community Air Protection Program (CAPP). CAPP's focus is to reduce exposure in communities most impacted by air pollution. Communities around CA are working together to develop and implement new strategies to measure air pollution and reduce health impacts.

Air Quality Academy (AQA): an innovative two-day training session that teaches community members the science of air pollution, the process of collecting data, and how to engage in policy and regulatory change.

Air Quality Academy Graduates, Air Quality Ambassadors: 70 graduates of the Air Quality Academy who become Air Quality Ambassadors, Radical Scientists, Creative Mappers, and Community Researchers.

AirBeam: a low-cost, palm-sized air quality instrument that measures hyperlocal concentrations of harmful microscopic particles in the air, known as particulate matter, as well as humidity and temperature.

Best Available Control Technology (BACT): The most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. Defined as an emission limitation based on the maximum degree of emission reductions allowable taking into account energy, environmental and economic impacts and other costs. The term BACT as used in state law means an emission limitation that will achieve the lowest achievable air emission rates using the most stringent emission limits.³⁰

Best Available Retrofit Control Technology (BARCT): An air emission limitation that applies to existing sources and is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.

"Section 169(3) of the federal Clean Air Act defines BACT as follows: The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of each such pollutant."³¹

CalEnviroScreen 3.0: a tool created and managed by the Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA). The tool identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution.

California Air Resources Board (CARB): is charged with protecting the public from the harmful effects of air pollution and developing programs and actions to fight climate change. From requirements for clean cars and fuels to adopting innovative solutions to reduce greenhouse gas emissions, California has pioneered a range of effective approaches that have set the standard for effective air and climate programs for the nation, and the world.

Clean Inspection: a regulatory inspection that does not result in the facility receiving a notice to comply or a notice of violations, see below.

Co-powerment: as opposed to empowerment bestowed upon others from the source of power.

EnviroReport app: a bilingual, mobile environmental reporting app designed to increase the community's engagement in the environmental reporting process, to add collective power to individual experiences, and to bridge the gap between communities and regulatory and policy decision-making.

30. <http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/glossary.pdf>

31. <https://ww3.arb.ca.gov/bact/docs/controltech.htm>

Facilities-of-concern: Industrial and hazardous land uses that community residents identified as a main concern given the over clustering of these facilities in the community and their potential adverse air quality and health impacts in the community (e.g, oil drilling sites, auto body shops, dry cleaners, metal manufacturing facilities, and gas stations). The facilities-of-concern also include any other industrial land uses identified by our academic research team that could present air pollution impacts to the community including (e.g, general and textile manufacturing, warehousing and transportation, and construction). **In total, 280 facilities of concern were identified.**

Ground-Truthing Walks: Air Quality Ambassador-led community data collection walks to collect qualitative and quantitative data found by walking literally or virtually through neighborhoods. The “Community Engagement and Ground Truthing” methodology drew inspiration from the Los Angeles Collaborative for Environmental Health and Justice model, described in the Hidden Hazards report. At the heart of this process was the recognition that community residents are experts in their neighborhoods and that allows them to gather data on neighborhood-level assets and burdens that regulatory agencies miss due to lack of capacity or oversight.

Just Transition: Just Transition is a principle, a process and a practice. The principle of Just Transition is that a healthy economy and a clean environment can and should co-exist. The process for achieving this vision should be a fair one that should not cost workers or community residents their health, environment, jobs, or economic assets. Any losses should be fairly compensated. And the practice of Just Transition means that the people who are most impacted by pollution – the frontline workers and the fenceline communities – should help to lead the crafting of policy solutions.³²

Mapping Workshops: To document the communities’ stories, community residents initially participated in mapping workshops that allowed residents to identify areas to be preserved as community treasures and areas to be investigated further as air pollution hot spots.

Notices to Comply: given after inspection to permitted facilities alleging a minor violation of a SCAQMD rule requirement has occurred; or more information from the facility is needed to determine the facility’s compliance status.³³

Notices of Violation: issued if a facility has failed to comply with a SCAQMD rule or permit, or a state air pollution regulation. Often, these violations involve air pollution emissions above the allowable threshold. The facility is required to correct the problem, and there is usually a fine or penalty associated with the violation.³⁴

PurpleAir monitor: a stationary laser particle counter that provides real-time measurement of particulate matter in the air, PM1.0, PM2.5 and PM10.

Particulate Matter: solid and liquid particles suspended in air many of which are hazardous. This complex mixture includes both organic and inorganic particles, such as dust, pollen, soot, smoke, and liquid droplets.

Sensitive receptors: include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities—areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants.

South Coast Air Quality Management District (SCAQMD): is the regulatory agency responsible for improving air quality for large areas of Los Angeles, Orange County, Riverside and San Bernardino counties, including the Coachella Valley. Its mission is to clean the air and protect the health of all residents in the South Coast Air District through practical and innovative strategies.

StoryMap: To deepen and add layers of specificity to the data collected by residents in the Mapping Workshops, Ground-truthing walks, and community air monitoring, we developed the **StoryMap** as an important community-based research method which describes cultural treasures, pollution hot spots, community air monitoring data, traffic volume counts, and identification of incompatible hazardous land uses.

32. What is Just Transition - Just Transition Alliance: <http://jtalliance.org/what-is-just-transition/>

33. <http://www.aqmd.gov/home/rules-compliance/compliance/compliance-notices/notice-to-comply>

34. <https://www.aqmd.gov/home/rules-compliance/compliance/compliance-notices/notice-of-violation>

SCLA-PUSH is part of California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment — particularly in disadvantaged communities.



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