

CLIMATE CHANGE AND HEALTH DISPARITIES IN CALIFORNIA'S LATINO NEIGHBORHOODS

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This data brief builds on LPPI's [Latino Climate and Health Dashboard](#).

The UCLA Latino Policy and Politics Institute acknowledges the Gabrielino and Tongva peoples as the traditional land caretakers of Tovaangar (the Los Angeles basin and Southern Channel Islands) and that their displacement has enabled UCLA's flourishing. As a land grant institution, we pay our respects to the Honuukvetam (Ancestors), Ahiihirom (Elders), and Eyoohiinken (our relatives nations) past, present, and emerging.

Disclaimer

Although this data brief centers Latino communities, these challenges are not unique to Latinos. Communities of color and low-income populations more broadly also face disproportionate environmental and health burdens. Our Latino focus reflects the scope of our research center rather than the exclusivity of the issue.

The views expressed herein are those of the authors and not necessarily those of the University of California, Los Angeles as a whole. The authors alone are responsible for the content of this report.

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Executive Summary

Latino neighborhoods across California face a triple burden: rising temperatures resulting from climate change, air pollution, and deeply rooted health inequities that worsen the impacts of extreme heat and poor air quality. This data brief highlights major disparities in exposure to extreme heat, air pollutants, health outcomes, and neighborhood conditions between Latino neighborhoods and non-Latino (NL) white neighborhoods in California. We found that, compared to NL white neighborhoods, Latino neighborhoods, on average:

- » **Face greater heat exposure.** Latino neighborhoods experience 1.6 times more extreme heat days historically and are expected to face 1.3 times more extreme heat days in the future, raising risks of heat stroke, dehydration, and kidney failure.
- » **Are exposed to dirtier air.** Latino neighborhoods are exposed to 2.7 times more diesel particulate matter and 1.3 times more particulate matter 2.5, heightening the risks of asthma, lung cancer, and heart disease.
- » **Report higher health burdens.** Latino neighborhoods see twice as many emergency department (ED) visits for asthma and 1.6 times more ED visits for heart attacks than NL white neighborhoods, signaling strain from environmental and climate exposures such as air pollution and extreme heat.
- » **Have more workers employed in riskier jobs.** Latino neighborhoods have more than twice the share of workers in heat-exposed fields like agriculture and construction, increasing vulnerability to illness and injury (30% in Latino neighborhoods and 14% in NL white neighborhoods).
- » **Have less protection from heat.** Latino neighborhoods have an average of 4% of land covered by tree canopy (compared to 18% in NL white neighborhoods) and 56% covered by impervious surfaces (double that of NL white neighborhoods), intensifying urban heat and health risks.
- » **Are closer to toxic sites.** Latino neighborhoods face 2.4 times higher exposure to cleanup sites, 3 times more exposure to hazardous waste facilities, and nearly 10 times closer proximity to Risk Management Program facilities, driving risks of cancer, low birth weight, and chronic disease.



- » **Sustain greater pollution from vehicles.** Latino neighborhoods experience 1.4 times higher traffic density, worsening air quality, and contributing to asthma, heart disease, and adverse birth outcomes.
- » **Face cumulative disadvantages.** More than three fourths (76%) of Latino neighborhoods are designated as Disadvantaged Communities (compared to just 1% of NL white neighborhoods), reflecting compounded environmental, economic, and health inequities.



These findings illuminate that environmental and climate risks in California are not distributed equally and that environmental and climate injustice drive public health injustice.

Understanding these patterns is a critical step toward climate justice. Targeted investments in marginalized neighborhoods, such as Latino communities, through initiatives such as expanded tree canopy, zero-emission transportation, clean energy infrastructure, and equitable Cap-and-Trade funding can reduce environmental and climate risks and protect public health.



Introduction

Rising temperatures and air pollution are intensifying public health threats. On extreme heat days, the body must work harder to regulate its own temperature. This physiological stress can result in a spectrum of heat-related illnesses, from mild heat cramps to life-threatening heat stroke and organ damage.¹ Vulnerable populations, such as those with chronic conditions, are more likely to experience a medical emergency resulting from exposure to extreme heat, including an increased risk of emergency room visits for cardiovascular disease, kidney failure, and asthma.²

Air pollution produced by wildfires, vehicle emissions, industrial processes, and other sources poses another serious threat. Like extreme heat, exposure to air pollution can worsen pre-existing health conditions such as asthma. Long-term exposure to air pollution is linked to an increased risk of lung cancer and low birth weight infants, among other adverse health outcomes.³

As climate change causes more frequent and prolonged periods of extreme heat, the impacts of rising temperatures and air pollution are experienced simultaneously. When extreme heat and poor air quality coexist, their combined effects can exacerbate health impacts.

Historic segregation, systemic disinvestment, and racialized policies have concentrated the impacts of climate change and environmental hazards in low-income communities and communities of color.⁴ As a result, Latino neighborhoods in California disproportionately face higher exposure to both extreme heat and air pollution than non-Latino (NL) white neighborhoods.⁵

This data brief highlights neighborhood-level differences in exposure to extreme heat, air pollution, and related health outcomes in California, with a focus on Latino neighborhoods. We analyze these differences to improve understanding of the climate, environmental, and health disparities affecting Latino neighborhoods across California.



Data and Methods

This data brief draws on multiple data sources, including the American Community Survey, the Centers for Disease Control and Prevention, and CalEnviroscreen, to analyze characteristics of Latino neighborhoods and their exposure to climate change and environmental hazards. Our primary unit of analysis is the census tract, a geographic unit commonly used as a proxy for neighborhoods. Throughout this brief, we use the terms “census tract” and “neighborhood” interchangeably. **We define Latino neighborhoods as census tracts where more than 70% of residents identify as Latino.** Latino residents include those who identify as Hispanic or Latino of any race. Similarly, we define NL white neighborhoods as census tracts where more than 70% of residents identify as NL white. NL white excludes individuals who identify as Hispanic or Latino. We compare outcomes across Latino and NL white neighborhoods to highlight disparities. In our figures, we also include data for all California neighborhoods as a statewide baseline for context. Data for all California neighborhoods represents census tracts with populations greater than zero. All statistics presented represent average exposure at the neighborhood level rather than the population level. For additional information on our data sources and methodology, see [Appendix 1](#).

Note: Although the brief presents the most recent data available at the census tract level, several indicators, including data on tree canopy coverage, exposure to particulate matter 2.5, and diesel emissions, are generally not up-to-date because of the time required for agencies to collect, assemble, review, and release information. Trends typically remain consistent; however, data may have changed in the recent past due to events such as wildfires affecting communities throughout California.

Key Findings

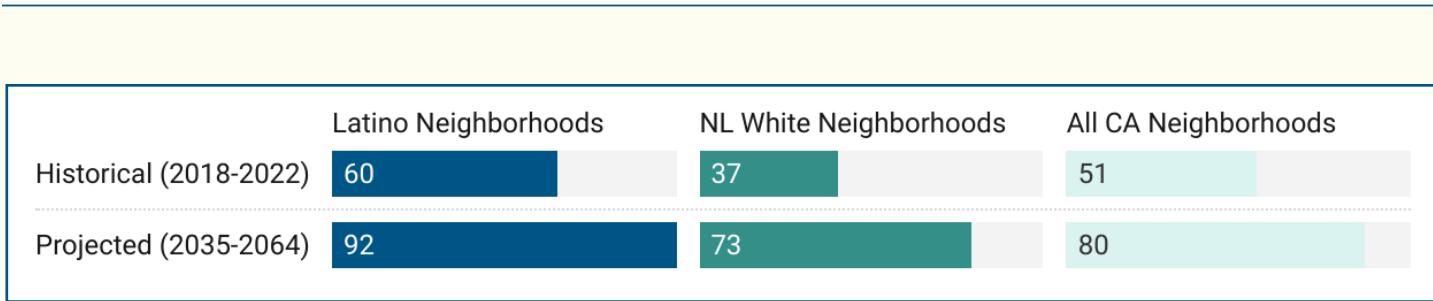
Exposure to Extreme Heat, Air Pollution, and Other Health Risks



Key Finding 1. Latino neighborhoods in California experienced 1.6 times more extreme heat days than NL white neighborhoods between 2018 and 2022, and are expected to experience 1.3 times more extreme heat days in the future.

Between 2018 and 2022, residents in Latino neighborhoods experienced an annual average of 60 extreme heat days (defined as any day when temperatures exceeded 90°F), 23 more days than residents in NL white neighborhoods and nine more days than the statewide average (see Figure 1). Projections for 2035–2064 show that Latino neighborhoods will likely experience an average of 92 extreme heat days annually and that they will continue to experience more extreme heat days than NL white neighborhoods. Prolonged heat waves impose physiological stress, increasing the risk of heat-related illnesses, particularly for children, older adults, and those with chronic conditions like diabetes and obesity.⁶

Figure 1. Historical and Projected Number of Days above 90°F by Neighborhood Type in California



Notes: We weighted data for historical and projected extreme heat days using each neighborhood’s total population. While definitions of extreme heat vary, many public health agencies, including the Centers for Disease Control and Prevention, use 90°F as a baseline threshold. We defined an extreme heat day as any day when temperatures exceeded 90°F.

Sources: LPPI analysis of data from the Centers for Disease Control and Prevention: National Public Health Tracking Network, 2018-2022, and the Health Places Index 3.0, 2021.

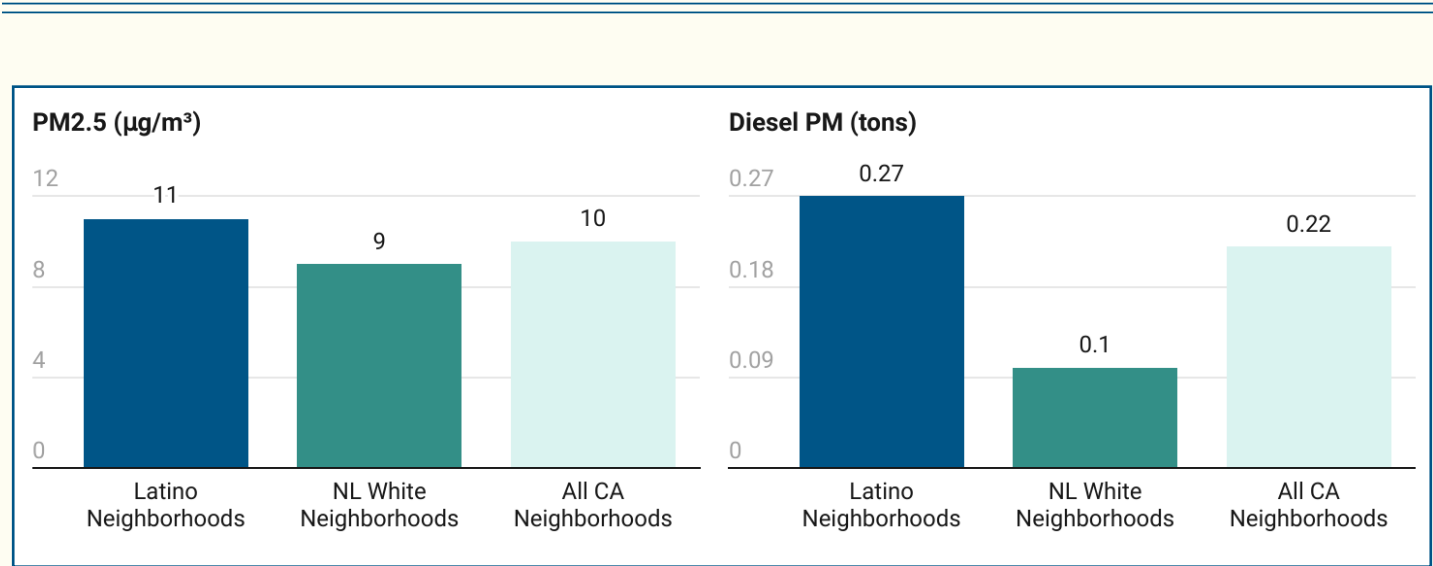


Key Finding 2. Latino neighborhoods faced 1.3 times more exposure to fine particulate matter (PM2.5) between 2015 and 2017, and 2.7 times more exposure to diesel particulate matter in 2016, compared to NL white neighborhoods.

Between 2015 and 2017, Latino neighborhoods were exposed to an average PM2.5 level of 11 µg/m³ annually, compared to 9 µg/m³ in NL white neighborhoods and 10 µg/m³ statewide (see Figure 2). PM2.5 is produced from several sources, including motorized vehicles. It is small enough to enter the lungs and bloodstream, increasing the risk of lung and heart diseases, especially among children.⁷

Additionally, in 2016, Latino neighborhoods were exposed to almost three times the amount of diesel PM as NL white neighborhoods (0.27 tons vs. 0.10 tons) and an amount of diesel PM higher than the statewide average of 0.22 tons. Diesel PM is commonly produced from diesel engines used in trucks, buses, cars, and ships, and is known to increase the risk of lung cancer and worsen conditions such as asthma, chronic bronchitis, and heart disease.⁸

Figure 2. Exposure to Particulate Matter 2.5 (µg/m3) and Diesel Particulate Matter (tons) by Neighborhood Type in California



Notes: µg/m³ = one-millionth of a gram per cubic meter of air. Data for PM2.5 and Diesel PM are weighted using each neighborhood’s total population. California’s state standard for PM2.5 is an annual average of 12 µg/m³, while the federal standard is 9 µg/m³. There is no state or federal or state standard for diesel particulate matter.

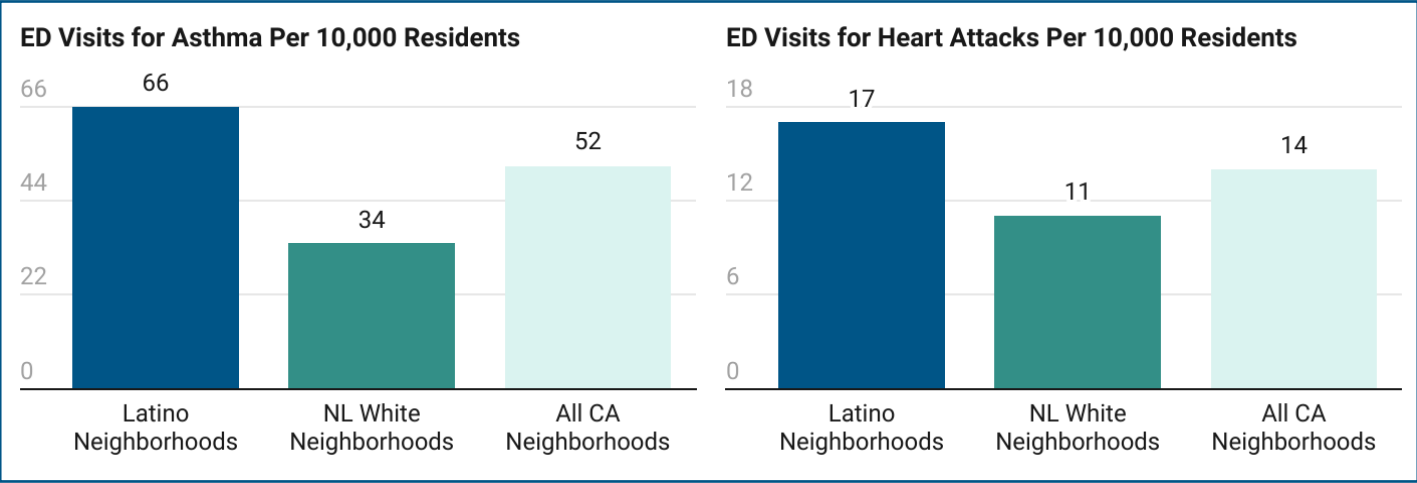
Sources: LPPI analysis of data from CalEnviroscreen 4.0, 2021. While data from CalEnviroscreen were released in 2021, source data for PM2.5 were collected between 2015 and 2017. Source data from diesel particulate matter were collected in 2016.



Key Finding 3. Residents in Latino neighborhoods experienced double the rate of emergency department visits for asthma, and 1.6 times the rate for heart attacks, than residents in NL white neighborhoods between 2015 and 2017.

Between 2015 and 2017, residents in Latino neighborhoods experienced an average of 66 emergency department visits for asthma per 10,000 residents. That was 32 more visits than in NL white neighborhoods (34 average visits) and 14 more than the statewide average (see Figure 3). Emergency visits for heart attacks also occurred at higher rates in Latino neighborhoods, averaging 17 visits per 10,000 residents, compared to 11 in NL white neighborhoods and 14 statewide. Both extreme heat and air pollution directly contribute to these health outcomes.⁹ High temperatures can inflame airways and worsen asthma symptoms, while fine particulate matter from air pollution penetrates the lungs and increases the risk of heart attacks, particularly among people with existing heart disease.¹⁰

Figure 3. Emergency Department (ED) Visits for Asthma and Heart Attacks (Per 10,000 Residents) by Neighborhood Type in California



Notes: As reported by CalEnviroScreen, emergency department visit data are age-adjusted. Data for emergency department visits are weighted using each neighborhood’s total population.

Sources: LPPI analysis of data from CalEnviroScreen 4.0, 2021. While CalEnviroScreen data were released in 2021, source data for emergency department visits for asthma and heart attacks were collected between 2015 and 2017.

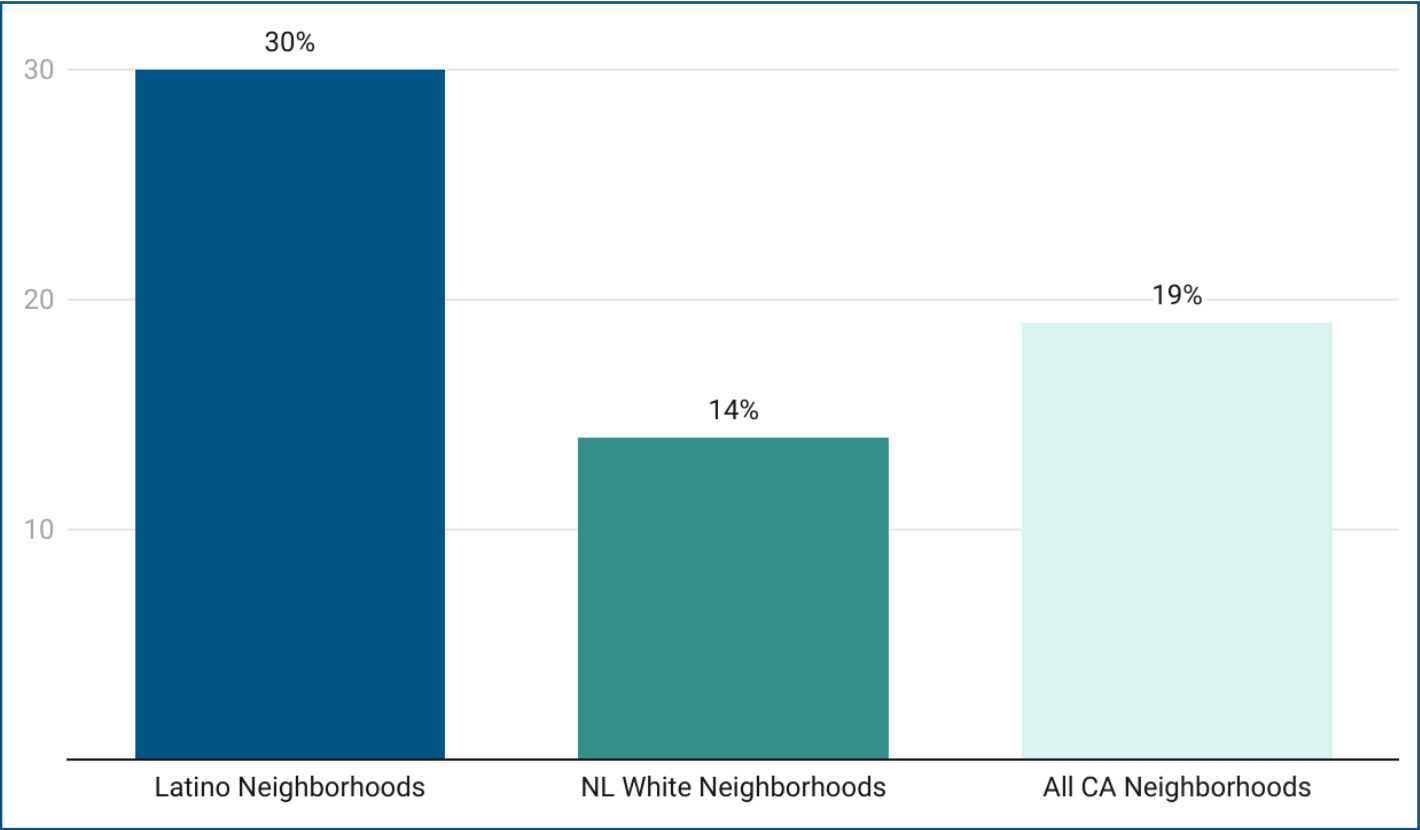
Structural Inequalities of Climate Change and Environmental Hazards



Key Finding 4. Latino neighborhoods had more than twice as many heat-exposed workers as NL white neighborhoods in 2022.

In 2022, on average, 30% of workers in Latino neighborhoods were employed in heat-exposed industries¹¹ such as agriculture, construction, transportation, manufacturing, and waste services (see Figure 4). Comparatively, on average, 14% of workers in NL white neighborhoods and 19% of workers in all California neighborhoods were employed in heat-exposed industries. Workers in these sectors face elevated risks of heat-related illnesses, including heat exhaustion, dehydration, heat stroke, and occupational injuries.¹²

Figure 4. Share of Workers Employed in Heat-Exposed Industries by Neighborhood Type in California



Notes: Data reflect civilian workers ages 16 and older and are weighted using each neighborhood’s total employed population.

Sources: LPPI analysis of data from the Census Bureau’s American Community Survey 2022 5-Year Estimates.

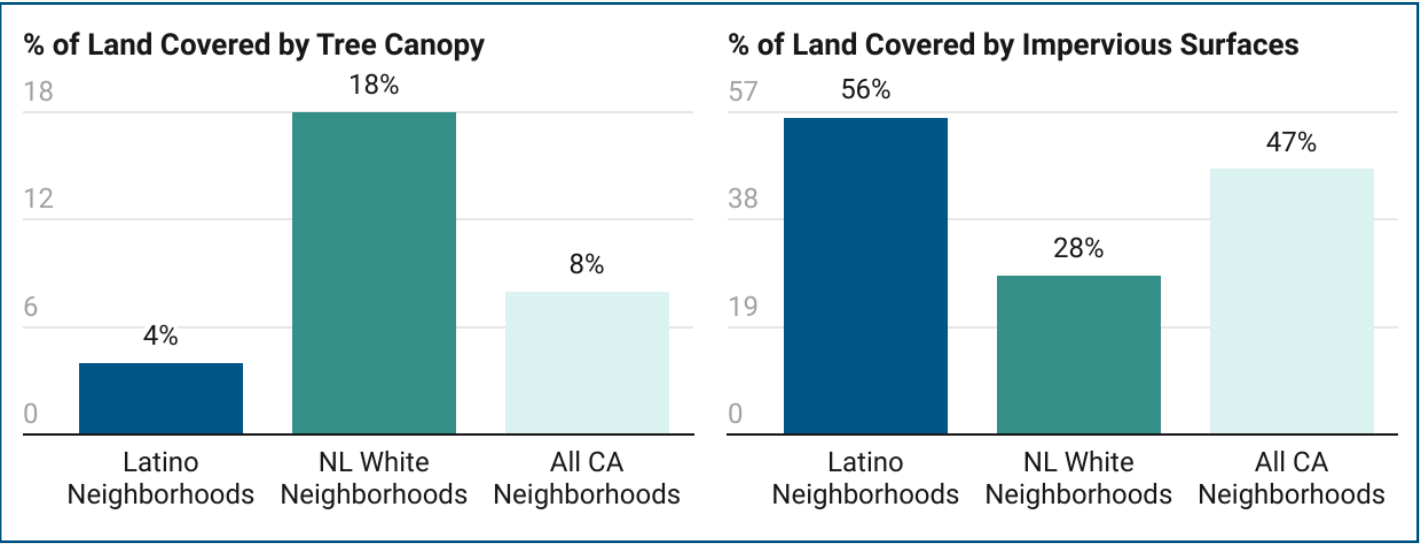


Key Finding 5. Latino neighborhoods had less than one-fourth of the tree canopy as NL white neighborhoods in 2011. In 2021, they had twice the amount of impervious surfaces as NL white neighborhoods.

Tree canopy in neighborhoods provides shade, cools temperatures, and improves air quality. In 2011, on average, tree canopy covered only 4% of land in Latino neighborhoods (see Figure 5)—14 percentage points less than in NL white neighborhoods (18%) and four percentage points less than the statewide average (8%). Residents in neighborhoods with lower tree canopy coverage are often more exposed to heat, increasing the risk of heat stress, respiratory conditions, and even heat-related mental health issues.¹³

In 2021, on average, impervious surfaces like asphalt and concrete covered more than half (56%) of the land in Latino neighborhoods—double the coverage in NL white neighborhoods (28%) and 9 percentage points higher than the statewide average (47%). These heat-retaining surfaces amplify the urban heat island effect, increasing temperatures and intensifying the severity of heat waves.¹⁴

Figure 5. Percent of Land Covered by Tree Canopy and Impervious Surfaces by Neighborhood Type in California



Notes: Data for tree canopy and impervious surfaces are weighted using each neighborhood's total population.

Sources: LPPI analysis of data from California Healthy Places Index (HPI) 3.0, 2021, and the Centers for Disease Control and Prevention (CDC): National Environmental Public Health Tracking Network, 2022. While Health Places Index data was released in 2021, source data on tree canopy was collected in 2011. Source data on impervious surfaces from the CDC was published in 2021.



Key Finding 6. Latino neighborhoods are closer to hazardous pollution sources such as cleanup sites, waste facilities, and chemical plants than NL white neighborhoods.

Living near pollution sources exposes residents to toxic chemicals linked to cancer, low birth weight, and chronic illnesses.¹⁵ Latino neighborhoods consistently scored higher on proximity and exposure metrics¹⁶ than NL white neighborhoods. The higher the exposure or proximity score, the closer Latino neighborhoods are to these polluting sites.

- » **Cleanup sites** (e.g., Superfund sites containing lead or asbestos): In 2021, Latino neighborhoods averaged an exposure score of 12, more than double the score for NL white neighborhoods (5) and 4 points higher than the statewide average.
- » **Hazardous waste facilities**, which emit carcinogens and airborne toxins: Latino neighborhoods in 2021 scored an average exposure score of 0.9, compared to 0.3 in NL white neighborhoods and 0.7 statewide.
- » **Risk Management Program (RMP) facilities**, which handle chemicals such as propane and pesticides: In 2024, Latino neighborhoods scored an average proximity score of 1.9, nearly 10 times higher than NL white neighborhoods (0.2) and more than double the statewide average (0.9; see Figure 6).

Figure 6. Proximity to Major Sources of Hazardous Pollution by Neighborhood Type in California

Neighborhood Type	Cleanup Sites	Hazardous Waste Facilities	RMP Facilities
Latino Neighborhoods	12	0.9	1.9
NL White Neighborhoods	5	0.3	0.2
All CA Neighborhoods	8	0.7	0.9

Notes: Exposure and proximity scores take into account the number of sites or facilities and their proximity to neighborhoods. Data for proximity sources of air pollution are weighted using each neighborhood's total population.

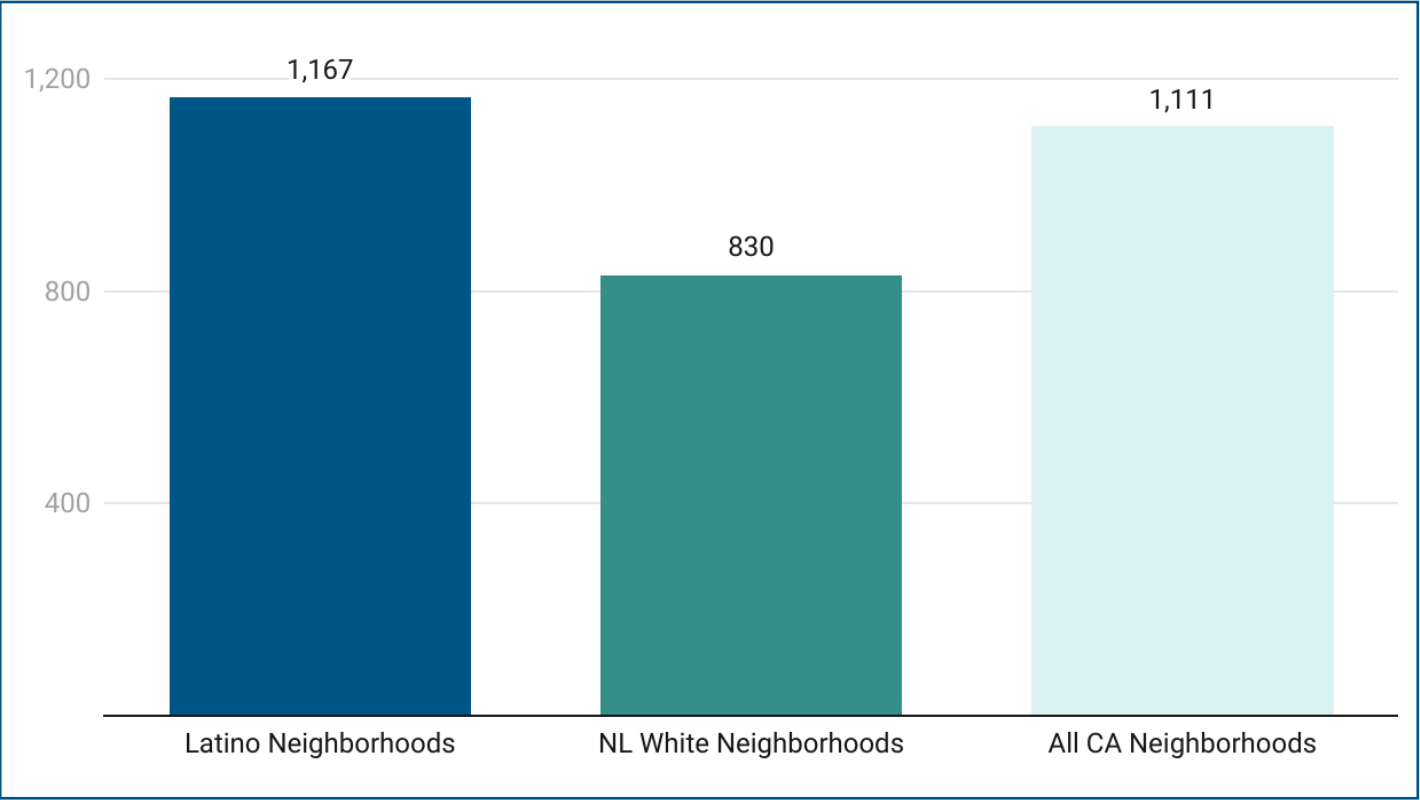
Sources: LPPI analysis of data from CalEnviroscreen 4.0, 2021, and the Environmental Justice Screening Tool 2.3, 2024.



Key Finding 7. Latino neighborhoods had 1.4 times the amount of traffic density as NL white neighborhoods in 2017.

Exposure to traffic-related air pollution is linked to significant health risks, including respiratory issues such as asthma, cardiovascular disease, and poor birth outcomes.¹⁷ Traffic density, a measure of traffic-related air pollution, represents the average vehicle kilometers traveled per hour. In 2017, the average traffic density in Latino neighborhoods was 1,167 vehicle km/hour, 1.4 times greater than in NL white neighborhoods (830 vehicle km/hour; see Figure 7). This elevated traffic burden increases residents’ exposure to harmful pollutants, including nitrogen dioxide and ultrafine particles. High traffic volumes also bring additional noise pollution and safety risks, which further degrade overall well-being in Latino communities.

Figure 7. Traffic Density (vehicle km/hour) by Neighborhood Type in California



Notes: Traffic density data is weighted using each neighborhood’s total population. While CalEnviroscreen data were released in 2021, source data for traffic density were collected in 2017.

Sources: LPPI analysis of data from CalEnviroscreen 4.0, 2021.



Key Finding 8. More than three-quarters (76%) of Latino neighborhoods are designated as Disadvantaged Communities, compared to just 1% of NL white neighborhoods.

Disadvantaged Communities (DACs) are areas identified by the State of California for targeted investments from California’s Cap-and-Trade program, which aims to reduce pollution and improve public health in the most burdened communities. Seventy-six percent of Latino neighborhoods are classified as Senate Bill 535-designated DACs,¹⁸ compared to only 1% of NL white neighborhoods and 29% of all neighborhoods statewide (see Figure 8).

Figure 8. Percent of Neighborhoods Designated as Disadvantaged by the State of California by Neighborhood Type

Neighborhood Type	Number of Residents	Share of Neighborhoods
Latino Neighborhoods	5M	76%
NL White Neighborhoods	49K	1%
All CA Neighborhoods	11M	29%

Notes: Data for disadvantaged communities is weighted using each neighborhood’s total population.

Sources: LPPI analysis of data from CalEnviroscreen, 2022.



Conclusion

Latino communities across California have faced segregation and disinvestment, leaving them vulnerable to extreme heat, air pollution, and health inequities. Residents in Latino-majority neighborhoods also consistently experience higher exposure to environmental threats and worse health outcomes than majority NL white neighborhoods. These findings illuminate that climate risk in California is not distributed equally and that environmental injustice is driving public health injustice.

Understanding these patterns is a critical step toward climate justice. Targeted investments in marginalized neighborhoods, including many Latino communities, through initiatives such as expanded tree canopy, zero-emission transportation, clean energy infrastructure, and equitable Cap-and-Trade funding can reduce climate risks and protect public health.



Appendix

Appendix 1. Data Sources and Methodology

This brief draws on multiple data sources to analyze characteristics of Latino, NL white, and all California neighborhoods and their exposure to climate change and environmental hazards:

- » **Demographic data** such as race, ethnicity, and age were obtained from the Census Bureau’s American Community Survey (ACS) 2022 5-Year Estimates.
- » **Data on extreme heat**, including historical (2018-2022) and projected (2035-2064) heat days, were obtained from the Centers for Disease Control and Prevention: National Public Health Tracking Network, 2018-2022, and the Health Places Index 3.0, 2021.
- » **Air pollution data**, consisting of particulate matter 2.5 (PM2.5) and diesel particulate matter (PM), were sourced from the CalEnviroscreen 4.0, 2021.
- » **Data on emergency department visits** for asthma and heart attacks were sourced from CalEnviroscreen 4.0, 2021.
- » **Data on vulnerable populations**, including disadvantaged communities (DACs) and heat-exposed workers, were obtained from ACS 2022 5-year estimates and the CalEnviroscreen 4.0, 2021.
- » **Data on tree canopy and impervious surfaces** were sourced from the Health Places Index 3.0, 2021 and the Centers for Disease Control and Prevention: National Public Health Tracking Network, 2023.
- » **Data on proximity to cleanup sites, hazardous waste facilities, and Risk Management Program (RMP) facilities, as well as traffic density data**, were obtained from the 2021 CalEnviroscreen 4.0 and the 2024 Environmental Protection Agency Environmental Justice Screening Tool 2.3.

For more information on our methodology, please visit UCLA LPPI’s [Latino Climate and Health Dashboard](#).

Endnotes

¹ The Centers for Disease Control and Prevention: The National Institute for Occupational Safety and Health, "Heat-Related Illnesses," updated September 10, 2024, [available online](#).

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⁹ Li, et al., "Impact of Extremely Hot Days on Emergency Department Visits for Cardiovascular Disease among Older Adults in New York State;" Vaidyanathan et al., "Heat-Related Emergency Department Visits—United States, May–September 2023."

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¹¹ Workers in heat-exposed industries refers to the percentage of workers employed within industries identified by the Bureau of Labor Statistics (BLS) as having the highest average heat-related fatalities and injuries per year. According to BLS data cited by the Occupational Safety and Health Administration, these industries include Agriculture, Forestry, Fishing, and Hunting; Mining; Construction; Administrative and Support and Waste Management and Remediation Services; and Transportation and Warehousing. For more information, see Occupational Health and Safety Administration, "Memorandum for Regional Administrators and State Designees, Subject: Inspection Guidance for Heat-Related Hazards," updated September 1, 2001, [available online](#).

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¹⁶ Exposure scores, reported by CalEnviroScreen for cleanup sites and hazardous waste facilities, are calculated taking into account the number of sites and facilities, their level of risk to the environment, and their proximity to populated areas. For more information, see Laura August, Komal Bangia, Laurel Plummer, Shankar Prasad, Kelsey Ranjbar, Andrew Slocombe, and Walker Wieland, "CalEnviroScreen 4.0 Report," October 2021, [available online](#). Proximity scores, reported by the Environmental Protection Agency, are calculated taking into account the number of facilities and their proximity to populated areas. For more information see U.S. Environmental Protection Agency, "EJScreen Technical Documentation for Version 2.3," July 21, 2024, [available online](#).

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¹⁸ Senate Bill 535, passed in 2012, established the California Climate Change Community Benefits Fund and aims to benefit disadvantaged communities most impacted by climate change and pollution. CalEnviroScreen reports data on disadvantaged communities designations using the California Protection Agency’s pollution-and-population-vulnerability scoring system. For more information, see, California Environmental Protection Agency, "Final Designation of Disadvantaged Communities," May 2022, [available online](#).



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