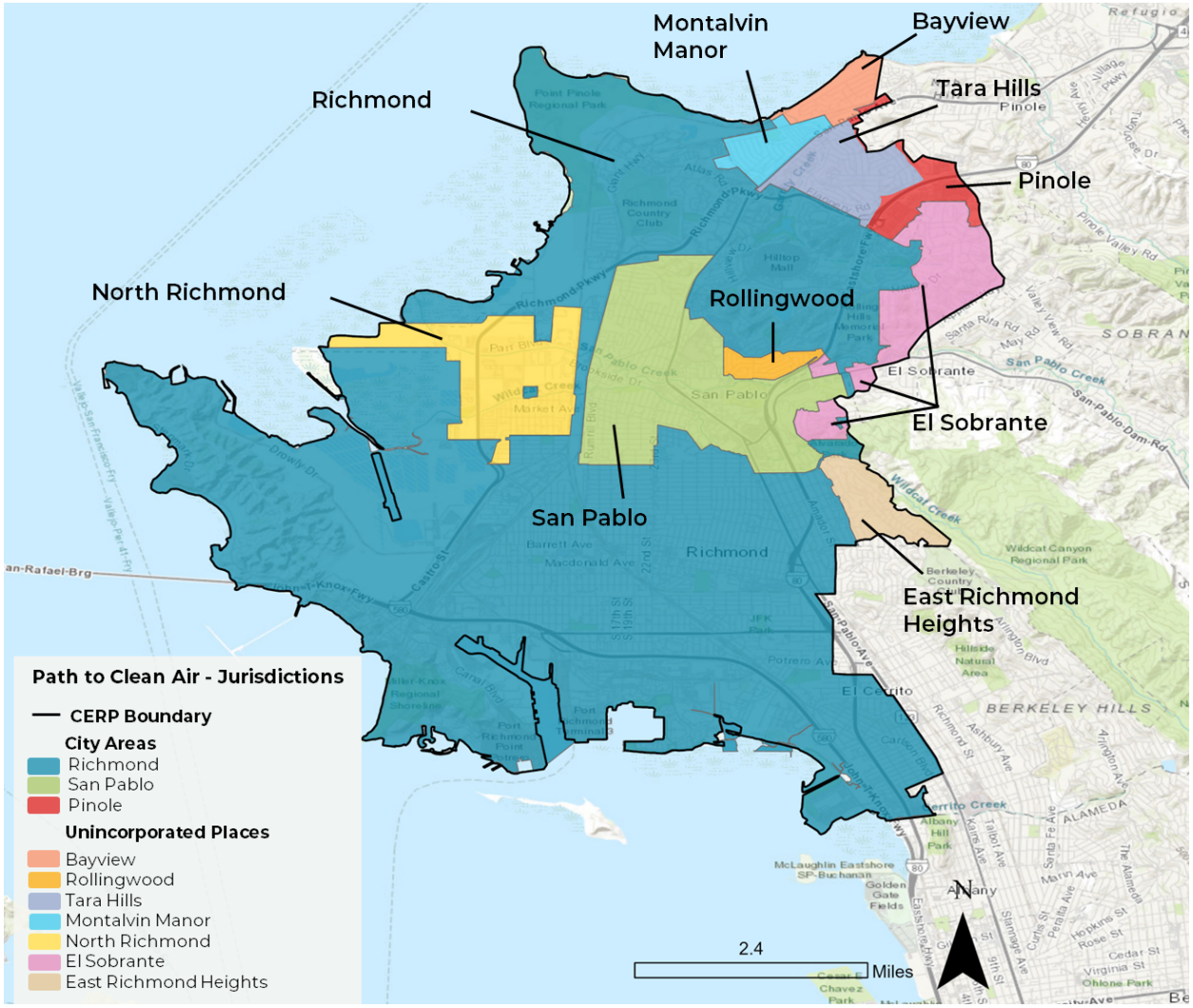
# COMMUNITY DESCRIPTION – AD HOC COMMITTEE DRAFT




**Community Emission Reduction Plan Boundary and Jurisdictions**

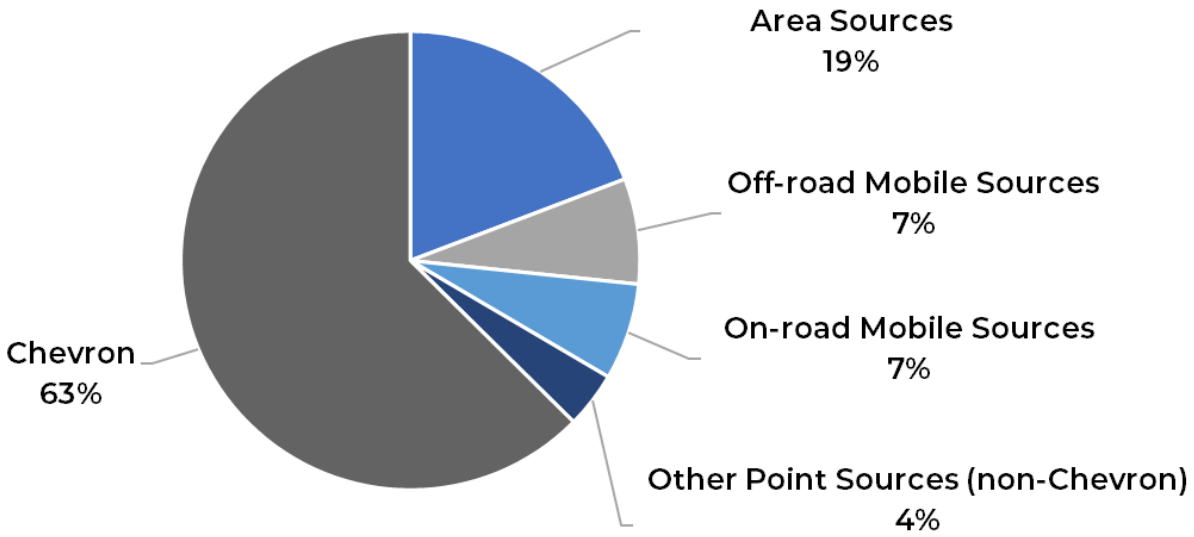
# EXECUTIVE SUMMARY

In 2017, the California Legislature passed a law requiring the state's air districts to involve communities severely impacted by air pollution to create solutions to their local air issues by reducing emissions and exposure. The Path to Clean Air geography is among these communities. It is comprised of the cities of Richmond and San Pablo, and the following unincorporated areas in Contra Costa County: Bay View, East Richmond Heights, Rollingwood, Tara Hills, Montalvin Manor, North Richmond, and El Sobrante. These towns were founded on land originally inhabited by the Ohlone people. From here on, we will refer to this the land and people within the geographic bounds of our Community Emission Reduction Plan (CERP) as the 'CERP Community.'

Situated near the East Bay waterfront, our CERP Community — with its current population of 166,415 — was a magnet for such World War II-era industries as shipbuilding. The population surged as people flocked here for jobs, including many people of color. Despite their contributions during and after the war, the newly arrived Black and Brown people were targets of exclusionary labor and housing policies that continue to negatively affect income, homeownership, mobility, and wealth accumulation to this day.

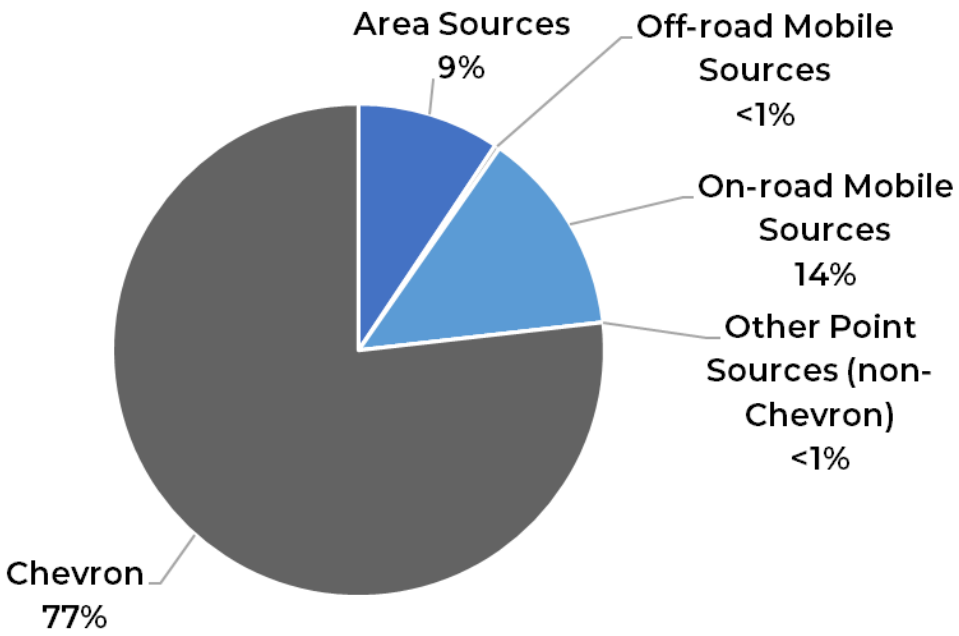
Today, our area has become a major corridor for the transportation of goods via ship, rail, and 18-wheelers, leading to congested freeways and roads running through residential communities. These include I-580 to the south, I-80 to the east, Richmond Parkway to the west, and San Pablo Ave through the center. The Port of Richmond and associated rail yards and rail lines lie to the west, as does the Chevron Refinery. For many air pollutants, such as PM2.5 shown in the graphic below, the Chevron Refinery is by far the largest single generator of emissions in the CERP Community. For example, it emits more fine particulate matter and sulfur dioxide than all other contributing sources in our community combined. Chevron also is the largest source of numerous toxic air contaminants, such as hydrogen cyanide, sulfuric acid, manganese, and hydrogen sulfide. Moreover, the fuel produced at the refinery generates additional emissions when used in motor vehicles.

**2019 PM2.5 Emissions for the CERP Community by Source Sector**




Source: BAAQMD

**2019 Manganese Emissions for the CERP Community by Source Sector**




Source: BAAQMD

More than 50% of our residents are Hispanic/Latino, Black/African American, or Asian – a higher proportion than living in the rest of Contra Costa County. People of color disproportionately live in close proximity to the Chevron Refinery, the major source of air pollution in our area, and/or within 1,000 feet of a freeway or railway. Our population of unhoused people experience even more pollution exposure from local sources than housed residents.

Due to these compounding factors, and according to CalEnviroScreen 4.0, residents in census tracts near Chevron, freeways, and railroads, experience some of the highest pollution burden in the state. Most census tracts in the CERP community experience higher-than-state-average asthma and heart attacks emergency department visit rates, and incidence of babies born with low birth weight. These health outcomes disproportionately affect people of color.

One-third of our community members reside in low-income households that make less than half the area median income of $103,599. Fewer people in our community have health insurance coverage, compared with the rest of our county.

Fewer people in our community have a higher-education degree in comparison with the rest of the county, and the number of people with less than a high school level of education is twice as high. White people in our community, followed by Asian people make up the highest proportions of those with a higher education degree.

Compared with the rest of the county, our community has fewer people over 55 years of age and more people under 30.

Fewer of our residents are in the labor force, compared with the county and the United States as a whole, possibly because our residents skew younger. Although the largest fields of employment in our county are education, health, and social assistance, residents in our community are primarily employed in arts, entertainment, accommodation, food services, construction, transportation and warehousing, and utilities.

In low-income census tracts of our county, many people live more than half a mile from a grocery store. Our community, however, has the most census tracts in which a significant number of households have low food access and limited car access - potentially hindering their ability to travel to a grocery store.

According to voter data for 2018 (the last election data available), our residents have among the lowest participation rates in our county. Despite this, our residents are deeply cognizant and concerned about air pollution and its impact on our lives and have been active in the environmental justice movement for generations. Community members have formed coalitions to stand against fossil fuel operations in our cities, primarily led by Black and Brown activists. The West County Non-Toxics Coalition, for example, was formed in 1986 to empower low-income residents in communities of color to exercise greater control over environmental problems generated by the Chevron Refinery and other sources of pollution.[1] Communities for a Better Environment has similarly advocated strongly for greater emissions restrictions from the refinery and decreasing greenhouse gas emissions from Richmond facilities.[2]

Historically, our communities of color were sited next to industrial businesses due to many factors, among them the institution of racial covenants and discriminatory lending, which created and enforce residential segregation. While such segregation is no longer enforced by the local and state government, the legacy of generations of disinvestment and abandonment lingers today, as seen by our contrasting health outcomes as compared with wealthier, whiter parts of Contra Costa County.

*This community description has been unanimously approved by Community Emissions Reduction Program steering committee members Jeff Kilbreth, Nancy Aguirre, Vernon Whitmore, and Heidi Swillinger. NOTE: As we are still in the draft stage, our ad hoc group has not yet achieved unanimity on this, but I'm hoping we will by our final draft. Our work would not have been possible without the contributions of Bay Area Air Quality Management District staffer Lily MacIver, who tracked down, coherently presented, and helped us interpret vast amounts of data necessary to provide an accurate description of our community and the challenges it faces from air pollution.*

[1] *West County Toxics Coalition*. http://www.westcountytoxicscoalition.org/. Accessed 13 June 2022.
[2] *Richmond | Communities for a Better Environment*. https://www.cbecal.org/organizing/northern-california/richmond/. Accessed 13 June 2022.

## SUPPORTING DOCUMENTATION

# I. LAND HISTORY

The CERP community sits on the original territory of Huichin, home to the Chochenyo and Kirkin-speaking Muwekma tribe of the Ohlone nation. The Ohlone stewarded the land that is now Richmond for generations before facing waves of genocide since contact was made with Spanish colonizers. Today, they continue to fight for their right to their land, and we acknowledge the impact of colonialism and genocide on these communities, and the fact that today's Richmond was enabled by the exploitation and displacement of the Muwekma Ohlone Tribe.

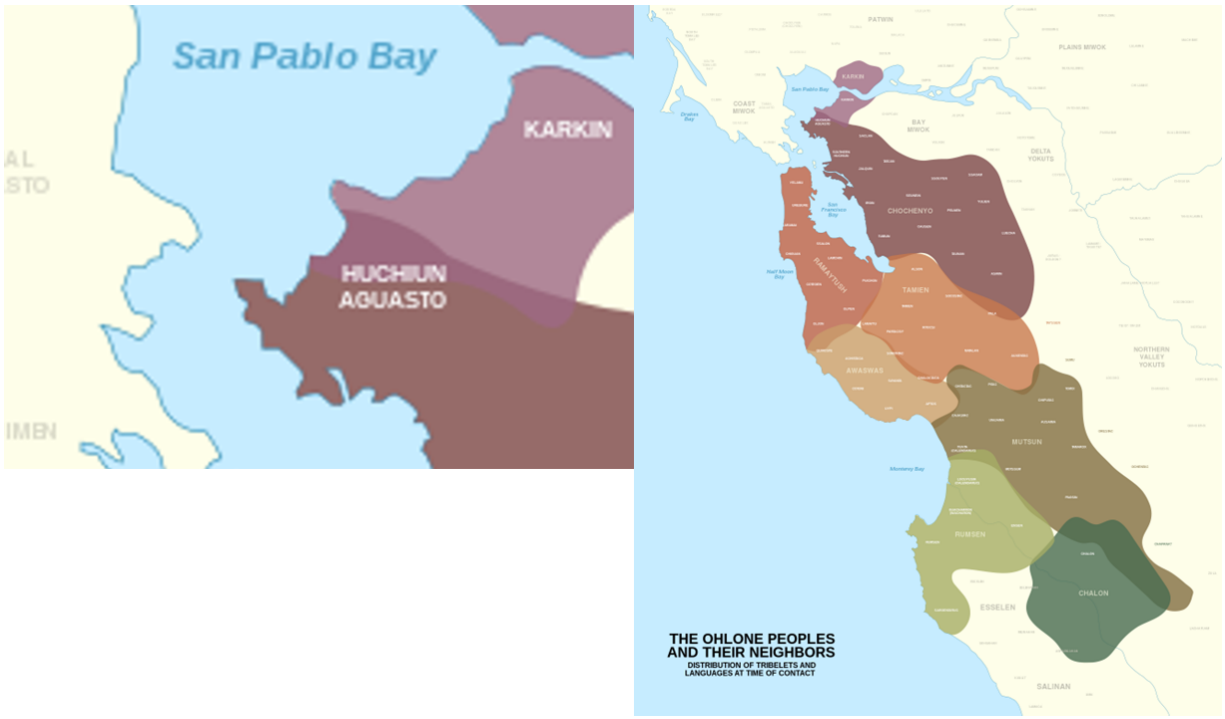
### Ohlone People Crossing the Waters

Source: Painting of three Ohlone people crossing the waters in San Francisco Bay by Louis Choris, 1816 or 1822.

Ohlone is an umbrella term for around 50 separate tribes with related languages. The Ohlone are Native American people located on the Northern California Coast, inhabiting areas from the San Francisco Bay Area to the Monterey Bay and lower Salinas Valley. The Ohlone family of tribes have been living in the Bay Area for 10,000 years or longer. The Ohlone language groups present in the CERP Community are the Chochenyo and the Karkin (also spelled "Carquin").[3] Traditionally the Ohlone people in the CERP Community subsisted by hunting, gathering, and harvesting the rich wildlife and diverse plants of the East Bay.

[3] "Chochenyo." California Language Archive, https://cla.berkeley.edu//languages/chochenyo.html. Accessed 18 May 2022.

**Map of Ohlone Traditional Territories**




Source: Randall Milliken (1995): https://museumsrv.org/the-bay-miwok-language-and-land/ California Indians and Their Environment: An Introduction (pg 34) Randall Milliken (2007). https://cejce.berkeley.edu/ohloneland.

A current initiative by Ohlone people is the women-run Sogorea Te Land Trust. This is an urban land trust founded in 2012 with the goal of returning indigenous land to indigenous people.[4] Sogorea Te encourages all people living on Ohlone land to pay Shu'mi, or a land tax, to support the work of the land trust and indigenous sovereignty efforts.

[4] "Sogorea Te." The Sogorea Te Land Trust, https://sogoreate-landtrust.org/. Accessed 18 May 2022.

# II. LAND USE AND ACTIVISM

### Industry, Segregation, and Pollution Exposure

Richmond is a relatively large city of fifty-six square miles that was developed initially around the needs of two major industrial operations at the turn of the 20th century: the Santa Fe Railroad and the flagship Standard Oil of California refinery (now Chevron). When Richmond was incorporated as a city in 1905 it had a population of 2,150 and was already an established industrial town. The city charter was adopted in 1909, and by 1910 the town numbered 7,500. Within a few years, the following substantial industries locate to Richmond: Winehaven, Pullman Palace Car Shops, American Radiator, Standard Sanitary Company, Stauffer Chemical Company, and several others less well known. Town sites began to emerge around these industries, as Rancho San Pablo's vast grain fields were subdivided into uniform city lots.

As the City grew during the 1920s and 1930s, Richmond's Downtown emerged as the City's business and retail center. Construction of shipping port terminals began in this period. By 1907 harbor construction was being promoted and major dredging and terminal construction were authorized by bond issues in 1912 and 1920. Tideland filling as part of the harbor dredging in the 1920s made possible the opening of the Ford Motor Assembly Plant and the Felice and Perelli Cannery in 1931. The prohibition era forced the closing of Winehaven. The City's population, meanwhile, had grown from 2,150 in 1905 to 23,600 in 1940.

To meet WWII industrial demands the Kaiser Richmond Shipyards - one of the biggest wartime shipbuilding operations on the West Coast - opened Richmond's South Shoreline in January 1941. In response to wartime manufacturing needs from Kaiser and other industries, Richmond's population soared between 1940 and 1945, rising from 23,000 in 1940 to over 100,000 in 1945. Richmond's Black population increased from 270 to 14,000, many of whom migrated from the economically depressed South and Southwest to work in the shipyards.[5]

To accommodate this influx of workers, the federal government funded the development of 24,000 public housing units for 60,000 wartime workers under the condition that units be racially segregated. Many of these supposed "temporary" housing units remain today. If housing could not be found, workers often built temporary shelters like cardboard shacks, barns, tents, or even used open fields in what is now North Richmond, an unincorporated area without city services.[6] Units built for Black workers were intended to be temporary, built with low-quality materials, and sandwiched between factories, refineries, and rail lines. These units were the least desirable housing locations with high air pollution exposure yet conveniently close to job sites. On the other hand, housing for white workers was high quality and intended to be permanent.[7] During this time, the unincorporated area of Rollingwood was created as a new suburb to help meet wartime housing demands; Federal officials approved bank loans to finance construction that required that none of its 700 houses be sold to a Black person - an example of prevalent racial covenants of the time.

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[5] *An Avalanche Hits Richmond: A Study of the Impact of War Production upon the City of Richmond, California, and an Outline of Measures Necessary to Provide the Facilities for Normal Postwar Community Service, a Report*. The City Manager, 1944.
[6] Ibid
[7] Ibid

**Kaiser Shipyards, Richmond, CA**


Source: Shift Change 3:30 PM – Coming on of Yard 3 – Kaiser Shipyards, Richmond, CA, Circa 1942, Dorothea Lange, Film negative, Gift of Paul S. Taylor, 5 in x 7 in, A67.137.42097.2

The Kaiser shipyards, a major wartime employer, initially attempted to use only white employees in its skilled shipyard trades, but relented due to Black worker advocacy, and eventually employed more Black workers than any other industry in Richmond.[8] However, the unions involved in wartime industries took exclusionary actions against Black workers, and the Kaiser shipyards and other employers refused to interfere.[9] Thus, Black workers were either excluded from unions altogether or given limited rights and positions - suffering denials of promotion or being paid as trainees instead of full-fledged employees.[10] This job exclusion meant lower incomes for highly skilled laborers and limited housing options for Black workers.

[8] Moore, Shirley Ann Wilson. *To Place Our Deeds: The African American Community in Richmond, California, 1910-1963*. Univ of California Press, 2000.
[9] Johnson, Marilynn S. The Second Gold Rush: Oakland and the East Bay in World War II. Univ of California Press, 1994.
[10] Richard Rothstein. The Color of Law: A Forgotten History of How Our Government….Liveright Publishing Corporation, 2018.

**Kaiser Shipyard Workers Circa 1942**

Source: Shipyards and industrial history, Women line up for paychecks-Richmond Shipyards, Richmond, CA, Circa 1942, Dorothea Lange, Film negative, Gift of Paul S. Taylor, 5 in x 4 in, A67.137.42080.4

At the end of the WWII in 1945, the shipyards closed and a far-reaching readjustment began. Industrial production rapidly declined and the population decreased steadily from 101,500 persons in 1947 (a special census count) to 71,900 in 1960. Strong growth in warehousing, distribution, chemical, and research facilities was evident in the post-war developments.

With the population decreasing, Richmond took steps to remove this federal housing. The 1950 City of Richmond Master Plan details decisions to bulldoze the majority Black "blighted areas" of wartime housing and build fewer public housing units for Black refinery and shipyard workers to replace them. These workers were then funneled into sub-standard public housing in Richmond and San Pablo in the mid-1960s.[11] The 1950 Master Plan wanted to maintain "[...] the neighborhoods that contained "small, pleasant, single-family homes" to "[...] control home occupations and [...] to maintain the harmonious residential character of neighborhoods[...]." (Master Plan) "Harmonious" is a codeword for using racial homogeneity to maintain all-white occupancy. Additionally, white wartime workers could get cheap loans, aiding their ability to move to single-family suburbs while the federal government refused to

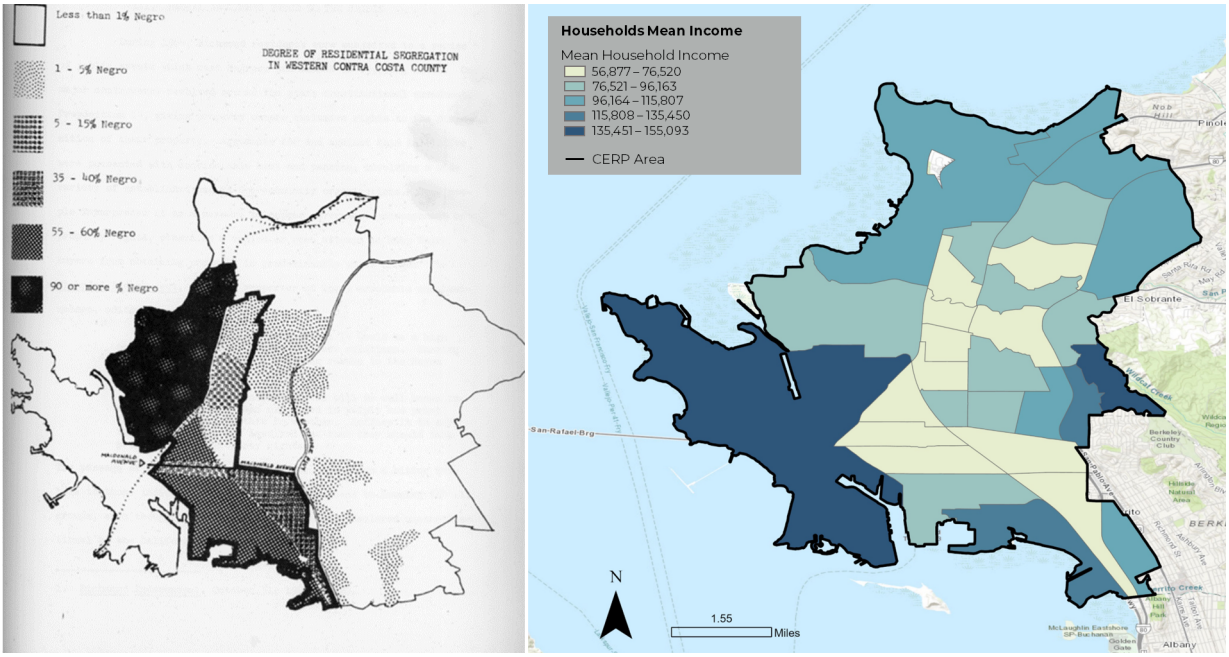
[11] Housing and Redevelopment the Master Plan of Richmond California. Master Plan, 1950.

insure bank loans made to Black Americans seeking to buy or build homes.[12] In sum, when WWII was over, Black workers in the CERP Community saw stunted income gains compared with white workers and were not permitted to live in the newly built single-family suburbs, instead living in places near industrial areas and sources of air pollution and with cheaper multi-family dwellings. In the CERP Community and across the US, Black people and other people of color were excluded from buying or building homes, limiting wealth accumulation and stunting the transfer of intergenerational wealth.[13] A 2020 Brookings Institute study found that the average white family in the US has a net worth of $171,000, while the average Black family has a net worth of $17,000.[14]

By the 1960s, exclusionary labor and housing practices in the US (e.g. redlining) had firmly established racial income inequality and suburban segregation.[15] The below "Negro Concentration" maps developed by the Commission on Civil Rights show the CERP Community's racial segregation in 1967 – the darker areas show greater concentrations of Black residents. This map serves as a proxy for the "redlining" maps developed by the federal government in the 1930s to guide mortgage investment away from communities of color, which were considered "too risky" for investment. When placed alongside a current map of household mean income for 2020 to 2016, we see that the high rates of segregation are closely aligned with the lowest income census tracts of today. Exclusionary housing policy and practices of the past shape neighborhood conditions in the present in the entire CERP Community. Places that once hosted Black wartime housing, and later public housing, saw less financial investment and development over time and to date remain neighborhoods with less desirable housing stock. Today, these are areas where lower-income residents of color live, in particular Hispanic and Latino residents.

[12] Richard Rothstein. The Color of Law: A Forgotten History of How Our Government….Liveright Publishing Corporation, 2018.
[13] Ibid
[14] Shambaugh, Kriston McIntosh, Emily Moss, Ryan Nunn, and Jay. "Examining the Black-White Wealth Gap." Brookings, 27 Feb. 2020, https://www.brookings.edu/blog/up-front/2020/02/27/examining-the-black-white-wealth-gap/.
[15] Richard Rothstein. The Color of Law: A Forgotten History of How Our Government….Liveright Publishing Corporation, 2018.

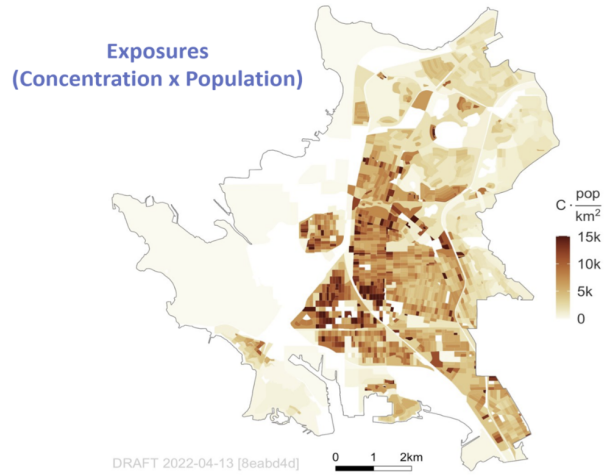
**Figure 1. Map of residential segregation in Richmond, CA, 1967** **Figure 2. Map of Household Mean Income, 2020-2016**




Sources: Figure 1. U.S. Commission on Civil Rights. Figure 2. Census Table S1902, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5/subject.

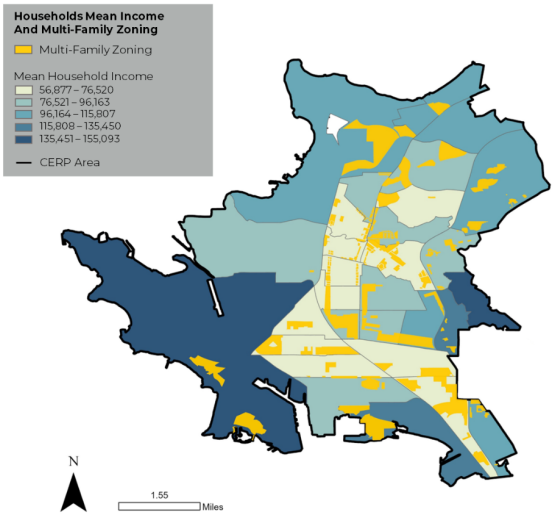
The combination of single-family homes -- more expensive, per-unit, than multi-family dwellings -- and exclusionary housing and labor practices have concentrated low-income communities of color near the many air pollution sources in the CERP Community. With limited economic mobility, people could not and still cannot often afford housing further from pollution hot spots such as industrial businesses, freeways, railways, and refinery operations. As we see below in the map showing PM2.5 exposures, the more densely populated areas near the northwest of the CERP Community have a higher portion of the exposure from local sources emissions. These areas are also lower-income areas. For more information on air pollution assessments see chapter 5.

**Modeled PM2.5 Exposure from Local Sources**




Source: BAAQMD, Steering Committee Presentation #14,

**Mean Household Income and Multi-Family Zoning**




Source: Modeled PM2.5 Impacts from Local Sources, BAAQMD, Steering Committee Presentation #14, results from modeling and monitoring" or something to that end to note the source behind this presentation.

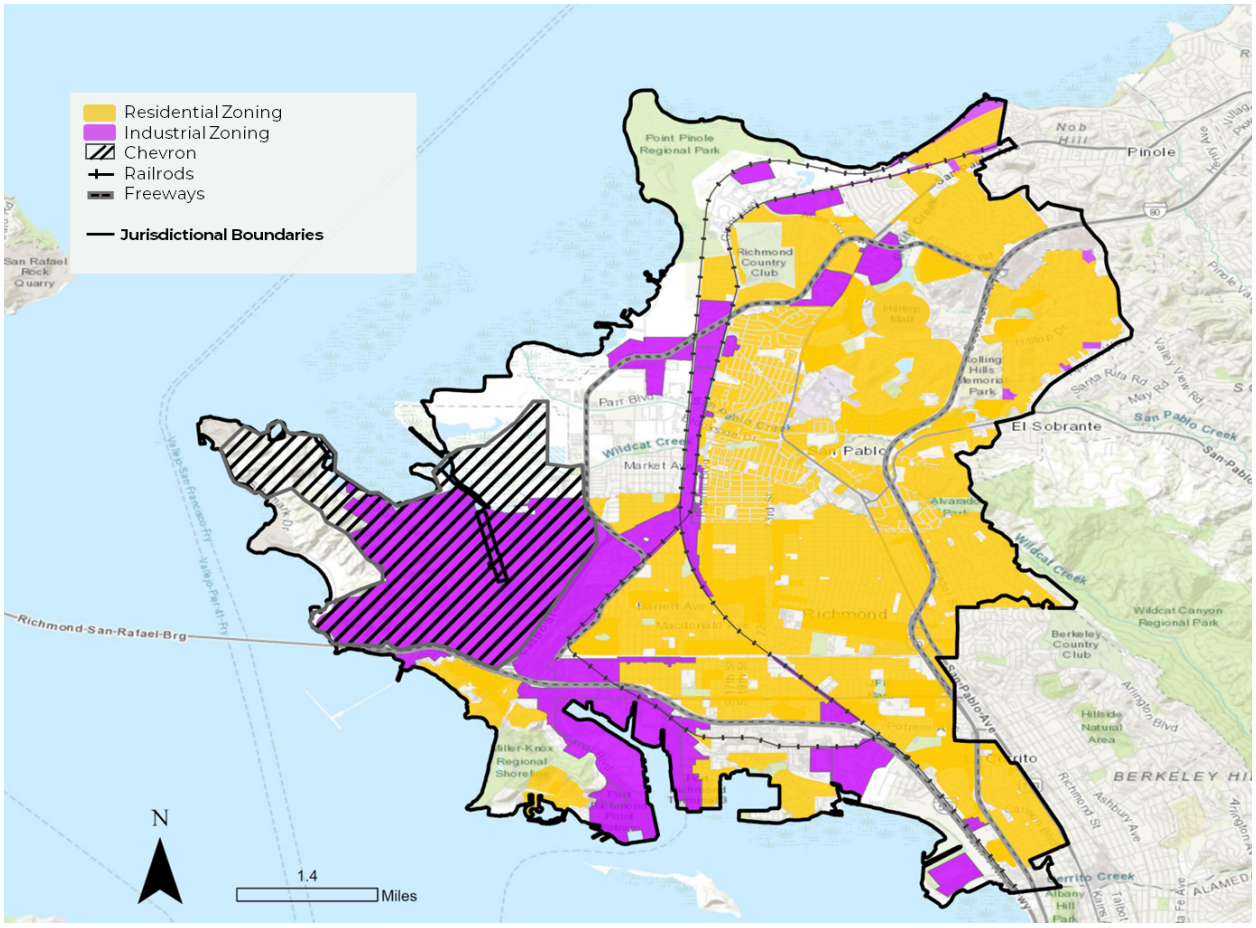
Beyond the inequity of air pollution exposure in the CERP community, from 1960 to 1995 significant changes happened in Richmond's geography and its economy. Starting in the mid-1970s the Harbor Redevelopment Project on the city's South Shoreline led to the transformation of the old Inner Harbor Basin (the site of the wartime Kaiser shipyards) into the Marina Bay development, a 350-acre master-planned waterfront community with over 2,000 residential units and 650,000 square feet of commercial space. Hilltop Mall Regional Shopping Center opened in 1976. Hilltop is a 1.3 million square foot enclosed shopping center located in the northern corner of the City along Interstate 80. Richmond's downtown business district began to decline in the early 1970s as its major retailers (Macy's, J.C. Penney's, Thrifty, and Woolworth's) all either moved to Hilltop or closed their Richmond operations entirely.

Transportation infrastructure changed in 1978 when the proposed Hoffman Freeway (now the Knox Freeway, Interstate 580) was designated a part of the Interstate freeway system, thereby ensuring its construction. Construction was mostly completed by the end of 1991. This freeway crosses Richmond's South Shoreline and connects Interstate 80 with the Richmond-San Rafael Bridge. The freeway provided seven new interchanges along the South Shoreline and has made it an attractive corridor for high-tech industries, business parks, and commercial developments. The construction of another freeway, the Richmond Parkway, began in 1990. The Parkway is a 7 1/2-mile expressway providing a link between the northern edge of Richmond (Interstate 80 at Hilltop) and the City's southwest corner (the new I-580 freeway and the Richmond-San Rafael Bridge). The Parkway has fostered the development of a large industrially zoned area that is becoming a major logistics and distribution hub.

Throughout this history, Chevron has occupied 13% of the land area of the City of Richmond (see below), been its biggest taxpayer, and grown steadily. It remains one of the City's biggest employers, along with Kaiser Permanente, the Social Security Administration, and the City government. Chevron’s refinery is the biggest on the west coast of North America. Chevron sells $15-30 billion in finished goods every year (depending mostly on prices) and makes on average well over $1 billion/year.

The result of this Richmond's industrial heritage is a crescent of industrial zoning (shown in purple below) from the southern-most shoreline along the I-580 corridor up to the Chevron refinery in Point Richmond and bending northeast up to Hilltop and Interstate 80 along the Richmond Parkway and Castro Street. Rail lines exist both within the industrial crescent and through residential neighborhoods. Many residents in the CERP Community, and especially residents of color, live near a freeway or a rail line and many live sandwiched between two or more major arteries.

## Land Use in the CERP Community

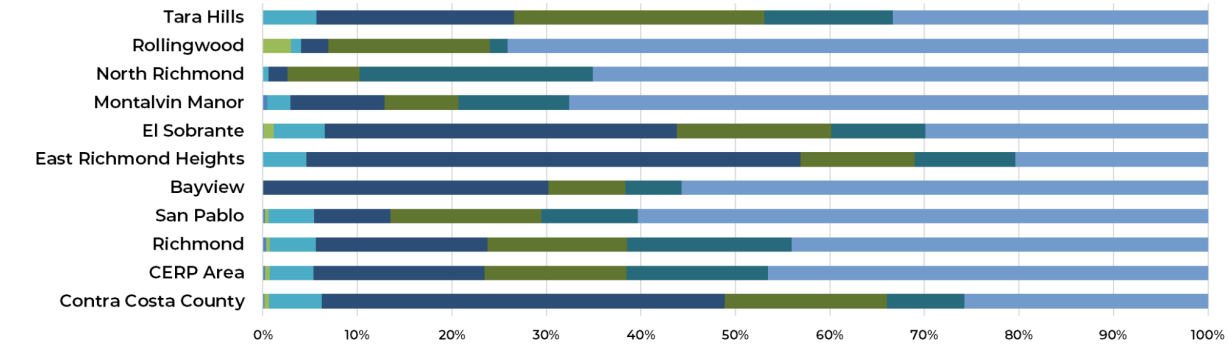



Source: City of Richmond, City of San Pablo, County of Contra Costa. Note: It is important to note that many of the "holes'' or "breaks" in the "industrial crescent" are due to either no zoning classification for county-land in North Richmond or the re-zoning of some previously industrial areas to mixed-use - most of the uncolored areas are mixed-use commercial or planned areas. Many of the areas on the shoreline have legacy issues from industrial pollution in the past.

# III. RACIAL COMPOSITION

Before talking about the pollution burden and health impacts in the CERP Community, it is important to outline who lives there and therefore, who is most impacted. The total population in the CERP Community is 166,415.[16] Proportionally, there are more people of color in the CERP Community (82%) than in Contra Costa County 57%). Most places - cities and unincorporated areas - within the CERP Community are 50% or more Hispanic/Latino, Asian, and Black/African American residents. East Richmond Heights is the only place within the CERP Community with a white resident majority.

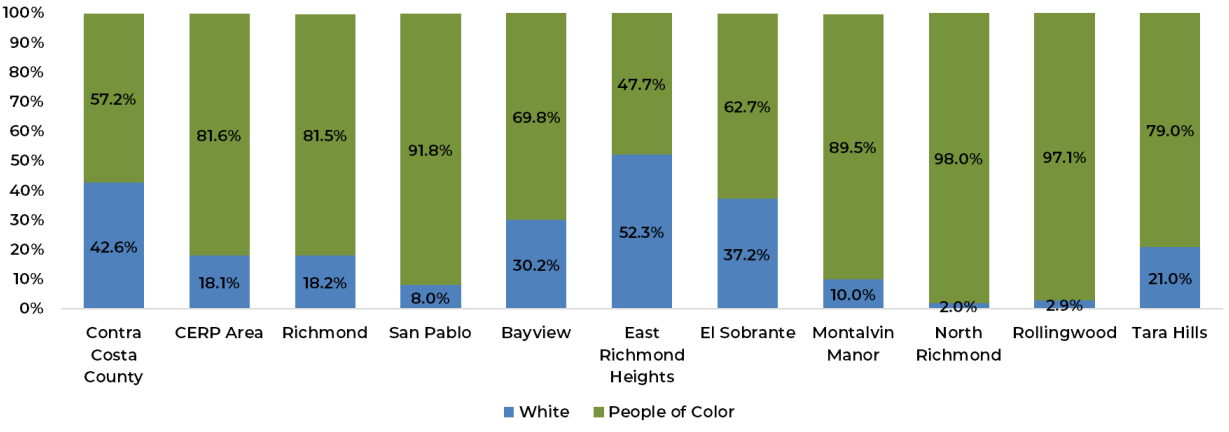
### Race Within the CERP Community




| | Contra Costa County | CERP Area | Richmond | San Pablo | Bayview | East Richmond Heights | El Sobrante | Montalvin Manor | North Richmond | Rollingwood | Tara Hills |
|---|---|---|---|---|---|---|---|---|---|---|---|
| American Indian and Alaska Native | 0.2% | 0.3% | 0.3% | 0.2% | - | - | 0.1% | 0.5% | - | - | - |
| Native Hawaiian & Pacific Islander | 0.5% | 0.5% | 0.4% | 0.4% | - | - | 1.1% | - | - | 3.0% | - |
| Other | 5.6% | 4.6% | 4.9% | 4.9% | 0.0% | 4.6% | 5.4% | 2.4% | 0.6% | 1.1% | 5.7% |
| White | 42.6% | 18.1% | 18.2% | 8.0% | 30.2% | 52.3% | 37.2% | 10.0% | 2.0% | 2.9% | 21.0% |
| Asian | 17.2% | 15.0% | 14.7% | 16.0% | 8.1% | 12.1% | 16.4% | 7.8% | 7.6% | 17.1% | 26.5% |
| Black or African American | 8.2% | 14.9% | 17.4% | 10.2% | 6.0% | 10.7% | 10.0% | 11.7% | 24.7% | 1.9% | 13.6% |
| Hispanic or Latinx | 25.8% | 46.6% | 44.1% | 60.3% | 55.7% | 20.4% | 29.9% | 67.6% | 65.1% | 74.1% | 33.4% |

Source: Census Table B03002, HISPANIC OR LATINO ORIGIN BY RACE, Universe: Total population, 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5.

### Race by Percent People of Color and Percent White Within the CERP Community




Source: Census Table B03002, HISPANIC OR LATINO ORIGIN BY RACE, Universe: Total population, 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5.

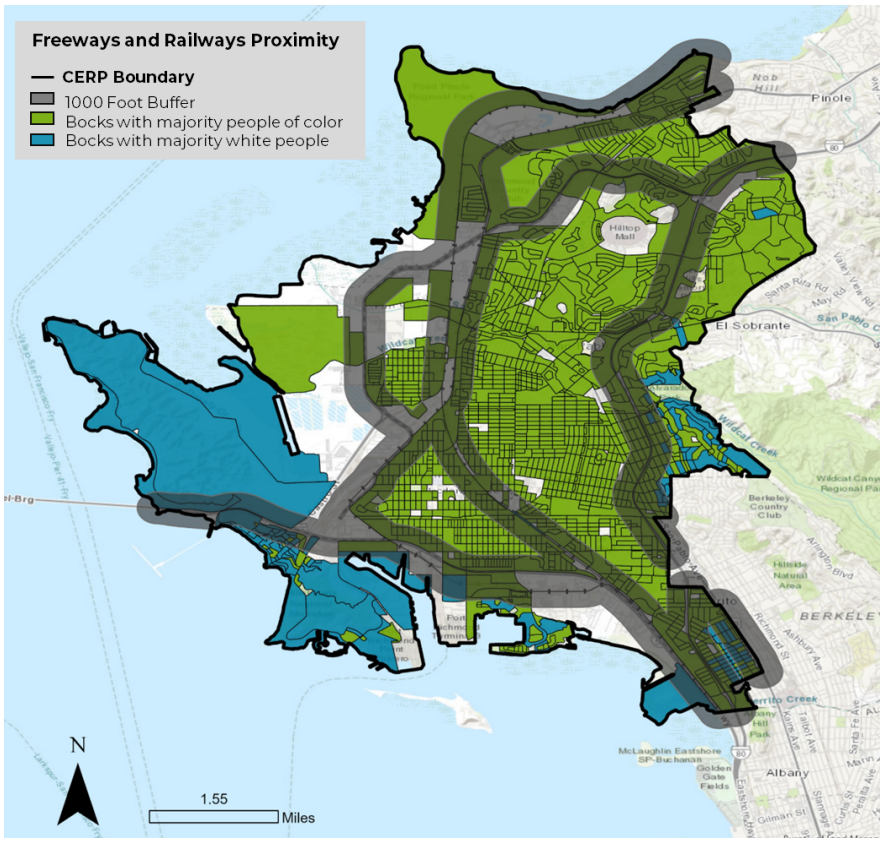
[16]Source: Census Table P2, HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE, 2020, Decennial Census Redistricting Data, Census Blocks, https://www2.census.gov/programs-surveys/decennial/2020/data/

# IV. POLLUTION BURDEN

## Exposure

Communities of color and low-income communities across the United States experience higher exposure than others, making air pollution exposure a national environmental justice.[17] [18] [19] This pattern holds true for the CERP Community as well where most census blocks within 1,000 feet of a freeway or railway have a population of 50% or more people of color (this excludes blocks with a population of zero). Living or working near highly trafficked freeways, industries with emitted pollutants, railway and rail yards, and marine ports often lead to greater exposure to air pollutants, particularly to fine particulate matter of diameters smaller than 2.5 µm (PM2.5), increasing the risk of adverse health effects.[20] Pollution burden is addressed in greater detail in the Technical Assessment section in Chapter 5.

### Freeways and Railways Proximity to Census Block by Race




Source: Census Table P2 , HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE, 2020, Decennial Census Redistricting Data, https://www2.census.gov/programs-surveys/decennial/2020/data/.

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[17] Environmental Defense Fund. *Analysis of PM2.5-Related Health Burdens Under Current and Alternative NAAQS*. 15 Apr. 2022, https://globalcleanair.org/files/2022/05/Analysis-of-PM2.5-Related-Health-Burdens-Under-Current-and-Alternative-NAAQS.pdf.

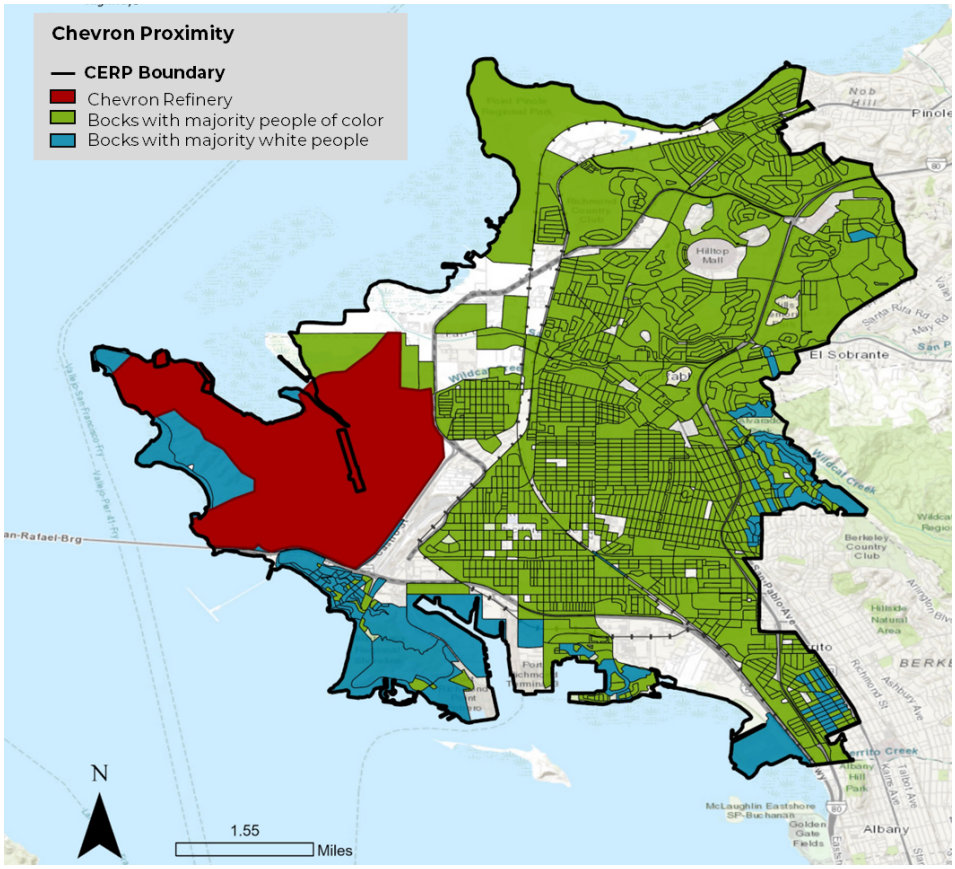
[18] Tessum, Christopher W., et al. "PM2. 5 Polluters Disproportionately and Systemically Affect People of Color in the United States." *Science Advances*, vol. 7, no. 18, 2021, p. eabf4491.

[19] Jbaily, Abdulrahman, et al. "Air Pollution Exposure Disparities across US Population and Income Groups." *Nature*, vol. 601, no. 7892, 2022, pp. 228–33.

[20] US EPA, ORD. *Research on Near Roadway and Other Near Source Air Pollution*. 16 July 2014, https://www.epa.gov/air-research/research-near-roadway-and-other-near-source-air-pollution.

For many air pollutants, the Chevron Refinery is by far the largest single generator of emissions in the area. For example, Chevron emits more of the criteria air pollutants, such as fine particulate matter (PM2.5), and sulfur dioxide (SO2) than all other sources in the community-scale emissions inventory combined, and the refinery is also the largest source of numerous toxic air contaminants, such as hydrogen cyanide, sulfuric acid, manganese, and hydrogen sulfide. Of the neighborhoods close to the Chevron Refinery, only one has a majority white population - Point Richmond. The other Richmond neighborhoods near Chevron: North Richmond, the Iron Triangle, Atchison Village, Santa Fe, and Shields-Reid have populations that are 50% people of color (excluding blocks with a population of zero).

**Chevron Proximity to Census Block by Race**

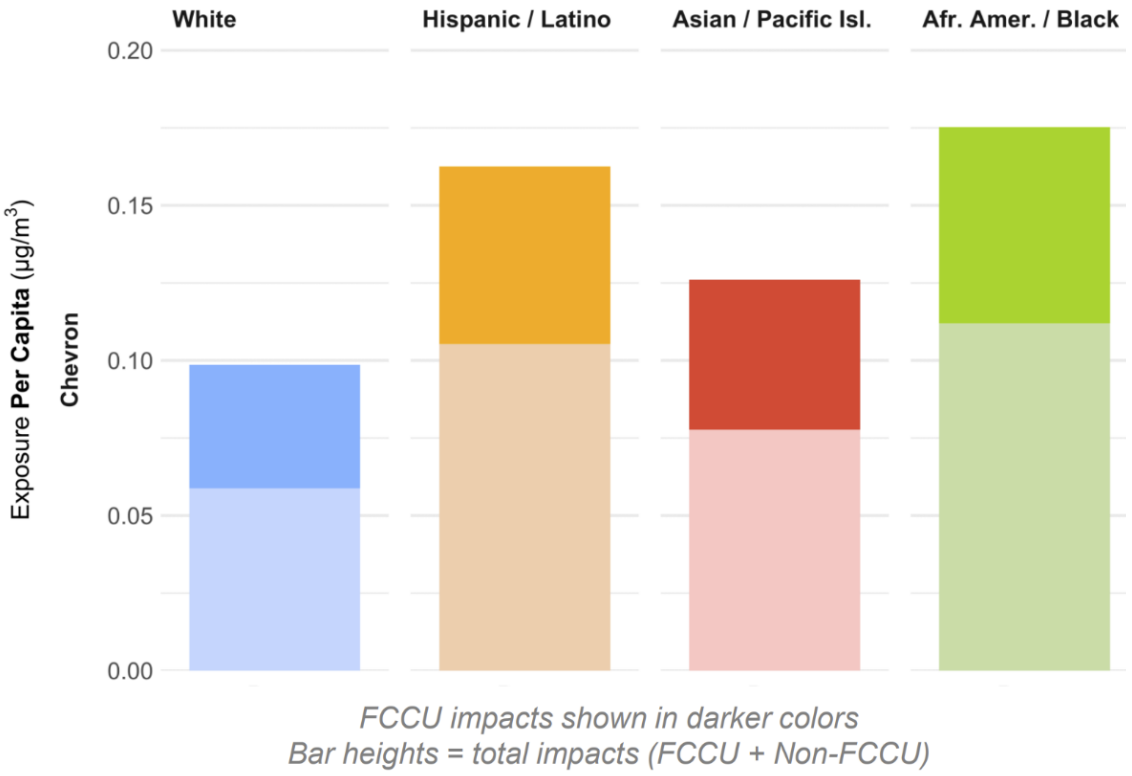



Source: Census Table P2, HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE, 2020, Decennial Census Redistricting Data, https://www2.census.gov/programs-surveys/decennial/2020/data/.

We can look at the Bay Area Air Quality District's Rule 6-5 analysis to investigate PM2.5 exposure to Chevron emissions by race. Please note that while these results include the CERP community they also include places beyond it that are also exposed to Chevron emissions. A larger modeling domain was used for Rule 6-5.

The analysis shows that on average, African American/Black residents are most exposed to more PM2.5 from Chevron in all modeled results and white residents are least exposed. Sources other than the refinery Fluidized Catalytic Cracking Unit (FCCU) drive these disparities.

**Disparities in PM2.5 Exposure from Chevron**

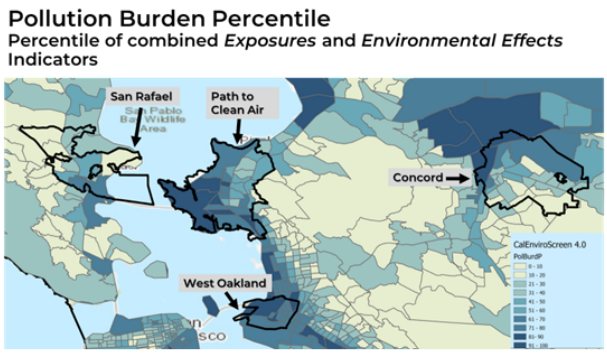



Source: Bay Area Air Quality District (BAAQMD)

## Pollution Comparisons

It is important to profile the differences between relatively non-industrial cities such as Concord and San Rafael and communities with industrial areas such as our CERP Community and West Oakland. To make comparisons we use CalEnviroScreen 4.0 (CES 4.0), a tool from the California office of environmental health hazard assessment (OEHHA), which compares census tracts throughout California.

CalEnviroScreen shows us that over 32% of our CERP Community census tracts are in the top quartile of California census tracts for pollution burden - a composite indicator. While Concord and San Rafael are less impacted by pollution burden.




### Pollution Burden Percentile

Most West Oakland's tracts rank as highly impacted percentiles (76th +) for *Pollution Burden* impact. Path to Clean Air tracts are distributed more equally across the 26% to 100% percentile range. Populations in these tracts have high cumulative exposures and hazards (see right).

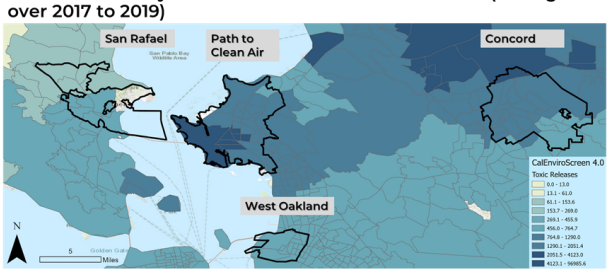
| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | Total Tracts |
|---|---|---|---|---|---|
| Low (0-25) | 1 | 0 | 11 | 4 | 16 |
| Medium (26-50) | 8 | 0 | 8 | 4 | 20 |
| Medium-High (51-75) | 10 | 5 | 5 | 1 | 21 |
| High (76-100) | 9 | 8 | 1 | 2 | 20 |
| Total Tracts | 28 | 13 | 25 | 11 | |


CalEnviroScreen shows us that over half of our CERP Community census tracts are in the top quartile of California census tracts for toxic release emissions, as are other census tracts close to refineries such as

Rodeo and parts of Martinez, while Concord and San Rafael are less impacted by toxic emissions.[21] It should be noted that other communities with refineries in Contra Costa County, such as Martinez and Rodeo, also have pollution burdens and health profiles almost identical to the half of our CERP community closest to the Chevron refinery. The strategies we recommend for our CERP Community will be relevant to other refinery towns in California.

**Toxic Releases from Facilities**

**Toxicity-weighted concentrations of modeled chemical releases to air from facility emissions and off-site incineration (averaged over 2017 to 2019)**




**Toxic Releases Percentile**

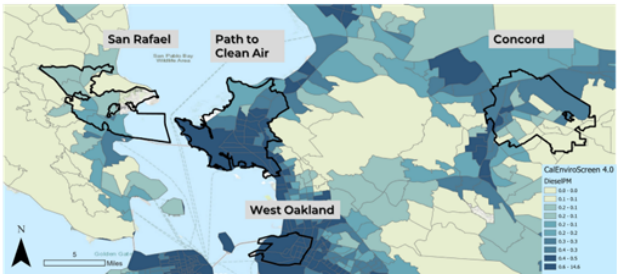
**More than half of Path to Clean Air tracts rank as highly impacted percentiles (76th +). for the *Toxic Releases* Indicator. West Oakland tracts are largely in the 51-75th percentile range.**

| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | Total Tracts |
|---|---|---|---|---|---|
| Low (0-25) | 0 | 0 | 0 | 0 | 0 |
| Medium (26-50) | 0 | 1 | 0 | 10 | 11 |
| Medium-High (51-75) | 13 | 12 | 25 | 1 | 51 |
| High (76-100) | 15 | 0 | 0 | 0 | 15 |
| Total Tracts | 28 | 13 | 25 | 11 | |

Concord has 16% of its census tracts in the top quartile for Diesel Particulate Matter (DPM) emissions and San Rafael has no census in the top quartile. Our CERP Community and West Oakland are far more impacted.

**Diesel Particulate Matter**

**Spatial distribution of gridded diesel PM emissions from on-road and non-road sources 2016 (tons/year).**




**Diesel Particulate Matter Percentile**

**All West Oakland tracts rank as highly impacted percentiles (76th +) for the *Diesel Particulate Matter* Indicator. More than half of Path to Clean Air tracts also rank as highly impacted percentiles.**

| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | TOTAL |
|---|---|---|---|---|---|
| Low (0-25) | 0 | 0 | 8 | 2 | 10 |
| Medium (26-50) | 1 | 0 | 7 | 4 | 12 |
| Medium-High (51-75) | 6 | 0 | 6 | 5 | 17 |
| High (76-100) | 21 | 13 | 4 | 0 | 38 |
| | 28 | 13 | 25 | 11 | |

**NOTE**: Diesel PM emissions in CalEnviroScreen are from 2016 and won't necessarily match up with the BAAQMD 2019 inventory developed for the PTCA study area. However, the percentiles discussed here won't likely change much whether 2016 or 2019 DPM emissions were used.

The EnviroScreen 4.0 database shows all comparison geography census tracts as mostly average or below average in terms of its measurements for PM2.5. However, CES 4.0 PM index is an estimate of total annual average concentration, so local emissions contributions, concentrations, and exposures will look

[21] August, Laura. "CalEnviroScreen 4.0." OEHHA, 20 Sept. 2021, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40.

different - See Chapter 5 for more information.

**PM 2.5**
Annual mean concentration of PM2.5 (weighted average of measured monitor concentrations and satellite observations, µg/m3), over three years (2015 to 2017).


**PM2.5 Percentile**

**None of Path to Clean Air tracts rank in the top 50 percentiles for the *PM2.5* Indicator.**

| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | Total Tracts |
|---|---|---|---|---|---|
| Low (0-25) | 0 | 0 | 0 | 11 | 11 |
| Medium (26-50) | 28 | 9 | 25 | 0 | 62 |
| Medium-High (51-75) | 0 | 4 | 0 | 0 | 4 |
| High (76-100) | 0 | 0 | 0 | 0 | 0 |
| Total Tracts | 28 | 13 | 25 | 11 | |

**NOTE**:CARB, local air pollution control districts, tribes and federal land managers all maintain a wide network of air monitoring stations in California. However, in the Bay Area, the Bay Area Air Quality Management District maintains the network of air monitoring stations throughout.

When looking at our local Emissions Inventory, Concord is similar to San Rafael, and both are very different from the CERP Community and West Oakland in terms of toxic air contaminants. We would like more data on which toxic air contaminants (TACs) are present at what levels. TACs include DPM, ammonia, arsenic, nickel, formaldehyde, hydrogen cyanide, hydrogen sulfide, sulfuric acid, manganese, arsenic, diethanolamine, etc.

**Pollution Comparisons - Permitted Sources from BAAQMD Emissions Inventories**

| Metric | CERP Community | San Rafael | Concord | West Oakland |
|---|---|---|---|---|
| Population | 159,000 | 61,000 | 125,000 | 26,000 |
| Permitted Sources | 303 | 146 | 153 | 205 |
| TACs in Inventory | 79 | 33 | 23 | 50 |
| TAC Emissions (tons per year) | 284.1 | 7.1 | 7.3 | 31.7 |
| PM2.5 Emissions (tons per year) | 502.8 | 7.6 | 0.7 | 17.8 |

Note: The number of permitted sources include large and small businesses.

The CERP Community is exposed to more chemical emissions that are absent or are only present in very small amounts in San Rafael and Concord; cities that have less industrial activities and land use. The comparisons might look different for large suburban towns like Walnut Creek or San Ramon with no industrial sources of air pollution.

**TAC Emissions Comparisons - Permitted Sources from BAAQMD Emission Inventories**

| | Emissions (lbs/year) | | | |
|---|---|---|---|---|
| **Pollutant** | **CERP Community** | **San Rafael** | **Concord** | **West Oakland** |
| **Manganese** | **2,282.87** | **0.07** | **0.04** | **N/A** |
| **Nickel Compounds** | **300.44** | **0.80** | **0.51** | **0.07** |
| **Sulfuric Acid** | **18,134.12** | **N/A** | **7.03** | **N/A** |
| **Hydrogen Cyanide** | **91,667.17** | **N/A** | **N/A** | **N/A** |
| **Hydrochloric Acid** | **33,846.32** | **7.06** | **N/A** | **124.70** |
| **Formaldehyde** | **21,920.19** | **145.15** | **158.34** | **3,073.31** |
| **Benzene** | **7,001.52** | **138.57** | **241.35** | **1,467.77** |
| **Arsenic** | **32.25** | **0.02** | **0.01** | **0.05** |
| **Diethanolamine** | **2,994.27** | **N/A** | **N/A** | **N/A** |
| **Hydrogen Sulfide** | **8,716.54** | **N/A** | **N/A** | **4,923.07** |

The attributable number of deaths, premature deaths, and cases of disease related to air pollution exists in academic in literature.[22] [23] [24]While it is not a part of BAAQMD's methodologies currently, it would be valuable information for the CERP Community and would help truly measure the impact of air contaminants on community members' lives.

Air pollution exposure from sources like freeways, railways, and Chevron, along with other factors like noise pollution, has the potential to repress housing prices as buyers reject 'unhealthy' neighborhood environments. As air pollution affects property values it can also lower property tax revenues received by cities and counties, making them less able to provide services and programs that mitigate or reduce air pollution.

[22] Southerland, Veronica A., et al. "Assessing the Distribution of Air Pollution Health Risks within Cities: A Neighborhood-Scale Analysis Leveraging High-Resolution Data Sets in the Bay Area, California." *Environmental Health Perspectives*, vol. 129, no. 3, p. 037006. *ehp.niehs.nih.gov (Atypon)*, https://doi.org/10.1289/EHP7679.

[23] Environmental Defense Fund. *Analysis of PM2.5-Related Health Burdens Under Current and Alternative NAAQS*. 15 Apr. 2022, https://globalcleanair.org/files/2022/05/Analysis-of-PM2.5-Related-Health-Burdens-Under-Current-and-Alternative-NAAQS.pdf.

[24] Anenberg, Susan C., et al. "Particulate Matter-Attributable Mortality and Relationships with Carbon Dioxide in 250 Urban Areas Worldwide." *Scientific Reports*, vol. 9, no. 1, 1, Aug. 2019, p. 11552. *www.nature.com*, https://doi.org/10.1038/s41598-019-48057-9.

# V. HEALTH IMPACTS

Air pollution increases the risk of numerous diseases and health issues. Reducing air pollution exposure to protect our community members' health is a primary purpose of our CERP.

Health outcomes in the US are also closely linked with economic, social, and environmental advantages or disadvantages which can result in disparities or inequities between groups of people and their health outcomes - like higher mortality rates. Health disparities adversely affect people who have experienced systematic social or economic obstacles to health care and healthy environments based on their racial or ethnic group, socioeconomic status, gender, age, mental health or ability, and other characteristics linked to discrimination or exclusion. In the United States, research on air pollution disparities shows that census tracts with a majority of people of color or low-income populations are correlated with increased exposure to fine particulate matter [PM ≤2.5µm in aerodynamic diameter (PM2.5)].[25] Academic literature also documents that in the US people of color and low-income people have a higher risk of death from being exposed to PM2.5. [26] [27] [28] [29] The PM2.5-attributable burden of death is especially high for Black and Hispanic populations.[30] Racist and exclusionary practices, such as redlining and racial covenants, have systematically located people of color and low-income people near sources of air pollution leading to high levels of exposure and health disparities.[31] [32]

Social determinants of health (SDH) are social conditions that influence health outcomes. As the World Health Organization says, SDHs are a "[...] set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies, and political systems. […] Research shows that the social determinants can be more important than health care or lifestyle choices in influencing health."[33] Health insurance coverage increases access to health care and improves health outcomes. Thus, it is a social determinant of health (SDH).

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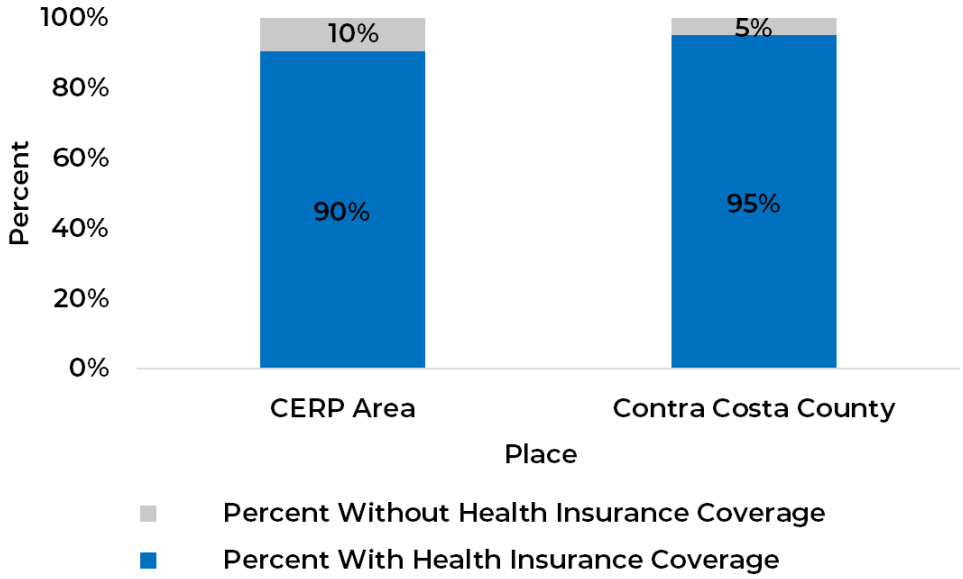
[25] Colmer, Jonathan, et al. "Disparities in PM2. 5 air pollution in the United States." *Science* 369.6503 (2020): 575-578.
[26] Di, Qian, et al. "Air Pollution and Mortality in the Medicare Population." *New England Journal of Medicine*, vol. 376, no. 26, 2017, pp. 2513–22.
[27] Bell, Michelle L., et al. "Evidence on Vulnerability and Susceptibility to Health Risks Associated with Short-Term Exposure to Particulate Matter: A Systematic Review and Meta-Analysis." American Journal of Epidemiology, vol. 178, no. 6, 2013, pp. 865–76.
[28] Wang, Yan, et al. "Long-Term Exposure to PM2. 5 and Mortality among Older Adults in the Southeastern US." *Epidemiology (Cambridge, Mass.)*, vol. 28, no. 2, 2017, p. 207.
[29] Kioumourtzoglou, Marianthi-Anna, et al. "PM2. 5 and Mortality in 207 US Cities: Modification by Temperature and City Characteristics." *Epidemiology (Cambridge, Mass.)*, vol. 27, no. 2, 2016, p. 221.
[30] Environmental Defense Fund. *Analysis of PM2.5-Related Health Burdens Under Current and Alternative NAAQS*. 15 Apr. 2022, https://globalcleanair.org/files/2022/05/Analysis-of-PM2.5-Related-Health-Burdens-Under-Current-and-Alternative-NAAQS.pdf.
[31] Lane, Haley M., et al. "Historical Redlining Is Associated with Present-Day Air Pollution Disparities in US Cities." *Environmental Science & Technology Letters* 9.4 (2022): 345-350.
[32] Hajat, Anjum, Charlene Hsia, and Marie S. O'Neill. "Socioeconomic disparities and air pollution exposure: a global review." *Current environmental health reports* 2.4 (2015): 440-450.
[33] Social Determinants of Health. https://www.who.int/health-topics/social-determinants-of-health. Accessed 18 May 2022.

In the CERP Community, fewer people have health insurance coverage than in Contra Costa County.

**Health Insurance Coverage in the CERP Community and in Contra Costa County**




Source: Census Table DP03, SELECTED ECONOMIC CHARACTERISTICS, 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5/profile.

Air pollution damages not only the lungs and airways but also other organs in the body. A study by the Forum of International Respiratory Societies in 2019 found that air pollution and noncommunicable diseases estimated that "[...] about 500,000 lung cancer deaths and 1.6 million COPD [chronic obstructive pulmonary disease] deaths can be attributed to air pollution, but air pollution may also account for 19% of all cardiovascular deaths and 21% of all stroke deaths."[34] Air pollution has also been linked to poor cognitive function, increased risk of dementia, allergic responses, diabetes mellitus prevalence, morbidity, and mortality. Air pollution is largely a man-made phenomenon and therefore, it and its health effects are potentially preventable. (ibid) Air pollution is especially harmful to fetuses and children and has been linked to childhood leukemia, delayed psychomotor development, lower child intelligence, and stunted lung development in childhood -- a predictor for lung impairment in adults. (ibid) For children, PM2.5 has been associated with an increased incidence of ADHD.[35] Ultrafine

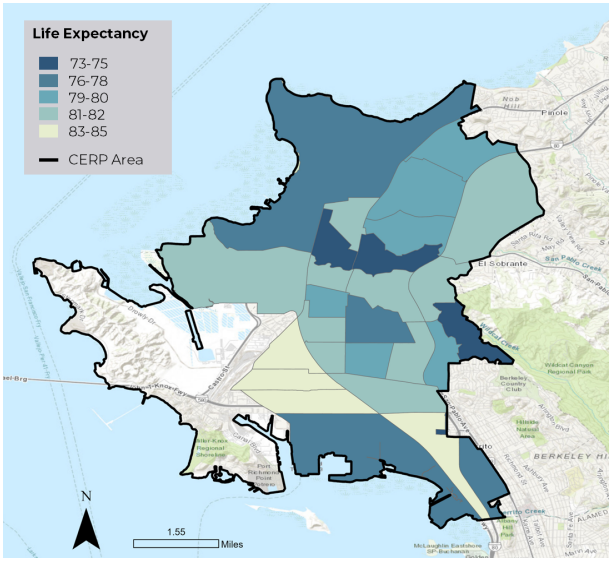
[34] Schraufnagel, Dean E., et al. "Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies' Environmental Committee, Part 2: Air Pollution and Organ Systems." Chest, vol. 155, no. 2, 2019, pp. 417–26.
[35] Yuchi, Weiran, et al. "Neighborhood Environmental Exposures and Incidence of Attention Deficit/Hyperactivity Disorder: A Population-Based Cohort Study." Environment International, vol. 161, Mar. 2022, p. 107120. ScienceDirect, https://doi.org/10.1016/j.envint.2022.107120.

particulate matter (PM0.1) exposure for pregnant women may increase the risk of low birth weight, especially in those living within 50 meters of heavy traffic.[36]

## Life Expectancy

Life expectancy is arguably the most important measure of health, broadly speaking. A 2019 study by the Public Library of Science tried to estimate the health and longevity impacts of current PM2.5 in the U.S., looking at life expectancy among other impacts. It found that the estimated deaths from PM2.5 "[...] would lower national life expectancy by an estimated 0.15 years (0.13–0.17) for women and 0.13 years (0.11–0.15) for men." It also found that in the US "At any PM2.5 concentration, life expectancy loss was, on average, larger in counties with lower income and higher poverty rate than in wealthier counties."[37] In the US, poverty rates in 2020 were highest for Black (19.5%) and Hispanic (17%) people. This is compared to 8.2 percent of white people in poverty, and 8.1 percent of Asian people in poverty.[38] In sum, pollution lowers life expectancy, and low-income people of color can be expected to bear the brunt of this effect.

## Life Expectancy (2010-2015)




In the CERP Community, the lowest life expectancy is in the census tracts around the Iron Triangle neighborhood, an area with low median household income (see graph X). East Richmond Heights is the wealthiest part of the CERP Community and it has the highest life expectancy. The estimates below are older data from 2010-2015; newer data on life expectancy estimates at the census tract level is expected to be released soon by the California Community Burden of Disease Engine and will be available at: https://skylab.cdph.ca.gov/communityBurden/.

National Center for Health Statistics. U.S. Small-Area Life Expectancy Estimates Project (USALEEP): Life Expectancy Estimates File for {Jurisdiction}, 2010-2015]. National Center for Health Statistics. 2018. Available from: https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html.

## Mortality

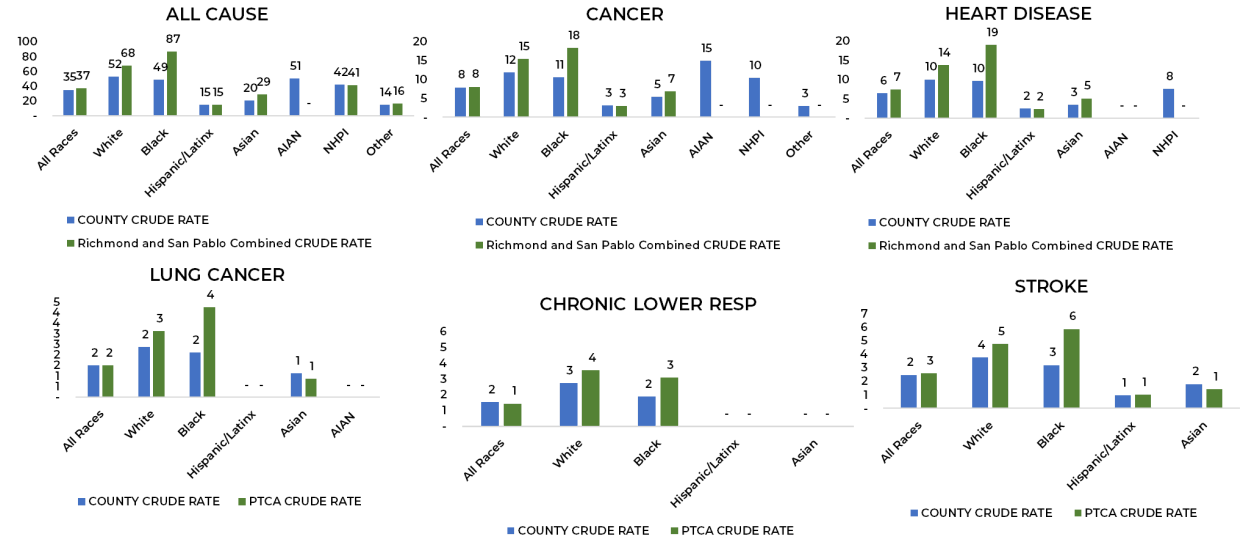
In the CERP Community, mortality rates *by race* -- the number of deaths in a population for a given period of time -- are only available for the cities of Richmond and San Pablo. Due to census data limitations, we must use crude mortality rates which are based solely on the populations of Richmond and San Pablo, are not adjusted and therefore cannot be compared to other places. Looking at crude rates for various mortality indicators related to air pollution, we see that Black residents, followed by white residents, in Richmond and San Pablo have the worst rates*. Black residents in Contra Costa

[36] Laurent, Olivier, et al. "Sources and contents of air pollution affecting term low birth weight in Los Angeles County, California, 2001–2008." *Environmental research* 134 (2014): 488-495.
[37] Bennett, James E., et al. "Particulate Matter Air Pollution and National and County Life Expectancy Loss in the USA: A Spatiotemporal Analysis." PLOS Medicine, vol. 16, no. 7, July 2019, p. e1002856. PLoS Journals, https://doi.org/10.1371/journal.pmed.1002856.
[38] Bureau, US Census. "Income and Poverty in the United States: 2020." Census.Gov, https://www.census.gov/library/publications/2021/demo/p60-273.html. Accessed 5 July 2022.

County, which includes the CERP Community, also have the highest rates of asthma emergency department visits. Within Richmond and San Pablo, Black and Asian residents have the highest rates of babies born with low birth weight. It is worth noting that when the numbers of American Indians or Native Alaskan are significant (over ten), and can be reported, such as for mortality, their rates are very high as well.

*Age-adjusted rates are preferable to crude rates. *However, age-adjusted rates require decennial census detailed tables that include specific age breakdowns. As of May 2022, the required 2020 census tables have not been released and 2010 data are out of date.* Age adjusting rates are a way to make fairer comparisons between groups with different age distributions. For example, Contra Costa County has a higher percentage of elderly people and therefore may have a higher rate of death or hospitalization than in the CERP Community with its younger population because the elderly are more likely to die or be hospitalized. *Keep this caveat in mind when looking at the crude rates in the following graphs.*

### Mortality Rates by Race for Air Pollution-Related Diseases




Note: All rates per 1,000 people. All measures associated with counts < 11 are excluded for data de-identification purposes Sources: Via the Contra Costa Health Department: 2015-2019. California Comprehensive Death Files 2016,2017,2018,2019, 2020 Access through Vital Registration Business Information System 8/2021. 2Table B03002 HISPANIC OR LATINO ORIGIN BY RACE
2020, 2020-2016 ACS 5-year estimates.

### Low Birth Weight

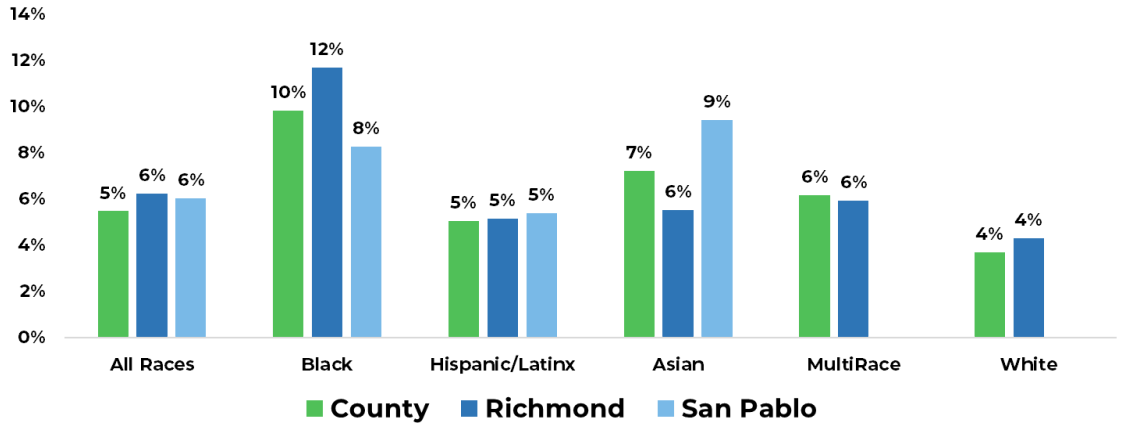
An article from 2017 describes low birth weight as "[...] associated with long-term neurologic disability, impaired language development, impaired academic achievement, and increased risk of chronic diseases including cardiovascular disease and diabetes."[39] Prenatal exposure to air pollutants, especially PM2.5, is associated with an increased risk of low birth weight.[40]

Within Richmond and San Pablo, Black and Asian residents have the highest rates of low birth weight

[39] Cutland, Clare L., et al. "Low Birth Weight: Case Definition & Guidelines for Data Collection, Analysis, and Presentation of Maternal Immunization Safety Data." Vaccine, vol. 35, no. 48Part A, Dec. 2017, pp. 6492–500. PubMed Central, https://doi.org/10.1016/j.vaccine.2017.01.049.
[40] Li, Changlian, et al. "Maternal Exposure to Air Pollution and the Risk of Low Birth Weight: A Meta-Analysis of Cohort Studies." Environmental Research, vol. 190, Nov. 2020, p. 109970. ScienceDirect, https://doi.org/10.1016/j.envres.2020.109970.

births. For most races, the rates for Richmond and San Pablo are the same or higher than the county rates.

### Birth Weight by Race

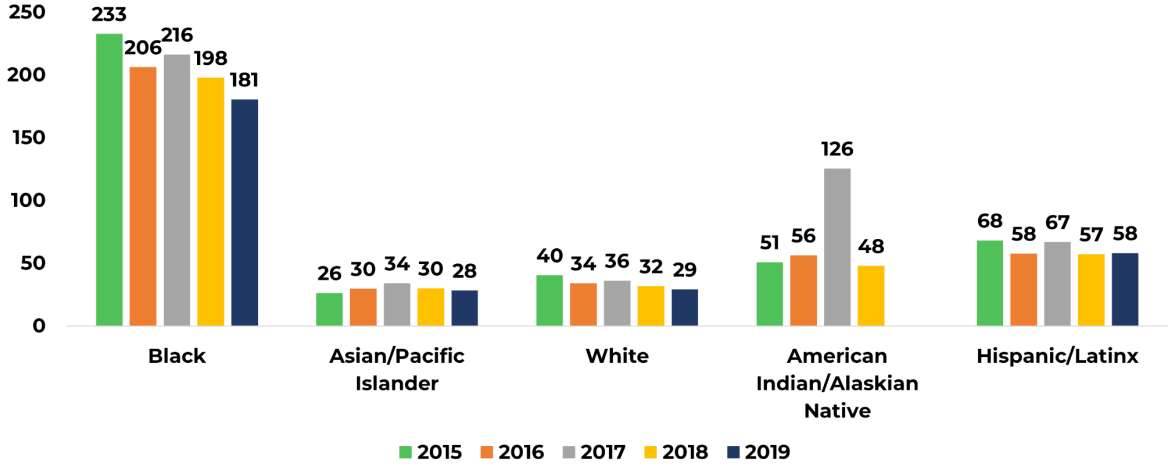



Note: Percent of Singleton Live Births with Birthweight < 2500g. Source: Provided by the Contra Costa County Health Department, California Comprehensive Birth Files 2016, 2017,2018, 2019, 2020, accessed through Vital Registration Business Information System 8/2021

## Asthma

The rate of asthma emergency department visits by race and age are only available for Contra Costa County. For the County, we see that while rates are decreasing slightly, Black residents experience higher rates than all other racial groups.

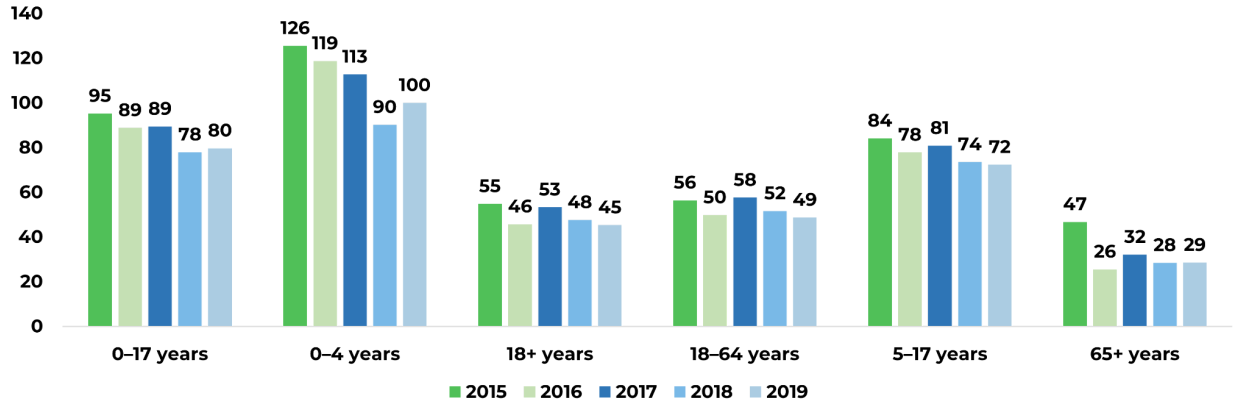
### County Asthma Emergency Department Visits by Race (Rate per 10,000 people)(2015-2019)




Source and Notes: All rates per 10,000. 2015-2019. CA Department of Public Health: https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CPE/Pages/CaliforniaBreathingCountyAsthmaProfiles.aspx

Looking at the rate of asthma emergency departments by age for Contra Costa County for the years 2015 through 2019, we see that rates are decreasing over time but children zero to four remain the most impacted group.

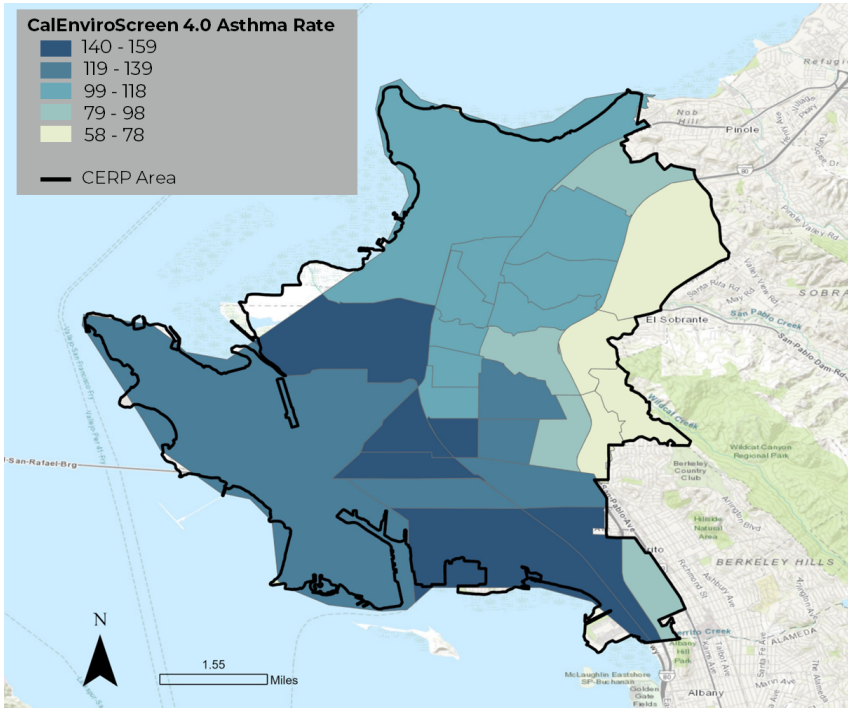
## County Asthma Emergency Department Visits by Age (Rate per 10,000 people)(2015-2019)




Source and Notes: All rates per 100,000. 2015-2017 rates. Based on Dec 2019 data. Excludes cases reported by the Department of Veterans Affairs. Last accessed Oct 22, 2021. © 2021 California Cancer Registry.

To look at asthma by census tract we can use CalEnviroscreen's 2015-2017 spatially modeled age-adjusted rate of emergency department visits for asthma. Of the census tracts shown below with the highest rates of emergency department visits for asthma, five and a half are below Area Mean Income (census tracts changed from 2010 to 2020 - some current 2020 census tracts are smaller than the 2010 tracts). In other words, the tracts with high asthma ED visits are also lower-income tracts.

## Asthma by Census Tract - CalEnviroScreen 4.0



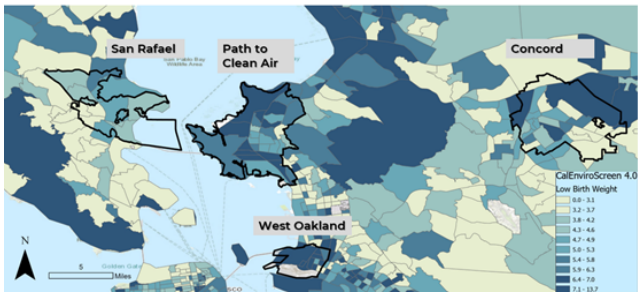

Source and Notes: Rates per 10,000. CalEnviroscreen 4.0. The spatially modeled age-adjusted rate of ED visits for asthma per 10,000 (averaged over 2015-2017).https://oehha.ca.gov/media/downloads/calenviroscreen/report/calenviroscreen40reportf2021.pdf

## Health Comparisons

CalEnviroScreen 4.0, a California-wide index, is used here to compare three indicators of air quality-related health impacts across four geographic areas: the Path to Clean Air CERP Community, Concord, San Rafael, and West Oakland - another place with a CERP Community and many air pollution issues.[41] The indicators analyzed are low birth weight, asthma, and cardiovascular disease. The measurements for each are 1) percent of low birth weight birth (2009-2015), 2) modeled age-adjusted rate of ED visits for asthma per 10,000 (averaged over 2015-2017), and 3) modeled age-adjusted rate of emergency department (ED) visits for heart attacks (averaged over 2015-2017).[42]

When comparing the CERP Community to the other geographies, we see that Concord and San Rafael fare better across all three indicators. Concord and San Rafael are not as impacted by air pollution. West Oakland is surrounded by freeways, bisected by a railway, and next to a heavily trafficked port. West Oakland has the most census tracts with high rates of low birth weight births.

**Low Birth Weight Infants**
Percent low birth weight (2009-2015)




**Low Birth Weight Percentile**

**Almost all West Oakland's tracts rank as highly impacted percentiles (76th +) for Low Birth Weight outcomes. Half of all Path to Clean Air census tracts are highly impacted.**

| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | Total Tracts |
|---|---|---|---|---|---|
| Low (0-25) | 1 | 1 | 9 | 3 | 14 |
| Medium (26-50) | 6 | 1 | 8 | 6 | 21 |
| Medium-High (51-75) | 6 | 0 | 4 | 1 | 11 |
| High (76-100) | 15 | 9 | 4 | 1 | 29 |
| Total Tracts | 28 | 11* | 25 | 11 | |

*Some tracts are not included due to insignificant data

The CERP Community has the most census tracts in the top quartile for cardiovascular disease emergency department visits. Note that cardiovascular disease is measured in the CalEnviroScreen 4.0 as a function of heart attack emergency room visits.

**Cardiovascular Disease**
Spatially modeled, age-adjusted rate of emergency department (ED) visits for heart attacks (averaged over 2015-2017)


**Cardiovascular Disease Percentile**

**Path to Clean Air has the most tracts rank as highly impacted percentiles (76th +) for heart attacks emergency room department visit rates.**

| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | Total Tracts |
|---|---|---|---|---|---|
| Low (0-25) | 0 | 2 | 6 | 5 | 13 |
| Medium (26-50) | 5 | 4 | 12 | 6 | 27 |
| Medium-High (51-75) | 14 | 7 | 2 | 0 | 23 |
| High (76-100) | 9 | 0 | 5 | 0 | 14 |
| Total Tracts | 28 | 13 | 25 | 11 | |

Both West Oakland and the PTCA CERP Community have many tracts with high rates of asthma emergency department visits. Seventy percent of our CERP Community's census tracts are in the top ten percent for asthma state-wide and all of West Oakland's census tracts are. However, West Oakland is

[41] August, Laura. "CalEnviroScreen 4.0." *OEHHA*, 20 Sept. 2021, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40.
[42] CalEnviroScreen 4.0, October 2021, https://oehha.ca.gov/media/downloads/calenviroscreen/report/calenviroscreen40reportf2021.pdf)

a smaller geographic area than the CERP Community. It is worth noting that asthma emergency room visit rates are high in tracts with high percentages of low birth-weight rates.

**Asthma**
Spatially modeled, age-adjusted rate of ED visits for asthma per 10,000 (averaged over 2015-2017).


**Asthma Percentile**

For Path to Clean Air and West Oakland, all or almost all of their tracts rank as highly impacted percentiles (76th +) for asthma emergency room visits rates.

| Percentile | Path to Clean Air | West Oakland | Concord | San Rafael | TOTAL |
|---|---|---|---|---|---|
| Low (0-25) | 0 | 0 | 1 | 7 | 8 |
| Medium (26-50) | 0 | 0 | 8 | 4 | 12 |
| Medium-High (51-75) | 2 | 0 | 9 | 0 | 11 |
| High (76-100) | 26 | 13 | 7 | 0 | 46 |
| | 28 | 13 | 25 | 11 | |

Chronic obstructive pulmonary disease (COPD) and other respiratory problems (including low-grade asthma in children) are not addressed in the CalEnviroScreen 4.0 database. Broadly speaking the data we have documented health problems in the CERP community could be more detailed. For example, it would be nice to have data on how many children are using inhalers for asthma by school or census tract, how many new cases of childhood asthma are diagnosed every year, and how many adults are being treated for chronic obstructive pulmonary disease (COPD). Additionally, organizations tracking all types of pollution may have under-estimated the significance of DPM emissions and exposure, as well as the number of abandoned industrial and hazardous waste sites as some of these hazardous waste sites could be leaking VOCs and other toxics into groundwater, the Bay, and into the air.

West Oakland and the CERP Community also share very high exposures to lead, clean-up sites, and hazardous waste (add citation - CalEnviroScreen yes?). It is likely that this combination of exposures increases the risk for many health issues. Comparisons like this show that the CERP Community is not only highly burdened with air pollution-related disease compared to the state but also compared to other places in the Bay Area.

## Food Access

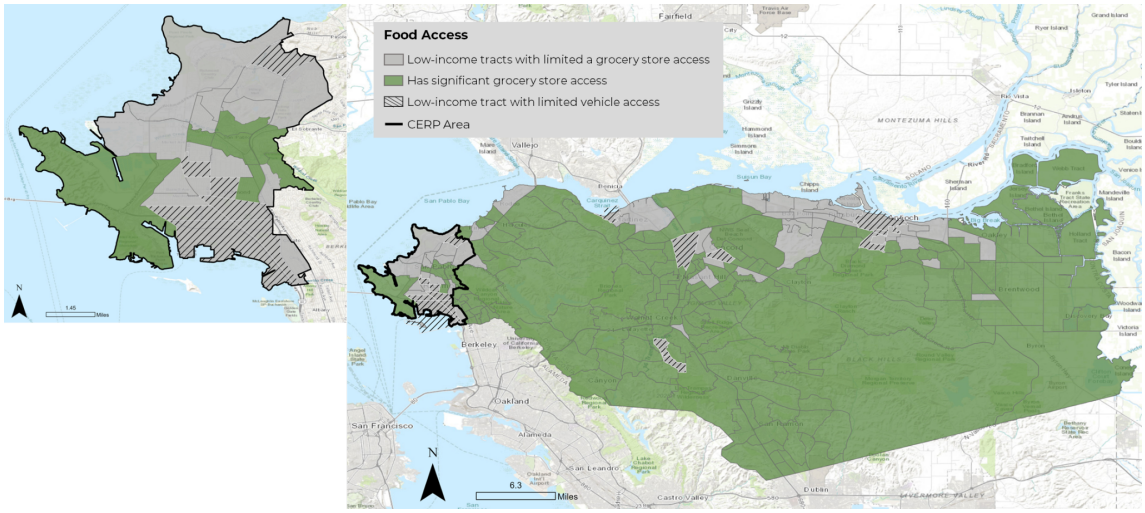
Limited access to healthy affordable food is often measured by proximity to food stores, income -- financial ability to buy healthy food, and ability to travel to a grocery store. Barriers to any of the following may make it harder for some people to eat a healthy diet and therefore, put people at risk for various health issues. To show food access, and lack of food access, we will use data from the USDA's Food Access Research Atlas which uses 2019 grocery store data.[43] The following maps show low-income census tracts in Contra Costa County and the CERP Community with at least 500 people, *or* 33 percent of the population in the tract, living more than one-half mile from the nearest supermarket, supercenter, or large grocery store.[44] The cross-hatching denotes a low-income tract where at least 100 households are more live one-half mile from the nearest supermarket *and* have no access to a vehicle. Low-income tracts are defined by one of the following conditions:

[43] USDA ERS - Go to the Atlas. https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/. Accessed 26 May 2022.
[44] USDA ERS - Documentation. 24 May 2021, https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/.

- The tract's poverty rate is 20 percent or greater, or
- The tract's median family income is less than or equal to 80 percent of the State-wide median family income, or
- The tract is in a metropolitan area and has a median family income less than or equal to 80 percent of the metropolitan area's median family income. (Ibid)

In Contra Costa County, the CERP Community, Martinez, Pittsburgh, Antioch, and Concord all have low-income and low food access census tracts, with many people residing more than half a mile from a grocery store. However, the CERP Community has the most census tracts where a significant number of households have low food access *and* limited car access - potentially hindering their ability to travel to a grocery store.

**Census Tracks with Limited Food Access, Lower-Incomes, and Limited Car Access**



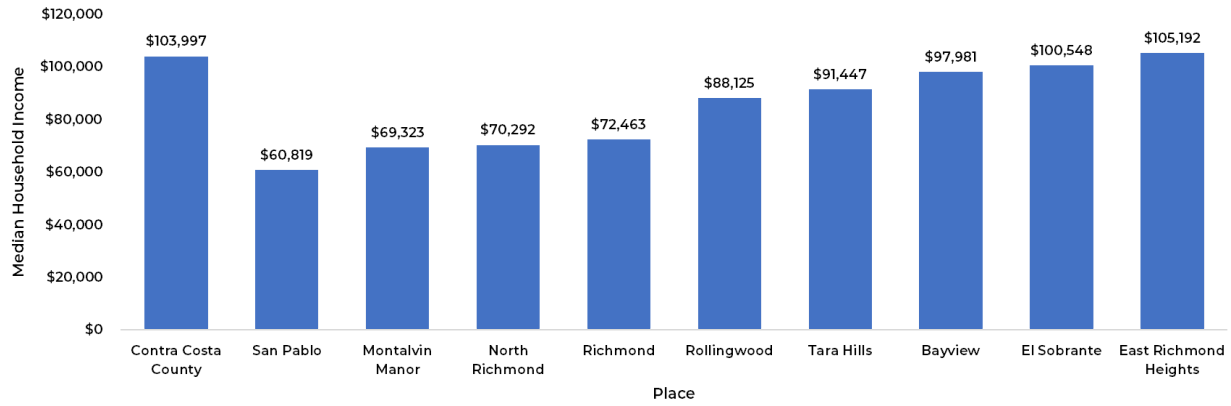

Data sources: In the Food Access Research Atlas, a directory of supermarkets, supercenters, and large grocery stores within the United States—including Alaska and Hawaii—was derived from merging the 2019 STARS directory of stores authorized to accept SNAP benefits and the 2019 Trade Dimensions TDLinx directory of stores. Population data are from the 2010 Census of Population and Housing. These data were aerially allocated down to ½-kilometer-square grids across the United States. For each ½-kilometer-square grid cell, the distance was calculated from its geographic center to the center of the grid cell with the nearest supermarket. Income data are from the 2014-18 American Community Survey's tract estimates. Rural or urban status is designated by the Bureau of the Census 2019 urban area definition.

# VI. INCOME DISTRIBUTION

Area Median Income (AMI) is the income of families in the exact middle of the income distribution (half above and half below), with adjustments for family size. For the 2017-2020 period, the Area Median Income for families was $103,599 for Contra Costa County.[45] Low-income families are those with incomes that earn less than 50 percent of the area median income, so for a family of four, that is less than $51,780 in Contra Costa County.[46] In the CERP Community, 66% of households make under the AMI ($103,566), and 34% make at or above the AMI.[47] In the CERP Community 33% of households are low-income and make less than half of the AMI. In Alameda County, about 25% of households are low-income and make less than half of the AMI.[48]

When comparing places within the CERP Community by median income, we see that three locations approach the County's median income and all others are below.

**Median Household Income (2020 inflation-adjusted dollars)**

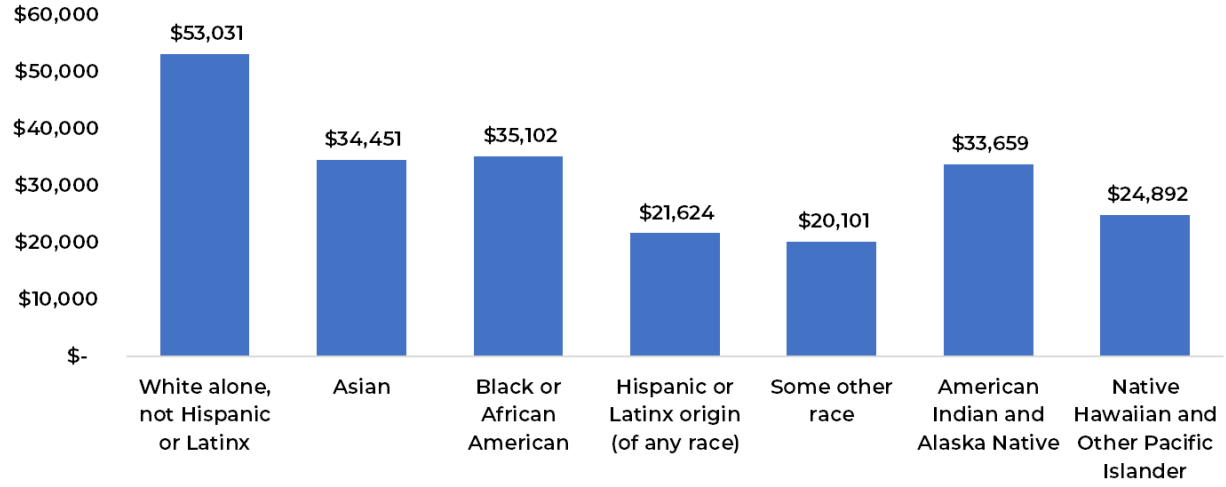



Source: Census Table S1903, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), Universe: Households, 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5/subject .

For individuals' income, also called per capita income, the mean income within the CERP Community was highest for white people. Please note that the 'Hispanic / Latinx' category potentially overlaps with all other racial groups except the white racial group. Some data is not available for American Indian, Alaska Native and Native Hawaiian, and Other Pacific Islander groups.

[45] https://www.huduser.gov/portal/datasets/il.html#2020. Area Median Income is based on a The Department of Housing and Urban Development (HUD) calculation.
[46] "Who Is Low-Income and Very Low Income in the Bay Area?," Ángel Mendiola Ross and Sarah Treuhaft, September 21, 2020https://bayareaequityatlas.org/node/60841
[47] Census Table B19001, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), Universe: Households, 2020-2016: ACS 5-Year Estimates Subject Tables.
[48] Census Table B19001, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), Universe: Households, 2020-2016: ACS 5-Year Estimates Subject Tables.

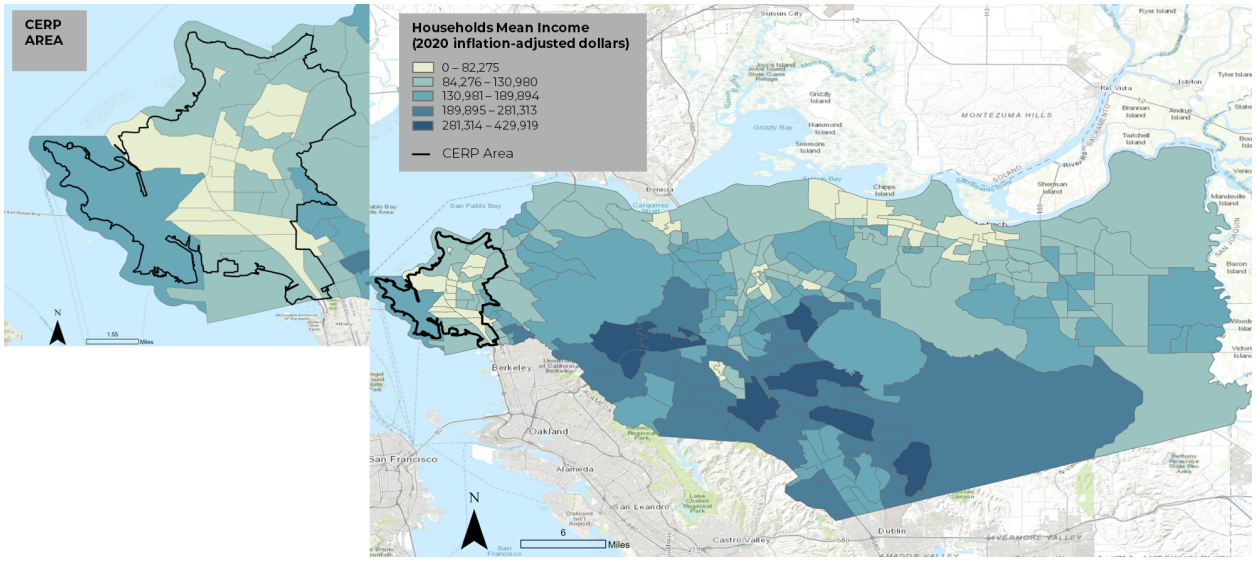
## Mean Income Per Capita (2020 inflation-adjusted dollars)




Source: Census Table S1902, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), Universe: Households, 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5/subject.

By mapping the mean household income for all of Contra Costa County, we see that many census tracts within the CERP Community are below the AMI for the County.

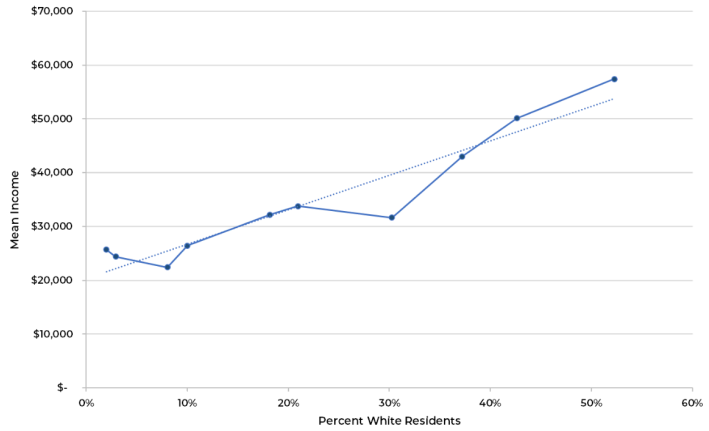
## Mean Household Income for all of Contra Costa County




Source: Census Table S1902, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5/subject.

If we graph the percent of white people and mean per capita income for each CERP jurisdiction, we see higher per capita incomes in areas with more white people.

### Graph of CERP jurisdictions and Their Mean Per Capita Incomes




| Place | Percent White | Mean Per Capita Income |
|---|---|---|
| East Richmond Heights | 52% | $ 57,416 |
| Contra Costa County | 43% | $ 50,118 |
| El Sobrante | 37% | $ 43,017 |
| Bayview | 30% | $ 31,653 |
| Tara Hills | 21% | $ 33,775 |
| Richmond | 18% | $ 32,177 |
| Montalvin Manor | 10% | $ 26,420 |
| San Pablo | 8% | $ 22,405 |
| Rollingwood | 3% | $ 24,412 |
| North Richmond | 2% | $ 25,709 |

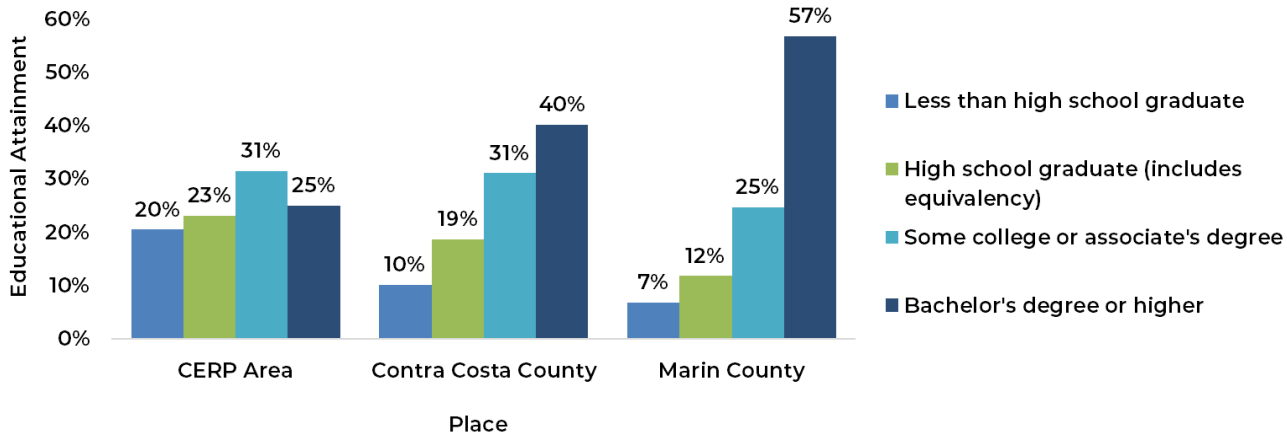
Source: Census Table B19001, MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2020 INFLATION-ADJUSTED DOLLARS), 2020-2016: ACS 5-Year Estimates Subject Tables. Census Table B03002, HISPANIC OR LATINO ORIGIN BY RACE, 2020-2016: ACS 5-Year Estimates Subject Tables.

# VII. EDUCATION

There is evidence that socioeconomic factors such as education influence health outcomes.[49] Education, for example, can lead to higher-paid work, reducing financial stress, and allowing individuals to live in healthier places, such as those further from environmental hazards like air pollution.

In the CERP Community, fewer people have a higher education degree than in Contra Costa County. The number of people with less than a high school level of education is twice as high as in Contra Costa County.

### Educational Attainment in the CERP Community

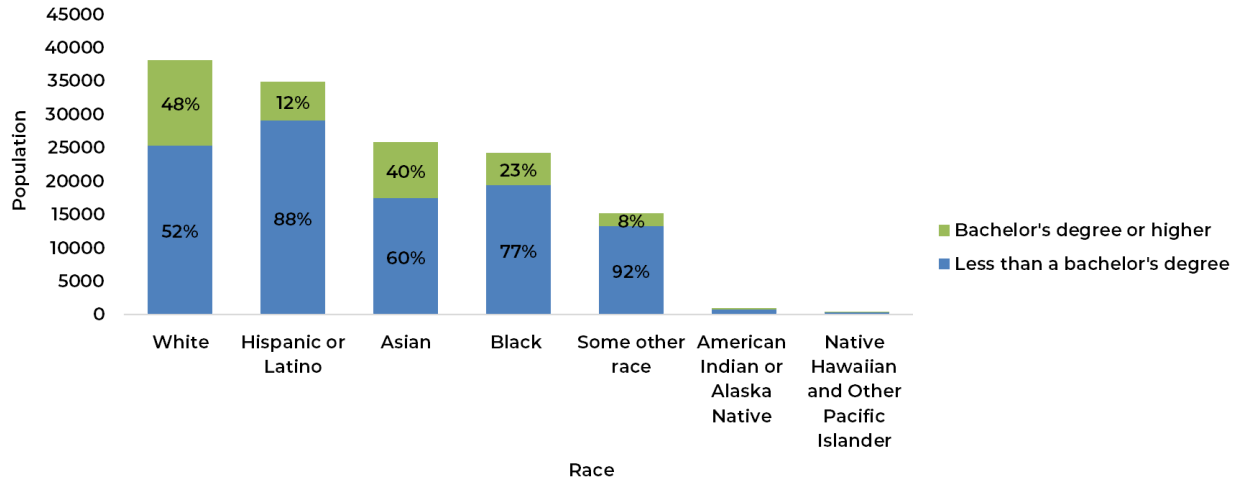



Source: Census Table S1501, EDUCATIONAL ATTAINMENT, 2020-2016: ACS 5-Year Estimates Subject Tables.

[49] Braveman, Paula, and Laura Gottlieb. "The Social Determinants of Health: It's Time to Consider the Causes of the Causes." Public Health Reports, vol. 129, no. 1_suppl2, Jan. 2014, pp. 19–31. SAGE Journals, https://doi.org/10.1177/00333549141291S206.

The bar graph below shows the distribution of race in the CERP Community and, within each population bracket, the percentage of each racial group with less than a bachelor's degree and a bachelor's degree or higher. In the CERP area, white people, followed by Asian people make up the highest proportions of those with a higher education degree.

### Educational Attainment by Race in the CERP Community

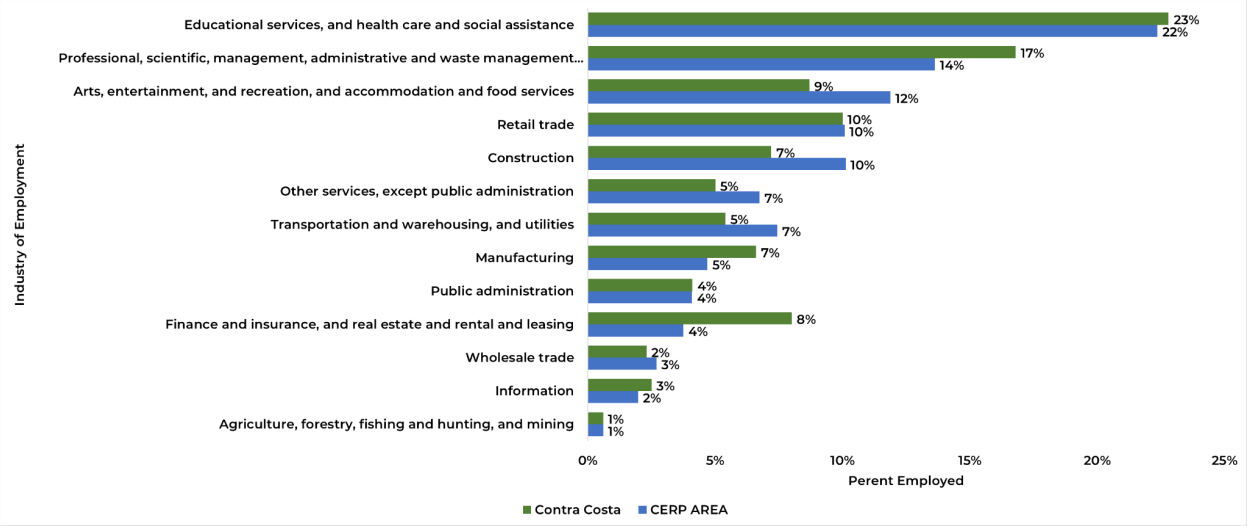



| Race | Less than a bachelor's degree | Bachelor's degree or higher |
|---|---|---|
| White | 52% | 48% |
| Hispanic or Latino | 88% | 12% |
| Asian | 60% | 40% |
| Black | 77% | 23% |
| Some other race | 92% | 8% |
| American Indian or Alaska Native | 78% | 22% |
| Native Hawaiian and Other Pacific Islander | 88% | 12% |

Source: Census Table S1501, EDUCATIONAL ATTAINMENT, 2020-2016: ACS 5-Year Estimates Subject Tables.

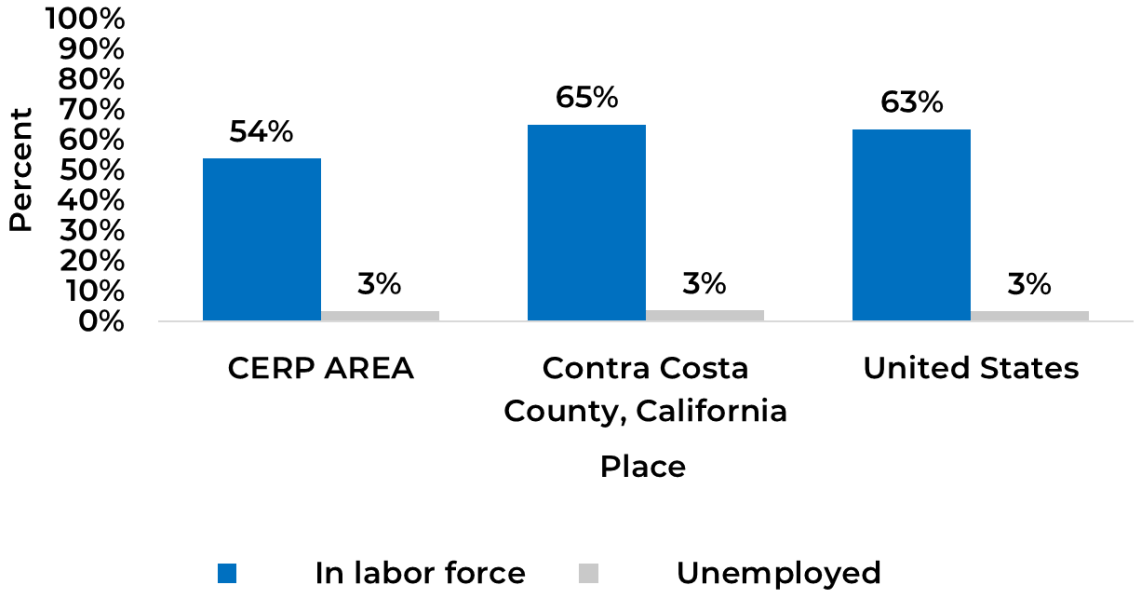
# VIII. EMPLOYMENT

Of people living within the CERP Community and in the County, the largest fields of employment are education, health, and social assistance. Compared with the County, residents in the CERP Community are more often employed in arts, entertainment, accommodation, food services, construction, transportation and warehousing, and utilities.




There are fewer people in the labor force than in Contra Costa County, or even the United States. This may be because the population in the CERP Community is younger than that in the County.

**Percent in the Labor Force and Unemployed**

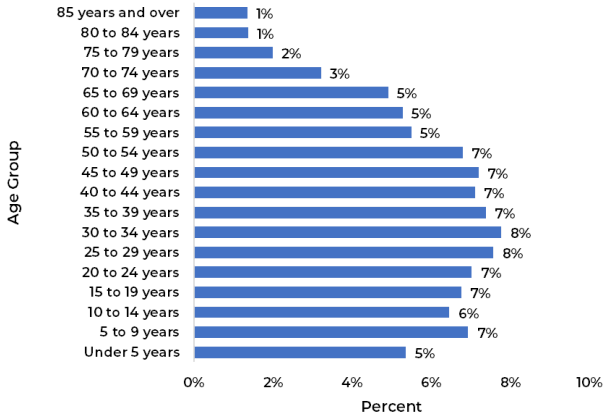



Source: Census Table DP03, SELECTED ECONOMIC CHARACTERISTICS,
2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5/profile.

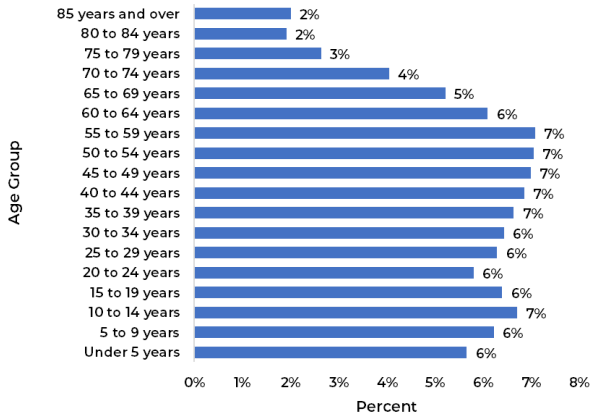
# IX. AGE DISTRIBUTION

The age distribution in the CERP Community is slightly different than in Contra Costa County. In the CERP Community, there are fewer people over 55 years of age and more people under 30.

**CERP Community**



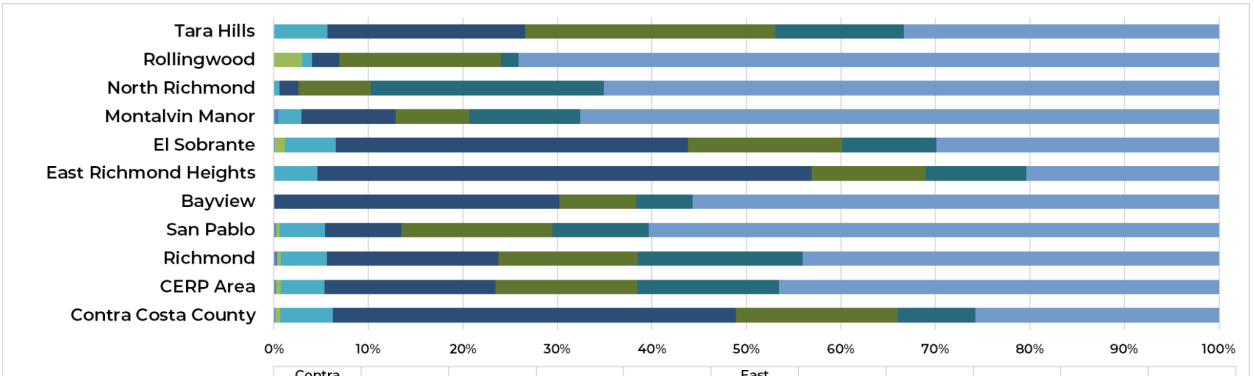

**Contra Costa County**




Source: Census Table S0101, AGE AND SEX, 2020-2016: ACS 5-Year Estimates Subject Tables.

# X. LABOR PARTICIPATION

Of people living within the CERP Community and in the County, the largest fields of employment are education, health, and social assistance. Compared with the County, residents in the CERP Community are more often employed in arts, entertainment, accommodation, food services, construction, transportation and warehousing, and utilities.




| | Contra Costa County | CERP Area | Richmond | San Pablo | Bayview | East Richmond Heights | El Sobrante | Montalvin Manor | North Richmond | Rollingwood | Tara Hills |
|---|---|---|---|---|---|---|---|---|---|---|---|
| American Indian and Alaska Native | 0.2% | 0.3% | 0.3% | 0.2% | - | - | 0.1% | 0.5% | - | - | - |
| Native Hawaiian & Pacific Islander | 0.5% | 0.5% | 0.4% | 0.4% | - | - | 1.1% | - | - | 3.0% | - |
| Other | 5.6% | 4.6% | 4.9% | 4.9% | 0.0% | 4.6% | 5.4% | 2.4% | 0.6% | 1.1% | 5.7% |
| White | 42.6% | 18.1% | 18.2% | 8.0% | 30.2% | 52.3% | 37.2% | 10.0% | 2.0% | 2.9% | 21.0% |
| Asian | 17.2% | 15.0% | 14.7% | 16.0% | 8.1% | 12.1% | 16.4% | 7.8% | 7.6% | 17.1% | 26.5% |
| Black or African American | 8.2% | 14.9% | 17.4% | 10.2% | 6.0% | 10.7% | 10.0% | 11.7% | 24.7% | 1.9% | 13.6% |
| Hispanic or Latinx | 25.8% | 46.6% | 44.1% | 60.3% | 55.7% | 20.4% | 29.9% | 67.6% | 65.1% | 74.1% | 33.4% |

Source: Census Table B03002, HISPANIC OR LATINO ORIGIN BY RACE, Universe: Total population, 2020-2016: ACS 5-Year Estimates Subject Tables. https://api.census.gov/data/2020/acs/acs5.

# XI. UNHOUSED POPULATION

**The Unhoused and Air Pollution Exposure**

Ambient air pollution exposure is linked to severe health outcomes for morbidity as well as mortality.[50] Exposure for the unhoused is a pressing concern because this vulnerable population often lives in structures not intended for human habitation near mobile sources of pollution, such as under freeways and on the shoulders of railways; or near stationary sources of air pollution, such as near industrial sites that are removed from residential neighborhoods.[51] [52] Unlike those with housing, the unhoused cannot benefit from exposure-reducing strategies like indoor air filtration, meaning outdoor air pollution reduction is crucial for these populations.

With ambient air pollution expected to increase in the Western United States due to wildfires and exacerbated by climate change, exposure will likely worsen for the unhoused. According to the U.S. Department of Housing and Urban Development (HUD), the proportion of unhoused who experience unsheltered homelessness is increasing.[53] Unsheltered individuals are acutely vulnerable to poor air quality. While patterns of air pollution exposure among unhoused populations are understudied, research in this area is burgeoning.

The unhoused have greater pollution exposure from local sources in the CERP Community than housed residents. To explore if the unhoused in our CERP Community are experiencing elevated levels of local air pollution exposure we compared the annual-average exposure per capita for the entire CERP Community to the average for census blocks with homeless encampments or habitation. A census block is the smallest geographic unit used by the United States Census Bureau and in urban areas they look like city blocks - bounded on all sides by streets. The averages are population-weighted and show four air quality metrics (see below). Where the unhoused live, cancer risk and particulate matter exposures attributable to local sources are about 50% higher, and the chronic hazard index and PM2.5 concentration are 26% and 16% higher respectively. These averages are based on modeled exposures to local source emissions only and do not reflect sources that may be transported in from outside the CERP Community, for instance from other cities or wildfires. For more information on the exposure data, see the Technical Assessment chapter.

| | Blocks with Encampments | All CERP Blocks | Difference | Percent Difference |
|---|---|---|---|---|
| CANCER RISK | 122 | 84.3 | 38 | 45% |

[50] Lelieveld, Jos, et al. "The contribution of outdoor air pollution sources to premature mortality on a global scale." *Nature* 525.7569 (2015): 367-371.
[51] Liu, Jia Coco, et al. "Particulate air pollution from wildfires in the Western US under climate change." *Climatic change* 138.3 (2016): 655-666.
[52] Hong, Chaopeng, et al. "Impacts of climate change on future air quality and human health in China." *Proceedings of the National Academy of Sciences* 116.35 (2019): 17193-17200.
[53] *2018 AHAR: Part 1 - PIT Estimates of Homelessness in the U.S.* https://www.hudexchange.info/resource/5783/2018-ahar-part-1-pit-estimates-of-homelessness-in-the-us. Accessed 29 Apr. 2022.

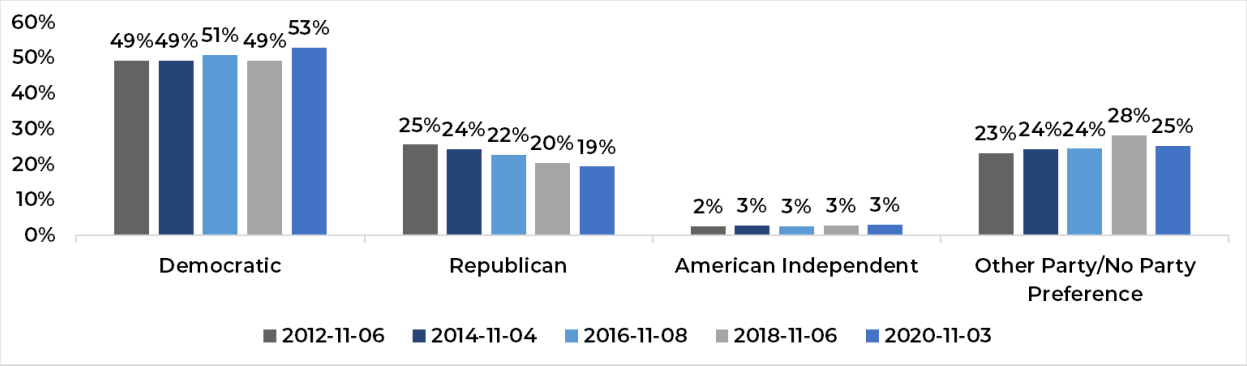
| | | | | |
|---|---|---|---|---|
| CHRONIC HAZARD INDEX | 0.14 | 0.11 | 0.03 | 26% |
| DIESEL PARTICULATE MATTER | 0.15 | 0.1 | 0.05 | 47% |
| PM2.5 | 1.23 | 1.06 | 0.17 | 16% |

# XII. VOTER PARTICIPATION

Low political participation may result in fewer opportunities, services, and social programs for disadvantaged groups, contributing to lowered quality of life for already vulnerable populations. This may be especially true for undocumented communities. As the California Department of Public Health says, "Although there is no direct evidentiary connection between voter registration or participation and health, there is evidence that populations with higher levels of political participation also have greater social capital. Social capital is defined as resources accessed by individuals or groups through social networks that provide a mutual benefit."[54]

Voters in Contra Costa County are largely Democrats, about 50%, with Republicans comprising about 20%.

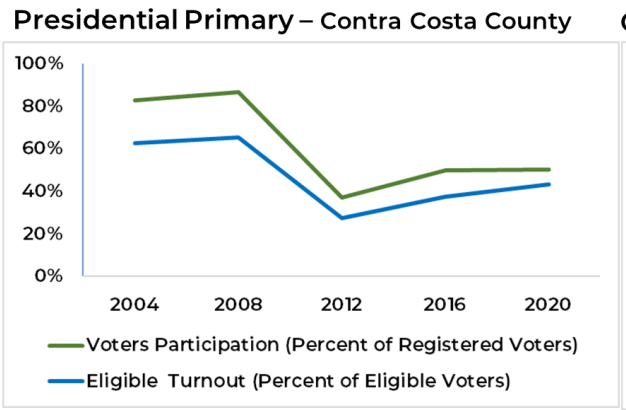
**Political Party Distribution for Contra Costa County**

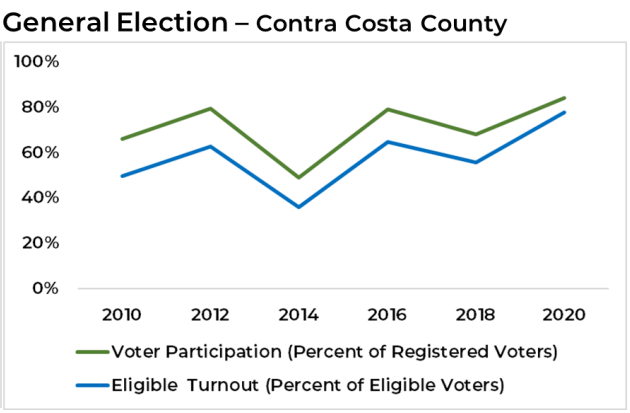



Source: Elections Statistics: California Secretary of State, Voter Participation Statistics by County, General Election - 60 Day Report of Registration. https://www.sos.ca.gov/elections/voter-registration/voter-registration-statistics

Voter participation is measured by dividing the number of adults who voted in general elections by those who registered. In general elections, voter participation has risen from 2010 to 2020 but decreased for presidential primary elections.

[54] Voter Registration - California Health and Human Services Open Data Portal. https://data.chhs.ca.gov/dataset/voter-registration-2002-2010. Accessed 17 May 2022.

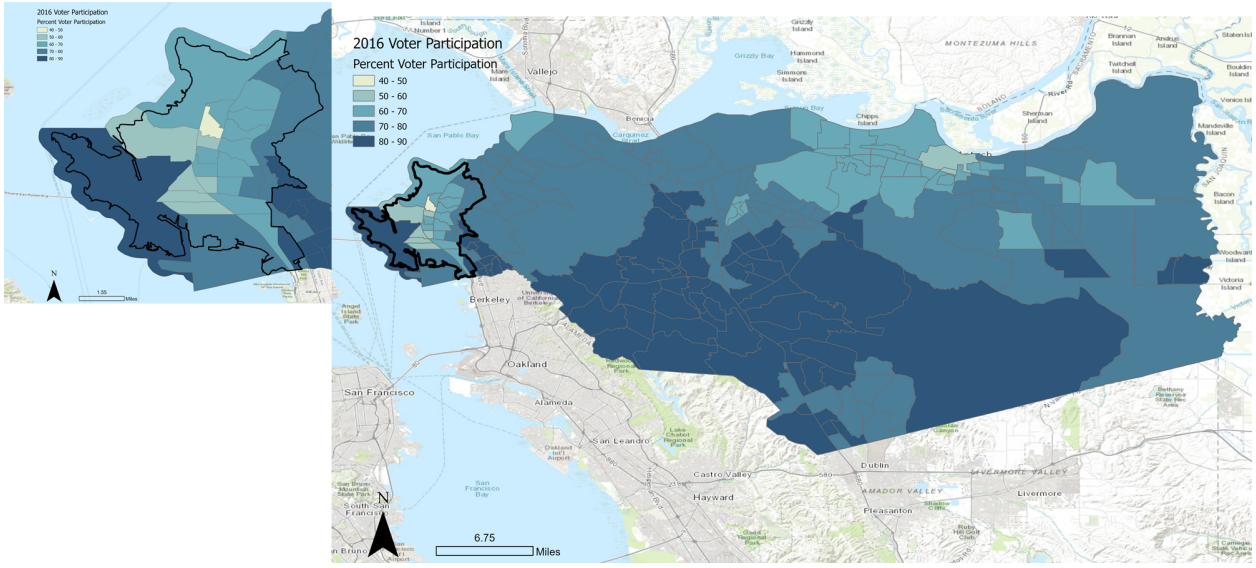



Source: Elections Statistics: California Secretary of State, Voter Participation Statistics by County, https://www.sos.ca.gov/elections/statistics/voter-participation-stats-county

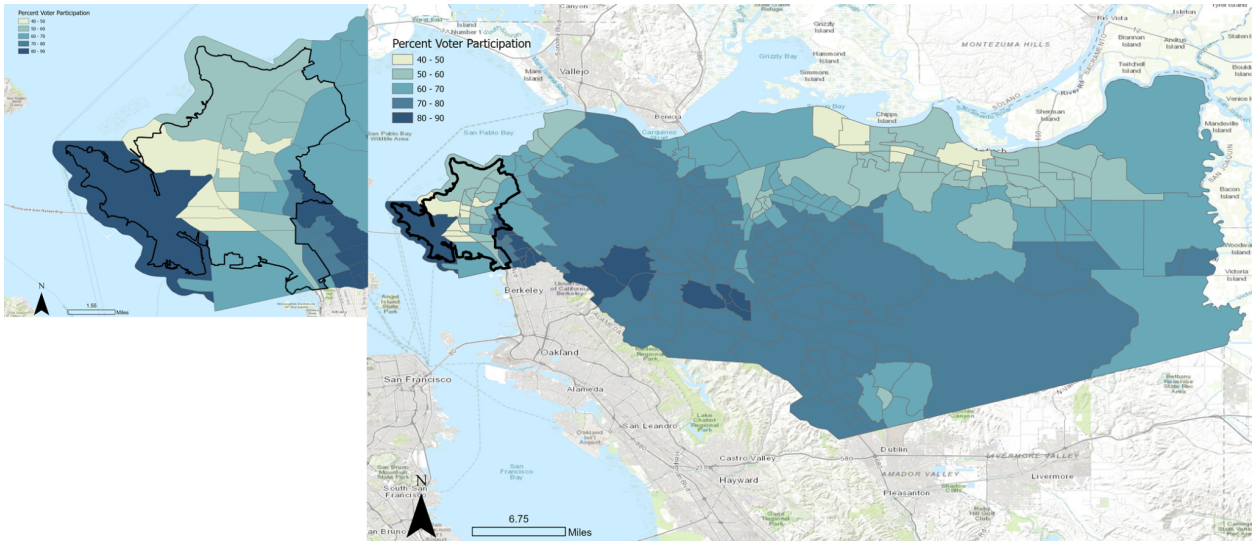
Geographic data for census tracts was only found for the general election years 2016 & 2018. While voter participation has decreased from 2016 to 2018 in the County, the CERP Community and the City of Antioch appear to have the lowest participation rates in the County. These participation rates might be higher in 2020.

## 2016 General Election Voter Participation




Source: Voter Registration - California Health and Human Services Open Data Portal. https://data.chhs.ca.gov/dataset/voter-registration-2002-2010. Accessed 17 May 2022.

**2018 General Election Voter Participation**




Source: Voter Registration - California Health and Human Services Open Data Portal. https://data.chhs.ca.gov/dataset/voter-registration-2002-2010. Accessed 17 May 2022.

# XIII. COMMUNITY CONCERNS

Community concerns were gathered from a Town Hall event, an interactive map (social pinpoint map), and a virtual ideas wall. There were six overarching community concerns that emerged. For the full report on community concerns visit this document.

1. Community Concern: *Addressing Public Health and Reducing Exposure*

Health-related words and physical reactions to air pollution were the most commonly recurring theme throughout the Community Assets and Air Pollution Mapping Project. This section includes concerns about populations that are more vulnerable to air pollution and opportunities to prevent exposure.

Here is feedback on concerns from the community…

- Solar panels (affordable) with batteries, hybrid cars, EV, get rid of electrical outages from PG&E
- We need more information disseminated about health impacts from pollution (air+water), especially in our communities. info is just being made available
- The wildfires were the worst air pollution while living here. the red electrical storms and last year, there was a lot of ash that fell on my yard and plants.
- There is a lot of sites that need remediation. There used to be gas stations, laundry mats, or short-term infrastructure and started to get mold and other unhealthy conditions.
- Seniors having a lot of respiratory issues.
- How many children are suffering from asthma and how many school days are missed from asthma? We could use more health education for communities.
- The campfires from unhoused encampments.

2. Community Concern: *Fuel Refining, Support Facilities, Storage, and Distribution*

Community members expressed concern about how neighborhoods across the Path to Clean Air project area are impacted by sources of air pollution from the Chevron refinery sources/operations (including non-stack sources such as tank storage, bioreactor, current or former refinery ponds). This thematic area

also includes other related businesses that support the processing, distribution, and storage of fuel and fuel-related products.

Here are stories we have heard from the community…

- Flaring. Visibly being able to see them. There are times when I'm driving it looks like a house is burning but then I realize it's just flaring. That really pulls on people's fear (flaring was a frequently recurring comment).
- I am aware during an acute event like a fire or flaring then when I am outside like running or riding a bike - or when I visit other communities and feel the difference in how it is to breathe there as opposed to here in Richmond.
- Smoke coming out of the many refineries in the Richmond community. The smell is sometimes unbearable, and I tend to go inside to avoid it.
- Leaks that have happened as well.
- Oil leaking in our local beach.

3. Community Concern: *Industrial and Commercial Sources Near Communities*

Emissions of air pollutants from some businesses and activities can have a significant exposure impact on the nearby areas, even if they contribute a small percentage of the region's total emissions of that pollutant. This can be especially true for businesses located near where people live or spend time. There are also larger industrial operations that contribute to both local and area-wide impacts, depending on the activity at the facility generating the emissions. Industrial sites and sources of concern are: solid waste and recycling facilities, scrap metal facilities, auto body shops, aggregate facilities or materials handling, concrete production facilities, restaurants and food trucks, dust on local roadways, shipping terminals, dry cleaners, backup generators; and Industrial facilities such as commercial kitchens, bakeries, wineries, breweries, coffee roasteries; dust from construction, demolition, nurseries, and vacant lots; contaminated soil from hazardous waste clean-up sites; construction and heavy diesel equipment.

Here are stories we have heard from the community…

- Park Blvd near the landfill or the Recycle plant near Jackson - there are small and large industrial activities. I wonder about County oversight.
- The landfill is used as a transfer station and can impact the community.
- Industrial fires. There was a fire at Simms metal and there was so much released in the air.
- Fine black dust that appears in neighborhood (this comment was shared from a few community members).
- Rise of sea level (release of pollutants due to change of sea level) and its effect on harmful pollutants that are currently in an area away from the sea.
- Chemical explosion that happened in North Richmond that harmed many. "Anything could blow at any time".

4. Community Concern: Odors from Industries

Odors from industrial activities are a major concern throughout the different neighborhoods in the Path to Clean Air area. Certain land use types are more likely to result in odor impacts, including wastewater treatment plants; landfill, recycling, and composting facilities; petroleum refineries, fuel storage and distribution; chemical plants; cannabis growing and processing; and food services. Odors can have a major quality of life and health risk impact. Reactions to odors can range from psychological, to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Learn more about environmental odors and health effects at this Agency for Toxic Substances and Disease Registry Environmental Odors FAQ page.

Here are stories we have heard from the community…

- On warm days you can still smell the landfill. North Richmond always had problems with the landfill.
- Smells from landfill are heightened during the wildfires.
- Odors certain days of the year and times of day.
- Sense of odors are desensitized because people get used to the odors.

5. Community Concern: Vehicles and Trucks, Streets and Freeways, and Logistics and Warehouses

The Path to Clean Air project area has many sources of vehicle and truck traffic that impact neighborhoods throughout the focus area via a multitude of mechanisms. Goods movement hubs and logistics centers act as magnet sources that draw in vehicles and require use of heavy-duty diesel equipment, causing mobile source emissions. Travel on I-580 and I-80, busy and congested traffic in neighborhoods and public spaces, and trips to and from warehouses and other truck-related businesses result in significant emissions.

Here are stories we have heard from the community…

- There are multiple massive fulfillment centers and warehouses that are expecting 100s of vehicles in and out per day. That is a serious threat to health in North Richmond and Richmond (there were a few comments that mentioned warehouses).
- Unintended impact of the bypass is that traffic is being rerouted and causing pollution in the area.
- Traffic on bridge backup days is pretty bad.
- Cut through traffic trying to get around the lights on the Richmond Parkway.
- Number of trucks driving through the neighborhood and neighborhood streets.
- When traffic is backed up on Fred Jackson Way and I have to walk down that road or ride my bike home my lungs burn.
- Finally being able to breathe when far away from major highways.

6. Community Concern: Marine and Rail

From massive cargo ships to smaller harbor craft such as ferries and tugboats, marine vessels impact California's air quality, especially in communities near ports. Locomotive diesel exhaust is made up of particulate matter, smog-forming oxides of nitrogen, sulfur dioxide, greenhouse gases, and toxic chemicals. Marine and rail equipment tend to have quite long useful lives, meaning that they can be older and dirtier equipment that is less likely to have been upgraded and replaced despite the existence of more modern technology. Tugboats and ferries that run on diesel fuel were a concern for the community, along with rail-going trains and rail yards.

Here are stories we have heard from the community:

- Richmond lives close to the port and gets a lot of particulate exposure. Very visible.
- Port sources are also a large contributor.
- There is a rail freight line that runs right behind the terra hills mobile manor senior park; according to her research, it is an illegally close distance to the residences.

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# Community Emission Reduction Plan (CERP)
# Community Steering Committee Meeting #16

July 18, 2022

# Welcome


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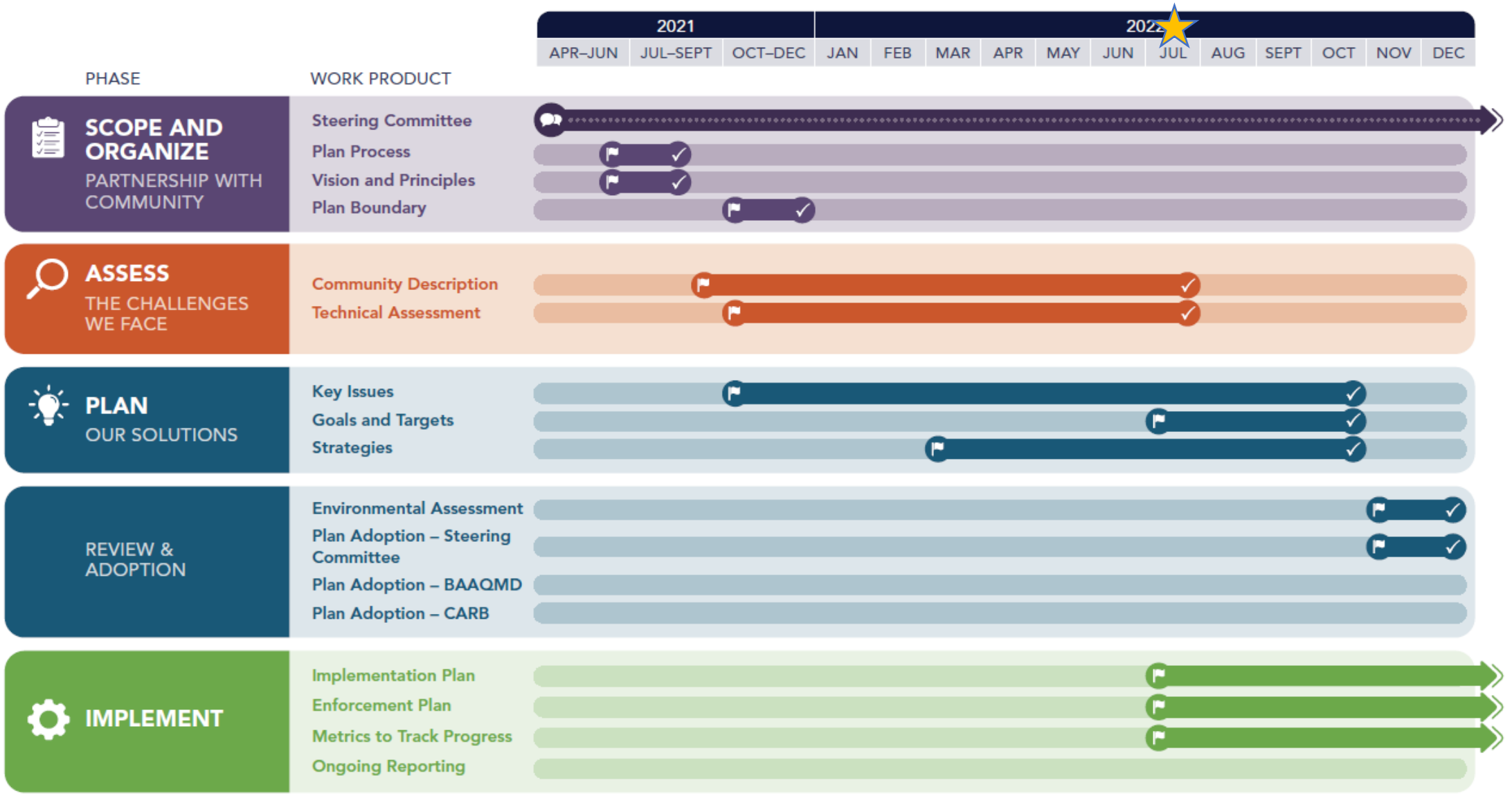
# Today's Agenda

1. Roll Call
2. Welcome and Timeline Review
3. Approval of June 27, 2022, Meeting Minutes
4. Draft Final Community Description from Ad Hoc
5. Key Issues Approach Discussion
6. Environmental Justice Updates
7. Public Comment on Non-agenda Items and Next Steps

# Timeline: Where are We Today?



# Approval of June 27, 2022 Meeting Minutes

# Public Comment

# Path to Clean Air Community Description Ad Hoc Committee

**Contributing Community Committee Members:** Nancy Peace Aguirre, Heidi Swillinger, Vernon Whitmore, Jeff Kilbreth, Alfredo Angulo

**Air District Committee Members:** Lily MacIver, Kelly Malinowski, Karissa White, Megan

# Purpose

**The purpose of the Community Description is to:**

1. Convey the history of the community and its residents.
2. Describe the people who live in the community now and how air pollution impacts them.

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# Themes and Lense

- **Decolonialization** - Honor Indigenous Peoples
- **Racial justice & equity** - Define racial inequities in the community
- **Data accessibility** – Make data easily interpretable
- **Describe health impacts,** especially among children and seniors
- **Community comparisons** – Highlight the difference between our and other communities with fewer sources of air pollution

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# Audience

1. Residents
2. Nonprofits and activists
3. Neighborhood councils and organizations
4. Local government
5. Businesses and business associations

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# Process

- We **Met 12 times** (October 2021 – June 2022) to collectively investigate data on demographics, land use, history, and public health in relation to air pollution
- **Steps:**
  - We used interactive presentations and jamboards to brainstorm stories from the data
  - Then we created an outline for the document
  - And lastly, we wrote, edited, and revised collaboratively in a shared document

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# Community Description Outline

1. Executive Summary
2. Land Use and Activism
3. Racial Composition
4. Pollution Burden
5. Health Impacts
6. Income Distribution
7. Education
8. Employment
9. Age Distribution
10. Labor Participation
11. Unhoused Population
12. Voter Participation
13. Community Concerns (from the Townhall and Ideas Wall)

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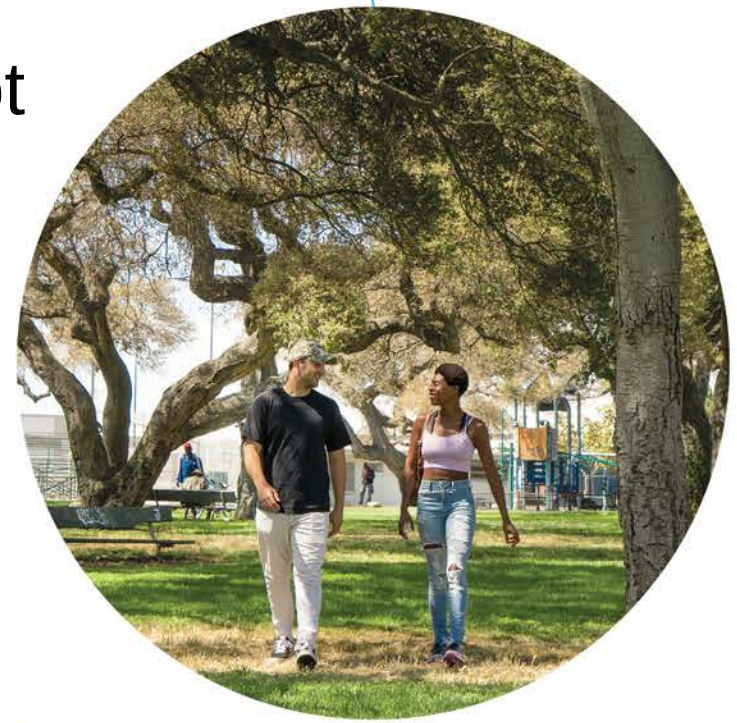
# Request to Steering Committee

1. **Please read the Community Description and Provide** high-level comments. We will not be taking in-line edits. Use the comment form provided.

2. **For your comments, look for**:
   - Glaring inaccuracies and red flags
   - Gaps in the stories and/or data
   - Conceptual issues

3. **Provide comments to Lily MacIver (lmaciver@baaqmd.gov) by *August 8th***



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# Steering Committee Questions and Discussions

# Public Comment

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## Key Issues Approach Discussion

July 18, 2022

# Outline

- Key Issues Approach Overview
  - Why Key Issues?
  - Building Blocks of a Key Issue Statement
  - Mad Lib
  - Key Issues Examples
- Steering Committee Recess for Small Group Discussion
- Steering Committee Reconvenes for Reports and Discussion

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# Key Issues Approach Overview: Why Key Issues?

## Key Issue Statements:

Begin with a community concern, include what we know from assessments and information gathering, and clearly state the outcomes or consequences

## Key Issue Statements help us to:

- Summarize and organize our findings
- Identify questions to be further explored
- Identify actions that together form a strategy to respond to identified problems

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# Key Issues Approach Overview: Building Blocks

What is the concern?

What do we know?

What is the consequence (who is affected and what does it mean?)

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# Key Issues Approach Overview: Building Blocks Description

**What is the concern:**

- An issue or concern raised by community members to ensure the work of the CERP is grounded in community priorities.

**What do we know:**

- Data and information from the technical assessment (modeling and monitoring)
- Information about complaints and violations
- Information from the Community Description

**What are the consequences** (who is affected and what does it mean?):

- This is the risk to people, such as sensitive populations near pollutants of concern, and information about their health and demographics
- Explains the outcome or impact of the key issue, which could build on the risk to people, describe the impacts to people, or describe other types of impacts

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# Key Issues Approach Overview: Building Blocks Source

## What is the concern:

- Path to Clean Air Community Concerns List (Complaints system, Monitoring Plan, Social Pinpoint, and Town Hall)

## What do we know:

- Technical Assessment presentation #1
- Technical Assessment presentation #2
- Compliance & Enforcement  Data Findings from 2019 - 2021

## What is the consequence (who is affected and what does it mean?):

- Arc GIS map
- Social Pinpoint Tool
- Draft Community Description
- Air Pollution and Health Presentation

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# Key Issues Approach Overview: Mad Lib

**_____ is a concern**

What is the concern

**because _____,**

What do we know

**which leads to _____.**

What is the consequence
(who is affected and what does it mean?)

# Key Issues Example: Odors from Industry

Odors from different kinds of industrial facilities, such as wastewater treatment plants and landfills, are a concern because hydrogen sulfide and ammonia emissions leads to sewage, hydrogen sulfide, and rotten eggs smells that impact the mental and physical health of people living, working, and studying nearby.

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# Key Issues Example: Metal Recycling

Facilities that recycle metal are concerning because of fugitive dust from stockpiles that are often in the open-air, and the potential for fires from toxic and flammable materials often stored, moved, and processed at these site, which may cause heart diseases and a variety of lung health impacts on people living and working nearby, including young people, people experiencing illnesses, and the elderly.

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# Key Issues Example: Levin Terminal

Levin Terminal's operations is a concern because coal handling and transport operations result in both fugitive dust and diesel particulate emissions, which increases the cumulative air pollution exposure burden at Nystrom and Harbor Way Elementary Schools, Richmond College Prep Pre-school, and BAART Richmond Clinic.

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# Steering Committee Recess for Small Group Discussion

- Jamboard Link: https://jamboard.google.com/d/1QouTcfPsCFgCHJ5PvADrE1DDsqI6w51BUIS-JqlZoqQ/edit?usp=sharing

- 6 Community Concern Categories:
  1. Addressing Public Health and Reducing Exposure
  2. Fuel Refining, Support Facilities, Storage, and Distribution
  3. Industrial and Commercial Sources Near Communities
  4. Odors and Smells
  5. Vehicles and Trucks, Streets and Freeways, and Logistics
  6. Marine and Rail

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# Recess Breakout Room Instructions

1) We are taking a recess from the Steering Committee meeting and splitting up into smaller groups

- The links for each of the breakout will be placed in the chat and are available below:

| Room | Zoom Links |
|---|---|
| Addressing Public Health and Reducing Exposure | Main Room |
| Fuel Refining, Support Facilities, Storage, and Distribution | https://us02web.zoom.us/j/86458440658?pwd=THBncjkwTmRaNERYdHhEcFBCTERWUT09 |
| Industrial and Commercial Sources Near Communities | https://us02web.zoom.us/j/88572187103?pwd=WFMrOEJ4OVhNejdodHFQblZDM1hUZz09 |
| Odors and Smells | https://us02web.zoom.us/j/89191525747?pwd=SW5XNG0vSTZCbFVNbW15TldmYzFIUT09 |
| Vehicles and Trucks, Streets and Freeways, and Logistics and Warehouses | https://us02web.zoom.us/j/86531799714?pwd=bUtzQWxqeXIvc3lLRG9NWlB1NUUwQT09 |
| Marine and Rail | https://us02web.zoom.us/j/83516282460?pwd=UHR6T2RObFJKRjNoY2t6THcwdzdUUT09 |

2) Each smaller group will be discussing a different topic/key issue/concern for about 45 minutes

3) After the recess we will reconvene the Steering Committee meeting, share what was discussed in the smaller groups, and allow for public comment.

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# Meeting Will be Temporarily in Recess

# Reconvene Steering Committee for Discussion

- Small Group Report Back
- Questions & Discussion
- Next Steps

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# Steering Committee Questions and Discussions

# Public Comment

# Standing Environmental Justice Updates

# Next Meeting

- Our next Steering Committee meeting will be on Monday, August 15, 2022 from 5:30 p.m. to 8:00 p.m.
- Agenda topics will include:
  - Brief presentation of the *Strategy Writer's Guide and Checklist*
  - Small group discussions on *Problems to Solutions* for two of the six community concerns

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# Public Comment on Non-Agenda Matters