CalEnviroScreen 4.0 Results Data Dictionary and Information on Zeros and Missing Values

Data Dictionary

This document accompanies the CalEnviroScreen 4.0 results available as an excel spreadsheet. CalEnviroScreen 4.0 was released October 2021.

The CalEnviroScreen 4.0 results are available to view in the online map.

For more information and to access additional data, see the CalEnviroScreen 4.0 webpage.

| Variable Name | Description |
| --- | --- |
| Census Tract | Census Tract ID from 2010 Census |
| Total Population | 2019 ACS population estimates in census tracts |
| California County | California county that the census tract falls within |
| ZIP | Postal ZIP Code that the census tract falls within |
| Approximate Location | Approximate city, town, or area where each census tract is located based on US Census Incorporated Places (2020, Cities), US Census Designated Places, (2020, Designated Places), and the CA Department of Tax and Fees City and County Boundaries and City Annexations (2021, Unincorporated Areas) boundary files. All tracts that did not fall within one of these boundaries were assigned "unincorporated county area" based on that tract's county. This is for reference purposes only and should not be used to determine whether a census tract falls within a city or town boundary. |
| Longitude | Longitude of the centroid of the census tract |
| Latitude | Latitude of the centroid of the census tract |
| CES 4.0 Score | CalEnviroScreen Score, Pollution Score multiplied by Population Characteristics Score |
| CES 4.0 Percentile | Percentile of the CalEnviroScreen score |
| CES 4.0 Percentile Range | Percentile of the CalEnviroScreen score, grouped by 5% increments |
| Ozone | Amount of daily maximum 8 hour Ozone concentration |
| Ozone Pctl | Ozone percentile |
| PM2.5 | Annual mean PM2.5 concentrations |
| PM2.5 Pctl | PM2.5 percentile |
| Diesel PM | Diesel PM emissions from on-road and non-road sources |
| Diesel PM Pctl | Diesel PM percentile |
| Drinking Water | Drinking water contaminant index for selected contaminants |
| Drinking Water Pctl | Drinking water percentile |
| Lead | Potential risk for lead exposure in children living in low-income communities with older housing |
| Lead Pctl | Children's lead risk from housing percentile |
| Pesticides | Total pounds of selected active pesticide ingredients (filtered for hazard and volatility) used in production-agriculture per square mile |
| Pesticides Pctl | Pesticides percentile |
| Tox. Release | Toxicity-weighted concentrations of modeled chemical releases to air from facility emissions and off-site incineration (from RSEI) |

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| Tox. Release Pctl | Toxic release percentile |
| --- | --- |
| Traffic | Traffic density in vehicle-kilometers per hour per road length, within 150 meters of the census tract boundary |
| Traffic Pctl | Traffic percentile |
| Cleanup Sites | Sum of weighted EnviroStor cleanup sites within buffered distances to populated blocks of census tracts |
| Cleanup Sites Pctl | Cleanup sites percentile |
| Groundwater Threats | Sum of weighted GeoTracker leaking underground storage tank sites within buffered distances to populated blocks of census tracts |
| Groundwater Threats Pctl | Groundwater threats percentile |
| Haz. Waste | Sum of weighted hazardous waste facilities and large quantity generators within buffered distances to populated blocks of census tracts |
| Haz. Waste Pctl | Hazardous waste percentile |
| Imp. Water Bodies | Sum of number of pollutants across all impaired water bodies within buffered distances to populated blocks of census tracts |
| Imp. Water Bodies Pctl | Impaired water bodies percentile |
| Solid Waste | Sum of weighted solid waste sites and facilities (SWIS) within buffered distances to populated blocks of census tracts |
| Solid Waste Pctl | Solid waste percentile |
| Pollution Burden | Average of percentiles from the Pollution Burden indicators (with a half weighting for the Environmental Effects indicators) |
| Pollution Burden Score | Pollution Burden variable scaled with a range of 0-10. (Used to calculate CES 4.0 Score) |
| Pollution Burden Pctl | Pollution burden percentile |
| Asthma | Age-adjusted rate of emergency department visits for asthma |
| Asthma Pctl | Asthma percentile |
| Low Birth Weight | Percent low birth weight |
| Low Birth Weight Pctl | Low birth weight percentile |
| Cardiovascular Disease | Age-adjusted rate of emergency department visits for heart attacks per 10,000 |
| Cardiovascular Disease Pctl | Cardiovascular disease percentile |
| Education | Percent of population over 25 with less than a high school education |
| Education Pctl | Education percentile |
| Linguistic Isolation | Percent limited English speaking households |
| Linguistic Isolation Pctl | Linguistic isolation percentile |
| Poverty | Percent of population living below two times the federal poverty level |
| Poverty | Poverty percentile |
| Unemployment | Percent of the population over the age of 16 that is unemployed and eligible for the labor force |
| Unemployment Pctl | Unemployment percentile |
| Housing Burden | Percent housing-burdened low-income households |
| Housing Burden Pctl | Housing burden percentile |
| Pop. Char. | Average of percentiles from the Population Characteristics indicators |
| Pop. Char. Score | Population Characteristics variable scaled with a range of 0-10. (Used to calculate CES 4.0 Score) |
| Pop. Char. Score Pctl | Population characteristics percentile |

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Data Dictionary for Demographic Profile Tab

| Variable Name | Description |
| --- | --- |
| Census Tract | Census Tract ID from 2010 Census |
| CES 4.0 Score | CalEnviroScreen Score, Pollution Score multiplied by Population Characteristics Score |
| CES 4.0 Percentile | Percentile of the CalEnviroScreen score |
| CES 4.0 Percentile  Range | Percentile of the CalEnviroScreen score, grouped by 5% increments |
| California County | California county that the census tract falls within |
| Total Population | 2019 ACS population estimates in census tracts |
| Children < 10 years (%) | 2019 ACS population estimates of the percent per census tract of children under 10 years old |
| Pop 10-64 years (%) | 2019 ACS population estimates of the percent per census tract of people between 10 and 64 years old |
| Elderly > 64 years (%) | 2019 ACS population estimates of the percent per census tract of elderly 65 years and older |
| Hispanic (%) | 2019 ACS population estimates of the percent per census tract of those who identify as Hispanic or Latino |
| White (%) | 2019 ACS population estimates of the percent per census tract of those who identify as non-Hispanic white |
| African American (%) | 2019 ACS population estimates of the percent per census tract of those who identify as non-Hispanic African American or black |
| Native American (%) | 2019 ACS population estimates of the percent per census tract of those who identify as non-Hispanic Native American |
| Asian American (%) | 2019 ACS population estimates of the percent per census tract of those who identify as non-Hispanic Asian or Pacific Islander |
| Other/Multiple (%) | 2019 ACS population estimates of the percent per census tract of those who identify as non-Hispanic "other" or as multiple races |

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Description of Zeros and Missing Values

This summarizes the zero and NA values from the CalEnviroScreen 4.0 results excel spreadsheet. 8035 California Census Tracts are used in the CalEnviroScreen analysis.

Pollution Burden Indicators

| Indicator | Ozone PM  Diesel  Drinking  Water Lead Pesticides  Toxic  Releases Traffic  2.5  PM  Use  0 0 0 0 4 5135 37 0 0 0 0 28 96 0 0 35 |
| --- | --- |
| # of  Zeros |
| # of NAs |

| Indicator | Ground  Impaired  Cleanup  Hazardous  Solid  water  Water  sites  Waste  Waste  threats  Bodies  2677 2012 480 3273 3670 0 0 0 0 0 |
| --- | --- |
| # of Zeros |
| # of NAs |

Population Characteristic Indicators

| Indicator | Asthma LBW CVD  0 14 0  11 227 11 |
| --- | --- |
| # of Zeros |
| # of NAs |

| Indicator | Education Linguistic  isolation Poverty Unemployment Housing  Burden  30 326 0 16 0 103 320 75 335 145 |
| --- | --- |
| # of Zeros |
| # of NAs |

What do indicator raw values of zero and NA mean?

*NA or missing raw values:*

When an indicator has a missing value (“NA”), it typically means no monitoring or reporting was conducted, no population was reported, or estimates for the indicator were considered to be unreliable within that census tract. For example, low birth weight measures are not available for all California census tracts because a number of places have low population numbers or too few registered births to calculate a reliable low birth weight score in that community.

There are 23 out of 8035 census tracts that have zero population reported by the U.S. Census in the 2015-2019 ACS. These were assigned “NA” for all population characteristic indicators. In addition, census tracts with highly unreliable estimates for the educational attainment, linguistic isolation, poverty, unemployment, and housing burden indicators were assigned “NA.” The lead indicator has a socioeconomic component and thus has similar unreliable estimates that are assigned "NA". These

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variables are derived from the household data rather than individual level data (see the report for more detail). The low birth weight indicator has a minimum requirement of 50 births over the analyzed time period otherwise the indicator is assigned an "NA".

*Zero raw values:*

A value of zero, typically implies that monitoring or reporting was conducted, but no impacts were present. For many exposure and environmental effects indicators, this means that no facilities or sites were located within 1000 meters of a populated area of the census tract. For example, 2677 census tracts did not have a Cleanup site within 1000 meters of a populated area of the census tract. These census tracts were given a value of zero. Similarly, a zero for a Population Characteristics indicator such as poverty, for example, means people live there but there are no residents under the poverty level.

What do percentiles of zero and NA mean?

*NA or missing percentiles values:*

Indicators that include missing values (“NA”) are Traffic, Drinking Water, Lead, and all of the Population Characteristic indicators. In these cases, missing values were assigned no percentile (given an “NA”) and did not contribute to their overall CalEnviroScreen score. For example, if a census tract was missing both Drinking Water and Lead scores then the denominator of the exposure indicators was adjusted to six instead of eight indicators.

*Zero percentile values:*

Many census tracts for exposure and environmental effects indicators have a raw value of zero. We do not include these census tracts in the percentile calculation, which would give the false impression that an impact is present. For example, around 64% of census tracts have none of the select pesticides used. If these were used in the percentile calculation, a value of zero would correspond to the 63rd percentile. It is more appropriate to assign these places a percentile value of “0” corresponding to no impact. This means that for the pesticide indicator, 2900 (8035 minus 5135) census tracts make up the percentile range. Indicators with missing values (“NAs”) are never included in the percentile calculation. The Education indicator has 7902 census tracts in the percentile calculation (8035 minus 30 (zeros values) minus 103 (missing values) = 7902).

Impact of zero and NAs on CalEnviroScreen scoring

Census tracts that have missing or unreliable estimates for more than four Population Characteristics indicators (more than half) are assigned an “NA” score for the Population Characteristics component score as well as the overall CalEnviroScreen score. The purpose of this is to reduce reliance on only a small number of indicator scores in the Population Characteristics component and retain the emphasis on cumulative burden. Since there are not as many “NA” scores within the Pollution Burden component, all census tracts in the state receive a Pollution Burden score. In addition, any census tracts with a population of less than 50 people receive an “NA” score for Population Characteristics. Census tracts with over 50 people, but less than 50 of those people living outside of group quarters also receive “NA” scores for the Population Characteristics component. (Group quarters include places such as college dormitories, prisons, and residential treatment centers.)

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