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)

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

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

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

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

Population Characteristic Indicators

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

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

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

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.)