

# RESPONSES TO PUBLIC COMMENTS ON THE METHOD TO IDENTIFY DISADVANTAGED COMMUNITIES UNDER SENATE BILL 535

Prepared by the Office of Environmental Health Hazard Assessment  
for the California Environmental Protection Agency's Office of the Secretary

*October 2014*

In August and September 2014, the California Environmental Protection Agency (CalEPA), the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) held three public workshops (in Fresno, Los Angeles and Oakland) and provided a written comment period on the proposed identification of disadvantaged communities as required by Senate Bill 535 (De León, Chapter 830, Statutes of 2012). OEHHA presented five possible methods using data from the CalEnviroScreen 2.0 screening tool to identify disadvantaged communities. At the Oakland workshop and in its written comments, the Bay Area Air Quality Management District proposed a sixth method.

This document provides responses to the major comments received. These comments include:

- Add a cost-of-living adjustment to the CalEnviroScreen 2.0 poverty indicator.
- Expand the CalEnviroScreen 2.0 pesticide indicator to include non-agricultural pesticide use.
- Use the method proposed by the Bay Area Air Quality Management District to identify disadvantaged communities based on CalEnviroScreen 2.0 data.
- Add an indicator for rent burden to CalEnviroScreen 2.0.
- Address gaps in the data used by CalEnviroScreen 2.0 to evaluate how pollution originating in Mexico contributes to pollution burden in census tracts along the California-Mexico border.
- Various comments on the methodology used by CalEnviroScreen 2.0 and criteria for identifying disadvantaged communities.

## **COST OF LIVING**

**Comment:** CalEnviroScreen 2.0 should include a cost of living adjustment to the poverty indicator.

**Response:**

OEHHA evaluated a cost of living-adjusted poverty indicator for inclusion in CalEnviroScreen 2.0. We evaluated four possible approaches to doing a cost of living adjustment, but none of these were feasible to include at this time at the census tract scale. In our evaluation of alternative poverty measures, the California Poverty Measure developed by the Public Policy Institute of California (PPIC) appears to have the greatest potential for incorporation into CalEnviroScreen. At this time, for reasons described below, we will continue to use the current poverty indicator, but we will explore the possibility of working with PPIC to develop a new indicator that includes a cost of living adjustment at the census tract level. New resources would be required to develop the data and a new indicator. If a new indicator were

developed, there would be an opportunity for public and scientific review prior to incorporating it into a future version of CalEnviroScreen.

One of four socioeconomic indicators used in CalEnviroScreen 2.0 is the percentage of a census tract's population living below twice the Federal Poverty Level. The data come from the 2008-2012 American Community Survey of the US Census Bureau. In 2012, the poverty threshold for a family of four was \$23,050, and twice the poverty level was \$46,100, as established by the U.S. Department of Health and Human Services. The selection of twice the poverty level was intended to account for the higher cost of living in California compared to other states; however, it does not account for regional differences within the state or the needs of sensitive populations such as the elderly.

OEHHA evaluated the feasibility of incorporating cost of living considerations in the poverty measure in the CalEnviroScreen analysis. We evaluated four alternative measures that might provide a way to account for differences in cost of living within California. These four measures are described below, along with considerations regarding their use for adjusting for cost of living in the CalEnviroScreen poverty indicator.

- 1 **Cost of Living index** from the Census Bureau measures the relative price levels for consumer goods and services for selected urban areas of the country. It provides an index, greater than 100, for selected areas' cost of living to compare to the national average. The index is available for fewer than 15 cities or urban areas in California. Thus it appears to have limited applicability for incorporation in the CalEnviroScreen poverty index since cost of living adjustment information would not be available for a large number of communities in the state.
- 2 **Supplemental Poverty Measure (SPM)** from the Census Bureau compares income to poverty thresholds and bases the thresholds on government programs that assist low-income families, and other economic factors. The SPM has only been calculated for different states, age groups, races and genders, so the available SPM statistics do not provide the basis for cost of living adjustments for different geographical areas within the state.
- 3 **California Poverty Measure (CPM)** builds upon the SPM by incorporating California-specific information and adjusting for regional costs of living. Developed by the Public Policy Institute of California (PPIC) in 2013, it provides adjusted poverty rates and thresholds for California counties. It uses household expenditures (food, clothing, utilities, housing) and government assistance program data (SNAP, welfare income, tax credits and liabilities, housing subsidies, and school lunch and breakfast programs) that are similar to those used in the SPM, but CPM also incorporates California data on enrollment in CalWORKs and CalFresh welfare programs, as well as adjusting for the county-level cost of owning or renting a home. While the CPM provides county-scale estimates that take cost of living into consideration, the use of these values to adjust poverty on the census-tract scale carries with it considerable uncertainties (see example below).
- 4 **Elder Index**, developed by the University of California at Los Angeles and the California Department of Aging, is an index that quantifies the costs in the private market for meeting the basic needs of elders, including, but not limited to, the costs of essential household items, food, health care, shelter, transportation, and utilities. The data are also only available at the county

scale, and while they focus on the elderly population's economic needs, they do not adjust for economic needs of children and other sensitive groups. Therefore, they present an incomplete picture of differences in cost of living. Further, using county-scale Elder Index data to adjust census-tract scale poverty estimate presents a similar problem as that described for the CPM above.

While none of these measures provided a basis for adjustment at the census-tract scale analysis, the CPM developed by the PPIC appears to have the greatest potential for incorporation into a future version of CalEnviroScreen. It may be possible to combine the data underlying the CPM with additional economic information to achieve an appropriate adjustment to the poverty index at the census tract scale.

### **ANALYSIS BASED ON COUNTY-SCALE DATA ON COST OF LIVING**

To evaluate the potential practical impact of adjusting for cost of living, we explored a crude adjustment to census tract data of the poverty indicator using county-level adjustment factors from the CPM indices.

**Rationale:** The PPIC provides a comparison of county-scale CPM poverty level rates to the county-scale Federal Poverty Level (FPL) rates (available at URL: <http://www.ppic.org/main/publication.asp?i=1070>). We used the ratios of these two county-scale poverty measures to create a crude adjustment factor to the poverty rate for each census tract.

**Method:** We calculated a California to Federal poverty ratio for each county in California by dividing the CPM rate by the FPL rate. We then multiplied the FPL rate for each census tract by the CPM/FPL ratio for the county in which that census tract is located. We replaced the CalEnviroScreen poverty indicator data with the adjusted poverty rate data and recalculated the overall CES scores.

**Results:** In looking at the highest-scoring 25 percent of census tracts with both the CalEnviroScreen 2.0 method and CalEnviroScreen method using the CPM-adjusted poverty rates, 96 percent of the census tracts identified are the same.

There are a total of 82 census tracts that differ in the highest-scoring 25 percent using these two methods. When the county-adjusted poverty indicator is included, there are a few census tracts added in the San Francisco Bay Area and San Diego County, while several census tracts drop out of Imperial County. The majority of the changes occur in the San Joaquin Valley, which loses 35 tracts and the Los Angeles area, which gains 42 tracts. Below is a table containing the breakdown of highest-scoring 25 percent census tracts for different areas of California, with and without the adjustment for cost of living at the county scale.

Region	Number of Top 25% Highest Scoring Census Tracts		
	CES 2.0	CES with adjusted poverty indicator	Census tracts gained (+) or lost (-)
<i>California</i>	1993	1993	0
<i>San Joaquin Valley</i>	431	396	-35
<i>Nine San Francisco Bay Area Counties</i>	85	94	+9
<i>Los Angeles, Ventura, and Orange Counties</i>	1113	1155	+42
<i>Riverside and San Bernardino Counties</i>	38	39	+1
<i>San Diego County</i>	26	31	+5
<i>Imperial County</i>	12	8	-4

While this reanalysis may provide a general idea of how a crudely-adjusted poverty rate could affect the top-scoring census tracts, the application of this method at the county-scale will not be used at this time to modify CalEnviroScreen. An underlying assumption in this method is that all census tracts in a county are equivalent in terms of the way their adjusted poverty rates differ from their federal poverty rate. Because many counties cover a large geographic area and are made up of numerous census tracts with vastly different demographics, it is inappropriate to adjust individual census tract poverty rates based on county-scale data.

## NON-AGRICULTURAL PESTICIDE USE

**Comment:** CalEnviroScreen 2.0 should include non-agricultural pesticide use.

**Response:**

The California Department of Pesticide Regulation maintains pesticide use data in its Pesticide Use Reporting system that falls into three broad categories:

1. *Production agricultural uses:* Includes production of crops, milk, eggs, livestock, poultry, fish, and forests/timber.
2. *Other agricultural uses:* Includes applications to parks and recreational lands, rights-of-way, golf courses, water bodies and cemeteries.
3. *Non-agricultural uses:* Includes application by professional services in the home, industrial, institutional, or structural settings; or for vector control or veterinary uses.

Of these three, only production agricultural pesticide use data are publicly available for small geographic areas (*i.e.*, one square mile geographic areas, namely sections in the Public Land Survey System). The

other two types of uses are only available at the county scale, so these data sets do not provide information on pesticide use in census tracts within each county. No statewide data at any scale are available for household and other personal use of pesticides from retail purchases.

CalEnviroScreen currently only considers pesticide use for production agriculture because accurate data at the local level for other pesticide uses are not available. However, OEHHA conducted a screening analysis of agricultural and non-agricultural pesticide use in California counties to get a general idea of the rankings that an expanded pesticide indicator might produce.

The current pesticide indicator focuses on 69 pesticides selected because of their health hazards and volatility. Reflecting the dominance of production-agricultural uses of pesticides in California, 91.5 percent of reported use of these 69 pesticides is for production agriculture. Only 7.9 percent of the use of these pesticides is for non-agricultural purposes, and 0.6 percent is for other agricultural uses. However, 31 of the 69 pesticides had at least some reported uses outside of production agriculture during the time period covered by the indicator. All of the 31 pesticides are used for structural pest control, a major urban use of pesticides, although some have other uses as well. One of the 31 pesticides, sulfuric fluoride, is often used as a structural fumigant and is one of the most heavily used pesticides reported in Santa Clara and San Francisco Counties.

For each California county, we added the total pounds of pesticide applications reported for production agriculture, non-production agriculture and non-agricultural uses. The 12 counties with highest totals – led by Fresno, Kern, Monterey, Ventura, Santa Barbara, and Merced Counties – are also the 12 counties with the highest levels of production agriculture use, consistent with the dominance of pesticide use for production agriculture in California. Los Angeles County, however, has the 13<sup>th</sup> highest level of total pesticide use, while being ranked in 29<sup>th</sup> place for production-agriculture use. Other counties whose rankings would move up if pesticide uses outside production agriculture were incorporated include Orange, San Diego, and Santa Clara Counties. The other Bay Area counties would still have low rankings.

The counties with the highest non-agricultural pesticide use were Los Angeles, Orange, San Diego, Stanislaus, Santa Clara and Yolo, and the counties with the highest agricultural pesticide uses other than for production were Tulare, Kern, Fresno, San Joaquin, Stanislaus, and Kings. San Francisco County ranked 43 out of 58, with 2,021 pounds of high-hazard pesticides applied on average annually in the entire county as compared to 881,562 pounds applied on average in Los Angeles County for non-agricultural uses. In contrast, the top county for agricultural pesticide use is Fresno, with an annual average of 6.2 million pounds applied and an additional 113,693 pounds applied for non-production agriculture.

The analysis suggests that the highest-ranked communities for pesticide use with the current indicator would also receive high rankings with an expanded pesticide indicator covering uses other than production agricultural use. Since pesticide use in California is predominantly for production agriculture, agricultural communities will tend to be ranked highest for pesticide use. Nevertheless, it is hard to draw firm conclusions from this analysis. Counties vary greatly by size and population, and therefore

ranking counties based on total pounds of pesticide applications provides only limited information on potential pesticide exposures for residents of those counties.

We believe that incorporating the non-agricultural and other agricultural uses of pesticides would improve the indicator. However, the limitation of only having county-scale data for these uses presents challenges to allocating the use of these pesticides to individual census tracts within counties by a sound method. Counties in California can be large and diverse with respect to size, geography, and land use. The different types of pesticide use are unlikely to occur evenly across counties. Non-agricultural pesticide uses are more likely to occur in residential and commercial environments, while other agricultural uses (non-production) are more likely to occur in non-residential environments (parks, roadways, etc.). While there are potentially promising ways to evaluate the allocation of these types of pesticide use, such as through land use data, they are not readily available, and would take additional time and resources to develop.

Collection of non-agricultural and non-production agricultural related pesticide use at the same scale as agricultural pesticide use in California may require a statutory change. Absent such change, CalEPA and OEHHA can work with the relevant agencies to identify ways to improve the allocation of pesticide use data collection at a finer scale than the county. If such data become available, they can be evaluated for possible inclusion in a future version of CalEnviroScreen.

## **BAY AREA AIR QUALITY MANAGEMENT DISTRICT METHOD**

**Comment:** The BAAQMD Rank-Product method better identifies Bay Area disadvantaged communities

**Response:**

OEHHA does not recommend the use of the Bay Area Air Quality Management District (BAAQMD) method for the identification of disadvantaged communities at this time. By producing high scores for census tracts with a small number of high-ranking indicators, the method allows just a few factors to drive final scores, which is inconsistent with principles of environmental justice that emphasize combinations of multiple impacts in individual communities. In some cases this ranking method allows relatively affluent communities to be identified as disadvantaged. OEHHA will continue to work with BAAQMD staff to evaluate the reasons for differences observed between CalEnviroScreen and the BAAQMD Rank-Product method. If a ranking method were developed using this radically different approach, there should be an opportunity for thorough public and scientific review prior to incorporating it into a future version of CalEnviroScreen.

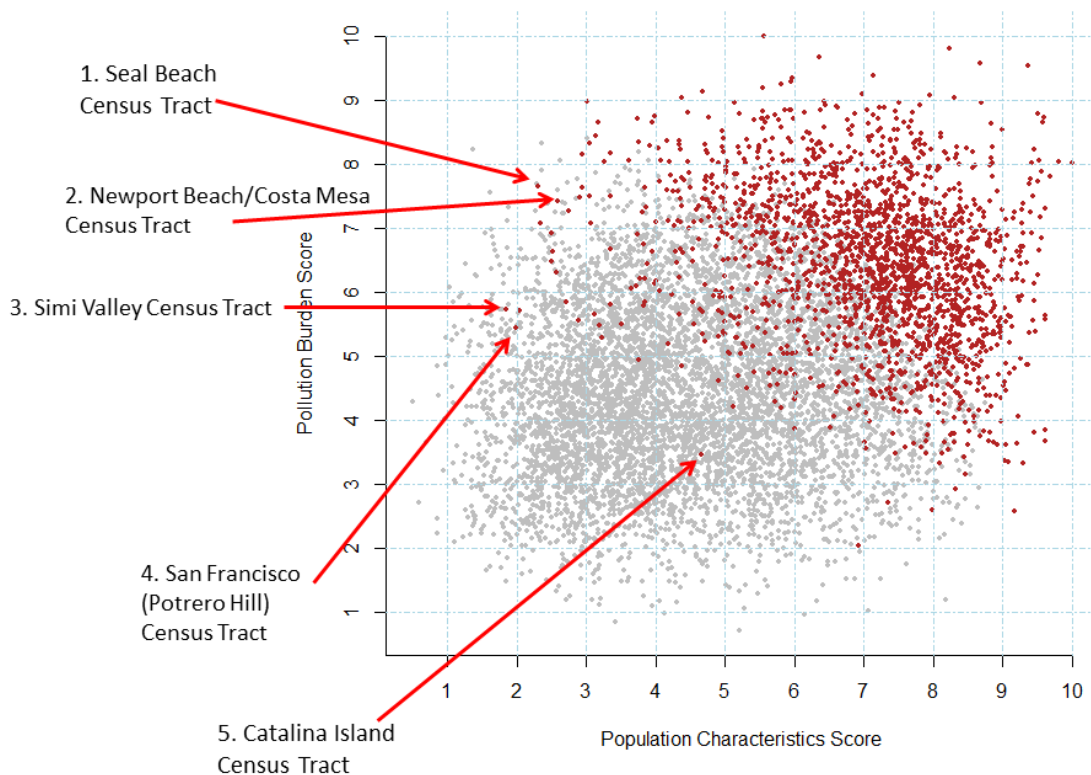
BAAQMD's proposed alternate method uses CalEnviroScreen 2.0 indicator data to identify disadvantaged communities. The approach multiplies a census tract's inverse ranking for each indicator, and is also referred to as the "Inverse Rank-Product" method. The multiplication of individual inverse indicator rankings utilizes a complex statistical methodology originally developed for microbiological studies. Indicator rankings are converted to fractions and the final score is determined by a calculation

involving exponents. This has the disadvantage of not being transparent to many stakeholders. In contrast, the CalEnviroScreen method involves a relatively straightforward multiplication of Pollution Burden and Population Characteristics scores that received support from a 2012 academic review. The BAAQMD and CalEnviroScreen methods identify many of the same top-scoring census tracts. However, there are several differences between the BAAQMD method and CalEnviroScreen:

- The BAAQMD method emphasizes extreme indicator rankings even if only a small number of indicators have high rankings. Some census tracts scoring highly under the BAAQMD method have only a couple of very high-ranking indicators. In contrast, the CalEnviroScreen method averages rather than multiplies indicator ranks, and therefore it produces relatively moderate scores for census tracts that only have a few high-ranking indicators. The CalEnviroScreen method gives the highest scores to tracts with above-average rankings on a greater number of indicators, thereby better capturing communities that face a combination of multiple impacts from a large number of environmental and socioeconomic stressors. The recommendations from communities and advisory groups prior to the creation of the CalEnviroScreen emphasized the importance of looking at combinations of multiple factors as a way of evaluating environmental justice.
- The BAAQMD method weights individual indicators equally, regardless of the type of indicator. By multiplying all indicator rankings, the 12 Pollution Burden indicators have a greater influence on the score than the seven Population Characteristics indicators. In contrast, by multiplying the average of the 12 Pollution Burden indicators by the average of the seven Population Characteristics indicators, the CalEnviroScreen method gives equal weight to the Pollution Burden indicators as a group and the Population Characteristics indicators as a group. CalEnviroScreen places greater weight on the individual socioeconomic and health-related factors that reflect a community's vulnerability to pollution.
- The BAAQMD method gives the five Environmental Effects indicators full weight, in contrast to the CalEnviroScreen method, which gives those indicators only half weight. The decision to half-weight the Environmental Effects indicators was made as a result of stakeholder input arguing that the seven indicators of direct contact with pollutants should have a greater influence on the overall score.

In order to directly and visually compare the BAAQMD method with the CalEnviroScreen method, we identified the top 25 percent of census tracts according to the BAAQMD method on the same scatterplot presented for each of the other five methods in *Approaches to Identifying Disadvantaged Communities* released in August 2014. Due to differences in calculating scores, some census tracts scored rather differently in each of the two methods. The scatterplot enabled us to visually identify some individual census tracts that scored high on the BAAQMD method that would not have scored high on the CalEnviroScreen method (See Figure below).

Plot of BAAQMD top 25% impacted census tracts in red on CES  
Pollution and Population score axis



Because a small number of high-scoring indicators have a large impact on a census tract’s score under the BAAQMD method, a census tract can score highly even if it has a low Population Characteristic score or low Pollution Burden score. This can result in some relatively affluent communities being identified as among the most disadvantaged. For example, using the BAAQMD method, census tracts in Simi Valley, and the western slope and summit of the Potrero Hill neighborhood of San Francisco would score in the top 25 percent, even though their CalEnviroScreen Population Characteristics scores are in the lowest 5 percent and poverty indicator scores are in the lowest 10 percent of the state. A census tract covering parts of Newport Beach and Costa Mesa would receive a BAAQMD-method score in the top 20 percent, even though that tract’s CalEnviroScreen Population Characteristics score is in the bottom 10 percent statewide, with a poverty indicator score in the bottom 35 percent. A census tract on Santa Catalina Island would score in the top 25 percent in the BAAQMD method, even though its Pollution Burden Score in CalEnviroScreen is in the 19<sup>th</sup> percentile statewide. These anomalous results suggest a need for additional review of this methodology, and indicate that it would not be appropriate to use it to replace the CalEnviroScreen method at this time.



## **RENT BURDEN**

**Comment:** CalEnviroScreen 2.0 should include an indicator for rent burden.

**Response:**

OEHHA evaluated rent burden as a potential indicator for inclusion in CalEnviroScreen 2.0, but decided not to include it at this time for reasons described below.

Data are available on rent burden at the census tract level from the 2008-2012 American Community Survey (ACS) 5-Year Estimates. The ACS variable is: “gross rent as a percentage of income” (GRAPI). The estimates are available only as grouped categories with cut-off values of less than 15%, 15-20%, 20-25%, 25-30% and greater than 35% of income.

In California almost half of rental households fall into the highest category with greater than 35% of income paid to rent. As a result, a very high fraction of the renter population of many census tracts would be designated as rent-burdened, limiting the utility of this indicator for discerning disadvantaged communities. We also noted that 571 (7 percent) of the 8,000 census tracts in California do not have usable data available for rent burden, often because there are very few renters in the census tract. These tracts would therefore receive no score for this indicator.

In selecting indicators of social vulnerability, we prioritized indicators that have been associated in the scientific literature with worsened health outcomes from environmental exposures. Although there are some studies on this issue, the scientific evidence on the link between rent burden and health vulnerability from environmental factors is somewhat limited and is mostly associated with poverty. We already have a poverty indicator in CalEnviroScreen 2.0.

Finally, although we would have expected significant portions of the San Francisco Bay Area to be ranked as highly rent burdened, our preliminary analysis failed to show a high concentration of rent burden in that region. In addition to this unexpected result, some of the Bay Area census tracts that were most rent burdened are located in areas such as Marin County, along San Francisco’s Ocean Beach, and in the Alamo, Danville, and Walnut Creek areas of Contra Costa County, which are not traditionally associated with disadvantage.

We will continue to investigate and refine rent burden as a potential indicator although it is unclear whether it would produce a change in the relative rankings of most census tracts. Further, before any new indicator can be added to CalEnviroScreen, it must be subject to the same opportunity for public and scientific review as other indicators in the tool.

## **GAPS IN U.S.-MEXICO BORDER ENVIRONMENTAL DATA**

### **OZONE AND PM2.5**

**Comment:** CalEnviroScreen should include air monitoring data for ozone and PM2.5 from Mexico to account for the air quality impacts from Mexico on U.S. border communities.

**Response:** The California Air Resources Board (ARB) determined that air quality measurements from stations in Mexico are incomplete and are not of sufficient quality compared to the more robust and consistent datasets currently used in CalEnviroScreen. These data should not be combined with the current air quality data for ozone and PM2.5 included in CalEnviroScreen.

A better understanding of the binational transport of air pollutants is important. Although the historical data cannot be included due to their unreliability, efforts to monitor air pollutants (specifically PM2.5) in these border areas are being put in place by the US EPA. The data quality will be assessed by ARB and will potentially be included in future updates of CalEnviroScreen. Two new PM2.5 monitors will be placed in Mexicali (near the border at Calexico) and one at the San Ysidro Port of Entry. Completion is estimated to be in Spring 2017. PM2.5 updates from these new monitors will capture concentration gradients at two of the six border stations. This data should be evaluated to determine whether there is a need for additional data collection at other border stations.

**Comment:** Ozone concentrations from the old air monitoring station in Otay (1100 Pasco International; AIRS Number 060732007) should be incorporated into CalEnviroScreen.

**Response:** Ozone data from the Otay Mesa site is already included in CalEnviroScreen. This site has some of the lowest ozone concentrations in San Diego County, with only one day exceeding the State ambient air quality standard.

**Comment:** Data on PM10 concentrations from the Richard J. Donovan Correctional Facility air monitoring station in Otay Mesa (AIRS Number 060731014) should be converted to PM2.5 to provide estimates for that area.

**Response:** ARB evaluated the potential for scaling the PM10 data at the Donovan site in Otay Mesa to estimate PM2.5 concentrations. However, variability in the trends in PM2.5 versus PM10 concentrations and differences in emission sources that affect PM2.5 to PM10 ratios at the border as compared to other locations in the County limit the ability to develop an estimate suitable for use in CalEnviroScreen.

The San Diego Air Pollution Control District was granted permission by the US EPA to decommission the air monitoring station located at 1100 Paseo International and relocate it to the Donovan Correctional Facility. Although PM2.5 was not collected at the old station, the relocation will include PM2.5 air monitoring. Currently PM10 is being collected at the Donovan site. The start date for PM2.5 data collection is unknown. Having PM2.5 data will allow for more accurate assessments of PM2.5 in future versions of the CalEnviroScreen tool. OEHHA will track the development and collection of these data.

## **DIESEL PARTICULATE MATTER**

**Comment:** The diesel particulate matter (DPM) impacts from idling trucks at the border crossings should be incorporated in CalEnviroScreen.

**Response:** To account for additional DPM emissions from idling commercial trucks waiting in line on the Mexico side to cross into the U.S., we adjusted the DPM emissions estimates for areas near the border crossings. Of the six ports of entry from Mexico into California, there are four border crossings that accept commercial trucks—Otay, Calexico East, Tecate and Andrade. Data from the San Diego Association of Governments (SANDAG) shows that on average approximately 2,400 trucks cross per day in Otay, 832 in Calexico East, 151 in Tecate, and less than one in Andrade. Due to the minimal number of trucks crossings for Tecate and Andrade, only Otay and Calexico East crossings were adjusted. ARB provided OEHHA with an equation to calculate the additional emissions associated with the idling that uses information supplied by SANDAG on the number of trucks crossing the border each day, the idling experienced per truck at the border using data from the University of California, San Diego, and a San Diego fleet average emission rate for idling estimated by ARB:

$$(\text{trucks/day}) \times (\text{idling hours}) \times (\text{grams of DPM/Idling hour}) = \text{g/day of DPM}$$

These estimates were accounted for in the CalEnviroScreen DPM indicator by adding them to the existing DPM emission estimates for the Otay and Calexico East border crossing areas that were previously generated by ARB.

As a result, the two census tracts at these border crossings were updated with new DPM emissions. This adjustment represents a “point source” of DPM coming from stationary, idling trucks waiting to cross the border at a given location.

There are several efforts in place to measure vehicle emissions at the California-Mexico border crossings, specifically for Calexico West, Calexico East, and San Ysidro. US EPA has funded an emissions study for Calexico West and Calexico East, and the California Energy Commission has funded an emissions study for San Ysidro. ARB may be able to utilize this data for incorporation into CalEnviroScreen. There is currently no funding for a comparable emissions study at the Otay border crossing but the data produced at Calexico may be applicable for Otay Mesa, based on the number of truck crossings and other factors.

## **TRAFFIC DENSITY**

**Comment:** The traffic density from roads in Mexico in close proximity to communities along the U.S.-Mexico border should be incorporated into CalEnviroScreen.

**Response:** The San Diego Association of Governments (SANDAG) provided traffic and road network data for Tijuana, Mexico. This information included traffic volume and length for two major roadways within 150 meters of the California-Mexico border and that run parallel to the border. Traffic density data for these road segments were allocated to the appropriate California census tracts (consistent with the CalEnviroScreen 2.0 methodology) resulting in a traffic density update for three census tracts. (Refer to the blue column in the table below.)

Additionally, OEHHA took the average-annual-daily-traffic (AADT) for the six port of entry roads on the U.S. side of the border (which was already captured in CalEnviroScreen) and accounted for the border crossing traffic impacts by extending the road distance 150 meters south of the border into Mexico. The six ports of entry included San Ysidro, Otay, Tecate, Calexico West, Calexico East, and Andrade. This resulted in a traffic density update for seven census tracts on the border. The traffic density update was incorporated into revised CalEnviroScreen scores for each of those tracts.

Census Tract	Port of Entry	Original Traffic Percentile	Border Volume Adjustment	Parallel Road Adjustment	Updated Percentile for Traffic
6073010009	San Ysidro	89	Yes	Yes	99.99
6073010109	San Ysidro West Tract	62	NA	Yes	100.00
6073010015	Otay Mesa	66	Yes	Yes	99.79
6073021100	Tecate	12	Yes	NA	12.16
6025012200	Calexico West (West tract)	8	Yes	NA	36.46
6025012100	Calexico West (East tract)	21	Yes	NA	45.38
6025011900	Calexico East	3	Yes	NA	3.34
6025012400	Andrade	6	Yes	NA	6.09

OEHHA recognizes that there are other major roadways within 150 meters of the U.S.-Mexico border. Resources permitting, OEHHA will work with the California Department of Public Health (the source of data for CalEnviroScreen’s traffic density indicator) to look into whether additional traffic information is available and of sufficient quality to use in future versions of CalEnviroScreen.

**TOXIC RELEASES AND HAZARDOUS WASTE SITES**

**Comment:** The toxic releases and hazardous waste from Mexican facilities in proximity to the U.S.-Mexico border and their potential for adverse effects should be integrated into CalEnviroScreen.

**Response:** Mexico has a Pollutant Release and Transfer Registry (PRTRs) under the Registro de Emisiones y Transferencia de Contaminantes (RETC) program that is maintained by Mexico’s Ministry of Environment and Natural Resources (La Secretaria de Medio Ambiente y Recursos Naturales, or SEMARNAT). While there may be information that could potentially be integrated into CalEnviroScreen

indicators, we have not yet acquired the data or evaluated whether it is sufficient to include with confidence in a future version of CalEnviroScreen.

Resources permitting, OEHHA could consult with US EPA and the Department of Toxic Substances Control to determine the feasibility of incorporating Mexican PRTR data into CalEnviroScreen indicators.

## OTHER COMMENTS

1. **Comment:** Air quality monitoring is incomplete across the state. There is insufficient monitoring for ozone and the ozone monitoring is not done on the scale of CalEnviroScreen. Air monitors don't capture air flow in mountainous areas. PM2.5 monitors do not accurately represent air quality in parts of San Francisco with heavy traffic.

**Response:** We will continue to work with the Air Resources Board to obtain the most up-to-date air quality data. If new monitors are added and incorporated into the Air Resources Board's monitoring system, we will include them and coverage will improve. It is important to note that in CalEnviroScreen the ozone and PM2.5 are considered measures of regional rather than local exposures. The Traffic Density indicator is designed to capture areas of local heavy traffic and associated pollutants.

2. **Comment:** Include wildfire emissions.

**Response:** We recognize that fires can be a significant source of air pollution in some areas. CalEnviroScreen presently includes wildfire emissions when they are captured by the air quality monitoring system.

3. **Comment:** CalEnviroScreen excludes all communities with good air quality.

**Response:** Air quality is measured by multiple CalEnviroScreen indicators. The total score, however, is based on a combination of results from all 19 indicators. Census tracts that have good air quality, and thus score low on these indicators, might receive relatively low total CalEnviroScreen scores if they also have low scores on other indicators.

4. **Comment:** The Asthma indicator is biased toward areas with emergency departments and may undercount asthma cases in rural areas.

**Response:** We are aware of some potential bias in the results toward areas underserved by emergency departments for treatment. There are also potential biases in areas where populations rely on primary care, rather than emergency departments for management of asthma symptoms. We received the data from the California Department of Public Health and are continuing to consult with them regarding adjustments of asthma emergency department visit rates that can tell us something about differences in asthma prevalence across the state.

5. **Comment:** Cleanups sites on tribal lands may be missing.

**Response:** We agree that sources of impact from pollution may exist on tribal lands that are not currently captured by the state and federal databases from which we draw information for the

CalEnviroScreen indicators. We have made efforts to identify such sites and were able to incorporate some in the most recent version of CalEnviroScreen 2.0 based on information we received from the US EPA.

**6. Comment:** Unique farmworker exposures are missing.

**Response:** While occupational exposures, including farmworker exposures, are excluded from CalEnviroScreen, some exposures of farmworker families living in proximity to fields are taken into account through the Pesticide Use indicator.

**7. Comment:** The Census may undercount rural populations (e.g., migrant populations).

**Response:** We recognize that the Census undercounts mobile populations such as migrant workers. However, this currently is the best publicly available data. We will watch for improvements in data on migrant populations, and will make best efforts to include reliable new information if it becomes available.

**8. Comment:** Low birth weight data may miss populations with post office (P.O.) boxes and in rural areas.

**Response:** We recognize that rural populations and people with P.O. boxes are more likely than others to have incomplete data in some areas. We received the data on low birth weight from the California Department of Public Health (CDPH). It currently is the best data available for this indicator.

**9. Comments:**

- Add a rural designation.
- Include EJSM (Environmental Justice Screening Method) land use methodology and climate change indicators.

**Response:** Rural and other land use designations and climate-change information are beyond the current scope of CalEnviroScreen, which focuses on pollution burden as well as population characteristics that can affect a community's vulnerability to pollution.

**10. Comment:** Pollution and other urban measures are over-weighted.

**Response:** While rural areas have some unique issues, pollution is not limited to urban areas. CalEnviroScreen is based on statewide sources of data as much as possible in an effort to obtain complete coverage of the state.

**11. Comment:** Data gaps are responsible for Eastern Coachella communities that don't score highly.

**Response:** CalEnviroScreen is based on publicly available statewide data. We are aware of a number of potential data gaps. Unless data are systematically collected and evaluated it would be difficult to incorporate them into CalEnviroScreen.

**12. Comment:** Include “economically distressed areas” from Proposition 1.

**Response:** CalEnviroScreen is an environmental health screening tool that estimates pollution burdens in individual communities as well as a community’s vulnerability to pollution’s health effects. The socioeconomic indicators are included to estimate a community’s vulnerability to pollution and were selected based on scientific evidence showing that communities with those characteristics may have an increased vulnerability to pollution. Using general economic data would erode the tool’s ability to estimate vulnerability to pollution. If all economically distressed areas are designated as disadvantaged communities, environmental projects in some communities with the highest pollution burdens and vulnerabilities might not be prioritized for funding from the state’s Greenhouse Gas Reduction Fund, which would undermine the program’s goal to benefit communities most burdened by health, economic and environmental issues.

**Comment:** Include benefits to the economy, environment and public health.

**Response:** The purpose of CalEnviroScreen is to help CalEPA identify disadvantaged communities so that they can benefit from investments in projects that improve economic, environmental and public-health conditions. If specific indicators are suggested based on available data we can consider them.

**13. Comment:** The Groundwater Threats indicator is incomplete (no non-point sources).

**Response:** Data on nonpoint sources are hard to obtain and not systematically tracked.

**14. Comment:** Superfund sites, closed landfills and large power stations should be included.

**Response:** Superfund sites and closed landfills are included in CalEnviroScreen. All sources of toxic emissions in U.S. EPA’s Risk Screening Environmental Indicators database, including power plants, are also included.

**15. Comment:** Include remediation activities, adaptive reuse, transit hub planning.

**Response:** Remediation activities are taken into account in some Environmental Effects indicators. CalEnviroScreen does not currently include planning or transit availability.

**16. Comment:** CalEnviroScreen can’t measure actual impacts on communities.

**Response:** CalEnviroScreen is a screening tool that provides a relative rather than absolute measure of contributions to impacts on communities from multiple sources.

**17. Comments:**

- Set the threshold for disadvantaged communities at 40%/ 30%/ 25% / <25%. Prioritize the most disadvantaged, e.g., the top 5% of CalEnviroScreen scores. The cutoff should be adjusted to avoid excluding deserving communities.
- Modify the threshold percentile for Title 1 schools.

**Response:** The percentile cutoff for funding eligibility will be determined by CalEPA.

## 18. Comments:

- SB 535 allows CalEPA to use either population or environmental metrics to define disadvantaged communities. Disadvantage should be defined based primarily on social determinants of health or population characteristics.
- Combine screening methods to include all communities identified as disadvantaged by any method.
- Use the Active Transportation Program definition: median household income < 80% of statewide median, or ≥75% of students eligible for free/reduced cost lunch, or top 10% in CalEnviroScreen.

**Response:** CalEnviroScreen was developed by OEHHA at the request of CalEPA to identify California's most pollution-burdened and vulnerable communities. The methodology used in this tool complies with SB 535, which specifies that a combination of criteria, many of which are indicators in CalEnviroScreen, should be used to designate disadvantaged communities. According to SB 535, these communities "shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria." Relying solely on health or income considerations would be inconsistent with this direction.

**19. Comment:** Communities smaller than census tracts should be able to meet disadvantaged community definition. Some tracts have wide range of incomes, which can skew results and leave out disadvantaged residents.

**Response:** We agree that there can be variability in population and pollution measures within census tracts. However, the census tract is currently the smallest scale of analysis we can reliably describe with respect to the US Census measures that are included in CalEnviroScreen. At smaller scales, there is much more uncertainty about the different measures, particularly those that are based on households and are evaluated by statistical sampling in the American Community Survey.

**20. Comment:** Several comments were received regarding the weighting of indicators:

- Health impact indicators should be given more weight.
- Exposure indicators should be weighted based on local or regional importance.
- Pollution burden and population characteristics should be weighted by their contribution to mortality and morbidity / impact on health.
- Increase weights for Diesel PM and Traffic indicators.
- Remove ½-weighting from Environmental Effects indicators.
- Weight population characteristics twice as much as pollution burden indicators.

**Response:** As CalEnviroScreen is updated, we will consider whether to alter the weighting scheme based on new criteria. The weightings of the various indicators were discussed at length in the public process leading up to finalization of CalEnviroScreen 1.0 and reflect the comments and advice received during this process. They have not changed in Version 2.0. These new suggestions would constitute major changes to CalEnviroScreen and cannot be adequately reviewed and evaluated in the timeframe needed for the 2014 identification of disadvantaged communities.



**21. Comment:** Focus on mobility (i.e., commute distance or commute time) rather than residence location alone.

**Response:** Currently CalEnviroScreen indicators attempt to describe pollution burdens in different places across California and the potential vulnerabilities of people that live in those places. Commuting and other types of movement of people for work, school, and recreation may place them in harmful environments other than where they live. However, we do not currently have a way to access or incorporate this type of information in the screening tool.

**22. Comment:** Include tree canopy or access to nature.

**Response:** Data on tree canopy in California are available, and would be a possible indicator although it doesn't fall into our current categories (pollution burden or population characteristics). This indicator may not function as well for some parts of the state – such as desert areas or coastal scrub – that naturally have fewer trees. It is difficult to construct an indicator that quantifies access to nature in California. We are considering several indicators for possible inclusion in a future version of CalEnviroScreen, including an indicator on the urban heat island effect, which would include data on vegetation.

**23. Comment:** Include life expectancy.

**Response:** We are evaluating the feasibility of calculating life expectancy by census tract in response to numerous public comments requesting this information. We do not plan to include life expectancy as an indicator in CalEnviroScreen, but we do plan to evaluate how differences in life expectancy relate to the pollution and population vulnerability factors that are included in the tool.

**24. Comment:** Polluted waterways across the border from Imperial County are not factored into CalEnviroScreen.

**Response:** Locations along the US-Mexico border present a special challenge, particularly with respect to sources of impact that originate outside of California for which there are not reliable and comparable quantitative measures. Some contributions are included in CalEnviroScreen, such as rivers designated by U.S. government entities as impaired that flow into the U.S. from Mexico. However, water bodies that lie entirely outside of the U.S. are not necessarily evaluated by comparable criteria that can be incorporated into CalEnviroScreen.

**25. Comment:** Rank pesticides by health risks and toxicity.

**Response:** These properties have already been partially captured by selecting the subgroup of 69 pesticides included in the pesticide indicator measure based on their toxicity and volatility. However, information comparing the relative toxicity of the different pesticides included in the indicator is not readily available for incorporation.

**26. Comment:** Include proximity to largest sources of greenhouse gas emissions (e.g., refineries).

**Response:** Greenhouse gas emissions are a serious global concern, and impact health indirectly through global climate change impacts (e.g., increased heat, frequency of environmental disasters such as wildfires and storm surges). While climate change impacts can differentially affect

communities, greenhouse gas emissions in and of themselves do not directly impact human health at the community level. Thus they remain outside of CalEnviroScreen's current focus on sources of environmental health concern from pollution.

**27. Comment:** Include environmental quality violations.

**Response:** We have included some measures of environmental quality violations in current CalEnviroScreen indicators such as the Solid Waste Sites and Facilities indicator and the Drinking Water Contaminant indicator. We will evaluate violation data for possible inclusion in other indicators in the future.

**28. Comment:** Most babies in Glenn County are born in hospitals outside the county.

**Response:** The Low Birth Weight indicator is based on mother's residence address, not location of the birth.

**29. Comment:** Many rural domestic wells are not tested for contaminants.

**Response:** It is true that testing data are not available for many rural domestic wells in California. In such areas CalEnviroScreen uses data on the water quality of nearby wells to approximate likely groundwater quality for people residing in these areas who are not served by public water systems. The U.S. Geological Survey publishes data on groundwater quality that we have used where we have no test results and know that well water is the primary or only source of drinking water. The Drinking Water Contaminants indicator uses the best available combination of data for each census tract.

**30. Comment:** Include race, ethnicity and national origin as an indicator. Proposition 209 does not prohibit this.

**Response:** We recognize that the disproportionate exposure to pollution faced by certain racial and ethnic groups is a legitimate environmental justice concern. A race/ethnicity indicator was included in the first version of CalEnviroScreen 1.0 at the ZIP code scale. This indicator was later removed to facilitate the broader use of the tool by government entities that may be restricted from using race/ethnicity when making certain decisions. However, we continue to analyze and make publicly available information on how the racial and ethnic composition of communities relates to CalEnviroScreen scores. This information will help us to better understand the correlation between race/ethnicity and the pollution burdens facing California communities. An analysis of CalEnviroScreen 2.0 scores and race/ethnicity is available on OEHHA's web site at <http://www.oehha.ca.gov/ej/pdf/CES20FinalRaceEthnicity.pdf>.