



CalEnviroScreen 4.0

Responses to Major Comments on the CalEnviroScreen 4.0 Public Review Draft

The Office of Environmental Health Hazard Assessment (OEHHA) and the California Environmental Protection Agency (CalEPA) released a public review draft of the California Communities Environmental Health Screening Tool Version 4.0 (CalEnviroScreen 4.0), on February 19, 2021. OEHHA received over 100 public comments at several workshops held virtually and through written submissions.

The major comments we received on the draft CalEnviroScreen 4.0 and OEHHA's responses are provided below. We summarize comments and group them into broad categories. Hyperlinks to the 46 written comment letters covering issues related to the general topic areas are included below each response. For more specific topic areas, we reference the comment letters and link to the online copies, where possible. Summarizing and associating comments was done to the best of our ability and may not reflect every detail of the written comment letters that can be found on our website. Oral comments made in workshops were included in compiling summaries and responses but are not referenced specifically.

While not mandated, OEHHA has released a document with responses to public comments after each update of CalEnviroScreen. In preparation for future updates to CalEnviroScreen, OEHHA evaluates data sets, indicator suggestions, and other issues raised in the comment period from previous released drafts. Changes and improvements to the CalEnviroScreen tool made over the years reflect ongoing public feedback received and continued engagement of stakeholders with the tool.

The final version of CalEnviroScreen 4.0 was released on October 13, 2021. The report and results are available at <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>. The public comment submissions and summary of the regional workshops are available at <https://oehha.ca.gov/calenviroscreen/workshops-draft-calenviroscreen-40>.

RESPONSES TO COMMENTS

1. ***Version comparisons and changes over time.*** Numerous comments expressed interest in understanding changes in CalEnviroScreen indicator scores across different versions, or the reason certain census tracts changed in terms of their overall CalEnviroScreen

score. Commenters also expressed interest in understanding what is causing the more significant changes in the diesel particulate matter indicator results.

Relevant comment letters:

[California Environmental Justice Alliance](#);
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\)](#);
[San Francisco Department of the Environment](#);

OEHHA Response. We acknowledge the interest in and importance of understanding how environmental conditions and cumulative burden are changing over time, and how we might measure improvements and track progress in environmental conditions across communities. OEHHA has requested and received funding for additional scientists to study these issues. A contract is also in place with an academic research group to further research strategies to address tracking changes in conditions over different versions of CalEnviroScreen.

Overall CalEnviroScreen scores as well as individual indicator scores are not currently designed to measure these types of changes. Some individual indicators within CalEnviroScreen are suitable for comparison, such as the socioeconomic datasets from the U.S Census American Community Survey because the methodology for measuring the indicator remained the same across versions. However, many are not directly comparable. The PM2.5 indicator for example has been updated with fine scale satellite data that did not exist prior to the CalEnviroScreen 4.0 release. The diesel indicator was also updated with a finer scale of analysis, emissions over an entire year instead of just for an average day, and a different metric for measurement. Technologies, data collection techniques, and models used are often improved between versions. This makes comparisons of past measures challenging.

The use of a single cumulative score is intended to facilitate the relative ranking of census tracts and is not designed specifically to track changes or examine trends. This cumulative score is useful as a snapshot of conditions at a point in time. The ability to understand where and why cumulative conditions have changed is complicated and requires careful analysis of many of the raw datasets that underlie the different versions of the tool. OEHHA recognizes the usefulness of better understanding trends over time and changing conditions using the CalEnviroScreen data, including changes in the diesel indicator as brought up in comments.

OEHHA is beginning to examine trends, track changes and measure progress across measures of environmental quality using statewide data CalEnviroScreen and looks forward to continued input and feedback on our approaches on this topic.

2. **Weighting of indicators.** Comments related to indicator weighting included recommendations to increase weights of certain indicators, remove the half-weighting

for Environmental Effects indicators, and concerns about the implications that adding new indicators that would increase or decrease the weight of other existing indicators in the CalEnviroScreen model.

Relevant comment letters:

[Brightline Defense and other undersigned organizations;](#)
[California Council for Environmental and Economic Balance;](#)
[LA Sanitation and Environment;](#)
[San Francisco Department of the Environment;](#)
[Southern California Association of Governments;](#)

OEHHA Response. Due to the complex nature of cumulative exposures and community vulnerability, determining the relative impact or weights that each indicator contributes is challenging and would rely on human judgment decisions without established precedent. CalEnviroScreen is a place-based screening tool and does not represent a measure of health risk. It describes the total burden from multiple sources of pollution and the vulnerability of the population living in the area through a suite of indicators that are each scored individually and uses a relative ranking approach to compare census tracts to each other.

At present, we have applied a relatively simple weighting scheme to combine information from the different indicators included in the tool. The indicator scores within each component (Exposures, Environmental Effects, Sensitive Populations and Socioeconomic Factors) are weighted equally. In combining the contributions from the Exposures and Environmental Effects indicators in the overall Pollution Burden score, we give twice the weight to the Exposures indicators to emphasize that potential exposures to pollutants from monitoring or emissions data, such as the levels of contaminants in air or drinking water, should contribute to Pollution Burden to a greater degree than the proximity to environmental threats. Overall CalEnviroScreen scores remain calculated as a multiplied product of Pollution Burden and Population Characteristics scores.

The scoring method used in this version maintains a fixed level of contribution from the four individual components to the final CalEnviroScreen score. Adding a new indicator affects the contribution of other individual indicators within a component, but not the contribution of indicators outside of the component. New indicators or additional data sources to existing indicators have been added based feedback requested as part of our public engagement process.

- 3. Rural and large census tract data gaps.** Comments expressed concern that the CalEnviroScreen model has a bias toward denser urban areas. Some of the specific issues in the comments included that larger rural census tracts make it difficult to identify small rural communities that might be disadvantaged unincorporated communities (DUCs) and that a census block analysis might better identify these places. Other comments expressed concern that not using post office (PO) box data in the low

birth weight indicator might disproportionately exclude data for farmworkers and other disadvantaged rural populations, and that OEHHA should include data linked to PO boxes to ensure fairness and accuracy.

Relevant comment letters:

[California Council for Environmental and Economic Balance;](#)

[California Rural Legal Assistance, Inc.;](#)

[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\);](#)

[Southern California Association of Governments;](#)

[Sierra Business Council - Sierra Climate Adaptation and Mitigation Partnership](#)

OEHHA Response. OEHHA plans to release a data dashboard to allow for customized analysis of CalEnviroScreen data and will consider including the option to search or filter the data by areas such as DUCs¹ as part of the data dashboard. Many updates to CalEnviroScreen 4.0, as described in the summary of changes document, aimed to address environmental concerns in rural communities. For example, we made improvements in the assessment of drinking water quality for areas of the state not served by community water systems and added the proximity of dairies and feedlots to where people live to the groundwater threats indicator. OEHHA will continue to evaluate how to address unique concerns from rural communities as part of the tool's ongoing development.

We continue to evaluate the possibility of performing the analysis at a smaller scale such as census block groups. While this is readily done for some of the indicators such as the site-based Environmental Effects indicators, it is more challenging for other indicators such as those representing health vulnerabilities. A smaller scale of geography can offer more precision in the ability to target where pollution burdens and population vulnerabilities exist, but it can also introduce statistical unreliability and uncertainty for data estimates. On balance, the census tract scale of analysis is the most appropriate geographic unit for the CalEnviroScreen project at this time.

Before OEHHA finalized CalEnviroScreen 3.0, we investigated for the indicator of low birth weight whether there was higher PO box use associated with births in rural areas. We found that the fraction of births with a reported PO box or no address was higher for rural counties. However, most of the census tracts with unreliable low birth weight scores in rural counties have well below 50 live births over the seven-year period covered by the indicator, the minimum needed for inclusion in the tool. Therefore, even if births with a PO box as an address were included, it is unlikely that it would bring the total number of live births over 50. Because of the higher number of PO box addresses in rural areas there might be a greater undercount of low-birthweight births than in more urban areas. It remains a challenge to accurately estimate the rate of low birthweight infants in areas

¹ Senate Bill 244 (Wolk, Statutes of 2011) defines Disadvantaged Unincorporated Communities as inhabited territory that constitutes all or a portion of a community with an annual median household income that is less than 80 percent of the statewide annual household income.

with lower populations and fewer births. OEHHA will continue to evaluate the methodology for this indicator to ensure it meets both confidentiality requirements, but does not bias rural census tracts.

4. **Identifying disadvantaged communities.** Many comments provided feedback or asked questions on the use of CalEnviroScreen for the designation of disadvantaged communities under Senate Bill 535. There were concerns that certain specific locations were not eligible for funding because they do not meet scoring thresholds. Comments also had recommendations for alternative criteria to designate disadvantaged communities.

Relevant comment letters:

[API Council; Brightline Defense and other undersigned organizations;](#)
[Association of Bay Area Governments, the Metropolitan Transportation Commission, and the Bay Area Air Quality Management District;](#)
[Bay Area Air Quality Management District;](#)
[City of San Diego Sustainability Department;](#)
[Individual Commenter \(ZB\);](#)
[Sierra Business Council - Sierra Climate Adaptation and Mitigation Partnership;](#)
[Sierra Climate Adaptation and Mitigation Partnership;](#)
[Sierra Institute for Community and Environment](#)

OEHHA Response. The designation of disadvantaged communities for prioritized climate investments is a separate process from the updates to the CalEnviroScreen tool. CalEPA has the responsibility to identify disadvantaged communities pursuant to SB 535 (De Leon, Statutes of 2012). This identification must be based on geographic, socioeconomic, public health, and environmental hazard criteria. CalEPA has used CalEnviroScreen as the primary basis to designate these communities. OEHHA has shared comments received related to SB 535 implementation with CalEPA. In May 2022, CalEPA finalized the updated designation of disadvantaged communities. The documentation in the 2022 designation and explanation of decisions and response to public input is available [here](#).

5. **Appropriate uses of CalEnviroScreen.** Comments highlighted a need for detailed guidance on how CalEnviroScreen should be used. Some questions included whether CalEnviroScreen should be used in analyses required by the California Environmental Quality Act (CEQA). Other comments suggested that OEHHA recommend the use of more localized specific analyses at a smaller scale. Regional rankings of CalEnviroScreen scores were also recommended so they could be used in local policy.

Relevant comment letters:

[Anonymous Individual A:](#)

[California Council for Environmental and Economic Balance:](#)

[California Environmental Justice Alliance:](#)

[Individual Commenter \(SQ\):](#)

[LA Sanitation and Environment:](#)

[Sierra Business Council - Sierra Climate Adaptation and Mitigation Partnership](#)

OEHHA Response. The number of uses of CalEnviroScreen has grown considerably since the tool was first introduced more than 10 years ago. Earlier versions of the CalEnviroScreen report have addressed the uses of the tool in the prefatory materials in the technical report, both acknowledging how it has been used, and offering some caveats on its use. Since CalEnviroScreen is an indicator-based screening tool, rather than an assessment of absolute impacts or risks, we support applications that can make use of this broad type of analysis.

Concerning the use of CalEnviroScreen in grants, the decision to use the publicly-available CalEnviroScreen scores as part of grant funding applications is often outside of OEHHA and CalEPA's purview. We encourage entities administering grants to contact OEHHA if they have questions on how to best use CalEnviroScreen to understand specific areas and how it might be helpful to include any of various parameters in a grant. OEHHA will continue to update its webpage on [Using CalEnviroScreen](#) as we learn about additional uses.

CalEPA has previously advised that CalEnviroScreen is not a substitute for a cumulative impacts analysis under the CEQA. Other tools, or individual data layers, might be more useful for different purposes, such as for identifying communities facing socioeconomic disadvantage or health disadvantage. We continue to emphasize that CalEnviroScreen is not a health risk assessment. We will continue to work with CalEPA and other entities to develop and refine recommended uses for the tool and the information that is contained in it.

OEHHA acknowledges that it may be useful for local jurisdictions to use finer scale and more in-depth local data in conjunction with CalEnviroScreen to help understand local conditions and environmental justice issues specific to the local area. For past versions of CalEnviroScreen, OEHHA has stated that the tool is best suited for a statewide comparative analysis, and indicators and scoring may need to be redesigned for regional analyses. Regional rankings are possible, however, albeit with certain limitations. OEHHA makes all the CalEnviroScreen data publicly available so that users may adapt the datasets from this tool and other sources to create their own analysis to suit specific regional needs.

6. **General CalEnviroScreen methodology.** Comments related to the general model and methodology were provided in several comment letters. Topics included the following:
- Percentile approach and concerns that the use of this approach obscures magnitude of individual indicator impacts.
 - Criticisms of the relative ranking approach not allowing for trend analyses or establishing a baseline to show improvement or worsening conditions.
 - Critique of indicators containing similar measures “double counting” some issues.
 - A recommendation that pollution indicators be weighted by population density.
 - Recommendations to seek advice from independent public advisors or academics before adding or removing of indicators by public forum (similar to the Cumulative Impacts and Precautionary Approaches workgroup).

Relevant comment letters:

[Brightline Defense and other undersigned organizations;](#)
[California Council for Environmental and Economic Balance;](#)
[Individual Commenter \(BC\);](#)
[Individual Commenter \(ID\);](#)
[LA Sanitation and Environment;](#)
[Southern California Association of Governments;](#)

OEHHA Response. OEHHA appreciates the feedback on the CalEnviroScreen approach and scoring to evaluate cumulative impacts. The model and methodology was developed based on a definition of cumulative impacts adopted by CalEPA in 2005 with stakeholder input. OEHHA revisits this definition in updating each version of CalEnviroScreen and considers it in response to suggestions for changing the tool.

Responses to specific methodology related comments:

- **Percentile approach:** CalEnviroScreen ranks communities based on data for each indicator and calculates a percentile score from the relative rank of each community. While the percentile approach may limit the ability to characterize the magnitude of differences for indicators, having a standardized scoring approach for all indicators is an important consideration in building the tool. Currently the calculation of percentile scores for each indicator provides a readily understood way of communicating how each census tract scores for a given indicator relative to other census tracts across the state.
- **Trend analyses:** We agree that it will be useful and important to evaluate changing conditions over time. An alternative to percentiles, such as raw or absolute scores, could be used to evaluate trends in CalEnviroScreen indicator data. OEHHA will be considering various approaches including the feasibility of using absolute scores in evaluating changes over time.

- **Double counting:** The issue of similar measures within indicators and double-counting has been raised in comments on each version of CalEnviroScreen. Each of the CalEnviroScreen indicators makes a contribution to the overall CalEnviroScreen score. While there are correlations between some of the socioeconomic indicators, they have all been included in CalEnviroScreen to capture different aspects of vulnerability that may be missed by not including them. The CalEnviroScreen scoring approach emphasizes the contribution of the four components to the CalEnviroScreen score that include Exposures, Environmental Effects, Sensitive Populations and Socioeconomic Factors. This minimizes the effects of overlaps and correlations among indicators; for example, the scores of each of the Socioeconomic Factors indicators and each of the Exposure indicators are averaged to come up with a single Socioeconomic Factors score and single Exposures score for each census tract. The process of averaging indicators within each component also helps minimize potential impacts of double counting. So, although the Housing Burden and Children's Lead Risk from Housing indicators both contain information on low-income households (Housing Burden reflects geographic differences in housing costs for low-income households and the Children's Lead Risk from Housing indicator contains a low-income measure as that is a major predictor of childhood lead exposure) they are characterizing unique population vulnerability concerns and pollution exposure.
- **Population weighting:** With regards to population weighting, while we do account for proximity to populated areas and do use population proportion weighting when calculating some indicator scores, weighting any of the indicators based on population density assumes an area having more people be considered as more impacted than the other. Additionally, the choice of census tract as the geographic scale, which on average contain a similar number of people, allows for a comparison of areas of relatively equal population sizes.
- **Independent advisors:** The recommendation of a working group of independent advisors or academics to approve major changes is interesting and will be carefully considered for future updates. OEHHA will undertake efforts to engage with stakeholders in more depth as part of the updating process between versions as well as seeking input on proposed drafts.

7. **Map suggestions and community boundaries.** Multiple comments have included suggestions for our mapping application, including the option of red-green colorblind shading, filtering tracts by city boundaries, addition of a political district boundary layer, ability to save previous map searches, ability for user to draw their own boundary, addition of a population density map layer, ability to create custom or annotated maps, and toggling multiple layers on and off as well as selecting project areas via tracts or buffer ranges.

Relevant comment letters:

[California Environmental Justice Alliance;](#)
[City of San Diego Sustainability Department;](#)
[Dairy Cares;](#)
[Individual Commenter \(CL\);](#)
[Individual Commenter \(JN\);](#)
[Individual Commenter \(NN\);](#)
[Individual Commenter \(SMN\)](#)
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\);](#)
[LA Sanitation and Environment;](#)
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\)](#)

OEHHA Response. OEHHA continues to update the mapping and data tools for CalEnviroScreen and will evaluate the feasibility and suitability of additional map and tool functionality. Regarding the inclusion of a city boundaries filter - municipality boundaries do not directly follow census tract boundaries and so this could result in inconsistent results. There is an “approximate location” field provided in the data files that provides some context for where the center of each census tract falls. This was updated from our previous “nearby city” field in Version 3.0 based on comments that the listed cities for census tracts could be misleading as they differed too much from official municipality boundaries. The new “approximate location” field relies on census data for incorporated areas and census designated places.

We understand the importance of the interactive maps to users of CalEnviroScreen and plan to release a CalEnviroScreen data dashboard tool with increased functionality that addresses some of the desired features listed in the comment letters. OEHHA hopes to release the dashboard tool to the public in the near future.

8. ***Exposure Indicators.*** *There were several comments related to the air pollution indicators. Several of these comments recommend using local air quality data, using satellite data for ozone, distance from air monitor locations, and measuring traffic impacts further away than 150 meters. An additional comment recommended adding glyphosate and paraquat to the pesticides that make up the Pesticide Use indicator. Other pesticide-related comments requested including exposure to non-agricultural pesticide use in urban areas and pesticides used at schools.*

Relevant comment letters:

[Brightline Defense and other undersigned organizations;](#)
[California Environmental Justice Alliance;](#)
[Californians for Pesticide Reform;](#)
[California Rural Legal Assistance, Inc.;](#)
[Comite Civico del Valle;](#)

[Healthy Building Research](#);
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\)](#);
[San Diego Association of Governments](#);
[San Francisco Department of the Environment](#)

OEHHA Response. We currently obtain our air quality data layers from the California Air Resources Board (CARB) and rely on their expertise in putting together a combination of monitoring and modeling to get the best air quality estimates covering the entire state. CARB currently does not incorporate local air quality monitors into the statewide layers and relies on the state's regulatory monitoring network. In updating the PM2.5 indicator layer, CARB used satellite information along with data from the air monitoring network to estimate concentrations more accurately in areas further from monitoring locations. Methods for creating a similar statewide ozone layer from satellite data are not available. We will continue to work with CARB to assess the feasibility and benefits of including local air monitoring data to supplement data from the state's air monitoring network.

For the traffic indicator, the 150 meter (or approximately 500 feet) buffer was selected based on [CARB's 2005 Air Quality and Land Use Handbook](#) recommendations, which states that most particulate air pollution from traffic drops off beyond approximately 500 feet from roadways. This document was revisited by CARB in 2017 and the guidance remained unchanged.

OEHHA evaluated the pesticides glyphosate and paraquat to see if they meet the hazard and volatility criteria for the indicator. OEHHA has expanded the hazard criteria for the indicator to include pesticides listed on California Department of Pesticide Regulation's (DPR) lists of restricted material (Title 3, California Code of Regulations, Section 6400). Paraquat is on the restricted materials list and meets the volatility criteria and has been therefore added. Although glyphosate is on the Proposition 65 list, it does not meet the volatility criteria and its use has not been added to the indicator.

We believe that incorporating non-agricultural and other agricultural uses of pesticides would improve the indicator. However, only county-scale data for non-agricultural pesticide uses is currently available, and we have not identified and developed a suitable method to allocate the use of these pesticides to the census tracts within counties. Standard downscaling approaches (such as population or area weighting) can either overgeneralize or mischaracterize the spatial distribution of non-agricultural pesticides, making it difficult to incorporate these data into the indicator. OEHHA plans to consult with DPR and revisit potential methods to apply the non-agricultural pesticide use data to areas smaller than the county.

OEHHA also evaluated the school Pesticide Use Reporting (PUR) data in conjunction with DPR. Since 2015, schools are required to submit yearly PURs to DPR, identifying which products were used, where, on what days, and from what source. At this point, we are unable to incorporate the data into CalEnviroScreen because the volume of pesticide use is currently not complete or reliable in the reports. There is little overlap between the

subset of pesticides included in the CalEnviroScreen Pesticide Use indicator and pesticides in the School PUR. OEHHA plans to continue to evaluate the School PUR data to see whether it could be included in the indicator.

9. ***Additional pollution burden indicator recommendations.*** Multiple comments expressed interest in the additional pollution burden related indicators or alternative methods to evaluate exposure to pollution. Topics included noise exposure, radon maps, PM10, children's exposure to pollution in schools, data for small sources of hazardous waste and air pollution collected by CARB, community-collected exposure data, proximity to transportation infrastructure and ports, and toxic releases to wastewater.

Relevant comment letters:

[California Environmental Justice Alliance;](#)

[California Rural Legal Assistance, Inc.;](#)

[Individual Commenter \(CR\);](#)

[Individual Commenter \(SQ\);](#)

[The Sierra Fund;](#)

[Comite Civico del Valle;](#)

OEHHA Response. Several important pollution burden concerns have been recommended in the comment letters. Prior to releasing a new draft version of CalEnviroScreen, OEHHA evaluates data sets and indicator suggestions raised in the comment period from the previous draft version. OEHHA will continue to evaluate and revisit newly suggested indicators for appropriate inclusion in the tool.

Responses to specific pollution burden-related comments:

- **Noise:** Some suggestions are already incorporated into CalEnviroScreen in some manner, such as information on whether facilities have noise violations, which is part of the calculation of the solid waste indicator score. OEHHA may consider incorporating other forms of noise pollution into the tool. For example, the US Department of Transportation recently released a National Transportation Noise Map that OEHHA plans to evaluate for future versions of the tool.
- **Small sources of air pollution:** OEHHA continues to work with CARB to evaluate small sources of air pollution and the available data for quality and suitability for incorporation into CalEnviroScreen.
- **Small hazardous waste generators:** We consulted with the Department of Toxic Substances Control (DTSC) in determining the make-up of the generators included in the Hazardous Waste indicator. Generators that produce a small amount of less-hazardous (non-RCRA) waste were excluded while producers of large amounts of more hazardous waste (RCRA waste) were included. OEHHA will continue to evaluate the contribution of small sources of hazardous waste for possible inclusion in future versions of the tool.

- **Schools:** Currently CalEnviroScreen does not directly account for exposures at schools due to lack of available data and the focus being on populated areas of census tracts.
- **Releases/discharges to land and water:** The US EPA's Risk-Screening Environmental Indicators (RSEI) model, used for the toxic releases indicator, does not model releases to land, and these releases are not indicative of direct exposure to people. RSEI-modeled releases to water are not as well developed with respect to their spatial distribution for inclusion as an exposures indicator or as part of the toxic releases indicator. However, we will be evaluating the role that the discharges to water can play as part of an impaired water bodies indicator in future versions.
- **Community collected pollution data:** Part of the public process around each draft release of CalEnviroScreen aims to identify ways in which community members believe the data included does or does not reflect true conditions in their communities. CalEnviroScreen includes large datasets based on standardized data collection protocols – while community collected data would be challenging to implement and standardize statewide, we will continue to evaluate all available data for incorporation into CalEnviroScreen.

10. **Drinking water.** Comments related to drinking water expressed the importance of evaluating all primary drinking water contaminants. OEHHA should disclose gaps and limitations in data, and the data should reflect both the quality of the source water and the quality of post-treatment water that is delivered to customers. Other comments recommended that data on lead pipes or lead in service lines or pipe fittings within the boundaries of the community water system service area should be incorporated into the tool. Other comments criticized the failure to include perfluoroalkyl substances (PFAS) and other emerging contaminants of concern, for which the State Water Resources Control Board (SWRCB) may have mapping data. Another comment suggested that a measure of drinking water affordability could be added to the tool, especially when residents are paying large sums for unusable water.

Relevant comment letters:

[Anonymous Individual C;](#)

[California Environmental Justice Alliance;](#)

[California Rural Legal Assistance, Inc.;](#)

[Comite Civico del Valle;](#)

[Environmental Working Group;](#)

[LA Sanitation and Environment;](#)

[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\);](#)

[Individual Commenter \(RY\)](#)

OEHHA Response. OEHHA recognizes that the drinking water systems in California are complex and vary in nature and that creating an index of drinking water quality is a challenging and complicated undertaking. The drinking water technical methodology document for CalEnviroScreen 4.0 includes detailed information on how the indicator was constructed and includes discussion of data gaps, assumptions, and limitations and will be available on our website.

All primary drinking water contaminants were included in a contaminant selection process. This process selected contaminants that were widely detected in California drinking water, considered an acute contaminant and toxic (had detections above the Public Health Goal). OEHHA's goal is to capture the quality of water that residents are drinking. Therefore, the indicator uses water samples from post-treatment sample locations first for averaging contaminant concentrations. OEHHA only uses pre-treatment sample locations when a post-treatment sample location with data is not available.

For pipes within the home, OEHHA includes lead concentrations in drinking water reported under the Lead and Copper Rule, which is derived from a statistical sampling of residents' tap water. For pipes within the community water system service area boundaries, OEHHA will consider the feasibility of adding a layer to the drinking water indicator online results map showing lead service lines.

OEHHA does evaluate emerging contaminants and does plan on looking into PFAS in future versions of the tool. At the time of calculating the Drinking Water Indicator for CalEnviroScreen 4.0 (2020), data on PFAS did not meet all selection criteria. However, since then, there should be more data on PFAS in state and federal databases. OEHHA will examine data availability and whether PFAS meets the selection criteria for including contaminants in the drinking water indicator in the future.

In 2021, OEHHA released a [Human Right to Water Framework and Data Tool](#) (CalHRTW 1.0) that contains many indicators at the water system scale related to achieving the human right to water, including water affordability. More recently, OEHHA is working with the SWRCB on their Safe and Affordable Funding for Equity and Resilience (SAFER) Program, which implements the goals of the human right to water. OEHHA is collaborating on the development of affordability indicators for the annual SAFER Needs

Assessment. See the September 2022 joint [SWRCB and OEHHA white paper](#) on proposed changes to affordability indicators.

11. **Groundwater in the drinking water indicator.** Several comments were received on the topic of the groundwater data used within the drinking water contaminants indicator. Concerns included that Groundwater Ambient Monitoring and Assessment (GAMA) program data may incorporate higher levels of contamination from sampling points that are not drinking water sources. Other comments recommend incorporating several other sources of groundwater data.

Relevant comment letters:

[California Rural Legal Assistance, Inc.:](#)
[Environmental Working Group:](#)
[Individual Commenter \(RY\)](#)

OEHHA Response. OEHHA includes an ambient groundwater data layer as part of the drinking water contaminants indicator to approximate drinking water quality for areas of the state not served by public water systems, also referred to as state small water system and domestic well communities. The data from the GAMA program is included here as it contains a variety of groundwater monitoring data that may be representative of communities not served by public water systems. Although the use of GAMA data may incorporate higher levels of contamination that are not actual drinking water sources, OEHHA modeled its methodology after the [SWRCB's Aquifer Risk Map](#), which is used by the SWRCB to prioritize areas where state small water systems and domestic wells may be experiencing water quality concerns. OEHHA will also continue to evaluate other sources of groundwater data for inclusion in the ambient groundwater layer such as from Groundwater Sustainability Agencies (GSAs) and other datasets from DWR. Some of these are already included in the GAMA data.

12. **Groundwater levels.** Several comments mentioned that groundwater depth, specifically the lowering aquifer levels, are of concern and should be included in the tool.

Relevant comment letters:

[Environmental Working Group;](#)
[California Environmental Justice Alliance;](#)
[California Rural Legal Assistance, Inc.;](#)
[Environmental Working Group;](#)
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\)](#)

OEHHA Response. OEHHA agrees that water scarcity and drought causing groundwater levels to lower and aquifers to be depleted is a concerning issue in California. In 2021,

OEHHA released a [Human Right to Water Framework and Data Tool](#) (CalHRTW 1.0) that contains many indicators related to achieving the human right to water, including water accessibility. Indicators related to water accessibility, such as groundwater levels and shut-offs, could be considered for future versions of CalEnviroScreen. Currently, measured contaminants in groundwater that may be affected by lowering groundwater levels contribute to the drinking water indicator. For areas outside of public water systems, OEHHA uses the ground water depth filter methodology from the [SWRCB's Aquifer Risk Map](#) that selects monitoring well data representative of domestic wells, based on their well depth. OEHHA will continue to assess groundwater issues for suitability for the tool.

13. ***Children's Lead Risk from Housing Indicator.*** *Several questions on specific details of the children's lead risk from housing indicator were received in the letters and asked in the workshops. Issues of Single Room Occupancy units having an undercount of children and therefore being underrepresented in the areas that have high lead indicator scoring.*

Relevant comment letters:

[Brightline Defense and other undersigned organizations;](#)
[California Environmental Justice Alliance;](#)
[LA Sanitation and Environment](#)

OEHHA Response. The children's lead risk from housing indicator is new to CalEnviroScreen and OEHHA welcomes feedback on the methodology for calculating the indicator scores. Many of the questions received are answered in detail in the lead indicator chapter of the [report](#). We recognize that there are data limitations in certain circumstances such as the Single Room Occupancy units and that this may affect the lead indicator score in certain areas and, we will evaluate if it is possible to account for this in the indicator in the future.

14. ***Environmental Effects Indicators.*** *There were several specific suggestions and comments related to the environmental effects indicators. Some of the questions included whether the extent and location of brownfields are considered, whether locations of chrome plating facilities are available as a layer, and what DTSC "inactivity" status means regarding risk to nearby communities from cleanup sites. Additional comments included the buffer distance from facility perimeters to populated blocks of census tracts, consumption of contaminated fish, soil contamination and mine pollution, and whether military sites are accounted for in CalEnviroScreen.*

Relevant comment letters:

[California Rural Legal Assistance, Inc.;](#)
[LA Sanitation and Environment;](#)

[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\);](#)
[Individual Commenter \(CR\);](#)
[Individual Commenter \(TB\);](#)
[The Sierra Fund;](#)
[TreePeople](#)

OEHHA Response. OEHHA has noted all suggestions. Responses to specific environmental effects related comments:

- **Environmental Effects sites:** All available brownfields data meeting indicator criteria maintained by DTSC are captured in the Cleanup Sites indicator. Federal Superfund sites are captured as a boundary of the extent of contamination or the site perimeter. Although chrome platers are not a distinct layer in the map, the data are available by downloading hazardous waste facility data and filtering for chrome platers. Regarding DTSC activity, we worked with CalEPA boards and departments to estimate the relative magnitude of the potential impact of sites based on criteria such as site type and status. Facilities with a status of “inactive” places them in a “medium category” tier, which was deemed appropriate when categorizing cleanup site status.
- **Sites on Military Land:** Most solid waste facilities and some cleanup and groundwater threat sites that occur on military land are incorporated into the current indicators. We will continue to evaluate potential gaps regarding sites that are not incorporated into the state’s databases.
- **Mines:** OEHHA shares concerns about potential health and environmental impact of mines on nearby communities, especially in rural areas. There are several mines that are designated as Superfund or State Response cleanup sites that are included in the Cleanup Sites indicator. Mine runoff that results in contamination of streams and lakes may be represented in the Impaired Waters indicator. We are also working with our state partners to further evaluate DTSC’s abandoned mine lands data for possible incorporation into a future version of the tool. The data are not ready yet to include within CalEnviroScreen. The tool does contain information on soil contaminated by hazardous waste as part of the cleanup sites indicator. This indicator can provide a good measure of the health of soils.
- **Buffer distances:** OEHHA evaluated approaches such as different buffer distances for hazardous waste facilities but is not making a change at this time. For scoring census tract communities in CalEnviroScreen, we chose to reduce the contribution of facilities that are far from where people live, including facilities that are regulated such as cleanup and Superfund sites. The distance between a facility and populated census blocks is calculated from the outer perimeter of hazardous waste facilities. This allows for better characterization of proximity to nearby census tracts. We will continue to research methods for proximity adjustment within environmental effect indicators.

- **Fish advisories:** Fish advisories, including those related to mercury, are a component of the Impaired Waters indicator. OEHHA may evaluate more recent fish advisory data to see if they could be incorporated into CalEnviroScreen.

15. **Dairies and feedlots.** Comments expressed concern regarding the incorporation of dairies and feedlots within the groundwater threats indicator. Concerns included that there are incomplete data and risk assessments for dairies and that other factors such as compliance, well data, geology, and management practices should be accounted for in the score. Other nitrate sources such as rural septic systems were mentioned as a potential threat not currently accounted for in the indicator. Issues such as to what degree dairy lagoons might be lined and have reduced potential for groundwater threats were also raised.

Relevant comment letters:

[California Rural Legal Assistance, Inc.;](#)
[Dairy Cares](#)

OEHHA Response. Sites or facilities included in Environmental Effects indicators including the Groundwater Threats indicator generally do not have detailed, site-specific data readily available to incorporate in CalEnviroScreen. Rather, they are broadly categorized based on available information using a semi-quantitative approach. Dairies and feedlots were scored on a weighted scale of 1 to 5 based on the permitted animal population, with a score of 5 given to a dairy with over 1,000 animals or a feedlot with over 3,000 animals. OEHHA will continue to work with the SWRCB and stakeholders to better characterize data on dairies and feedlots over time and whether factors such as compliance or facility characteristics can be incorporated. Additionally, OEHHA will also explore data on additional sources of nitrates. Nitrates are identified in other CalEnviroScreen indicators including Impaired Waters and Drinking Water Contaminants.

Data on lagoon linings are incomplete and not reliable for use as a scoring criterion. Animal manure is sometimes stored in lagoons, but also is spread though land application to other parts of the dairy or feedlot, so the presence of lagoon lining would not fully characterize nitrate risk to groundwater.

16. **Socioeconomic indicators.** Comments related to the socioeconomic indicators included accounting for residual income in the housing burden indicator, using more recent housing burden data and stating specifically which utility data are included in housing costs, and filling in missing data from the American Community Survey (ACS) and indicating where estimates are unreliable because of statistical uncertainty. A comment also highlighted that socioeconomic data used in CalEnviroScreen might not reflect current conditions due to the COVID-19 pandemic.

Relevant comment letters:

[California Environmental Justice Alliance;](#)

[California Rural Legal Assistance, Inc.;](#)

[Individual Commenter \(JG\);](#)

[Individual Commenter \(MLM\);](#)

[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\)](#)

OEHHA Response. Methods to establish the reliability of the data use the information on the “margin of error” for each census tract’s estimate provided by the Census Bureau. By accounting for the calculated relative standard error and eliminating estimates with large possible errors, we reduce the chance that a given indicator’s measure is broadly mischaracterized. Census tracts with indicator results with very high margins of error and relative standard errors are excluded from the analysis and are not made available in the results maps or spreadsheets. By using the most recent 5-year ACS estimates and by using multiple indicators to capture the socioeconomic factors, we believe the unreliability of the data is minimized.

We are not aware of data at the census tract scale that provide residual income information. Our current approach for the housing burden indicator considers the percentage of households in a census tract that are both low-income and pay greater than 50 percent of their income for housing. We assume that if households are low income and have severe housing cost burdens, those households would struggle to meet non-housing needs. The housing burden data are tabulated from ACS survey information as part of the Department of Housing and Urban Development’s CHAS (Comprehensive Housing Affordability Strategy) and the survey questions do account for utility costs within total housing costs. There are specific questions in the ACS surveys about the costs of electricity, gas, water, sewer, and wood or oil fuel. While not explicitly defined in the CHAS data, it is likely that these utilities are included in the housing cost parameters.

We recognize that the ACS data do not reflect recent socioeconomic changes. Like all data in CalEnviroScreen, the ACS data cover several recent years and reflect more long-standing patterns to identify areas of low socioeconomic attainment. As of February 2022, the Census Bureau has not released the 2020 ACS data which may reflect aspects of the COVID-19 pandemic.

17. ***Housing conditions and homelessness.*** Multiple comments expressed interest in seeing an indicator related to unhealthy housing conditions such as overcrowded housing, characteristics that might make housing overheated or prone to flooding, and substandard housing quality. Further comments suggested an indicator to measure unsheltered people experiencing homelessness due to this being a vulnerable population.

Relevant comment letters:

[Brightline Defense and other undersigned organizations;](#)
[California Environmental Justice Alliance;](#)
[California Rural Legal Assistance, Inc.;](#)
[Healthy Building Research;](#)
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\)](#)

OEHHA Response. The poverty indicator, housing burden indicator, and lead risk from housing indicator all contain aspects that correlate with poor housing quality. In between versions of CalEnviroScreen, OEHHA examines further datasets for suitability for inclusion in CalEnviroScreen. We will continue to evaluate overcrowding as a possible unique contributor to pollution vulnerability.

Regarding unhoused populations, we acknowledge that this is a vulnerable population. We are not aware of a reliable data set with statewide coverage to evaluate and address this topic. We will continue to search for reliable information in the future and consider how it could be represented geographically. Several indicators rely on census information about the location of residential populations. This, too, may be revisited in light of the presence of unhoused populations.

*18. **Additional susceptibility indicators.** Several comments recommended that boundaries related to historical redlining should be included as an indicator or supplemental layer to CalEnviroScreen. Further comments suggested additional health effects be included as indicators such as renal disease and data from health survey information. The proximity to green space, or lack of greenspace, has been brought up as a potential link to pollution vulnerability and that this could be a factor to include in CalEnviroScreen.*

Relevant comment letters:

[California Environmental Justice Alliance;](#)
[California Rural Legal Assistance, Inc.;](#)
[Leadership Counsel for Justice & Accountability \(and other undersigned organizations\);](#)
[Healthy Building Research;](#)
[Individual Commenter \(FM\);](#)
[Prevention Institute and other undersigned organizations;](#)
[San Diego Association of Governments;](#)
[Sierra Institute for Community and Environment;](#)

OEHHA Response. CalEPA has released an interactive mapping project called *Pollution and Prejudice* that examines some of the historical issues of land use policy and its relationship to environmental injustice. This mapping project is available publicly at the link [here](#) and discusses redlining and CalEnviroScreen scores and indicators.

OEHHA is interested in incorporating additional health conditions that are indicative of vulnerability to pollution. Data are typically challenging to obtain statewide at a fine scale but we will continue to evaluate and research additional health endpoints. Of particular interest to our team is the newly released [Centers for Disease Control's PLACES](#) data, that provides modeled health data at small scales including census tracts.

We agree that green space and proximity to parks and recreational areas could be a factor in reducing pollution vulnerability. We will evaluate how it could fit into CalEnviroScreen and whether the data availability works on a statewide scale for a census tract analysis.

19. *Climate change related indicators.* Comment letters and comments expressed in the workshop series expressed interest in seeing climate change related indicators included in the CalEnviroScreen tool. These included issues of flooding, wildfire, heat, and a measure of natural areas, such as tree canopy coverage or green space, that could be added to CalEnviroScreen.

Relevant comment letters:

[Bay Area Air Quality Management District;](#)

[California Rural Legal Assistance, Inc.;](#)

[City of San Diego Sustainability Department;](#)

[Healthy Building Research;](#)

[LA Sanitation and Environment;](#)

[Prevention Institute and other undersigned organizations;](#)

[Southern California Association of Governments;](#)

[TreePeople](#)

OEHHA Response. Indicators related to climate change including climate impacts, adaptation, and vulnerability as well as the built environment are not currently included in CalEnviroScreen. To date, CalEnviroScreen is an environmental justice screening tool describing existing environmental conditions, and indicators included in CalEnviroScreen fit within the CalEPA definition of cumulative impacts, which OEHHA has operationalized into the four components of exposures, environmental effects, sensitive populations and socioeconomic factors. More recently, environmental justice screening tools have been called upon to include indicators of climate change and climate vulnerability. Some approaches to including a measure of historical exposure to wildfire smoke are discussed in the next comment area (Wildfires). The Governor's Office of Planning and Research (OPR) is currently developing a Vulnerable Communities Platform (VCP) that will contain a repository of existing statewide datasets and indicators relevant to vulnerable communities, equity and resilience, and climate adaptation. OEHHA is working with OPR to ensure coordination between CalEnviroScreen and the VCP. In the future, OEHHA can consider how a supplemental component of climate change in

CalEnviroScreen could be feasibly incorporated, possibly drawing on data contained in the VCP.

20. **Wildfires.** *Several comments stated that the impacts of wildfires should be included in CalEnviroScreen. There is interest in the short-term spike in PM2.5 concentrations and subsequent health impacts from wildfire smoke as well as the impacts of wildfires on drinking water quality.*

Relevant comment letters:

[Sierra Business Council - Sierra Climate Adaptation and Mitigation Partnership](#)
[Sierra Institute for Community and Environment;](#)

OEHHA Response. OEHHA agrees that exposures to particulate matter and air toxics from wildfire smoke pose potentially significant health risks, particularly if exposure is prolonged. Wildfire smoke can contribute to regional particulate air pollution. To the extent that smoke generated from wildfires persists in areas, this may be reflected in the long-term average PM2.5 levels detected through the air monitoring network in different parts of the state.

However, there are significant challenges to including smoke exposure or health impacts from wildfires. While information is currently available to describe where wildfires have occurred in California, the impacts from smoke can be more widely distributed and are dependent on weather conditions and terrain. Some methods could evaluate the number of days an area has been under a smoke plume as a proxy for exposure or emergency department data for respiratory illnesses associated with wildfire data. OEHHA will continue to evaluate whether there are data to develop an indicator of wildfire smoke exposure or health impacts related to wildfire smoke. OEHHA will also explore the impacts of wildfires on drinking water.

21. **Tobacco.** *Multiple comments suggested including tobacco retailer data in CalEnviroScreen as well as capturing issues of second hand and third hand smoke and tobacco related carcinogens in drinking water.*

Relevant comment letters:

[California Health Collaborative;](#)
[Individual Commenter \(PT\);](#)
[Individual Commenter \(JS\);](#)
[Thirdhand Smoke Resource Center](#)

OEHHA Response. OEHHA agrees that the density of tobacco retailers as well as second and third hand smoke is an important determinant of health and a source of indoor air

pollution. At this point, we have not investigated data on tobacco retailers and how a measure such as the density of tobacco retailers relates to either health or potential vulnerability to pollution, and whether the density of tobacco retailers can be incorporated into a Sensitive Populations or Socioeconomic Factors indicator.

22. **Supportive comments.** *There were a number of comments written in and spoken at the workshops expressing support for the CalEnviroScreen project and the work done towards updating the tool.*

Relevant comment letters:

[California Environmental Justice Alliance;](#)

[Californians for Pesticide Reform;](#)

[Environmental Working Group;](#)

[Individual Commenter \(JN\);](#)

[Individual Commenter \(MLM\);](#)

OEHHA Response. OEHHA thanks all of those who participated in the public process and took the time to write in comments and attend workshops. The feedback we get does shape the direction of the tool and provides valuable ideas and critiques that are the basis for future work on CalEnviroScreen.