California Council for Environmental and Economic Balance
101 Mission Street, Suite 1440, San Francisco, California 94105
415-512-7890 phone, 415-512-7897 fax, www.cceeb.org

May 14, 2021

Ms. Laura August
Community Assessment and Research Section Chief
Office of Environmental Health Hazard Assessment
Submitted electronically via https://oehha.ca.gov/calenviroscreen/comments/comment-submissions-draft-calenviroscreen-40

Re: CalEnviroScreen 4.0 Public Review Draft

Dear Ms. August,

We submit the following comments on behalf of the California Council for Environmental and Economic Balance (CCEEB) on the public review draft of CalEnviroScreen version 4.0 (CES). CCEEB was a participant in the CalEPA Cumulative Impacts and Precautionary Approaches (CIPA) Work Group from its inception in 2008 until its conclusion in 2013, as well as the CalEPA Environmental Justice Advisory Committee, which first recommended that the Office of Environmental Health Hazard Assessment (OEHHA) develop a cumulative risk analysis framework for the boards, departments, and offices of CalEPA. Throughout this time, we have engaged with OEHHA on the development and evolution of the CES screening tool, and offer these comments with that history in mind. We are equally mindful of the technical challenge inherent to any assessment of cumulative impacts, and are appreciative of OEHHA's deliberative and transparent work over the years to advance scientific and public understanding of how multiple public health drivers may work in tandem to influence individual and community health and wellbeing.

Our two main points on the draft CES version 4.0 are as follows:

- **Refresh Guidance –** guidance and clarifications from past reports about how to interpret and use CES results bear repeating in the version 4.0 report, as these understandings and discussions of the technical limitations still apply as much as before. CCEEB goes into greater detail below about specific areas of consideration, and provides examples and citations from past OEHHA and CalEPA documents in Appendix B.

- **Seek Public Input Before Making Major Changes** – CCEEB recommends that OEHHA and CalEPA engage independent public advisors to help inform future changes to the CES model before it adds or removes individual indicators, changes the calculation and scoring method, or any other significant change that goes beyond merely updating data

within an indicator. Discussions between OEHHA and its advisors should be made public and noticed in advance, much as was done for versions 1.0 and 2.0 with the convening of the CIPA Work Group. We note that with each additional indicator, the influence of existing indicators on final community scores is diminished. CCEEB believes the tradeoffs involved in such changes are as much policy in nature as technical, and that end users of the model should have a greater voice in deciding what gets measured and how.

What follows is a discussion of key aspects of the CES tool that generally apply to, and are offered in support of, our main points above.

## Relative, Not Absolute, Ranking

Page six of the CES technical report makes the important, but brief, clarification that the model presents a relative evaluation of cumulative impacts, not an absolute one. This point should be expanded upon to better illustrate how relative ranking works in practice, i.e., the "Top 25 Percent," which is now routinely used as the basis for major policy and project decisions, including eligibility for hundreds of millions of dollars in public funds, is a fluid construct that does not necessarily conform to real changes in the level or type of impact occurring.

In contrast, an absolute evaluation sets forth a clear bright line, usually based on demonstrable causal linkages, which can be tested or verified, such as with State and federal air quality standards or Maximum Contaminant Levels for drinking water. In a relative ranking system, changes in position for a given community are driven as much or more by changes in other communities rather than in its own. Thus, the CES score for a community may decrease, disqualifying it from funding eligibility, even if absolute conditions in that community are unchanged or worsening, while a community that is experiencing real improvement in absolute terms may remain stuck in the "Top 25" percent of CES scores.

This has important policy implications:

- **There will always be a "Top 25 Percent"** regardless of improvements in conditions experienced by Californian communities. As an example, in Appendix A we look at data from the South Coast Air Quality Management District (SCAQMD) Multiple Air Toxics Exposure Study, the most recent iteration of which found a 48 percent reduction in carcinogenic pollutants since 2012. This significant achievement, and the improvements made in impacted communities, is not at all evident by looking at CES scores; the relative rankings produced by CES make trend analysis over time difficult or impossible. The same is true of other parameters. The CES report, on page six, acknowledges this: "In California, environmental quality has improved over the last few decades as evidenced by improved water quality, reduced air pollution, decrease in pesticide use, continued cleanup of hazardous waste sites as well as increased recycling and reduction of solid waste going into landfills." However, the CES methodology is unable to illustrate these improvements, and as such, can't be used to set baseline conditions or show changes over time.

- **Every time the model changes, so too does the "Top 25 Percent".** As data gets updated or added to CES, different communities will come into and fall out of the "Top" cohort, regardless of what is happening within any given community. For example, moving from version 3.0 (2016) to 4.0 (2021) changes about 15 percent of the "Top" census tracts, just as the move from version 2.0 (2014) to 3.0 changed a similar number. And with each new indicator, the influence of the others is diminished, which also changes rankings. This is an important consideration for policy decisions whose effects are meant to be durable over time, since deserving communities could be inadvertently locked out of the benefits and services being offered simply because the method for calculating scores changed.

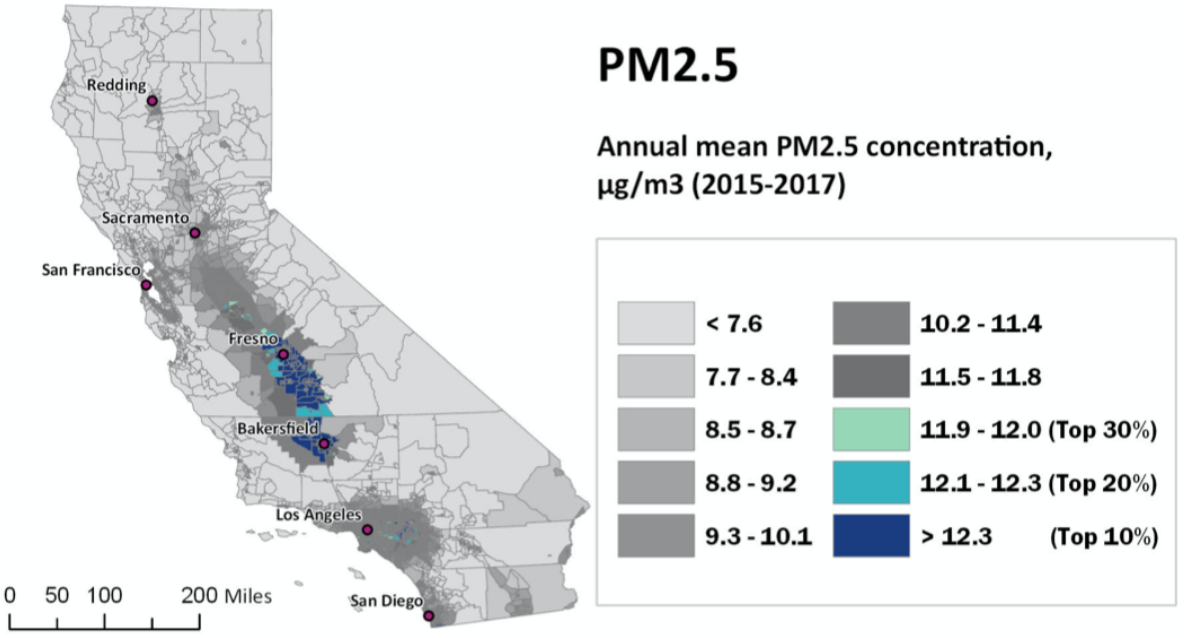
- **CES shows multiple stressors but not the magnitude of impact for any given problem.** Communities must receive relatively high scores for most of the now 21 separate indicators. However, this scoring method obscures the magnitude of impact for any specific domain. Moreover, the "binning" approach based on percentile ranking further obscures the magnitude of impact in any single indicator, so that a community with extremely high exposures or stressors could artificially appear similar to others.

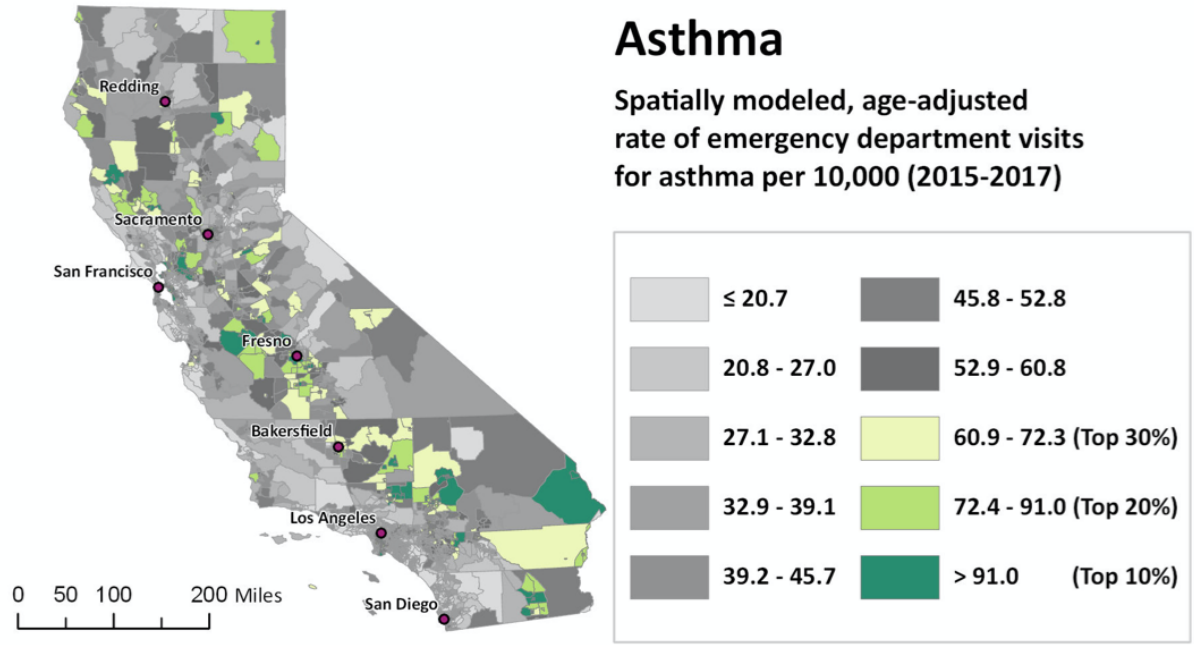
Because of these limitations, CCEEB has always supported an inclusionary policy for CES uses, whereby communities are identified for further investigation and prioritized for community benefits, rather than exclusionary policies that might unintentionally limit program eligibility.

## Confounding Variables and Avoiding Confusion over Predictor and Response

In the discussion under "Assessing cumulative impacts," the report rightfully states on page seven, "In reality, people are simultaneously exposed to multiple contaminants from multiple sources and also have multiple stressors based on their health status as well as living conditions." This is important, as CES contains multiple health factors, or variables, which have the potential to independently affect health outcomes, including exposure to ozone or other environmental pollutants, poverty, and housing burden.

Other indicators are dependent and meant to represent possible responses, such as emergency department (ED) visits for asthma or cardiovascular disease, or low birth weight. However, these health outcomes are multifactorial in nature, meaning many health drivers may be in play, including access to preventative care, genetics and epigenetics, individual behavioral choices, and psychosocial stress. Environmental exposures may or may not be involved in observed outcomes, and the degree to which they influence disease responses cannot be shown by the model. For example, comparing top scoring census tracts for PM2.5 and asthma ED visits, we see less correlation than might be expected given epidemiology studies that associate asthma exacerbation to PM2.5 concentrations. CES neither proves nor disproves this association; it merely fails to illustrate it. This means that users should be cautious interpreting results or asserting causal linkages based solely on CES scores.




Because of the complexity surrounding these overlapping and potentially confounding health variables, CCEEB believes it is important for OEHHA to clarify to users that the model does not and cannot make causal linkages between any of the individual indicators, but rather illustrates what could be a universe of factors that may be in play to varying degrees. For example, sensitivity analyses done by OEHHA for versions 2.0 through 4.0 show, rather counterintuitively, a decided *lack* of correlation between any of the Pollution Burden indicators

and any of the Population Characteristic indicators. This is not to say that a causal linkage does not exist (e.g., that air pollution could trigger an asthma attack requiring an ED visit), only that *the data used in the model and the resultant ranking and scoring is not statistical proof that such a relationship exists.*

In addition to expanding the narrative discussion of these issues and limitations, CCEEB recommends that OEHHA include its sensitivity analysis in the public report for version 4.0, as was done for version 1.0. To further transparency, it is important to provide users the information necessary to understand where CES scores are strongly responsive to changing variables and where scores are relatively fixed. In some cases, as described above, the results may be counterintuitive. Without making the sensitivity analysis available, the public is likely to be misled regarding the influence of the indicators on outcomes.

## Double Counting and other Biases in the Model

CCEEB appreciates the thoughtful and informed approach OEHHA uses to develop each individual indicator, noting that, in many cases, data is not available to directly measure the health impact or response of interest. For example, the indicator for cleanup sites is not a measurement of actual exposures in the surrounding community, but instead looks at the proximity of sites to people. For cardiovascular disease, the indicator shows zip code level data for ED visits, not the actual number of people stricken with heart attacks associated with air pollution. For some sets of indicators, similar data may be used to reflect different (but perhaps confounding) factors, such as is the case for Housing Burden (income + housing costs) and poverty (income).

The new indicator for lead combines age of housing with income and presence of children. Here, we see income data again repeated, meaning that low-income households will have relatively higher scores across multiple indicators. This creates a certain degree of double counting that influences final scores, regardless of actual environmental exposures.

The model also has an embedded bias for denser urban areas where mobile sources of air pollution tend to be greater. More specifically, ozone, PM2.5, and diesel particulate matter are all heavily influenced by mobile sources, meaning that census tracts near denser traffic and transportation corridors will have relatively high scores across multiple indicators, not just one, even though the source of impact is the same. Conversely, a rural community faced with contaminated drinking water will only score high on a single indicator for this concern.

Another important aspect of the model is the use of census tracts instead of zip codes for the geographic unit of measurement. While CCEEB agrees with this approach, which was first introduced in version 2.0, it does results in large polygons in rural areas with relatively low population. This means that environmental releases could be occurring far away from where most of the population actually is, whereas in denser and geographically smaller census tracts, inferences of proximity will be more accurate. It also means that some indicators where the underlying data is based on zip code or county may not be as accurate for a given census tract.

## Omission of Prior Guidance on Limitations

Because CES does not demonstrate causation, its results are not appropriate as the sole basis for regulatory, permitting, or land use decision-making. Past CES reports from OEHHA and guidance from CalEPA included helpful discussion of some of the limitations in use of scoring results; see Appendix B. CCEEB strongly recommends that this discussion be restored in the version 4.0 report, to ensure that the issues are understood by those interested in applying CES results. In particular, we ask that the report include the discussion of the California Environmental Quality Act (CEQA) from the prior guidance quoted in Appendix B. As used in CES, the term "cumulative impacts" has a very different definition from that of CEQA (see CEQA Guidelines Section 15355) and includes pre-existing conditions that are treated as part of the environmental baseline under CEQA. To avoid significant confusion for the public and for decision-makers, the report should be transparent about such limitations as well as the appropriate applications of the CES methodology.

Cal/EPA and OEHHA should add language to the guidance memo and report and provide examples of appropriate and inappropriate uses, and clarify that CalEnviroScreen should not be used as the sole basis for CEQA, permitting, or any other regulatory actions, including land use decision making.

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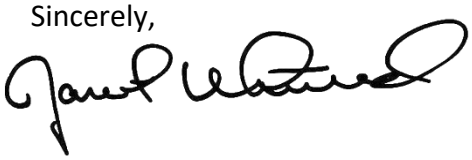
We appreciate the opportunity to comment on version 4.0 and we thank OEHHA and its staff for the many years of thoughtful research, analysis, and development of new and innovative approaches that can help improve understanding of cumulative impacts here in California and beyond. Use of CalEnviroScreen has become ubiquitous among environmental policy decision makers and stakeholders, and it is an important model for other jurisdictions grappling with similarly complex interactions among environmental, socioeconomic, and public health inequities. Given the scientific uncertainty inherent with these challenging sets of issues, we believe OEHHA's transparent and publicly accessible approach for developing CalEnviroScreen has been a cornerstone of its success.

Sincerely,



Janet Whittick
CCEEB Vice President

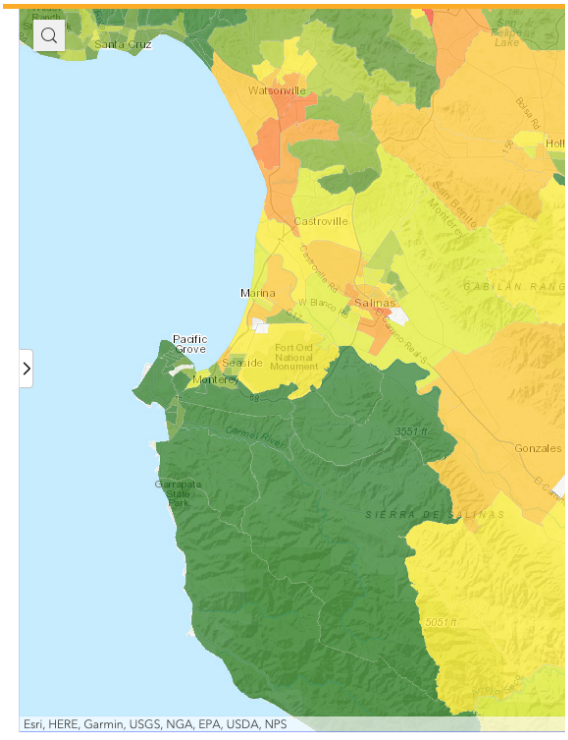
cc: Mr. Jared Blumenfeld, CalEPA Secretary
Dr. Lauren Zeise, Director of OEHHA
Dr. John Faust, Branch Chief, Community and Environmental Epidemiology Research, OEHHA
Mr. Walker Wieland, Research Scientist, Community Assessment and Research Section, OEHHA
Mr. Bill Quinn, CCEEB President and CEO

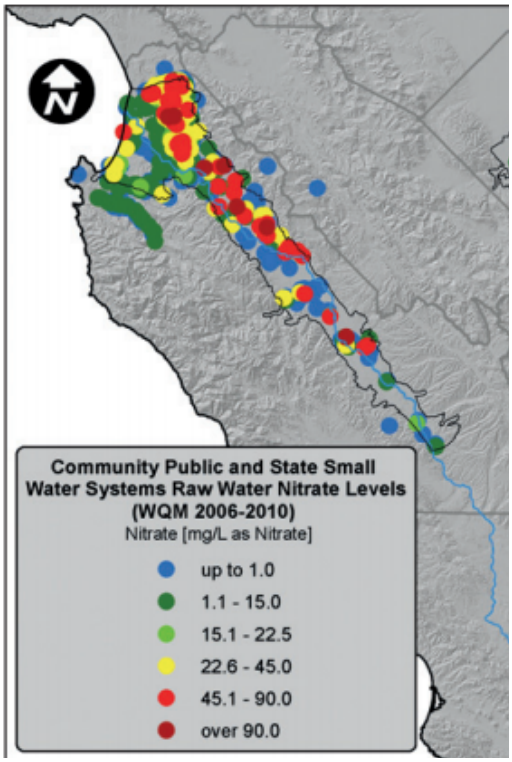
# Appendix A: Community-Specific Examples

## Magnitude of Impact Can Be Obscured

EXAMPLE: Salinas Valley. Many of California's communities with the highest nitrate concentrations in drinking water are located in the Salinas Valley. However, these communities can appear relatively "clean" when looking at CES scores because the influence of other indicators obscures the magnitude of impact from drinking water contamination.

For example, Watsonville has the second highest score in the state for drinking water contamination, but its CES ranking is in the 26$^{th}$ percentile (v4.0), making it among the "cleanest" or least impacted communities in California. Similarly, Salinas has the fifth highest score for drinking water in the state, but a CES rank that places it in the cleanest 24$^{th}$ percentile, and nearby Castroville has the fourth highest score for drinking water, but only a 59$^{th}$ percentile ranking in CES. Using CES alone, it is easy to miss the drinking water problem in these communities, and programs and policies meant to target community environmental exposures might miss them if eligibility were based on the "Top 25 Percent" cohort.

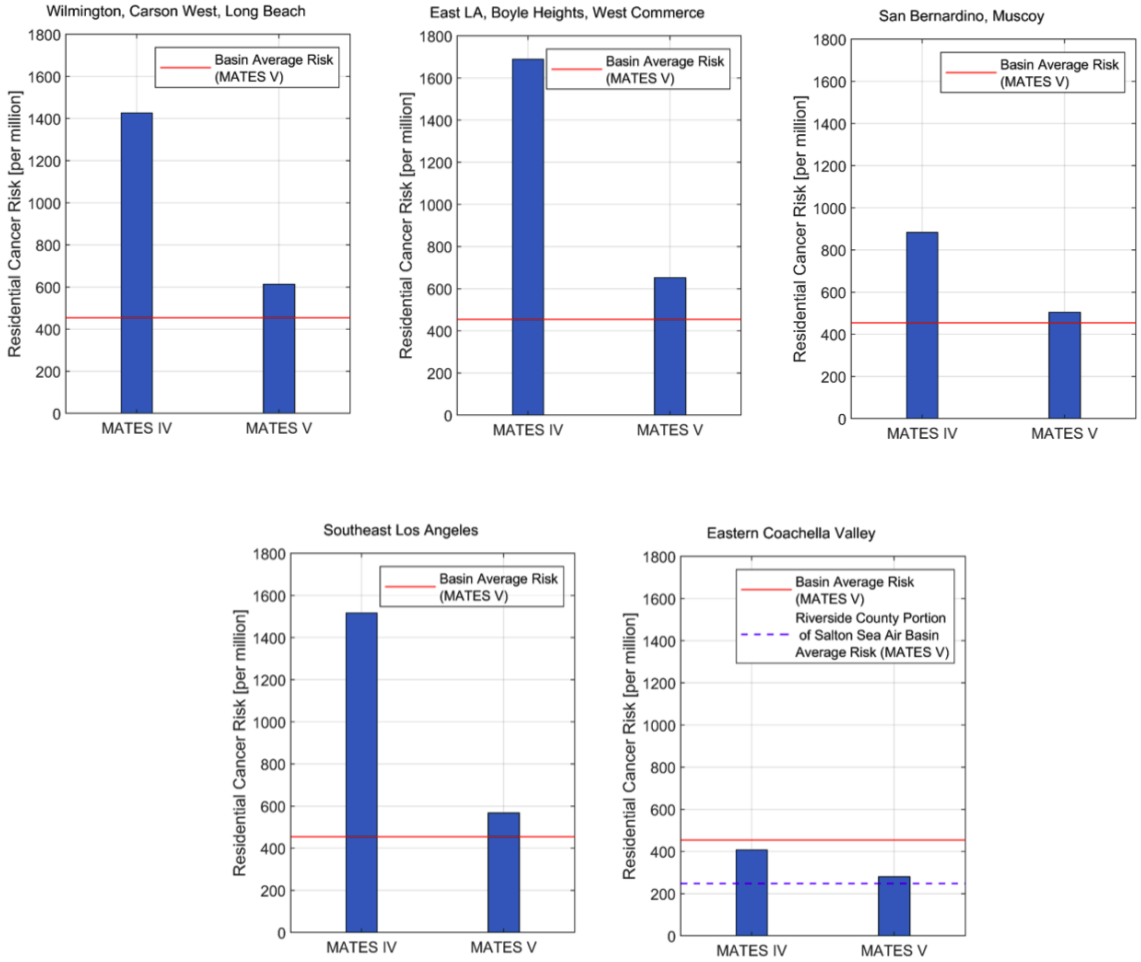


## Trends over Time Are Not Discernible

**EXAMPLE: South Coast AB 617 Communities and MATES V**

The South Coast Air Quality Management District (SCAQMD) undertakes a Multiple Air Toxics Exposure Study (MATES) every several years, and the most recent analysis is now available, based on monitoring and measurements of emissions from 2018. Prior to that, MATES IV was conducted in 2012, and differences between the two versions show trends over time. MATES provides numerous data points, but its core conclusions are summarized as population weighted average residential cancer risk. Overall, cancer risk in the air basin decreased by 54 percent from 2012 to 2018. Reductions in CES Top 25 Percent communities were even better, with a 57 percent decrease in risk overall. In what would later become the first AB 617 communities, MATES V shows a risk reduction of 57 percent for the Wilmington-Carson-West Long Beach community, 43 percent for San Bernardino-Muscoy, 61 percent in the East Los Angeles-Boyle Heights-Commerce community, and 63 percent in Southeast Los Angeles. These are significant public health improvements in a short amount of time.



Conversely, looking at an example of a subset of census tracts in the Long Beach area that rank among the highest scores in both CES versions 3.0 and 4.0, we see very little movement in the indicators most analogous to MATES (i.e., PM2.5, diesel PM, and traffic), and in some census tracts, these communities appear worse than before. For the entire subset, the average pollution burden score also increased. Judging by these changes in CES scores, the significant and very real improvements measured in MATES are not at all detectable.

| Census Tract | Total Population | Nearby City (to help approximate location only) | DRAFT CES 4.0 Percentile | DRAFT CES 4.0 Percentile Range | PM2.5 Pctl | Diesel PM Pctl | Traffic Pctl | Pollution Burden Score | Pollution Burden Pctl | Pop. Char. Score | Pop. Char. Pctl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6037570202 | 5982 | Long Beach | 98.26 | 95-100% (highest scores) | 88.14 | 92.25 | 91.30 | 8.92 | 99.28 | 7.34 | 80.90 |
| 6037570203 | 4071 | Long Beach | 99.33 | 95-100% (highest scores) | 82.96 | 92.12 | 94.90 | 8.35 | 98.01 | 8.50 | 94.33 |
| 6037570301 | 7585 | Long Beach | 99.13 | 95-100% (highest scores) | 91.05 | 89.98 | 81.34 | 7.79 | 95.42 | 8.93 | 97.31 |
| 6037570402 | 3509 | Long Beach | 98.52 | 95-100% (highest scores) | 92.79 | 98.06 | 98.88 | 8.40 | 98.20 | 7.93 | 88.40 |
| 6037570403 | 4893 | Long Beach | 99.51 | 95-100% (highest scores) | 90.60 | 97.55 | 83.43 | 8.16 | 97.25 | 8.96 | 97.50 |
| 6037570502 | 6502 | Long Beach | 98.76 | 95-100% (highest scores) | 83.05 | 64.57 | 52.64 | 8.37 | 98.10 | 8.07 | 90.09 |
| 6037572301 | 4118 | Long Beach | 99.08 | 95-100% (highest scores) | 67.07 | 91.71 | 90.14 | 8.63 | 98.72 | 8.04 | 89.66 |
| 6037572800 | 917 | Long Beach | 99.23 | 95-100% (highest scores) | 66.01 | 85.85 | 59.16 | 7.29 | 91.81 | 9.65 | 99.76 |
| 6037575401 | 4853 | Long Beach | 98.06 | 95-100% (highest scores) | 65.96 | 63.60 | 48.14 | 7.21 | 90.88 | 9.00 | 97.82 |
| 6037575801 | 2341 | Long Beach | 97.47 | 95-100% (highest scores) | 66.60 | 98.99 | 35.85 | 6.82 | 86.24 | 9.25 | 98.78 |
| 6037575802 | 5649 | Long Beach | 97.91 | 95-100% (highest scores) | 66.60 | 98.89 | 22.99 | 6.57 | 82.49 | 9.82 | 99.91 |
| | | | | Average Pctl | 78.26 | 88.51 | 68.98 | 7.86 | 94.22 | 8.68 | 94.04 |

| Census Tract | Total Population | City | CES 3.0 Percentile | CES 3.0 Percentile Range | PM2.5 Pctl | Diesel PM Pctl | Traffic Pctl | Pollution Burden Score | Pollution Burden Pctl | Pop. Char. Score | Pop. Char. Pctl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6037570202 | 6415 | Long Beach | 97.88 | 96-100% (highest scores) | 81.66 | 83.43 | 94.00 | 8.41 | 98.06 | 7.61 | 84.82 |
| 6037570203 | 3973 | Long Beach | 95.84 | 96-100% (highest scores) | 81.66 | 66.43 | 93.68 | 7.62 | 93.59 | 7.71 | 86.27 |
| 6037570301 | 7330 | Long Beach | 98.92 | 96-100% (highest scores) | 81.66 | 83.43 | 84.12 | 7.65 | 93.91 | 8.85 | 97.02 |
| 6037570402 | 3496 | Long Beach | 97.16 | 96-100% (highest scores) | 81.66 | 83.43 | 96.99 | 7.86 | 95.22 | 7.91 | 88.71 |
| 6037570403 | 4587 | Long Beach | 95.88 | 96-100% (highest scores) | 81.66 | 83.43 | 80.12 | 6.96 | 86.01 | 8.44 | 94.14 |
| 6037570502 | 6616 | Long Beach | 99.22 | 96-100% (highest scores) | 69.14 | 74.00 | 75.05 | 8.25 | 97.39 | 8.46 | 94.29 |
| 6037572301 | 3833 | Long Beach | 97.48 | 96-100% (highest scores) | 66.23 | 79.65 | 92.02 | 8.50 | 98.33 | 7.40 | 81.64 |
| 6037572800 | 839 | Long Beach | 98.59 | 96-100% (highest scores) | 66.23 | 91.00 | 41.08 | 7.38 | 91.40 | 8.98 | 97.68 |
| 6037575401 | 5155 | Long Beach | 98.79 | 96-100% (highest scores) | 66.23 | 83.63 | 58.38 | 7.42 | 91.92 | 9.06 | 98.06 |
| 6037575801 | 2446 | Long Beach | 98.08 | 96-100% (highest scores) | 66.23 | 99.88 | 44.75 | 7.23 | 89.68 | 8.92 | 97.40 |
| 6037575802 | 5167 | Long Beach | 97.21 | 96-100% (highest scores) | 66.23 | 99.85 | 39.79 | 6.75 | 83.32 | 9.21 | 98.70 |
| | | | | Average Pctl | 73.51 | 84.38 | 72.73 | 7.64 | 92.62 | 8.41 | 92.61 |

# Appendix B: Citations from Past CES Reports and Memos

*Memo from Assistant Cal/EPA Secretary Arsenio Mataka and OEHHA Director George Alexeef to the CIPA Working Group on Draft CalEnviroScreen, July 30, 2012*

"The tool is not intended to be a substitute for focused risk assessment for a given community or site and cannot precisely predict or quantify specific health risks or effects associated with cumulative exposures identified for a given community or individual. The tool also does not directly correlate the potential impacts of exposure from different types of pollutants, such as particulate exposures from vehicle emissions and exposures from pesticides or hazardous materials. Additionally, it should be noted that the statutory definition of 'cumulative impacts' contained in the California Environmental Quality Act (CECA), is substantially different than the definition of 'cumulative impacts' adopted by Cal/EPA and used to guide the development of this tool. Therefore, the data and ranking generated by this tool cannot be used as a substitute for an analysis of the cumulative impact of any specific project for which an environmental review is required by CEQA. The screening tool is not intended to create a legal obligation to conduct additional detailed cumulative impacts analyses for individual rulemakings." [p.2]

"This tool considers information on the use of certain high-hazard/high-volatility pesticides to be an indicator of exposure. We recognize, however, that pesticide use in California is regulated with the goal to eliminate harmful exposures. Use alone does not represent a true measure of exposures to pesticides and does not equate to harmful exposures…. Similarly, we do not want to equate proper disposal and storage of hazardous materials with toxic releases to air and water." [p.3]

"It is not our intent to use the tool to start a new program; instead, the tool should be seen as an aid to ongoing planning and decision making already underway within Cal/EPA and other state entities." [p.4]

*Memo from Assistant Cal/EPA Secretary Arsenio Mataka and OEHHA Director George Alexeef to the CIPA Working Group on Second Draft CalEnviroScreen, January 3, 2013*

"The results generated by CalEnviroScreen represent the confluence of a large number environmental, economic, social, and health related factors. They do not and are not intended to assign responsibility for the issues or burdens confronting a particular area." [p.1]

"It is important to note the limitations of this version of CalEnviroScreen. The tool is not intended to be a substitute for focused risk assessment for a specific area or site. Additionally, the results generated by CalEnviroScreen are not intended to be used for California Environmental Quality Act (CEQA) purposes. As explained in this draft, the regulatory definition of 'cumulative impacts' contained in CEQA is substantially different than the definition of 'cumulative impacts' adopted by Cal/EPA and used to guide the development of this tool. Also,

this tool considers some social, health or economic factors that may not be relevant when doing an analysis under CEQA.
"Therefore, the information provided by this tool cannot be used as a substitute for an analysis of the cumulative impact of any specific project for which an environmental review is required by CEQA. Moreover, CalEnviroScreen assesses environmental factors and effects on a regional or communitywide basis and should not be used in lieu of performing an analysis of the potentially significant impacts of any specific project. Accordingly, a lead agency must determine independently whether a proposed project's impacts may be significant under CEQA based on the evidence before it, using its own discretion and judgment; the tool's results are not a substitute for this required analysis." [pp.2-3]

"CalEnviroScreen does not propose any new programs or regulatory requirements." [p.3]

*Cal/EPA and OEHHA report, California Communities Environmental Health Screening Tool, Version 1 (CalEnviroScreen 1.0), April 2013*

"CalEnviroScreen assesses environmental factors and effects on a regional or community-wide basis and cannot be used in lieu of performing an analysis of the potentially significant impacts of any project." [p. iii]

"It cannot predict or quantify specific health risk or effects associated with cumulative exposures identified for a given community or individual." [p. iv]