



SF Environment
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A Department of the City and County of San Francisco

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RE – Draft CalEnviroScreen (CES) v4.0.

The San Francisco Department of Environment (SF Environment) appreciates the opportunity to provide input on the Draft CalEnviroScreen (CES) v4.0. SF Environment's mission is to provide solutions that advance climate protection and enhance quality of life for all San Franciscans. We support policies that work to prevent conditions that cause negative health impact and exacerbate inequities regionally and within our City. We are committed to advocating for funding and resources for our most disadvantaged communities.

First and foremost, we want to applaud some of the new developments in the CES 4.0 version of the tool, specifically, the Children's Lead Risk from Housing. While CalEnviroScreen 4.0 strives to identify many disadvantaged communities throughout California, we believe there are changes that can be made to more accurately depict cumulative burdens affecting California communities and lead poisoning is one of them.

Based on our preliminary analysis on CES v4.0, we recommend the following issues be examined to best ensure that its methodology adequately identifies populations of concern:

1. Increase weighting of indicators of social and economic disadvantage relative to pollution burden. The formula for calculating the CES score should place greater emphasis on social and economic factors as they are most important in determining public health disadvantage. In San Francisco, even though 20 census tracts rank in top quartile in terms of poverty burden, only 12 census tracts fall within the 25% threshold for the overall CES score (Figure 1). Also, there are many census tracts in the Mission Neighborhood and Chinatown that suffer from environmental justice issues and are not included in CalEnviroScreen's definition of disadvantaged communities. These neighborhoods are impacted by both racial and economic inequality. Lastly, many low-income communities of color that have historically suffered economic neglect and disinvestment are also home to large unsheltered populations and various inequities, not captured in CES.

2. Pesticide indicator should be removed, or urban pesticide use should be included in the indicator's calculation. While we are impressed on the expansion of including 32 new pesticides, the decision to not include nonagricultural pesticide use is extremely limiting. At least 50% of all pesticides used in California are used in urban areas, yet CES only incorporates pesticide use data for rural/agricultural areas. Additionally, the urban pesticide use is only reported at the county level, not at the census tract level. Without granular geospatial pesticide use data, CES will not be able to provide a truly equitable accounting of impacts to both rural and urban communities (Figure 2 illustrates the rural bias in CES).
3. Removal or refinement of the PM2.5 indicator. San Francisco's biggest pollution burden is from traffic-related air pollution (specifically from PM 2.5). The mean annual concentration for all of the census tracts in San Francisco is approximately 8.6 and none of the measures exceed the 25% cut off point. This data is primarily based on one CARB station and is not representative of air quality in heavily trafficked parts of the City. We know PM2.5 in San Francisco is closely correlated with proximity to traffic volumes and proximity to freeways, but census values do not change based on proximity to heavily trafficked roadways. Rigorous modeling based on both traffic related and static sources of air pollution have been conducted by SFDPH and BAAQMD. These models show that significant areas in San Francisco have levels of air pollution that are hazardous to health, with PM2.5 concentrations ranging from 8 to over 18ug/m3 (Figure 3, 4, 5)
4. Four Census Tract under CalEnviroScreen v3.0 that were considered Disadvantaged Communities (top 25th percentile) now fall out of the State's Disadvantaged Communities definition in v4.0. This includes two census tracts in SOMA and two census tracts in the Tenderloin/Civic Center Neighborhoods (Figure 6).
5. There appears to be some drastic changes with specific data sets for the census tracks that were included in v3.0 and not in v4.0. These include:
 - a) The majority of the health indicators, specifically Asthma, Low Birth Weight, and Cardiovascular disease have unexpected changes. We have seen changes in the percentile difference change up to 89.72 in low birth weight, 55.00 in Cardiovascular disease and 15 in the Asthma indicator. Since CalEnviroScreen 4.0 used the ICD-10 and CalEnviroScreen 3.0 ICD-9, we are concerned this contributed to data issues between classifications under ICD-9 and ICD-10.
 - b) The numerous adjustments to data about permitted hazard waste facility locations were made and this appears to have impacted the scoring for all of the excluded census tracts in v4.0 with the difference in percentile ranging from 5.75 – 25.34. Additionally, we disagree with the change that added compliance history data as a component of permitted facility scoring. Adverse impacts of pollution on health may not only be

associated with the level of exposure, but also mediated by perception of the pollution and by top-down processing (e.g. beliefs of the exposure being hazardous and proximity).

6. Census track 06075077801 went from the 75-80% percentile to the 55-60%. Given the small geographic size of the census track and its vulnerability population characteristic, we are wondering if there was a spatial calculation error.
7. Significant Change in Diesel Census Tracts – CalEnviroScreen 3.0 had 186 census tracks above the 75% threshold and there are only 128 census tracks in CalEnviroScreen 4.0. The changes in the Diesel PM calculations should be investigated.
8. Environmental exposure indicators weighted based on the relative magnitudes of scientific association between exposure to pollutants and their related health effects. For example, exposure to pollutants like Diesel PM impact health more severely than pollutants like Ozone, but both are weighted equally by the model.
9. Pollution indicators should be weighted by population density to account for the magnitude of the population exposed. Most Californians live in urban areas, yet most of the land area that ranks high in CES 4.0 is in rural areas. Because of the smaller census tracts in urban areas, census tracts in these areas tend to be underrepresented in pollution burden rankings. Using population density or a population density weight could help eliminate this bias.
10. In lieu of providing differential weights for environmental exposure indicators, we suggest that the environmental exposure and effects indicators should be weighted equally. San Francisco census tracts are significantly impacted by environmental effects indicators, but they are given ½ the weight of the exposure indicators. There is no scientific evidence for this weighting and not weighting other variables such as diesel PM.
11. More research to the Cardiovascular Disease indicator. The indicator as proposed is age-adjusted and as such, it is an example of disproportionate burden, but not risk. If the purpose of the sensitive population indicators is to describe the communities most at risk for CVD/MI hospitalization, this indicator might be better represented by not being age-adjusted and with a longer average. The formation of a public health expert working group could further analyze this issue.

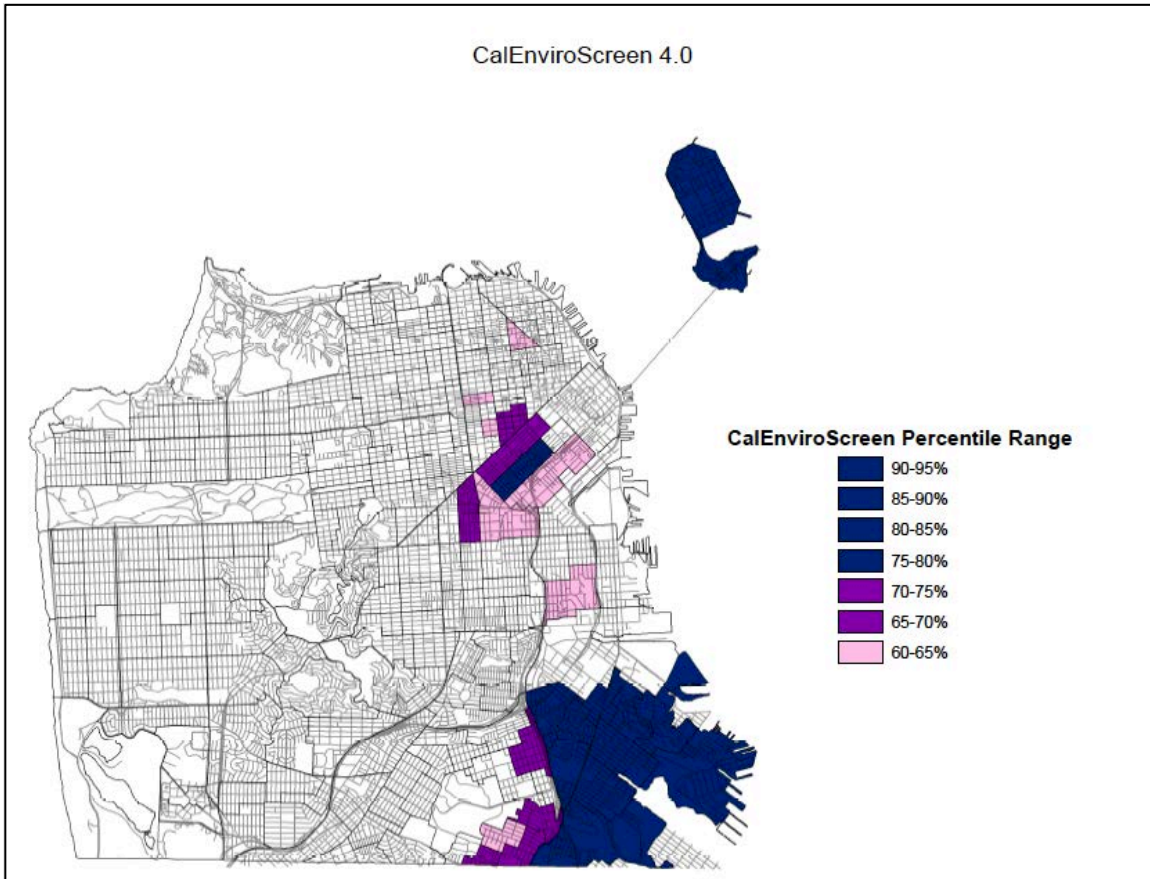


Figure 1 – San Francisco’s CalEnviroScreen 4.0 Census Tracts

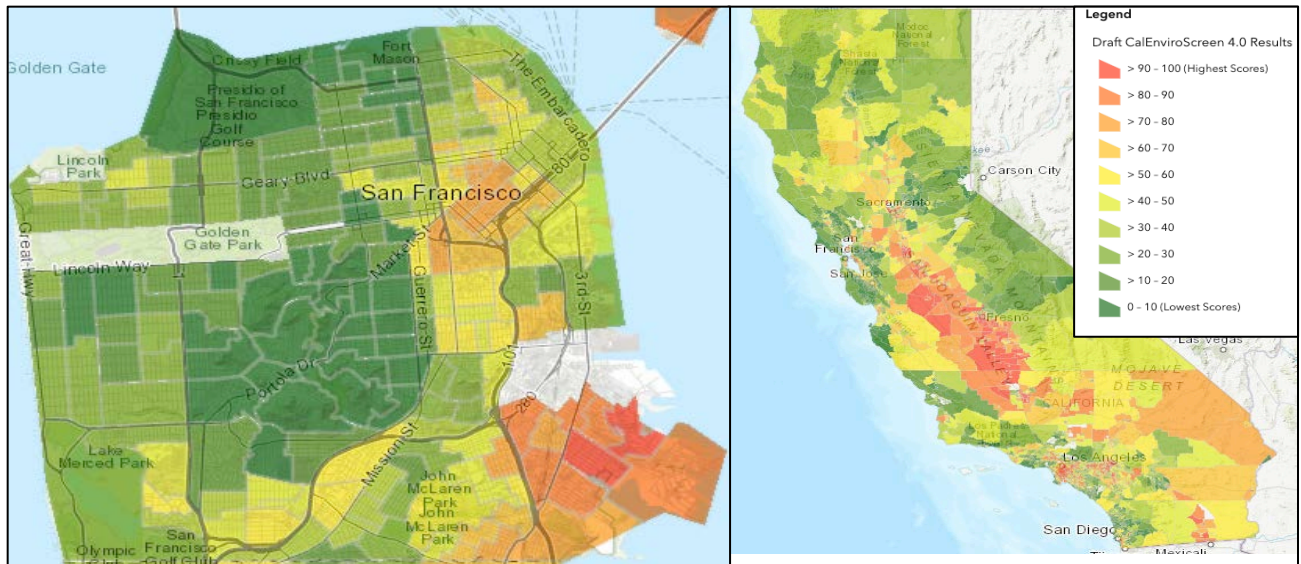


Figure 2 – Rural bias in CalEnviroScreen 4.0

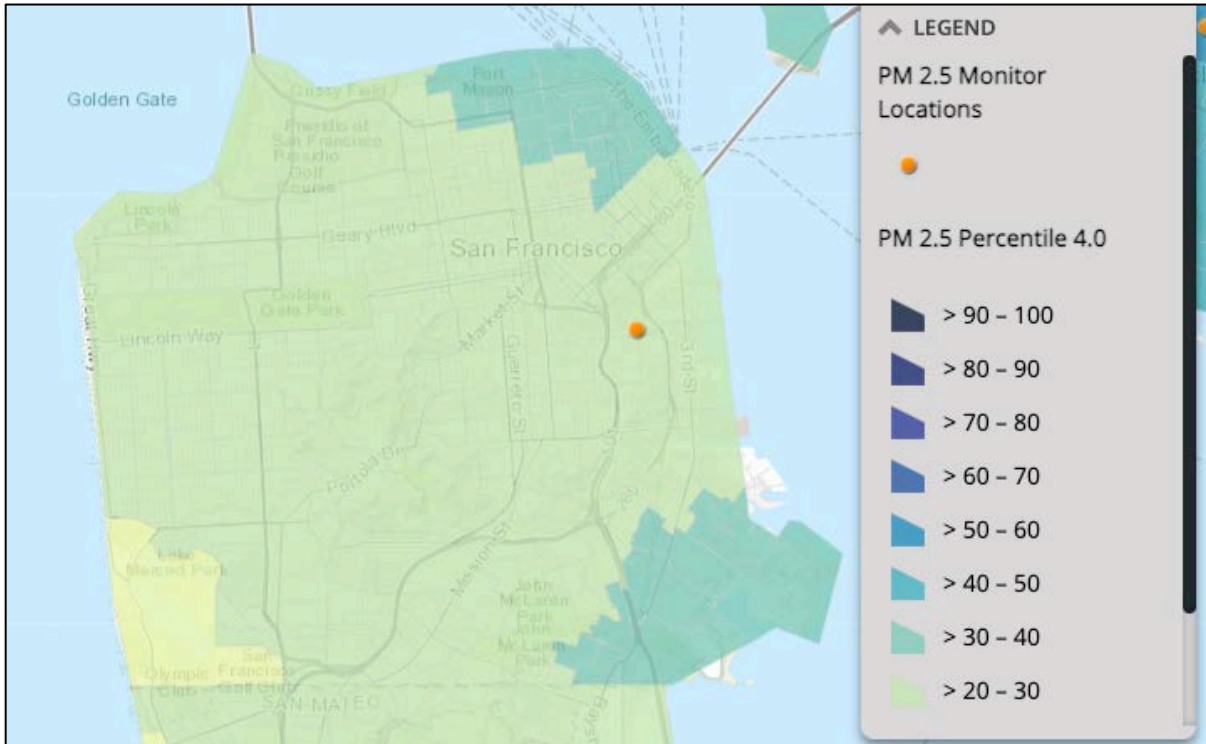


Figure 3 – CalEnviroScreen 4.0 PM 2.5 Map from https://experience.arcgis.com/experience/5764b91c4c8a461693487c17b8859976/page/page_0/?views=view_2 Actual data points range from 8.35 to 8.84 ug/m3

Bay Area Air Quality Management District
PM 2.5 Concentration from All Sources

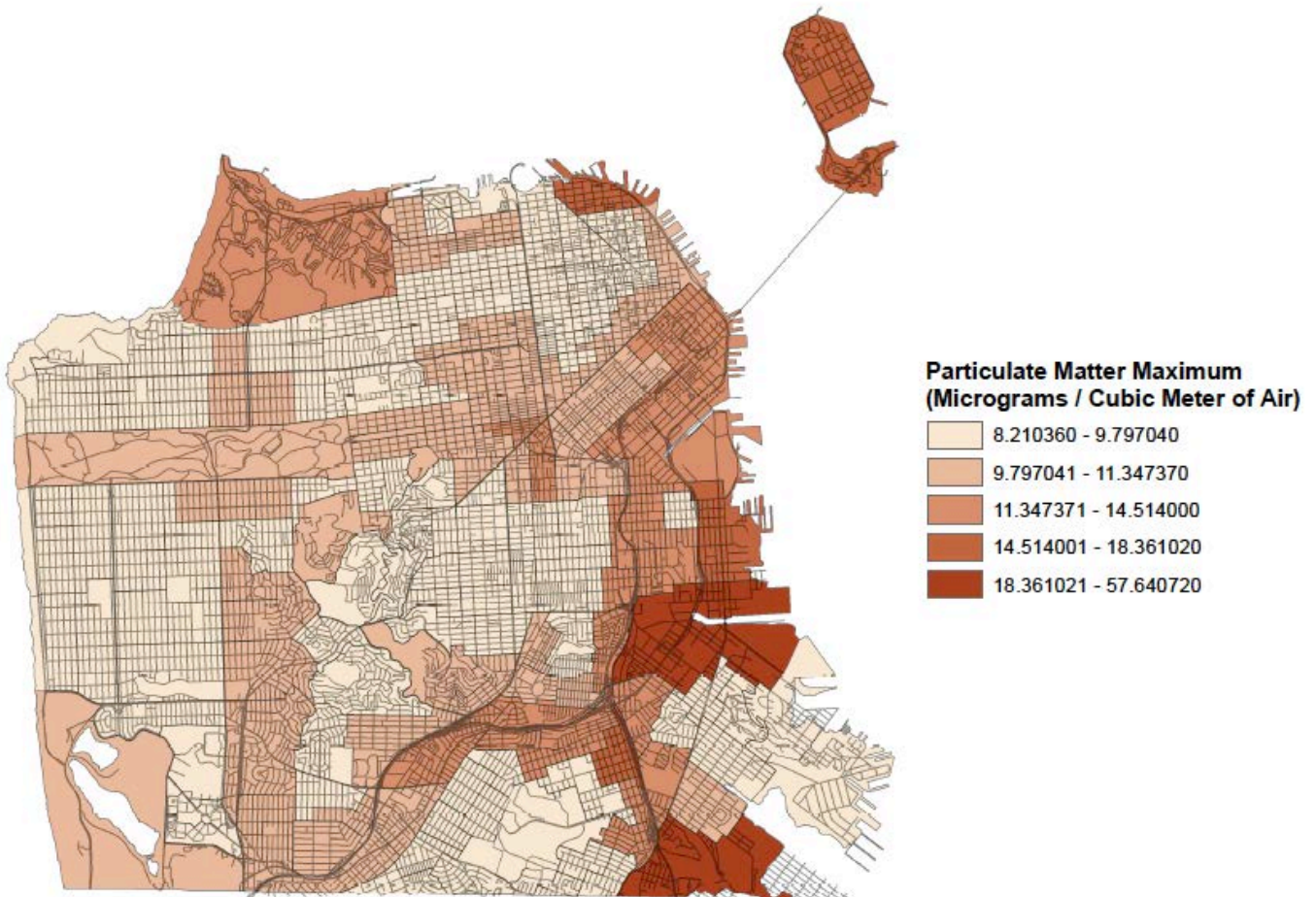


Figure 4 San Francisco Air Quality Map PM_{2.5}. Actual data points range from 8.21 to over 18.36 ug/m³ (Source BAAQMD)

Difference in PM.25 Counts Between
CalEnviroScreen 4.0 and
Bay Area Air Quality Management District Max PM

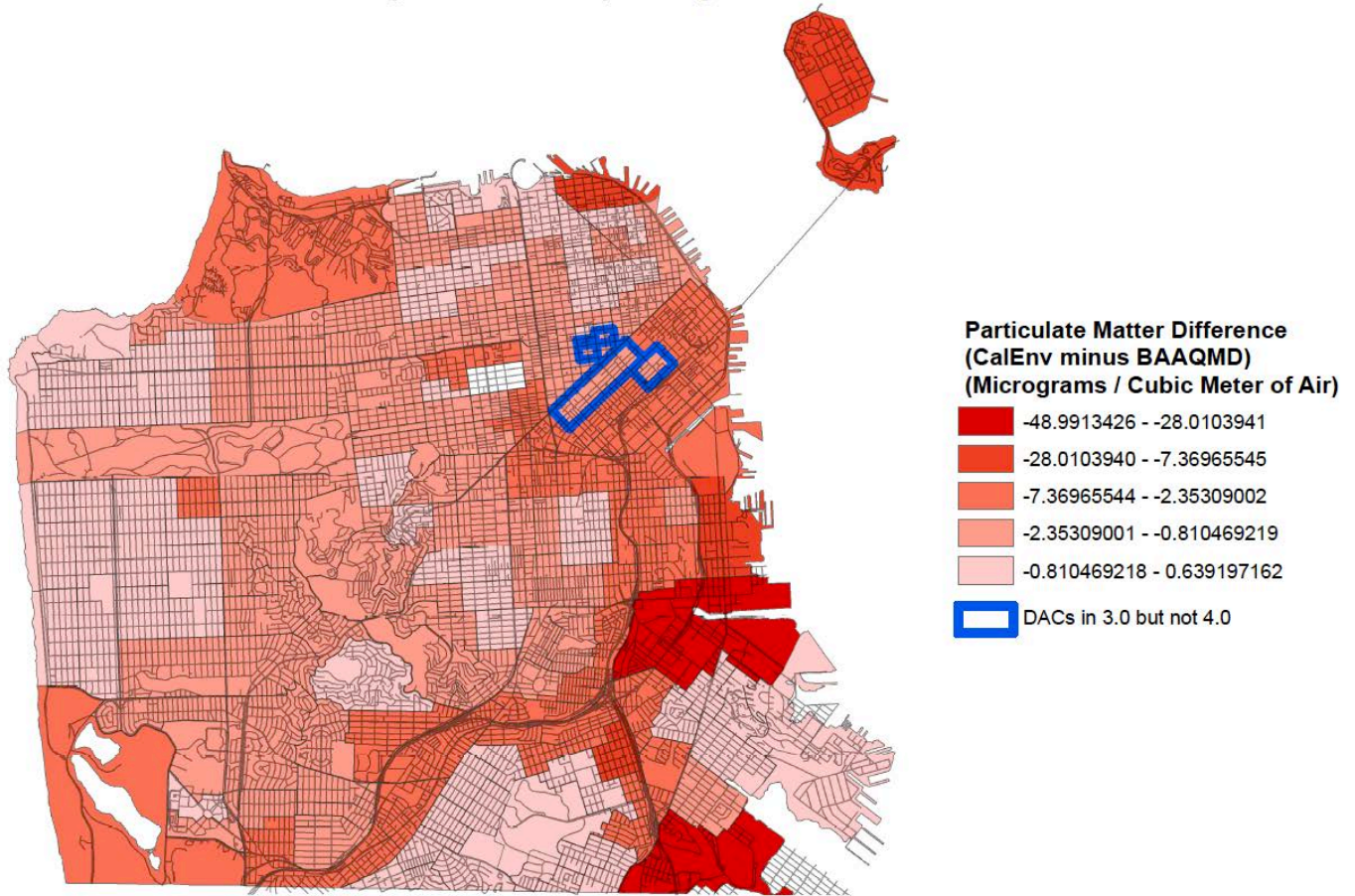


Figure 5 Comparison of San Francisco Air Quality Map from BAAQMD – PM_{2.5} Map and CalEnviroScreen

San Francisco Disadvantaged Communities (DAC) Based on CalEnviroScreen

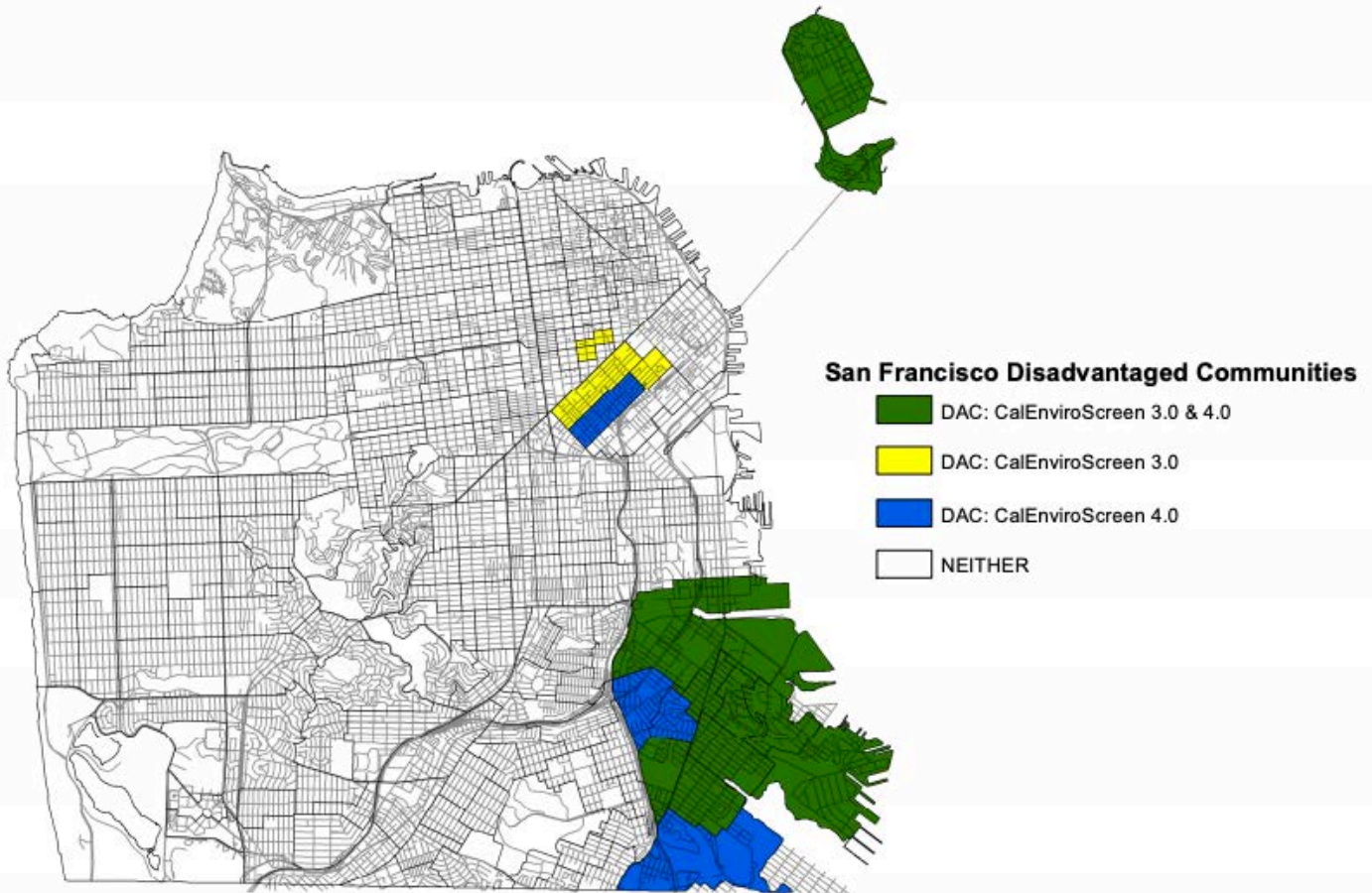


Figure 6 – Difference in CalEnviroScreen v3.0 and v4.0 in San Francisco

We appreciate the continued opportunity to contribute to the State’s process for identifying disadvantaged communities and look forward to participating in the on-going improvement process for this important tool.

Sincerely,

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