UC RIVERSIDE | UNIVERSITY OF CALIFORNIA School of Public Policy

Implementing SB 1000:
Policy Strategies for Local Governments

Fortino Morales III and **Michael Parmer**
Master of Public Policy Candidates

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Mentor: Ken Gutierrez - kenneth.gutierrez@ucr.edu
GIS Mentor: Prof. Sergio Rey - sergio.rey@ucr.edu

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Abstract

This paper looks at the City of Riverside's (City) previous General Plan update in 2007 to determine the extent that it addressed environmental justice (EJ). It then looks at the recent passage of Senate Bill 1000 which requires cities and counties that have a disadvantage community to address EJ, to make policy recommendations for the City of Riverside's upcoming General Plan update. It outlines the data and tools to identify disadvantaged communities that lie within the City's ward and neighborhood boundaries and identifies the suggested indicators using available data that can be analyzed by decision-makers, stakeholders, and community residents. It also promotes engaging and empowering the community in equitable participatory policy-making as a means to implement a comprehensive process to better address community-related EJ concerns via health impact assessments and develop policy-level solutions to improve quality of life for all who live, work, play, and learn in Riverside. Finally, it identifies a process to continue monitoring and evaluating progress while keeping the community engaged.

Abbreviations

AB	Assembly Bill
CalEPA	California Environmental Protection Agency
CES	CalEnviroScreen 3.0
DAC	Disadvantage Community
EJ	Environmental Justice
GIS	Geographical Information System
GP	General Plan
HIA	Health Impact Assessment
SB	Senate Bill
SB 1000	Senate Bill 1000

General Plan Overview

General Plans (also referred to as comprehensive or master plans) in California have been around since 1927 when the California Senate, upon giving local governments (cities and counties) the authorization to form planning commissions, wrote that it, "shall be the function and duty of the planning commission to make and adopt a master plan for the physical development of the municipality, or county, and of any land outside its boundaries which, in the commission's judgment, bears relation to the planning thereof." (Legislature of the State of California, 1927, p. 702) (Fulton & Shigley, 2012, p. 116) However, it was not until 1937 that cities and counties were required to adopt general plans. (This was later recodified in 1953 in Government Code §65000, et seq.) (Governor's Office of Planning and Research, 2003, p. 9) The 1937 legislation also marked California as the first state in the United States to require a planning mandate. (Bunnell, G & Jepson Jr., E, 2011, p. 341)

While general plans have evolved since 1927, they essentially perform the same function today as they did when they were first envisioned; creating a policy foundation and the necessary administrative regulations to see the plan implemented. (Fulton & Shigley, 2012, p. 115) More specifically, General Plans are a "forward-looking community document" that provides visionary guidance and context to future planning decisions, strategies, and development. (Dietrick & Ansolabehere, n.d.) General Plans have two main goals; provide a vision to direct the long-term development of municipalities and define policies to guide local development towards achieving that vision (Rudolf and Gradinaru, 2017; Norton, 2008; Randolph, 2004; Stevens, 2013). Other documents provide support and consistency (both internally and vertically) with the General Plan including, but not limited to, specific plans, standard zoning regulations and ordinances,

[subdivision and other] maps, project and permit approvals, development code amendments and updates, and development agreements.

Although local jurisdictions generally have freedom to develop their plans as they see best, California State mandates, under Government Code sections 65300 and 65302, certain requirements including establishing a vision, goals, and objectives within eight elements. These elements include land use (1953), circulation (1953), housing (1967), conservation (1970), open space (1970), noise (1971), safety and seismic safety (1971), and most recently with 2016's Senate Bill 1000 (SB 1000), environmental justice. (Governor's Office of Planning and Research, 2013 & 2017) Other requirements of General Plans include horizontal, vertical, and internal consistency. Local jurisdictions can also choose to develop additional non-mandatory elements to fit specific needs and objectives. If a local jurisdiction fails meet state requirements they may face suspension on all future developments.

Environmental Justice

Environmental justice per the Government Code §65040.12(e) (under Title 7 Planning and Land Use) is defined as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (§65040.12(e))

In 2001, in an effort to address environmental justice issues at the local level, the California Legislature (with Assembly Bill 1553 (Keeley)) required the Governor's Office of Planning and Research General Plan Guidelines to include environmental justice guidance and recommendations for cities and counties. (Evia, A., 2001 and the Governor's Office of Planning and Research, 2003, p. 25) AB 1553 gives local jurisdictions and community advocates a policy

framework to address local environmental justice concerns. (Evia, A. 2001) While these recommendations were optional for cities and counties to include, though it strongly recommended cities and counties integrate environmental justice elements into all mandatory elements of the general plan, it was not until 2016 when this became a mandatory standalone requirement and/or element.

In September 2016, Senate Bill (SB) 1000 (Leyva) was passed by the California legislature, amending Chapter 587, Section 65302 of the Government Code relating to land use. Broadly speaking, SB 1000 requires cities and counties that have a disadvantaged community on or after January 1, 2018, and "upon the adoption or next revision of two or more elements concurrently," to either include an environmental justice element into their general plans or as a framework that integrates [environmental justice] goals, policies, and objectives throughout the entire document. (Governor's Office of Planning and Research, 2017, pp. 164-165) There are two designations in SB 1000; disadvantaged communities and low-income areas.

The California Environmental Protection Agency, per Section 39711 of the Health and Safety Code, defines disadvantaged communities "based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:

> "(1) Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.
>
> (2) Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment."

Furthermore, low-income areas, defined by Section 50093 of the Health and Safety Code, is defined as "an area with household incomes at or below 80 percent of the statewide median income or with household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits." This definition and emphasis is important as research suggests that low-income, disadvantaged communities are disproportionately affected by health disparities, including their impacts borne from the built environment. (Srinivasan, O'Fallon, & Dearry, 2003, p. 1447)

The environmental justice element requires cities and counties to look at strategies, policies, and objectives that reduce public health risks, particularly within disadvantaged communities, including, but not limited to, pollution exposure and air quality, public facilities, food access, safe and sanitary homes, physical activity, and improvements and programs that address the needs of disadvantaged communities. SB 1000 encourages cities and counties to address this through the promotion of civil engagement in the public decision-making process. The table below shows the relationships between environmental justice and social equity and the mandatory elements in general plans. Social equity is an important element to consider when addressing environmental justice issues as improving EJ advances social equity.

Environmental Justice and Social Equity in General Plan Elements

Topics/ Elements	Land Use	Circulation	Housing	Conservation	Open Space	Noise	Safety	EJ
Environmental Justice	**X**	**X**	**O**				**X**	**O**
Social Equity	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

O Identified in statute
X Closely related to statutory requirements

Source: Governor's Office of Planning and Research, State of California General Plan Guidelines (2017, p. 40)

Previous Efforts by the City of Riverside

The last General Plan update for the City of Riverside occurred in 2007 and outlined the City's vision for the next 20 years. Development of the plan began in 2002, was comprehensive, and included extensive community outreach and participation that engaged five committees (the Citizens' Advisory Committee, Technical Advisory Committee, Education Subcommittee, the Arts and Culture Subcommittee, and the Magnolia/Market Subcommittee), thirteen Topic Group meetings, two Citizens' Congresses, eighteen Planning Commission Hearings, and six City Council Meetings. These meetings and efforts resulted in engaging over 4,300 residents and generating over 10,000 comments, ideas, and suggestions that shaped and informed the General Plan (General Plan 2025, p. 3-4)

The City went above and beyond the State required mandates, adding elements that addressed arts and culture, education, air quality, parks and recreation, and historic preservation. Of these elements, the Air Quality Element is particularly intriguing, given that the City of Riverside's General Plan supersedes SB 1000's environmental justice mandate by ten years (SB 1000 was adopted in 2016). (General Plan 2025, page 3) Air Quality is embedded as an underpinning framework throughout many sections of General Plan and identifies seven objectives: 1) adopt land use policies, improve job-housing balance, reduce vehicle miles traveled, and improve traffic flow; 2) reduce air pollution from mobile sources; 3) reduce and prevent pollution from stationary sources; 4) reduce particulate matter; 5) increase energy efficiency and conservation; 6) develop public education program(s); and 7) support multi-jurisdictional cooperation and regional approaches to pollution reduction efforts. (General Plan 2025, p. AQ 26-AQ 42)

While other elements in Riverside's General Plan indirectly addresses environmental justice, only the air quality element directly addresses it. Environmental justice policies are included under Objective AQ-1 regarding land use strategies for air quality. The two policies are as follows:

> **Policy AQ-1.1:** Ensure that all land use decisions, including enforcement actions, are made in an equitable fashion to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status or geographic location, from the health effects of air pollution.
>
> **Policy AQ-1.2:** Consider potential environmental justice issues in reviewing impacts (including cumulative impacts for each project proposed).

SB 1000 provides the City of Riverside with an opportunity to build on previous efforts of the last General Plan update from 2007, enhancing the City's ability to directly address EJ within disadvantaged communities as well as citywide, embedding EJ into the General Plan's framework, infusing EJ into all strategies, policies, and objectives, reducing public health risks, and improving overall health and social equity outcomes.

This Capstone is meant to be a guide for the City of Riverside; however, many of the recommendations, tools, and approaches can be transferred and applied to other cities and counties. It outlines the data and tools to identify disadvantaged communities that lie within the City's ward and neighborhood boundaries and identifies the suggested indicators using available data that can be analyzed by decision-makers, stakeholders, and community residents. It also promotes engaging and empowering the community in equitable participatory policy-making as

a means to implement a comprehensive process to better address community-related EJ concerns via health impact assessments and develop policy-level solutions to improve quality of life for all who live, work, play, and learn in Riverside. Finally, it identifies a process to continue monitoring and evaluating progress while keeping the community engaged.

Disadvantaged Communities (DAC)

SB 1000 focus is on the communities that are disproportionately negatively affected by environmental impacts. Thus, an integral process in developing the EJ Element for the General Plan is to identify the Disadvantaged Communities (DAC) as outlined within the legislation.

In any context it is important for state legislators to be able to accurately and methodologically define DAC's. This allows for the effective evaluation of policies from choosing which communities to focus on, to measuring the overall effectiveness of efforts in an area. Below we will examine the three leading EJ screening and mapping tools.

Existing EJ Screening Tools

There are currently 3 main EJ screening tools used, EJ SCREEN, EJ Atlas, and CalEnvironScreen, we will examine each of them briefly below and provide justification for our choice in which to utilize for this study.

EJ SCREEN

This tool has been developed by the United States Environmental Protection Agency (EPA) after President Clinton signed Executive Order 12898, the "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" in 1994, which

mandated that all federal agencies begin to include environmental justice analysis in their reporting (US EPA, 2014b).

With the development of computer technologies, and in particular GIS mapping software, there was a push to develop a tool for aggregating and identifying environmental impacts nationwide. They project development started in 2010, it was used internally in 2012 and then was subsequently peer-reviewed in 2014 (US EPA, 2014a).

The tool currently brings together 11 different environmental effects and 6 demographic characteristics to that are combined with the 11 environmental metrics to create 11 EJ Indexes that make up the core of the data set within EJ SCREEN. The 11 EJ Indexes are:

1. National Scale Air Toxics Assessment Air Toxics Cancer Risk
2. National Scale Air Toxics Assessment Respiratory Hazard Index
3. National Scale Air Toxics Assessment Diesel PM (DPM)
4. Particulate Matter (PM2.5)
5. Ozone
6. Lead Paint Indicator
7. Traffic Proximity and Volume
8. Proximity to Risk Management Plan Sites
9. Proximity to Treatment Storage and Disposal Facilities
10. Proximity to National Priorities List Sites
11. Proximity to Major Direct Water Dischargers

This nationwide mapping tool that makes comparisons across states and on the federal level easy and accessible. Given its nationwide focus EJ SCREEN uses a limited number of indexes

as compared to CalEnviroScreen, 11 versus 20, respectively. The fact that the mapping system is peer reviewed and updated on a yearly basis means that the quality of the data is robust. The tradeoff of a more robust set of indexes is matched by the thoroughness of the smaller set of indexes that are used.

EJ Atlas

This tool was developed by the Institute of Environmental Science and Technology (ICTA) at the Universitat Autonoma de Barcelona. Its purpose is a little different than the other two tools outlined here, it maps social conflict around environmental issues versus a set of indexes or measurable metrics. There is a focus on 10 different topics outlined below:

1. Nuclear
2. Mineral Ores and Building Extractions
3. Waste Management
4. Biomass and Land Conflicts
5. Fossil Fuels and Climate Justice/Energy
6. Water Management
7. Infrastructure and Built Environment
8. Tourism Recreation
9. Biodiversity Conservation Conflicts
10. Industrial and Utilities Conflicts

There are current efforts to add more metrics and geodata that is compiled from different international bodies that include socioeconomic factors, land use data, as well as, biophysical

parameters (EJOLT, n.d.). They stress that their maps are developed in support of current and ongoing environmental conflicts and campaigns.

While there are important opportunities to use EJ Atlas, it seems to be focused on more acute campaigns and situations rather than standardized metrics that are comparable across communities. There are important opportunities as community capacity is built and campaigns are formed around particular issues to use EJ Atlas for consolidating data and documentation of the effort. For our uses of incorporating EJ metrics into an EJ Element development in city General Plans, it may not be the right fit at this point.

CalEnviroScreen (CES)

The State of California commissioned the creation of the first CalEnviroScreen and it was released in 2012. California's Environmental Protection Agency (CalEPA) as part of its environmental justice program tasked the Office of Environmental Health Hazard Assessment (OEHHA) with its creation. This screening tool uses Geographic Information Systems (GIS) mapping tool to evaluate communities and their pollution burden along with their socioeconomic factors, health conditions, and environmental conditions. The third version of CES combines 20 different indicators in each of these sections with the unit of measure being census tracts. All 20 indicators are show below:

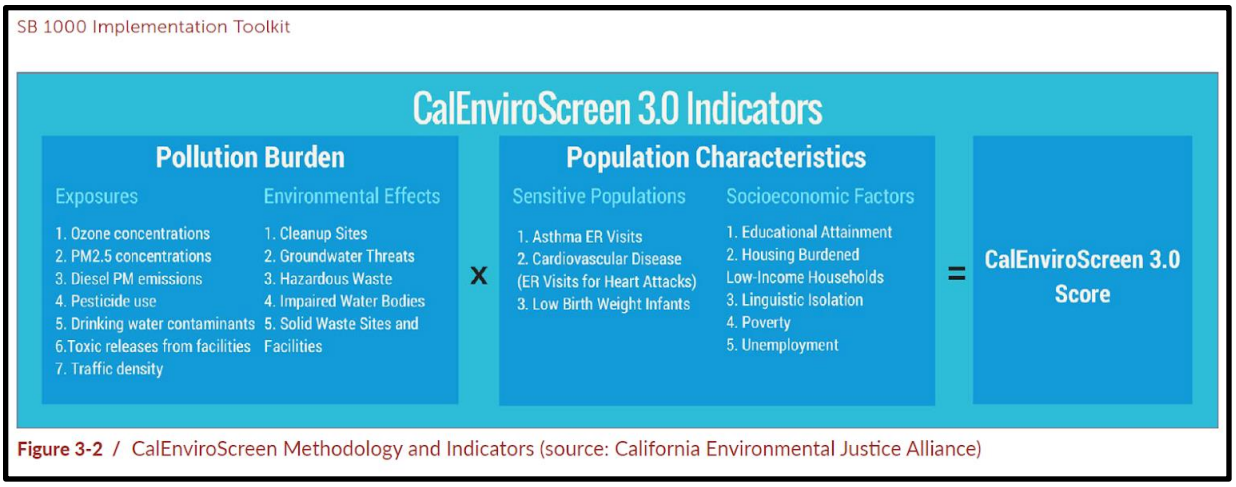


Figure 3-2 / CalEnviroScreen Methodology and Indicators (source: California Environmental Justice Alliance)

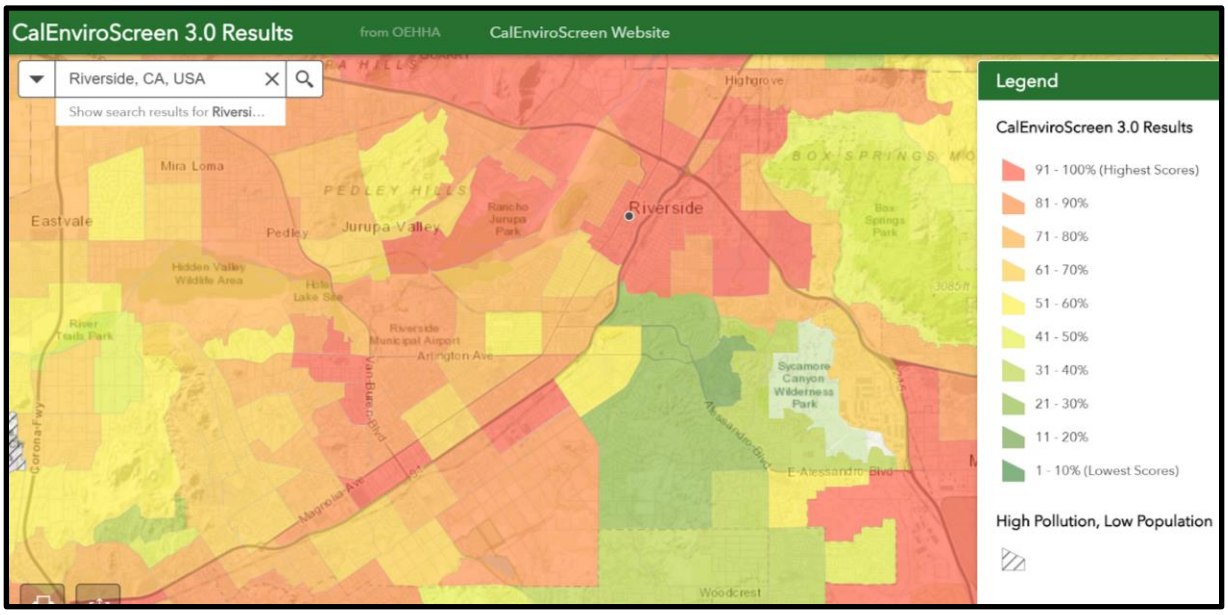
(Vanderwarker et al., 2017)

The indicators are broken down into two main categories, Pollution Burden and Population Characteristics. This is similar to EJ SCREEN which combines demographic data and environmental metrics. Unlike EJ SCREEN, CES breaks it down to another level of categorization. Within Pollution Burden there are 12 indicators broken into two groupings, Exposures and Environmental Effects. Within Population Characteristics there are 8 indicators and they are split between Sensitive Populations and Socioeconomic Factors. Each one of the indicators is made up of a variety of different verifiable measurements. They are then multiplied to produce a single total CES Score that can be compared to other census tracts using a reference census tract in which to base all others. The sheer breadth of the indicators and data utilized to create the CES score makes it the best fit for the purposes of this study. This tool was developed specifically for the State of California, the EJ SCREEN tool was developed for the nation, and EJ Atlas covers international conflicts and campaigns.

CalEnviroScreen Data Set

The data set that we used was from CalEPA which compiles the CES GIS shapefiles and its attribute data, all of which is made publicly available by the on the CES website. This includes the data set for all 20 indicators for all for 8035 census tracts within California. We used QGIS to find the census tracts that intersected or were within the city limits narrowing the data set to 87 census tracts.

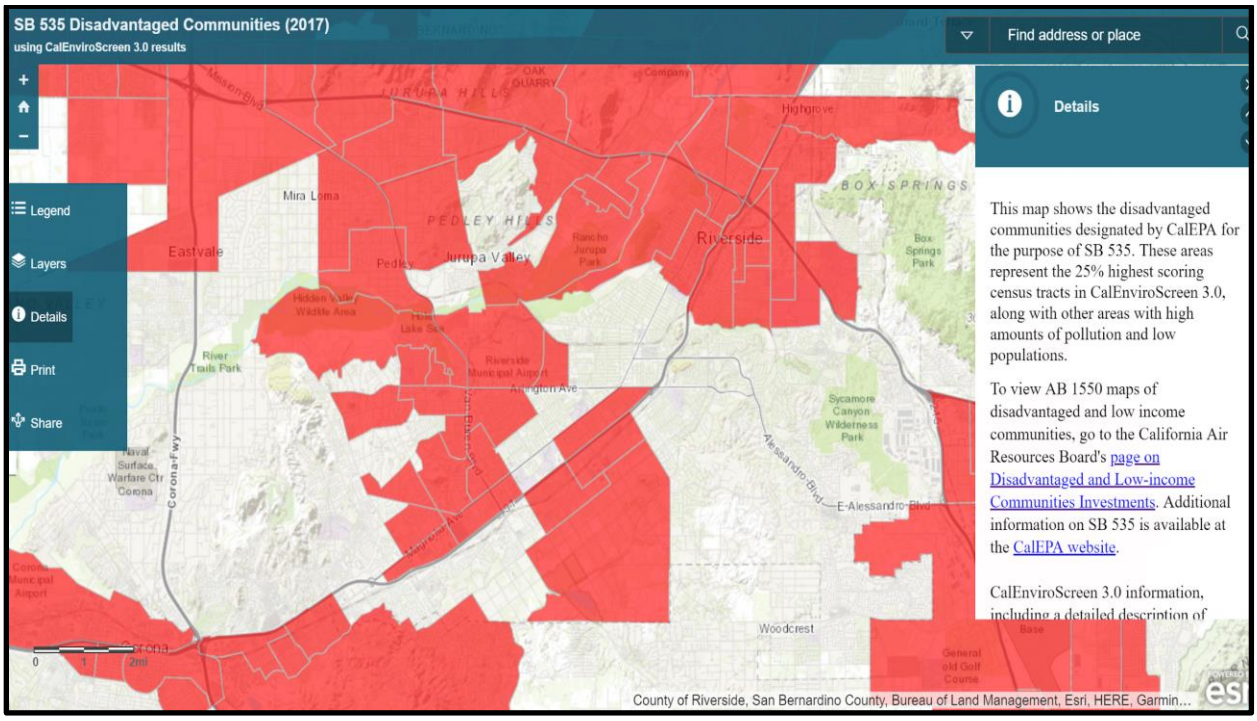
The figure below is the GIS output for the CES 3.0 Total Score for the area that covers the City of Riverside, the legend breaks down the percentages of the census tracts, with a scale of red to green with red signifying a worse CES score, or a higher level of environmental injustices and a green census tract signifying less environmental injustice. In addition to the work that has gone into creating the CES map there have been two subsequent bills that have passed in the state legislature that build on the CES maps and begin to focus in on the EJ communities as well as tie funding streams to them.



("CalEnviroScreen 3.0 Map Results," 2018)

SB 535 (de Leon, 2012)

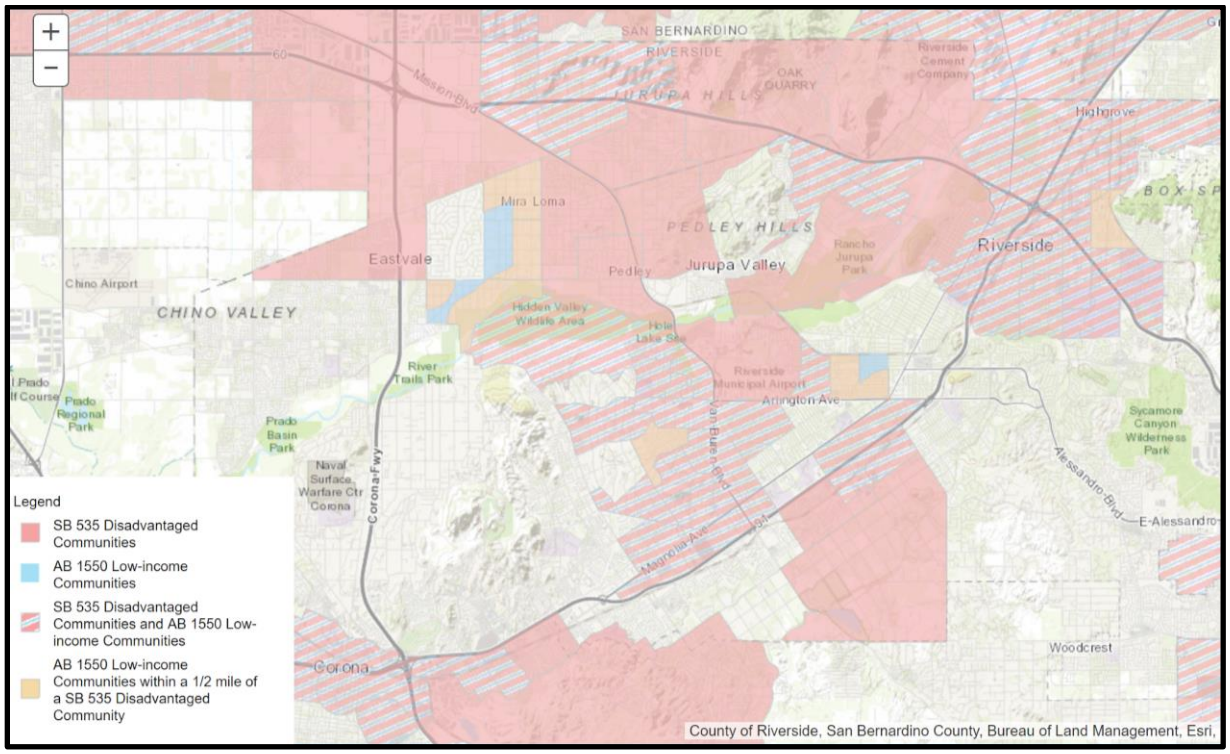
In 2012, SB 535 (de Leon) was passed, which mandated that the state's Cap and Trade program allocate no less than 10% of the Greenhouse Gas Reduction Funds (GGRF) go to communities that are classified as Disadvantaged Community Designation (DCD). The designation is established and built on the CalEnviroScreen 3.0 screening tool, were the top 25% highest scoring census tracts are plotted to create a new map. These are the communities that are eligible to meet the DCD for 10% of the GGRF funds, currently up to 25% with the passage of AB 1550.



("SB 535 Disadvantaged Communities (2017)," 2017)

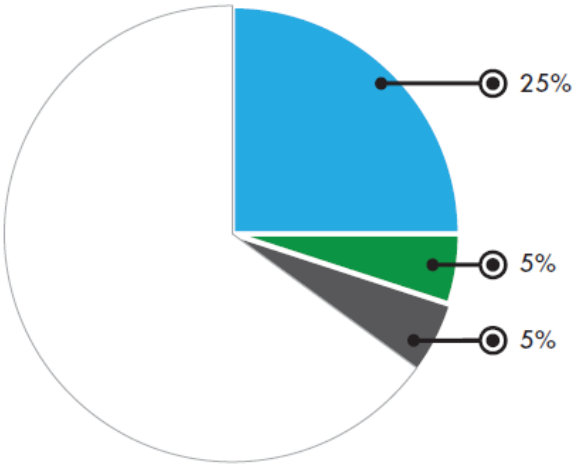
AB 1550 (Gomez, 2016)

Further building on the efforts of SB 535, AB 1550 incorporates low-income communities as an overlay of eligibility for GGRF funds. It also increased the amount dedicated towards DCD's from 10% to 25%.



("AB 1550: California Greenhouse Gas Reduction Fund Project Map–BETA," 2018)

These two pieces of legislation have ensured that funding will go directly towards addressing EJ issues in DAC's using the GGRF funds, the designated funding allotments is illustrated below:



A minimum of 25 percent of the proceeds be invested in projects that are located within and benefiting individuals living in disadvantaged communities;

An additional minimum of 5 percent be invested in projects that are located within and benefiting individuals living in low-income communities or benefiting low-income households statewide; and

An additional minimum of 5 percent that are located within and benefiting individuals living in low-income communities, or benefiting low-income households, that are within a ½ mile of a disadvantaged community.

("Disadvantaged and Low-income Communities Investments: Senate Bill 535 and Assembly Bill 1550 Implementation," 2017)

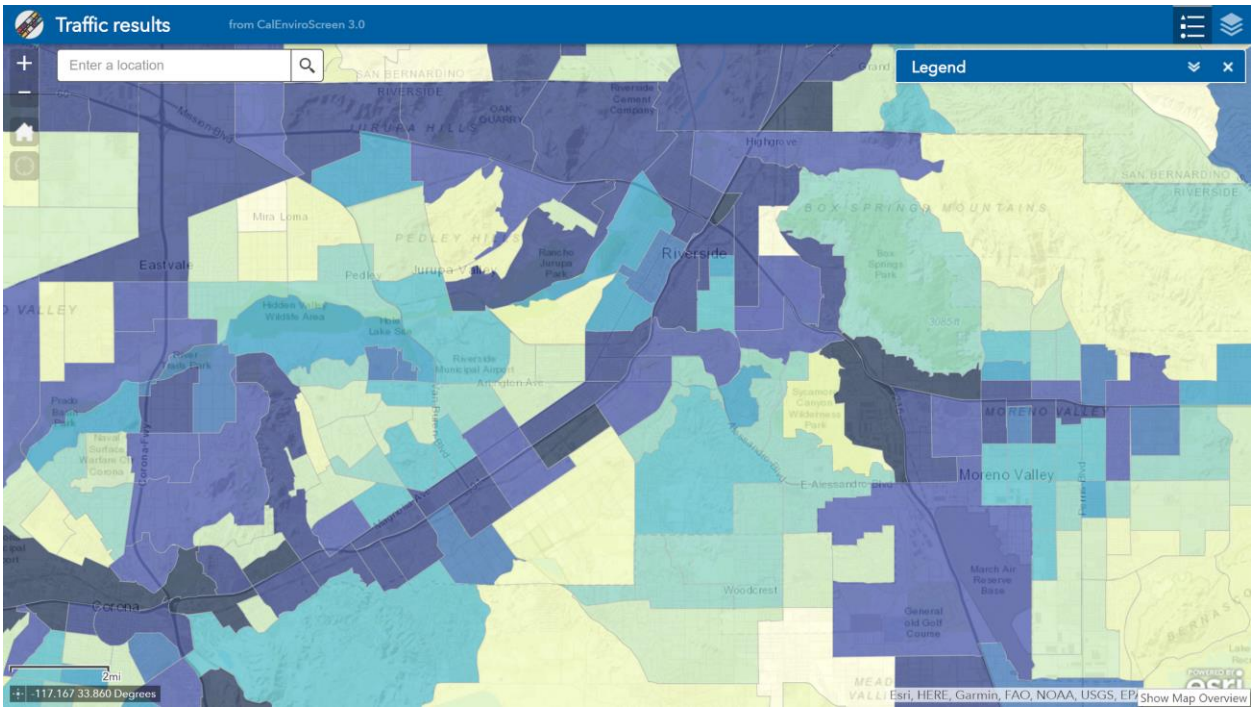
Thus, utilizing the CES data set and map will be critical for cities wishing to take advantage of the funding opportunities within the GGRF fund. Integral to the data set and map themselves are the indicators and metrics that make up the CES Scores, we explore those next.

Indicators

Within each of the indicators there are sets of metrics, data sources, rationales and methods for developing the scoring mechanism. Below we explore the 4 indicators that we have chosen as the case studies for showcasing the GIS mapping tools capabilities. We chose one indicator from each of the four categories that make up the CES Score as representative indicators, their selection is not meant to indicate any prioritization.

Traffic Density

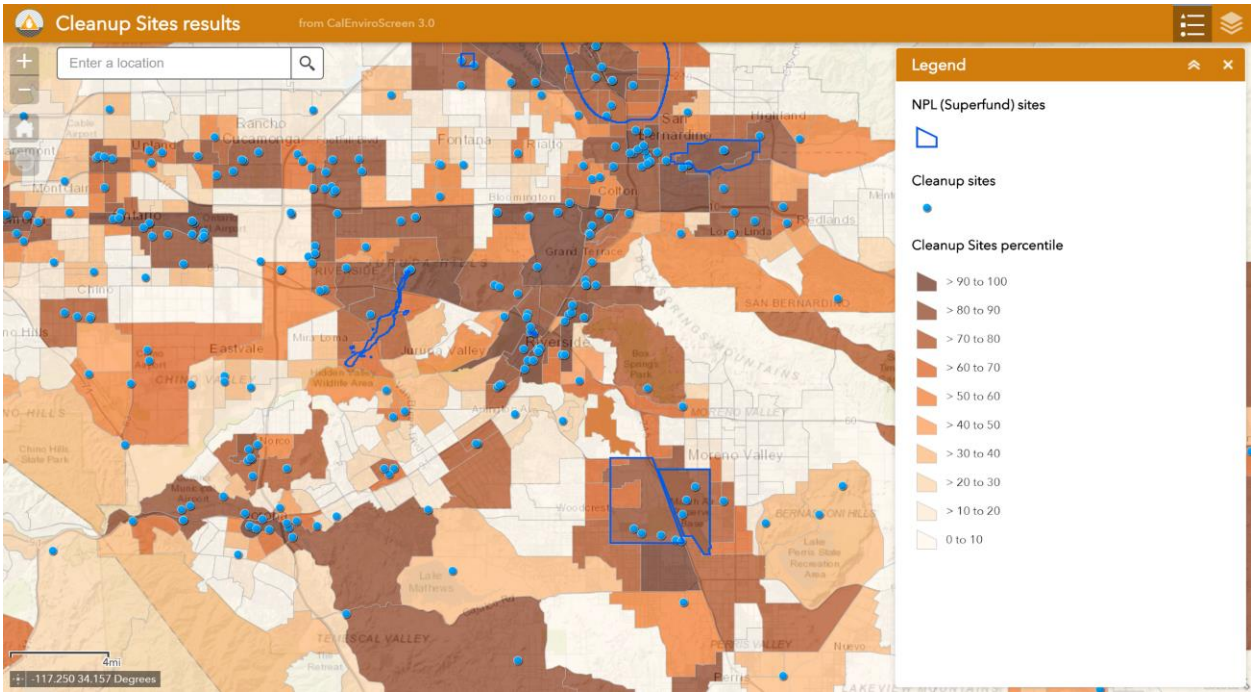
The Traffic Density Indicator is defined as the, “Sum of traffic volumes adjusted by road segment length divided by total road length within 150 meters of the census tract boundary”(Rodriguez et al., 2017, p. 59). This is using 2013 data or newer data if it is available. The data source for this indicator comes from the California Environmental Health Tracking Program (CEHTP), US Department of Transportation, US Customs and Border Protection, and the San Diego Association of Governments (SANDAG). The rationale is that communities that are low income and that people of color were more likely to live in these areas and to be exposed to the environmental dangers associated with traffic density(Rodriguez et al., 2017, p. 60). Below is a CES map of just the traffic indicator results by census tract, where we see a pattern of the census tracts that are near the freeway corridors having higher traffic density scores, which we would expect:



(“Traffic results,” 2018)

Cleanup Sites

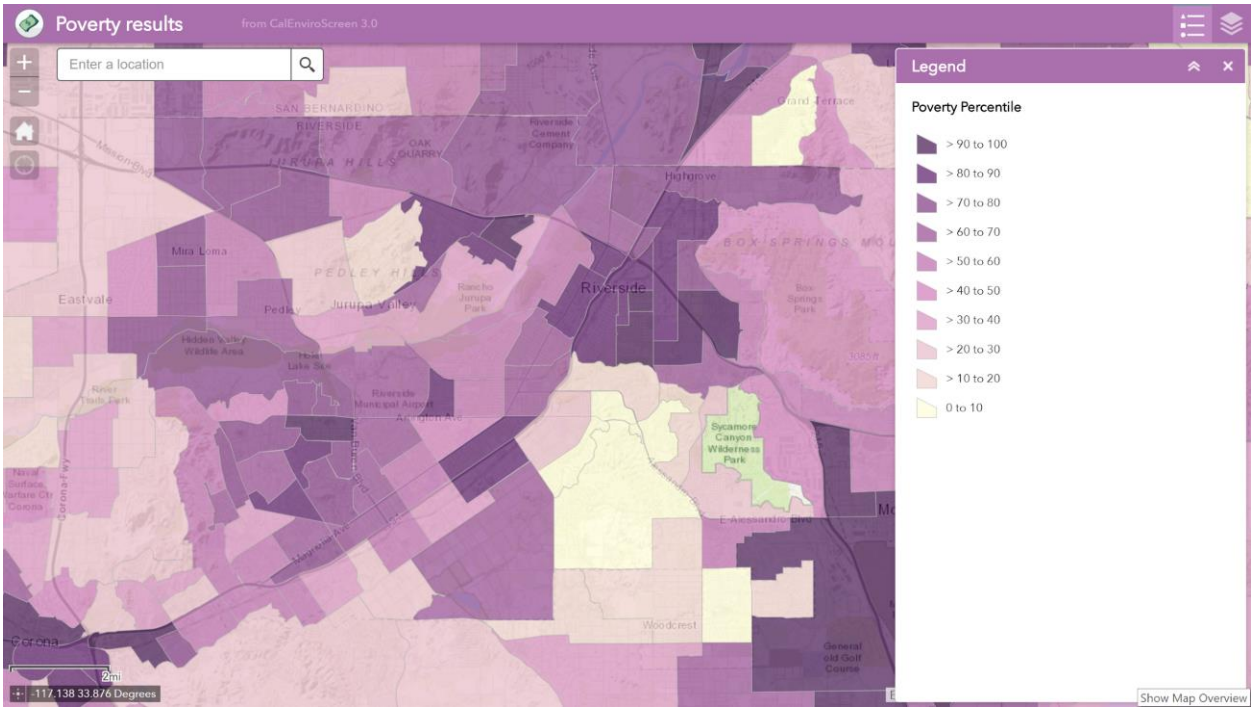
The Cleanup Sites indicator is defined as the, "Sum of weighted sites within each census tract" using data from December 2016 (Rodriguez et al., 2017, p. 66). The main data source that was used for this indicator was the EnviroStor Cleanup Sites Database maintained by the Department of Toxic Substance Control (DTSC). This database includes Federal Superfund sites, State Response, Corrective Action, School Cleanup, Voluntary Cleanup, Tiered Permit, Evaluation, Historical and Military Evaluation sites (Department of Toxic Substances Control, 2018). This broad base of data information is important in determining and weighting the different sites, as each site is unique in its type of contamination and the current status, an issue that was addressed in the CES methodology (Rodriguez et al., 2017, p. 67). Below is the CES map showing the results of the Cleanup sites with the blue dots being the cleanup sites and the blue boundaries being Superfund sites, each census tract is then weighted on its proximity and the intensity of the cleanup site:



("Cleanup Sites results," 2018)

Poverty

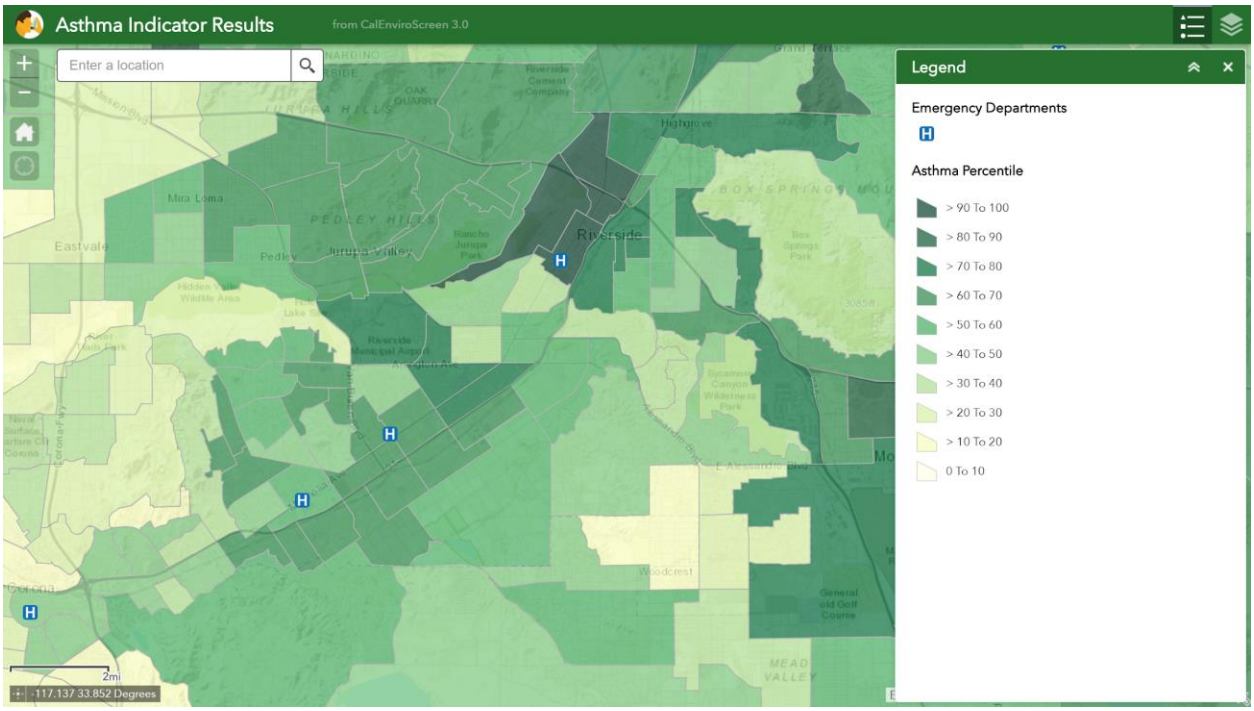
The Poverty indicator is defined as the, "Percent of the population living below two times the federal poverty level" using a 5-year estimate from 2011-2015 (Rodriguez et al., 2017, p. 137). The data source used for this is the American Community Survey conducted by the US Census Bureau on a yearly basis. The metric of using two times the federal poverty line was used due to the higher cost of living in the State of California, along with accounting for the unchanged poverty thresholds since the 1980's (CalEPA, 2015b). This indicator was used in part due to the research that has shown that income levels can determine exposure to certain environmental impacts and well as other social determinants of health (Rodriguez et al., 2017, p. 138). Below is the CES map showing the latest results for those communities based on census tract:



("Poverty results," 2018)

Asthma

The Asthma indicator is defined as, “Spatially modeled, age-adjusted rate of emergency department (ED) visits for asthma per 10,000 (averaged over 2011-2013)” (Rodriguez et al., 2017, p. 106). The data for this indicator was gathered from the California Office of Statewide Health Planning and Development (OSHPD), the California Environmental Health Tracking Program (CEHTP), and the California Department of Public Health. There is discussion about the ED visits may not be able to capture all asthma related issues, but it is reasonably measurable (CalEPA, 2015a). While the effects of asthma can be reduced with preventative care, those that are not able to access that type of care will be at more risk of ED visits (Rodriguez et al., 2017, p. 107). Below is the CES output map for the Asthma indicator, which includes the overall indicator score categorized by percentile range as well as indicating the ED sites with a blue ‘H’ icon:



(“Asthma Indicator Results,” 2018)

Census Tracts to Wards

While census tract data is helpful for federal, state, and local agencies, most residents will have trouble identifying their corresponding census tract. As one of the goals of SB 1000 is increased community engagement with those that are adversely affected, it makes sense to aggregate the census tract data into Wards. Arranging the data into Wards delineates the data along the lines of how the political power of the city is divided. This way the representatives have a deeper understanding of the environmental justice effects that their particular constituents are facing and can work with them to craft targeted policy accordingly.

Importing the CES shapefiles we are able to see that there are 87 census tracts that are either within or intersect with the City of Riverside boundaries. This incongruence of boundaries creates an issue of incorporating the CES data from those census tracts that are only partially within the city boundaries. This issue also needs to be addressed as we move to the next level of granularity, Ward boundaries, as there are census tracts that cross one or more Ward boundaries. The process that we will employ to aggregate 87 census tracts and their associated data into 7 different wards will be Weighted Spatial Interpolation.

Weighted Spatial Interpolation

Intensive Variables

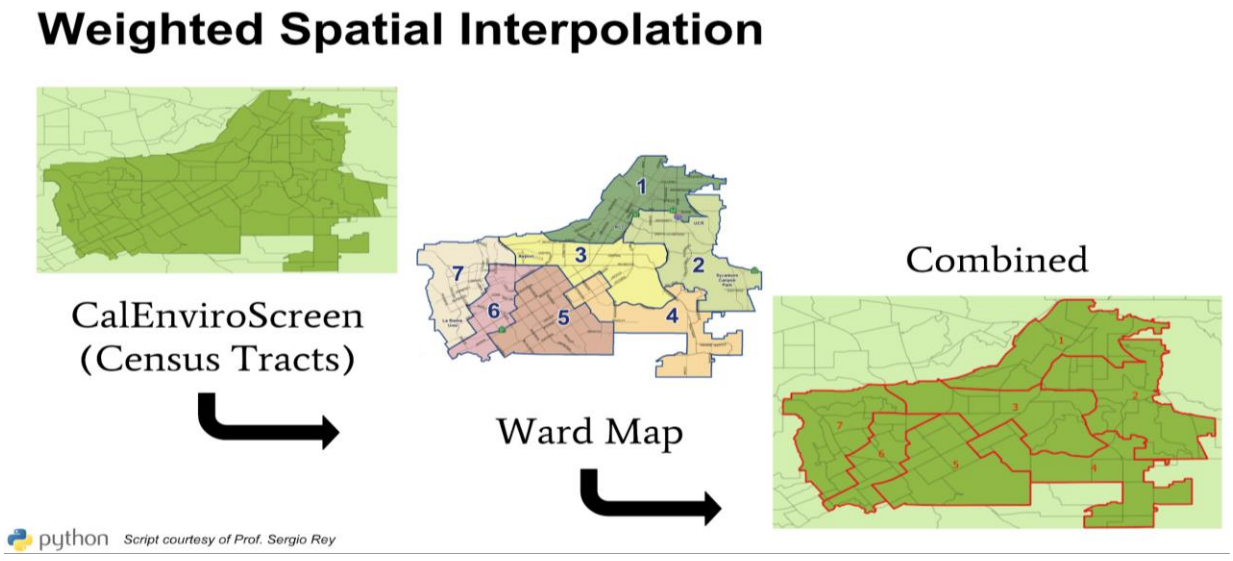
The first step in aggregating the data comes in correctly categorizing the variables between intensive and extensive variables. Intensive variables are those that are rates or percentages rather than an integer, or straight count, which are referred to as Extensive variables. In the case of CES data, every indicator is an index made up of other metrics, making each of the

20 indicators within the shapefile intensive variables. For these variables we use the formula below:

$$p_C = \frac{|A''|}{|C|} p_A + \frac{|B''|}{|C|} P_B$$

In the equation above Pc is the new aggregate value of the target polygon C, which in our case is the Ward boundary. The values, or attributes, that are tied to the source polygons, census tracts, are represented as Pa and Pb. A and B are the source polygons, or census tracts, and A and B prime are the areas that intersect with the new polygon C (ward boundary).

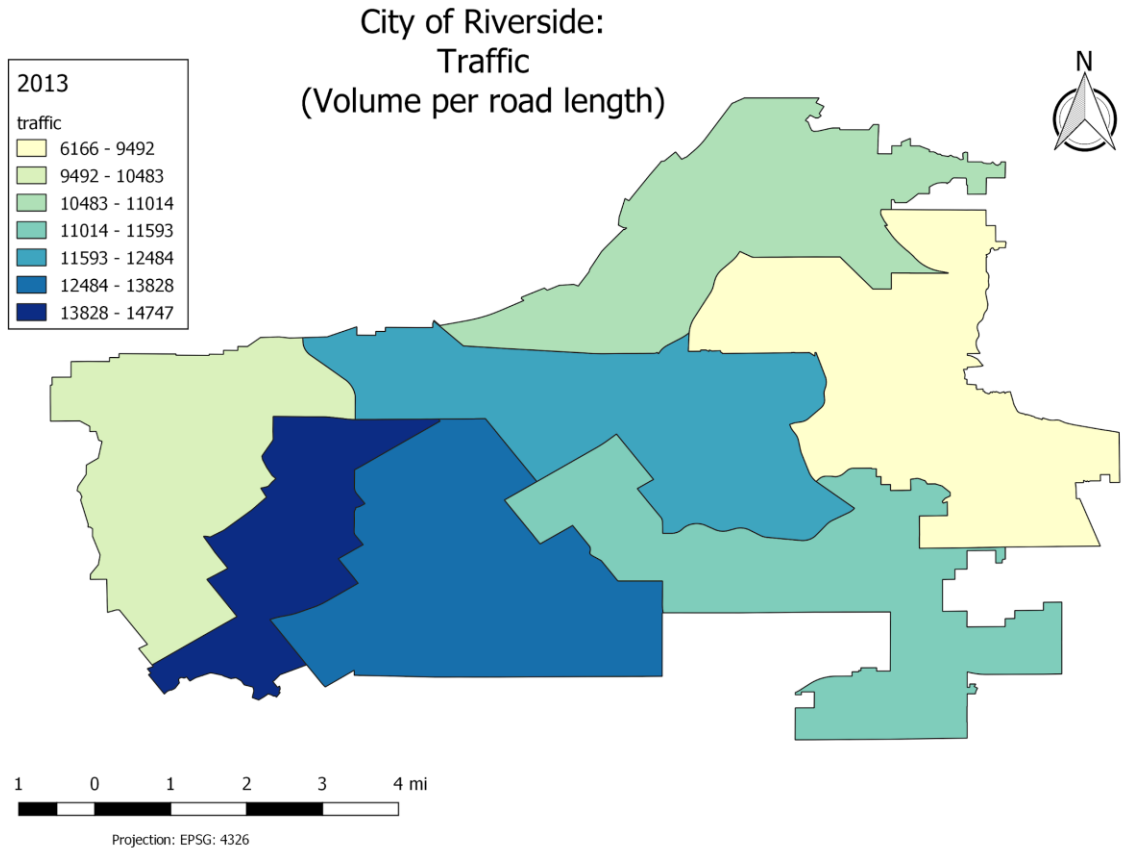
When this equation is used for each of the 20 indicators for each of the 87 census tracts in order to interpolate the data into the ward boundaries we see that the amount of equations can get overwhelming. This is where the power of GIS and specifically python scripting tools can be valuable. Working with Professor Sergio Rey, he was able to adapt a python script that is in development for a different research project and adapt it to run the calculations needed. Below is an illustration of the process using maps of the City of Riverside of what was done with the python script:



City of Riverside's CalEnviroScreen Results

The output from the Python scripts gives us the values from the census tracts converted to the Ward boundaries the full results of which can be viewed in Appendix C. Below are maps of the wards with their corresponding data and interpretations.

Traffic Density

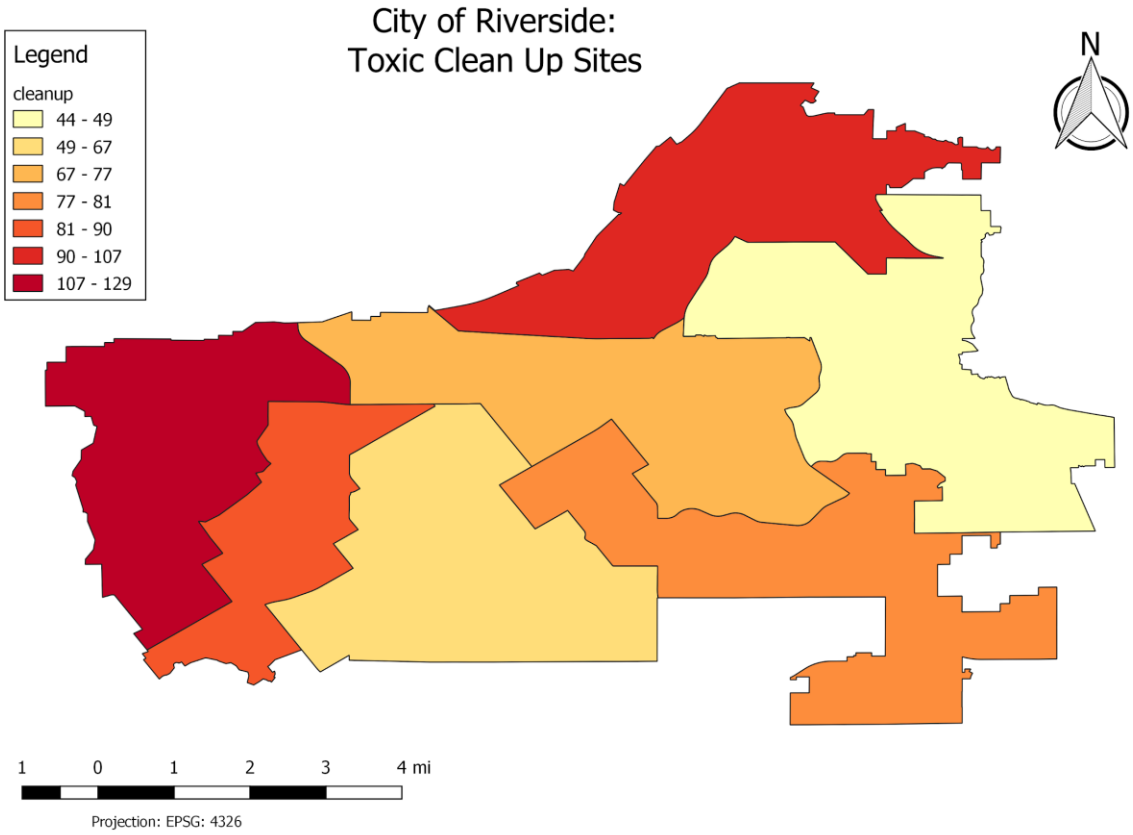


According to the interpolation, Ward 6 is the ward with the highest amount of traffic density. This is reasonable given that it is along the 91 freeway as well as where the biggest shopping center of the city is located, the Tyler Mall. Surprisingly the ward that contains the University of California, Riverside and the 215 is the lowest in terms of traffic density. This is

not expected as there are about 20,000 students, but when taking into account that they are concentrated tightly around the campus it may make sense. The other ward that is surprising is the ward that contains Downtown, Ward 1. The downtown area is rather small, but it does contain many of the agency offices of both county and city offices as well as the 91 and 215 interchanges. It should be said that the roads near Tyler also tend to be much wider than the roads that are in both Ward 1 and 2.

This is important to the environmental justice element in the General Plan in that it may give some insights into where alternative forms of transportation can be suggested to help decrease the amount of traffic by cars, which in turn would reduce the exposure to bad air quality. It could also help with lowering the amount of time spent commuting as the roads are less congested.

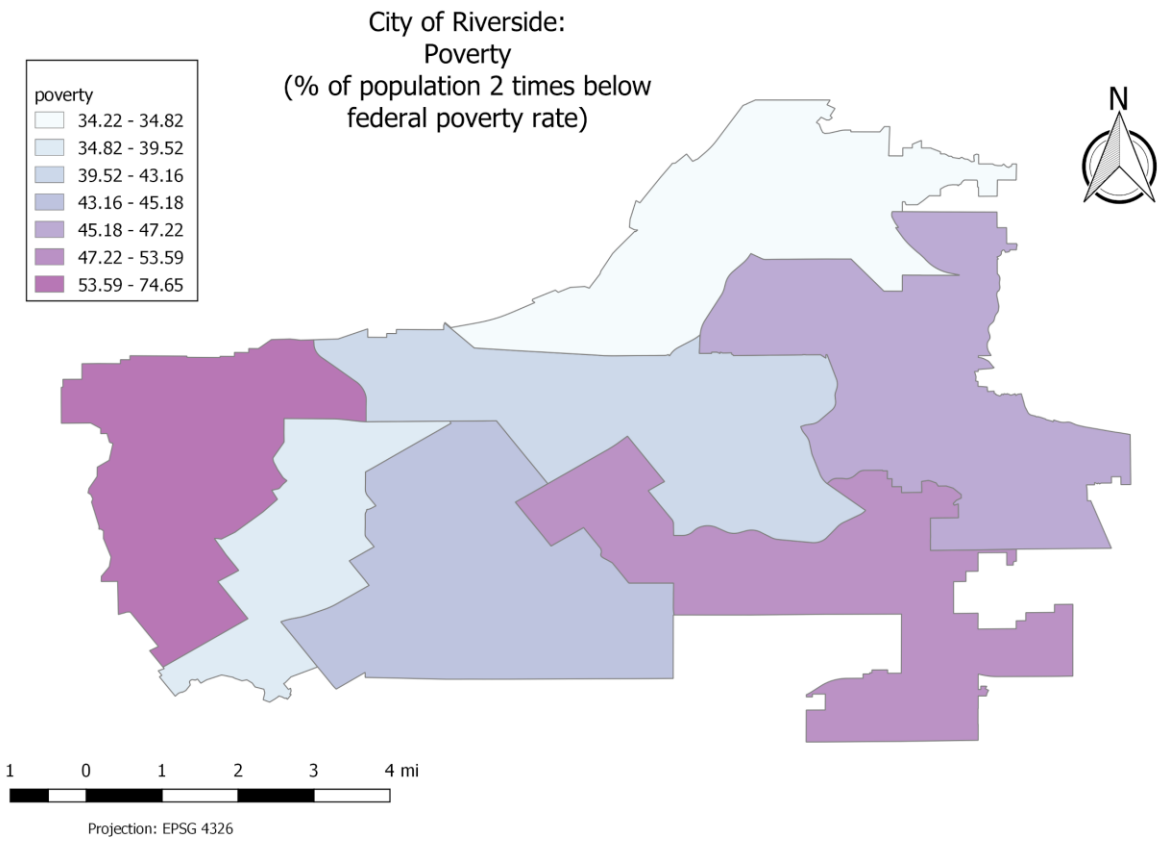
Cleanup Sites



According to the interpolation, Ward 7 again has the highest level of cleanup sites within Riverside with 128.84. This area has been relatively rural and has been the site of some industrial sites, so this history and current situation seem to fit the data. The second worse ward is 1, with 103.70, which includes the downtown area. This is somewhat surprising given that it is an urban center. The lowest being Ward 2, which is where UCR is located has the value of 43.93. The data was separated using 7 quintiles in order to accurately rank each of the 7 wards.

This data may be helpful in the General Plan process in that it can help with developing mitigation efforts that can be incorporated in how the city plans to grow. It can assist with addressing the disparities in which communities carry the load of the environmental impact of industrial cleanup sites by creating common city-wide policies that protect all residents equally.

Poverty

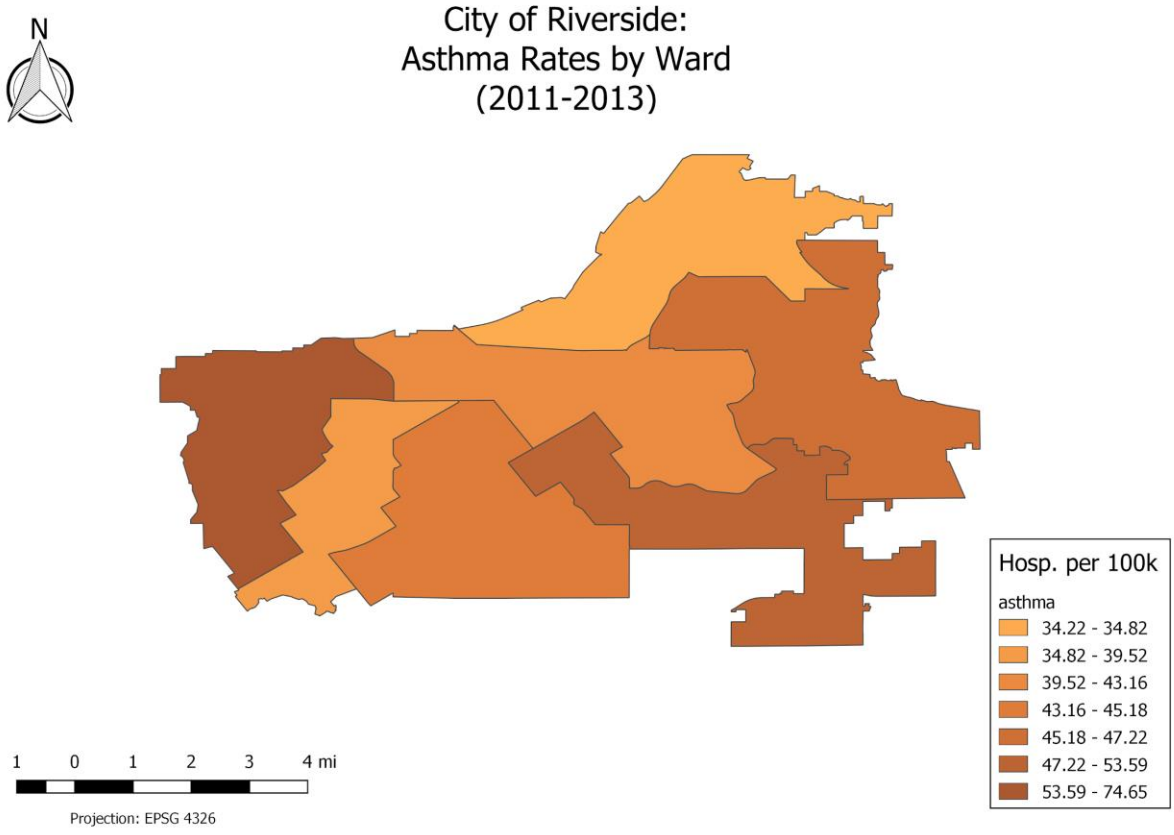


The rate of poverty ranked by the highest according to the interpolation is Ward 7, again with a score of 48.11%. This translates into 48.11% of the population within this ward living at 2 times below the federal poverty rate, which for a single person is set at $12,140. The lowest scoring ward is Ward 1 with 28.57%. Not surprisingly, the ward including the Eastside and UCR is a close second to Ward 7 with a rate of 42.97%, this can because the Eastside is traditionally considered one of the disadvantaged neighborhoods and students do not tend to have a high rate of income.

This data is from 2011-2015, which is the time period just after the economic crisis of 2008, so it may be that this rate is reflective of that recovery. Further studies would have to be done comparing the same wards over a longer period of time. Yet, for the purposes of the

environmental justice element of the General Plan, this is still relevant in that one of the principals of environmental justice is that poorer neighborhood, and by extension wards, are disproportionately affected by environmental hazards. This data seems to be in line with that premise. Incorporating environmental justice elements into the General Plan that takes into consideration the poverty rate can help shape the policies with the understanding that these areas may need additional assistance and resources.

Asthma

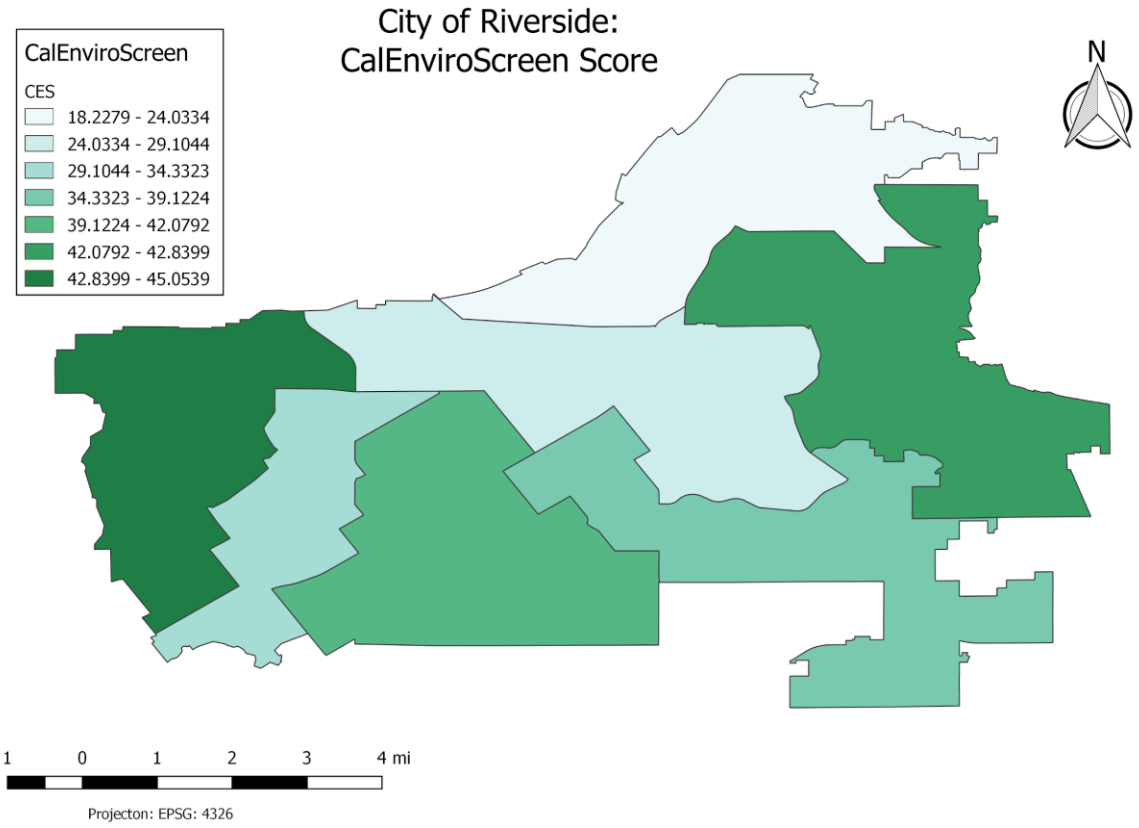


According to the interpolation, Ward 7 once again is at the top, with a rate of 74.65 people with emergency hospital visits for asthma. Given the data and the understanding of how environmental injustice works, of disadvantaged communities bearing the burden of

compounding effects, we see that the data confirms this premise. What is interesting is that Ward 6 is the second lowest but is the immediate neighboring ward to Ward 7. It would be worth investigating this further to see how two wards so close could be on the far ends of the spectrum. The lowest ward is Ward 1 which is the downtown ward, this again seems to be counterintuitive given that it is at the intersection of the 91 and the 215 freeways along with being the administrative center of the city.

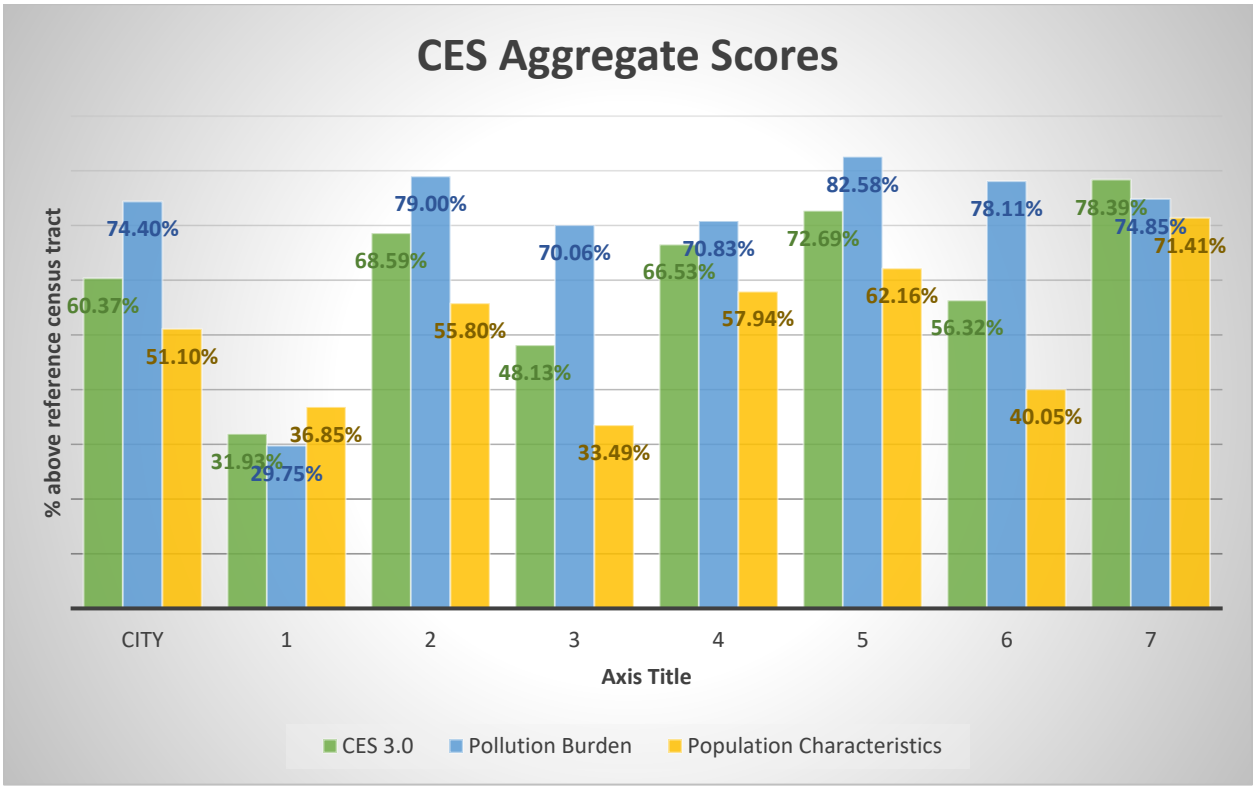
This data is important from a public health perspective as well as a from a planning perspective. While the air quality issue is one that has been addressed for decades in the area, it is still an area where much improvement is needed. Incorporating policies in the General Plan that directly mitigate air quality issues can help address this asthma issue. This is a situation where many of the residents may be well aware of the rates of asthma and can work with the city to develop localized solutions in the General Plan process.

City Wide Data

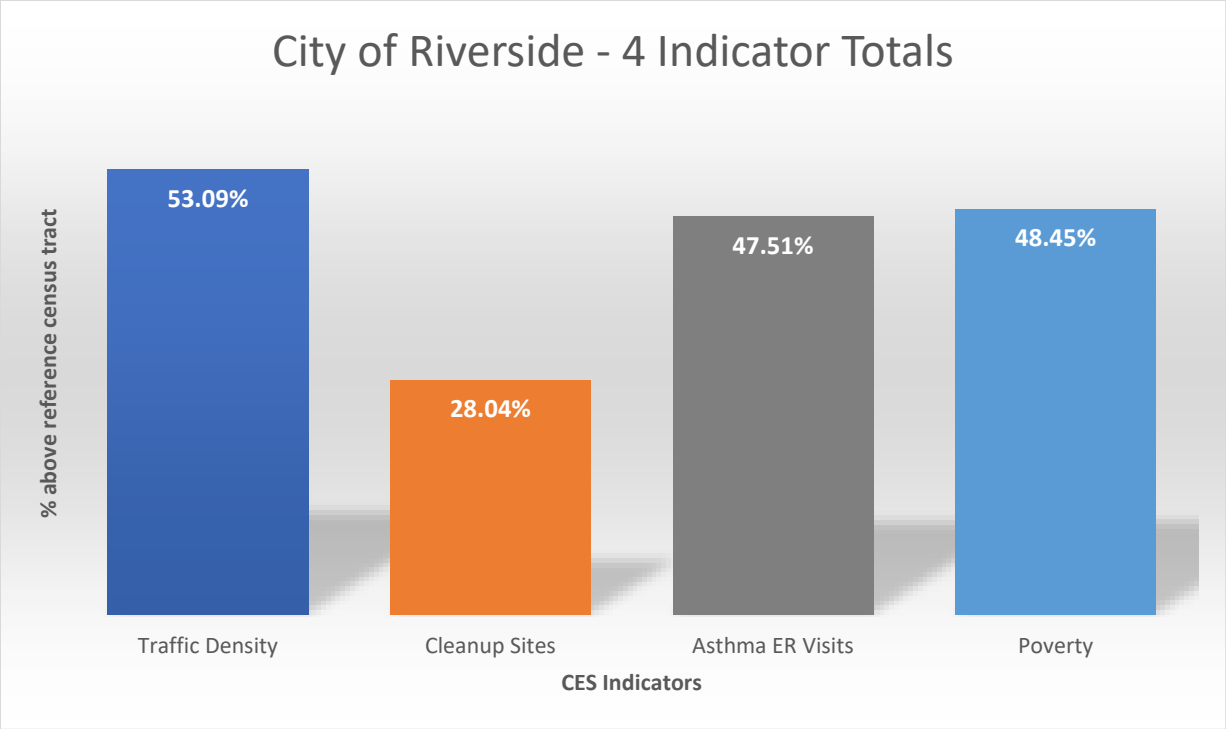


According to the weighted spatial interpolations, it is no surprise to see that Ward 7 has the highest score. In this case, having a higher score is not good, it means that considering all 63 variables, that they are the most affected by environmental impacts. This is consistent with the 4 variables that we chose except for the traffic density variable, where Ward 7 scored the highest. The lowest ward was Ward 1, which has been surprising throughout the exploration of the 4 variables. Below are the aggregate scores for each Ward and their respective scores in the two major categories within the CES model, Population Characteristics and Pollution Burden, along with the total CES Score. We see that the biggest disparities are between Ward 1 and Ward 7 again, but what this breakout highlights is that each ward is unique and faces different

environmental and social conditions that should be taken into account when implementing the EJ Element within crafting the General Plan.



When only considering the aggregate of the 4 indicators that were explored in this paper we see that of the four indicators traffic density has the highest percentage above the reference census tract at 53.09%, this can be expected with the number of freeways and given the amount of commuting that takes place in Southern California, Riverside is no exception to this being the largest city in the Inland Empire.



We do see that two other indicators are near double the reference census tract with Asthma ER Visits at 47.51% and the Poverty rate at 48.45%. While these four indicators to not give the full picture of the EJ conditions within the City of Riverside they do provide an example of how data can be aggregated and interpolated from census tract data into wards. Further research and profiles of all 20 indicators would be necessary for a deeper understanding of the different elements of EJ within the City of Riverside, hopefully GIS and tools like them can be used and incorporated into the General Plan efforts.

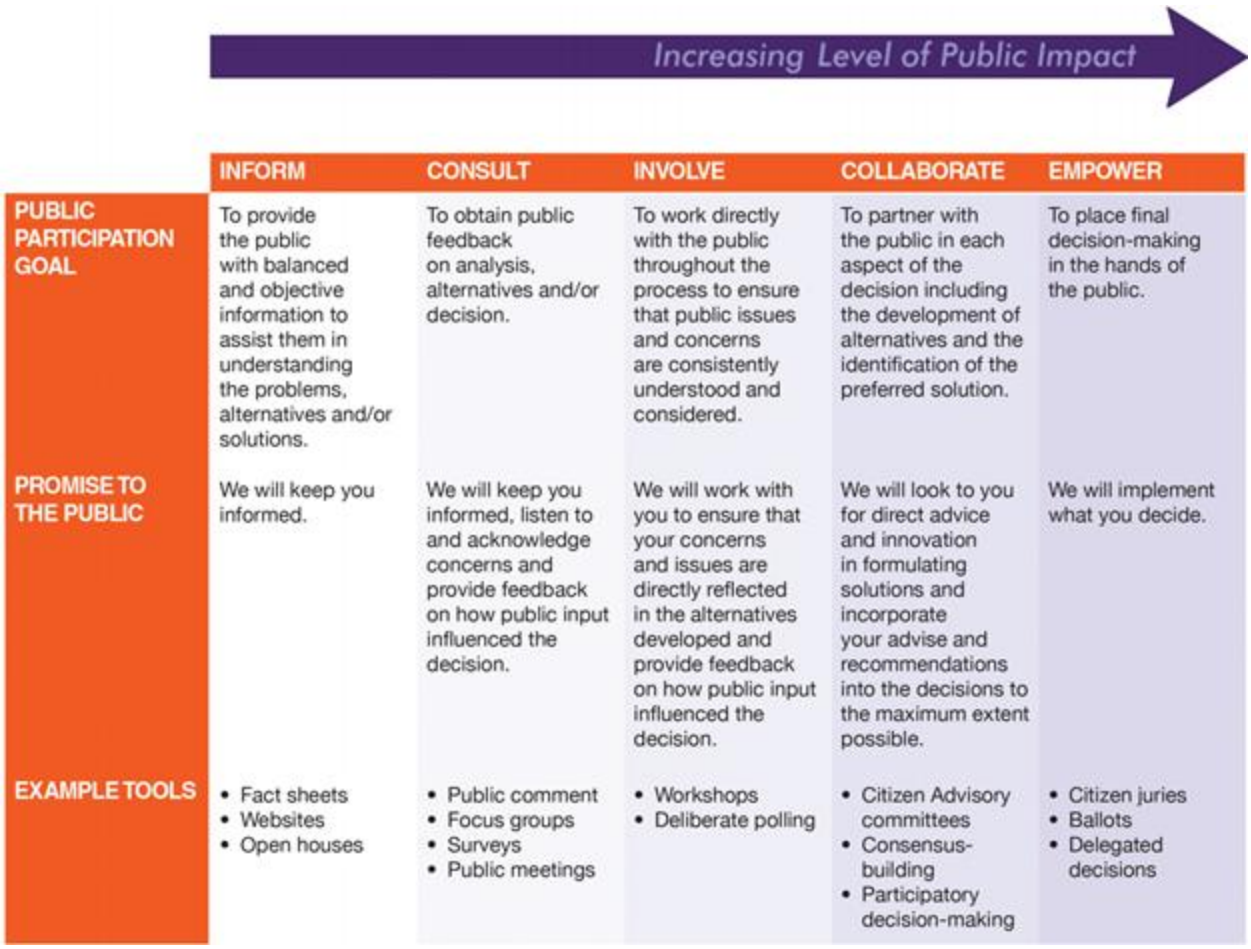
Tangible Data

Ultimately, the goal of translating the CES data and maps from census tract to Ward boundaries is to make the data more tangible for residents and representatives so that they can make collective data-driven policy decisions around unique EJ issues facing their communities. While this section provides the tools for making that data accessible, the next section highlights

the process of incorporating community input in a meaningful way utilizing the data and community input and knowledge.

Policy Intervention: Health Impact Assessment (HIA)

Community participation and input is important at all levels of the planning, developing, and implementing stages of policy-making. While SB 1000 promotes "civil engagement in the public decision-making process" to "identify objectives and policies that prioritize improvements and programs that address the needs of disadvantaged communities," it does not prescribe how that engagement should occur nor at what level of engagement should governments use. (SB 1000, 2016) The International Association for Public Participation (IAP2) has developed a spectrum that defines the public participation process and outlines five levels of participation (inform, consult, involve, collaborate, and empower).



(Source: International Association for Public Participation www.iap2.org, Accessed 2018)

Participatory policymaking (which occurs when local government municipalities meaningfully engage community members throughout the policymaking process – from assessment, design, implementation, and evaluation) is a growing trend as a way for cities to address and affect long-term health outcomes. Participatory policymaking bridges collaboration with empowerment (according to the aforementioned IAP2 model) as governments partner with public to address pertinent issues and shares decisionmaking to affect policies and system changes.

The analysis of the literature strongly suggests that as citizens become more engaged and involved, not only does this have a positive impact on long-term health outcomes (including

those associated with Environmental Justice), but democracy as well, contributing to the feeling of inclusion, encouraging civic engagement, and increasing rational decision-making by promoting transparency and accountability through public reasoning. (Michels & de Graaf, 2010, pp. 480-482) This process encourages public trust in the government, increases the public's capacity to problem-solve, improve the quality of policies, and legitimizes democracy. The findings build a strong case for local governments to adopt upstream approaches to address health disparities and inequities and rethink current community engagement strategies by adopting participatory policymaking practices to promote sustainable collective action to improve long-term health outcomes and quality of life for all community residents, regardless of what zip code or neighborhood they live in.

Local governments that engage community residents and partners in meaningful policy, systems, and built environment (infrastructure) changes are more likely to have a significant impact on long-term health outcomes. As more community members are engaged, local governments are better able to identify health disparities, develop and tailor strategies, and impact population health. (Schulz, Krieger, & Galea, 2002, p. 290) This has implications for policy and decision-makers in local government in regards to long-term community health improvement efforts. One such way to meaningfully engage community members, particularly from disadvantaged communities, is with health impact assessments.

Health Impact Assessments - Background and History

Health Impact Assessments (HIAs) were originally outlined and conceptually introduced in November 1986 by the World Health Organization during *The Ottawa Charter for Health Promotion* as one strategy to achieving the overarching goal of Health for All by 2000. During

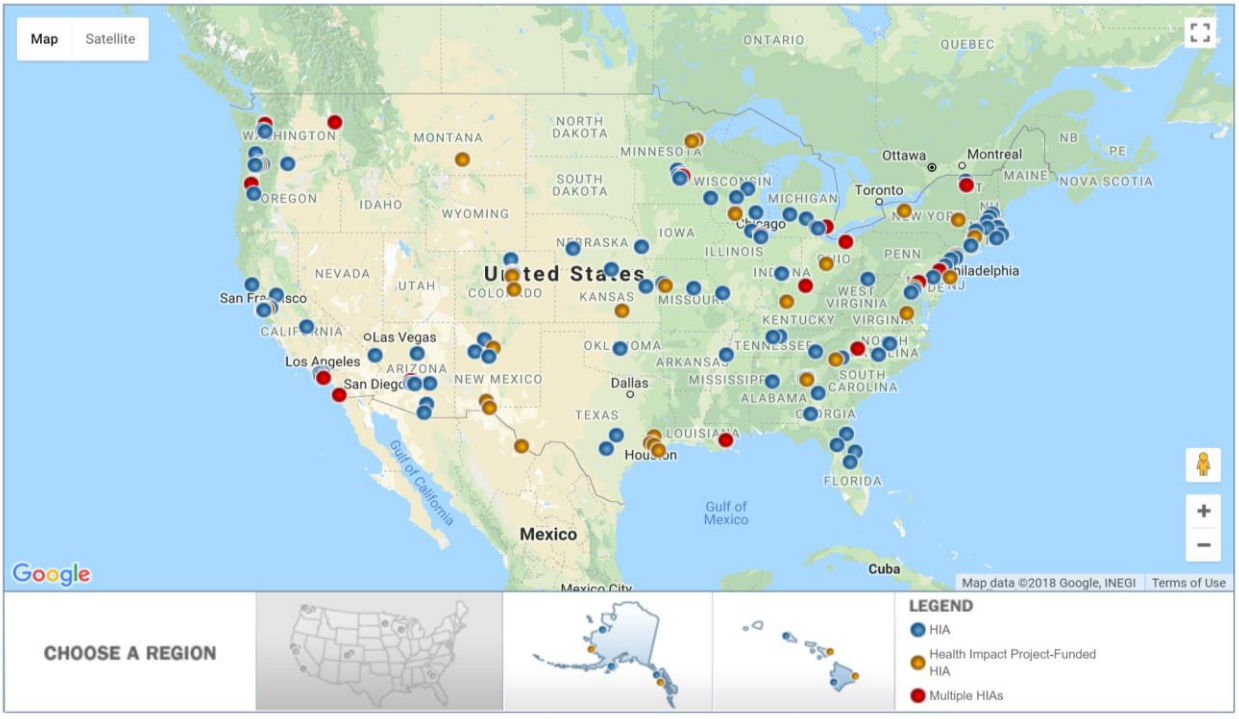
The Ottawa Charter for Health Promotion, five actions were identified including: Build Healthy Public Policy, Create Supportive Environments, Strengthen Community Actions, Develop Personal Skills, and Reorient Health Services. (WHO, 2018)

> *"Health impact assessment has been promoted worldwide as a tool for protecting and promoting public health because of its applicability in a broad range of decision-making arenas, consideration of beneficial and adverse health consequences, stakeholder and community engagement, and potential to advance health equity."* (EPA, 2013 and National Research Council, 2011)

The United States first introduced environmental and human health impacts as considerations in decision-making processes through the 1969 National Environmental Policy Act (NEPA). (EPA Document, 2013, p. 3) Although NEPA was a great start for health impact considerations, in many cases it falls far short of adequately addressing in-depth consequences. Further, these considerations are only tied to projects that utilize federal funds and are narrow in scope. It would take an additional 13 years, when the city and county of San Francisco conducted an analysis of income and health to proposed wage increases in 1999, before a formal HIA would be conducted in the United States. (Bhatia & Katz, 2001, p. 1398) Since then, approximately 382 HIAs have been conducted and another 46 are in progress. (The Pew Charitable Trusts, 2015)

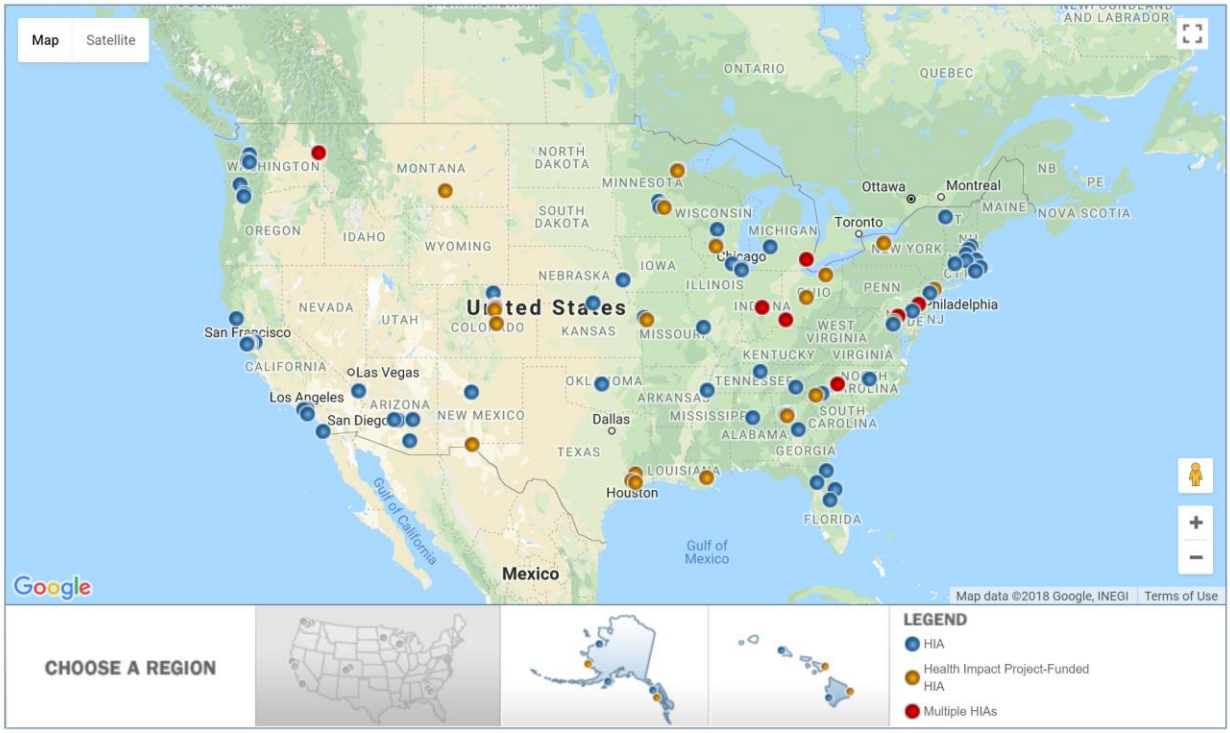
Historically, the majority of HIAs conducted throughout the United States have been led by private and nonprofits. Local governments and municipalities have been largely behind the curve. California, not unexpectedly so, leads the United States in the number of HIAs conducted

or listed in progress with approximately 84 of the 428 total HIAs. Of the 428 HIAs in the United States, only 21 have been conducted as a component in the development of General Plans (3 of which are located in California). Furthermore, data from The Pew Charitable Trust and the Robert Wood Johnson Foundation show 159 HIAs were on the built environment (of which 150 were tagged built environment, 8 were tagged under community development, and 1 was categorized with as both the built environment and community development). Government agencies led 88 of the 159 HIAs, 1 was led by a collaborative process, and 31 were led by an educational institution. The map below shows the number of HIAs in the United States at the local decision-making level.



Pew Charitable Trusts and the Robert Wood Johnson Foundation - [*http://www.pewtrusts.org/en/multimedia/data-visualizations/2015/hia-map*](http://www.pewtrusts.org/en/multimedia/data-visualizations/2015/hia-map)

The second map shows the number of HIAs (159) that were conducted in regards to the Built Environment.



Pew Charitable Trusts and the Robert Wood Johnson Foundation - http://www.pewtrusts.org/en/multimedia/data-visualizations/2015/hia-map

Using a Health Impact Assessment to address environmental justice-related issues within the General Plan would have a number of benefits. HIAs view "health holistically, considering not only biophysical health effects, but also broader social, economic, and environmental influences" and "explicitly focuses on health benefits and the distribution of health impacts within a population (health equity)." (Bhatia, R. & Wernham, A., 2008, p. 993) This focus on health equity within populations, particularly within disadvantaged communities, allows for stronger mechanisms for implementation as the HIA facilitates a more comprehensive planning

process that incorporates a community's values, politics, and environmental considerations into the goals, policies, and objectives of the general plan. (Tang, Z., 2009, p. 326)

Additionally, as HIAs are a participatory approach to addressing social determinants of health (conditions in which people are born, live, learn, work, and play), they engage and meaningfully involve multidisciplinary sectors, including disadvantaged community members who are directly affected, together to consider the potential impacts on health. (WHO, 2018) Public input from the participants are involved at all levels of the HIA process, providing context to both qualitative and quantitative data. This interdisciplinary collaboration enhances relationships and builds capacity for future partnership efforts, leverages assets from each stakeholder's field, and brings additional resources to affect health outcomes. (American Planning Association, 2016, p. 8)

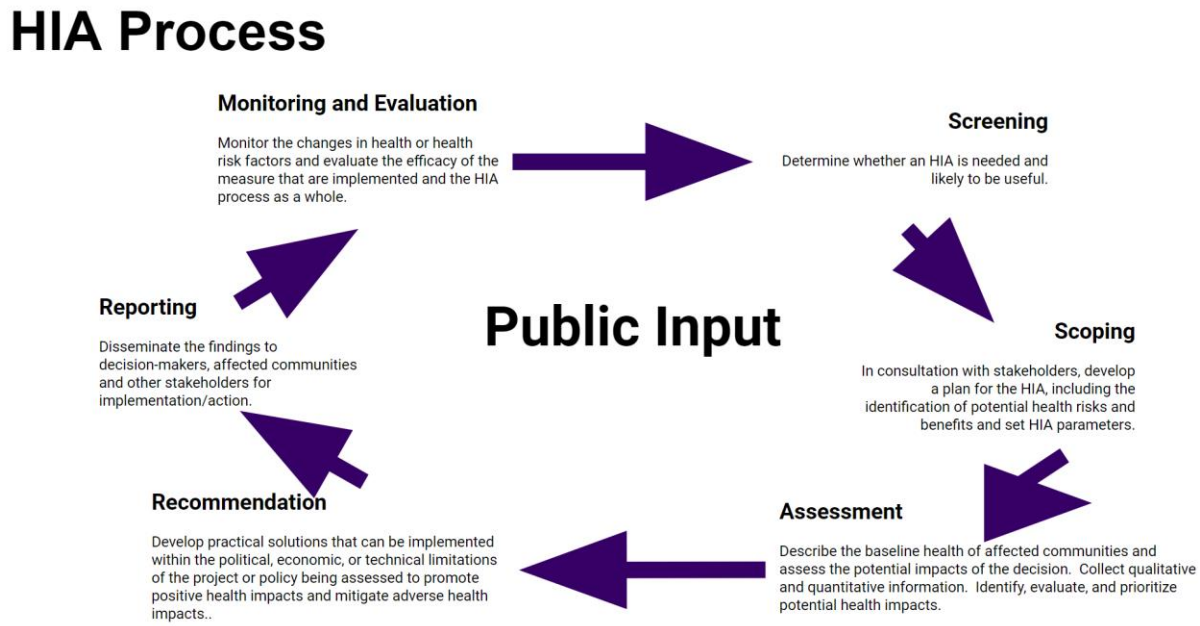
The HIA Process and Policy Recommendations

The Health Impact Assessment process described in this section is adopted from three sources: the American Planning Associations' Health Impact Assessment Toolkit for Planners, the United States Environmental Protection Agency's report entitled, "A Review of Health Impact Assessments in the U.S.: Current State-of-Science, Best Practices, and Areas for Improvement," and the Health Impact Assessment: A Guide for Practice by Rajiv Bhatia. The guides and steps have been modified to provide the City of Riverside an overview of the HIA process and tangible steps to conduct an HIA in the development of its General Plan update.

SB 1000 requires cities and counties that have a disadvantaged community to either include an environmental justice element into their general plans (as a standalone element) or as a framework that integrates [environmental justice] goals, policies, and objectives throughout the

entire document. While each of these options have their advantages and disadvantages, the City of Riverside should give careful consideration to integrating environmental justice as the underpinning framework of their General Plan. Integration into the General Plan sets the importance of environmental justice as elements (mandatory and optional) identify environmental justice-related policy goals and objectives. It also facilitates decisions about environmental justice and the built environment, allowing for greater connections to be made to healthy community principals and in addressing social determinants of health across the broad spectrum (including social equity).

Health Impact Assessments consist of 6 steps; screening, scoping, assessment, recommendation, reporting, and monitoring and evaluation. (Rhodus et al., 2013, p. 2 and American Planning Association, 2016, p. 15-27) The chart below shows a general overview of the HIA process. Public input, shown in the middle of the diagram, is crucial to every step.



Source: Adopted from the Centers for Disease Control and Prevention. Framework for program evaluation in public health. MMWR 1999b; 48(RR11):1-40

Screening

The first step, screening, provides the City of Riverside (hereinafter the City) with an opportunity to determine whether or not an HIA is needed as well as whether it will be useful. This screening process is done for all types of HIAs (rapid, intermediate, and comprehensive) and is used to determine the level of HIA needed to address needs. For the City, the authors of this paper recommend looking at both rapid and comprehensive HIAs. The comprehensive HIA is useful for integrating environmental justice goals, priorities, and policies throughout the framework of the General Plan whereas rapid HIAs can be integrated into planning processes to ensure environmental justice is a consideration for all formal and informal policy and project-related decisions.

Once a determination has been made for a HIA, and before any additional steps commence, stakeholders from every sector (including nonprofits, education, community-based organizations, non-governmental organizations, businesses, and healthcare), community members and residents in affected disadvantaged communities, decision-makers, and representatives (at all authority levels from the City's planning director to planning managers and planning associates) from the City need to be identified and invited to participate. Additionally, graduate students from the University of California, Riverside can be incorporated into the process, providing assistance in a range of activities including research-design, data analysis, report writing, and the development of community-friendly and easily digestible information. The CES tool aforementioned in the Existing EJ Screening Tools section is a useful tool the City can use to identify and prioritize disadvantaged communities (either at the ward or neighborhood level), assist in the data collection and analysis of the scoping phase described

below, and in setting standardized metrics by which the City and the community can measure progress (described in greater detail in the monitoring and evaluation phase).

Scoping

The next step in the HIA process is scoping. Scoping enables stakeholders to begin to evaluate community health concerns and risks, potential health benefits of the plan and its policies, and set parameters of the HIA (including the roles responsibilities of the HIA team and its members). This phase also results in the development of a research plan that outlines research questions and impacts to be considered (and using data from the CES tool), develops methods for communication, and is responsive to stakeholders, the City, and decision-makers. This will likely vary from one neighborhood/ward to the next and is largely based on each communities priorities and needs. Scoping also encourages stakeholders to develop causal models and pathway diagrams to gain an understanding of how events, decisions, and policies are interconnected to health risks and benefits, the proximal and direct impacts on health, the anticipated resulting intermediate and long-term health outcomes, and associated environmental justice health costs.

Assessment

The third step is assessment. In this phase, the City and HIA stakeholders describe the current conditions related to the environmental justice issues identified in the scoping phase using available data and evidence and predicts potential health impacts (where feasible) of the General Plan update. Data includes both quantitative (from sources such as CalEnviroScreen 3.0, EJ Screen, EJ Atlas, Census, and the American Community Survey) and qualitative (from

focus groups, interviews, community member stories, observations, and documents, government reports, and academic literature) sources. For quantitative data, CalEnviroScreen 3.0 is a great starting place as it includes data set for 20 indicators and allows for comparisons to be made across census tracts and other jurisdictional levels. Other indicators include population, health, planning, and policy indicators and maps.

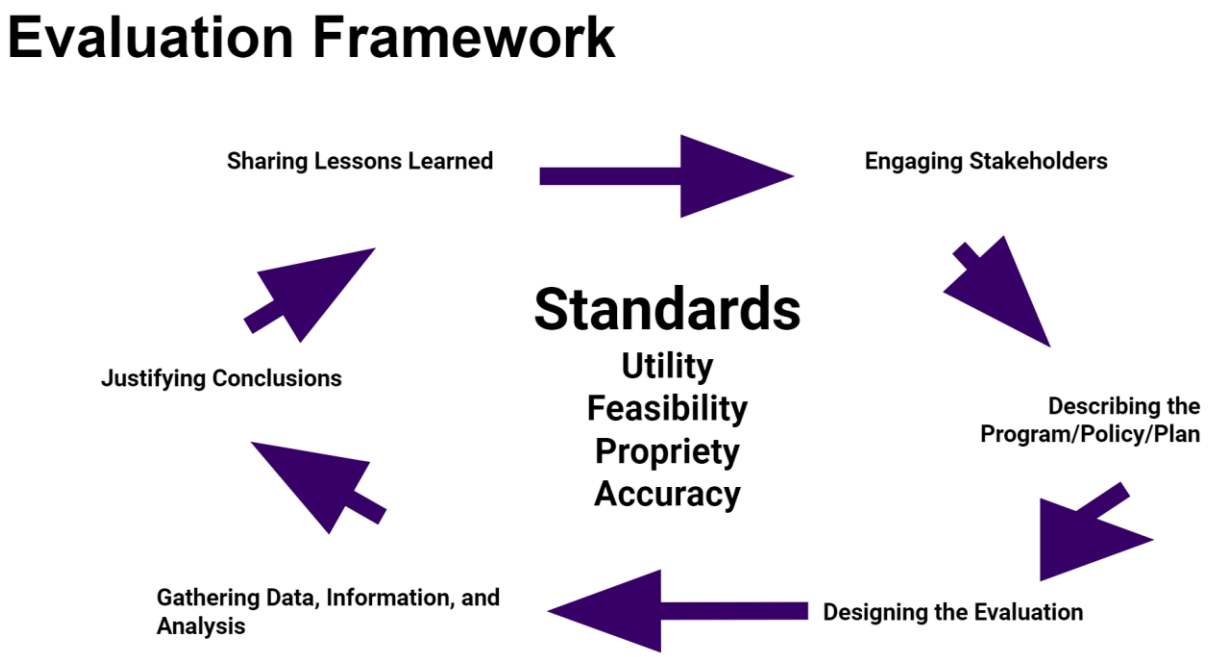
The assessment looks at the direction (positive, negative, neutral, or undetermined), likelihood, magnitude (low, medium, high, insufficient), and severity (low, medium, high, insufficient) of impact, the distribution of the impact on disadvantaged communities and other populations (disproportionate harms, benefits, restorative equity, and insufficient), the measure of the strength of evidence of causal effects (low, medium, high), and economic costs of the environmental justice and health impacts.

Recommendations and Reporting

In the next two phases, recommendations and reporting, the City and HIA stakeholders develop recommendations based on the assessment findings and should reflect the communities need and priorities as backed by the evidence. For the General Plan, the recommendations will be embedded into the framework, providing tangible strategies and policies regarding environmental justice and the built environment, addressing social determinants of health, and providing guidelines and consistency for supplemental documents such as, specific plans, standard zoning regulations, ordinances, and more. Findings and recommendations should also be disseminated to the broader community (electronically and paper-based).

Monitoring and evaluation

Once decisions and recommendations have been identified and implemented, the last phase of the HIA process is monitoring and evaluation. This monitoring and evaluation plan sets the framework for evaluation, identifies metrics, processes, and outcomes, identifies resources and tools, assigns tasks and responsibilities to stakeholders for ongoing evaluation efforts, creates a timeline, and develops the parameters for evaluative efforts. The Center for Disease Control's framework describes six steps in participatory evaluation planning: 1) engaging stakeholders, 2) describing the program/policy/plan, 3) designing the evaluation, 4) gathering data, information, and analysis, 5) justifying conclusions, and 6) sharing lessons learned. (Centers for Disease Control and Prevention, 2011, p. 5)



Source: Adopted from the Centers for Disease Control and Prevention. Framework for program evaluation in public health. MMWR 1999b; 48(RR11):1-40

Ideally, the monitoring and evaluation plan is developed concurrently with the Assessment and Recommendation phases. This would allow for the identification of metrics, processes, and outcomes that are better aligned with available data sources and tools (such as the CES), support evaluation efforts that are conducive and responsive to community needs, promotes stakeholder engagement and participatory policy-making remain integral in policies successes beyond implementation, and promotes community-based accountability of policy implementation as the responsibility of monitoring progress is shared among stakeholders and the community.

In developing the monitoring and evaluation plan, the City of Riverside should look at a minimum of two types of evaluations; process evaluations and outcome evaluations (including short-, intermediate-, and long-term outcomes). Process evaluation is the measure of the HIA process, its inputs (measures of various resources), activities (actual events that are part of the program, policy, or plan), and outputs (direct products of activities), its context, and stakeholder's perceptions of the effectiveness of the HIA process. (Centers for Disease Control and Prevention, 2008, p. 4 & 17)

Outcome evaluations measure the impact the HIA had on EJ, the social determinants of health, and broader health outcomes. Outcomes, "the changes, impacts, or results of program implementation (activities and outputs)," look at three different time frames; short-, intermediate-, and long-term. (Centers for Disease Control and Prevention, 2011, p. 13) Short-term outcomes measure changes in attitudes and knowledge of individuals. Intermediate-term outcomes measure changes in attitudes and knowledge beyond individuals, looking at organizations, systems, and structures. Long-term outcomes (which occur years after policies, plans, or programs have been implemented) are a measure of the changes that have occured in

community health outcomes and behaviors, health status, cultural attitudes, beliefs, and values, and systemic change. (Centers for Disease Control and Prevention, 2011, p. 13 and Guenther, J. & Arnott, A. 2009, p. 13)

Meeting and Recommendations from the City of Riverside

We met with representatives from the City of Riverside to present the Capstone's proposal and policy-making recommendations. In general, the City was very receptive for, and were familiar with, HIA's, but had not considered using HIA's or comprehensive and formal participatory policymaking in the upcoming General Plan update. They were surprised with the data presented as areas identified as qualifying under the disadvantaged community criteria were not necessarily the same areas typically labeled or defined as such. However, they also remarked that the way the data was presented visually was easy to interpret and would be useful for engaging community members. There was also interest in using the data that was found in supporting the case of broadening state funding requirements for the GGRF fund to include areas like the City of Riverside, and the Inland Empire generally. Currently, funds have been directed mainly to the major metropolitan areas of California, Los Angeles, San Francisco and San Diego.

The City also had several thoughts and considerations including the recommendation that the scope of the HIA is well-defined, denoting where in the process of the General Plan that this would be most useful; either in the backend with community planning efforts or the frontend with future and proposed developments to the built environment. They also remarked that, while the HIA presented would focus on EJ concerns, there was greater implications to broader health impacts. The City understood the social determinates of health and how EJ and health were connected and affect the conditions in which residents live, learn, work, and play. Last, they

recommended looking at the broader surrounding region as Riverside and San Bernardino County could benefit from the policy recommendations presented in this Capstone.

Conclusion

Ultimately, engaging in participatory policy-making and the HIA process to address EJ issues as required by SB 1000, has many benefits. One benefit is ensuring that EJ strategies are integrated in policies throughout the General Plan's framework. This integration enables EJ to cut across sectors and address broader social determinants of health, enhance the horizontal, vertical, and internal consistency of the General Plan, engage and empower community members within disadvantaged communities in meaningful ways throughout the entire policymaking and evaluative process thereby creating policies that are better reflective of community needs, priorities, and values, and ultimately leading to a more equitable quality of life.

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Appendix

Appendix A: SB 1000

Senate Bill No. 1000

CHAPTER 587

An act to amend Section 65302 of the Government Code, relating to land use.

[Approved by Governor September 24, 2016. Filed with Secretary of State September 24, 2016.]

LEGISLATIVE COUNSEL'S DIGEST

SB 1000, Leyva. Land use: general plans: safety and environmental justice.

(1) The Planning and Zoning Law requires the legislative body of each county and city to adopt a comprehensive, long-term general plan for the physical development of the county or city and of any land outside its boundaries that bears relation to its planning. That law requires this general plan to include several elements, including, among others, a safety element for the protection of the community from unreasonable risks associated with the effects of various geologic hazards, flooding, wildland and urban fires, and climate adaptation and resilience strategies. That law requires that the safety element be reviewed and updated, in the case of flooding and fire hazards, upon the next revision of the housing element after specified dates or, in the case of climate adaptation and resilience strategies, upon either the next revision of a local hazard mitigation plan after a specified date or on or before January 1, 2022, as applicable. That law also requires, after the initial revision of the safety element to address flooding, fires, and climate adaptation and resilience strategies, that for each subsequent revision the planning agency review and, if necessary, revise the safety element to identify new information that was not available during the previous revision of the safety element.

This bill would instead require a planning agency to review and revise the safety element to identify new information, as described above, only to address flooding and fires.

This bill would, in addition, add to the required elements of the general plan an environmental justice element, or related goals, policies, and objectives integrated in other elements, that identifies disadvantaged communities, as defined, within the area covered by the general plan of

the city, county, or city and county, if the city, county, or city and county has a disadvantaged community. The bill would also require the environmental justice element, or related environmental justice goals, policies, and objectives integrated in other elements, to identify objectives and policies to reduce the unique or compounded health risks in disadvantaged communities, as specified, identify objectives and policies to promote civil engagement in the public decisionmaking process, and identify objectives and policies that prioritize improvements and programs that address the needs of disadvantaged communities. The bill would require the environmental justice element, or the environmental justice goals, policies, and objectives in other elements, to be adopted or reviewed upon the adoption or next revision of 2 or more elements concurrently on or after January 1, 2018. By adding to the duties of county and city officials, this bill would impose a state-mandated local program.

(2) This bill would incorporate additional changes to Section 65302 of the Government Code, proposed by AB 2651 that would become operative only if this bill and AB 2651 are enacted and become effective on or before January 1, 2017, and this bill is chaptered last.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

DIGEST KEY

Vote: majority Appropriation: no Fiscal Committee: yes Local Program: yes

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BILL TEXT

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1.

Section 65302 of the Government Code is amended to read:

65302.

The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals. The plan shall include the following elements:

(a) A land use element that designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The location and designation of the extent of the uses of the land for public and private

uses shall consider the identification of land and natural resources pursuant to paragraph (3) of subdivision (d). The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The land use element shall identify and annually review those areas covered by the plan that are subject to flooding identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources. The land use element shall also do both of the following:

(1) Designate in a land use category that provides for timber production those parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982 (Chapter 6.7 (commencing with Section 51100) of Part 1 of Division 1 of Title 5).

(2) Consider the impact of new growth on military readiness activities carried out on military bases, installations, and operating and training areas, when proposing zoning ordinances or designating land uses covered by the general plan for land, or other territory adjacent to military facilities, or underlying designated military aviation routes and airspace.

(A) In determining the impact of new growth on military readiness activities, information provided by military facilities shall be considered. Cities and counties shall address military impacts based on information from the military and other sources.

(B) The following definitions govern this paragraph:

(i) “Military readiness activities” mean all of the following:

(I) Training, support, and operations that prepare the men and women of the military for combat.

(II) Operation, maintenance, and security of any military installation.

(III) Testing of military equipment, vehicles, weapons, and sensors for proper operation or suitability for combat use.

(ii) “Military installation” means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the United States Department of Defense as defined in paragraph (1) of subsection (g) of Section 2687 of Title 10 of the United States Code.

(b) (1) A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

(2) (A) Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe

and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.

(B) For purposes of this paragraph, “users of streets, roads, and highways” mean bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors.

(c) A housing element as provided in Article 10.6 (commencing with Section 65580).

(d) (1) A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. The conservation element shall consider the effect of development within the jurisdiction, as described in the land use element, on natural resources located on public lands, including military installations. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies, including flood management, water conservation, or groundwater agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the plan is prepared. Coordination shall include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city or county.

(2) The conservation element may also cover all of the following:

(A) The reclamation of land and waters.

(B) Prevention and control of the pollution of streams and other waters.

(C) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.

(D) Prevention, control, and correction of the erosion of soils, beaches, and shores.

(E) Protection of watersheds.

(F) The location, quantity and quality of the rock, sand, and gravel resources.

(3) Upon the next revision of the housing element on or after January 1, 2009, the conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

(e) An open-space element as provided in Article 10.5 (commencing with Section 65560).

(f) (1) A noise element that shall identify and appraise noise problems in the community. The noise element shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

(A) Highways and freeways.

(B) Primary arterials and major local streets.

(C) Passenger and freight online railroad operations and ground rapid transit systems.

(D) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

(E) Local industrial plants, including, but not limited to, railroad classification yards.

(F) Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

(2) Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average sound level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

(3) The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

(4) The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

(g) (1) A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

(2) The safety element, upon the next revision of the housing element on or after January 1, 2009, shall also do the following:

(A) Identify information regarding flood hazards, including, but not limited to, the following:

(i) Flood hazard zones. As used in this subdivision, “flood hazard zone” means an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency (FEMA). The identification of a flood hazard zone does not imply that areas outside the flood hazard zones or uses permitted within flood hazard zones will be free from flooding or flood damage.

(ii) National Flood Insurance Program maps published by FEMA.

(iii) Information about flood hazards that is available from the United States Army Corps of Engineers.

(iv) Designated floodway maps that are available from the Central Valley Flood Protection Board.

(v) Dam failure inundation maps prepared pursuant to Section 8589.5 that are available from the Office of Emergency Services.

(vi) Awareness Floodplain Mapping Program maps and 200-year flood plain maps that are or may be available from, or accepted by, the Department of Water Resources.

(vii) Maps of levee protection zones.

(viii) Areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls.

(ix) Historical data on flooding, including locally prepared maps of areas that are subject to flooding, areas that are vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.

(x) Existing and planned development in flood hazard zones, including structures, roads, utilities, and essential public facilities.

(xi) Local, state, and federal agencies with responsibility for flood protection, including special districts and local offices of emergency services.

(B) Establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including, but not limited to:

(i) Avoiding or minimizing the risks of flooding to new development.

(ii) Evaluating whether new development should be located in flood hazard zones, and identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones.

(iii) Maintaining the structural and operational integrity of essential public facilities during flooding.

(iv) Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or identifying construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.

(v) Establishing cooperative working relationships among public agencies with responsibility for flood protection.

(C) Establish a set of feasible implementation measures designed to carry out the goals, policies, and objectives established pursuant to subparagraph (B).

(3) Upon the next revision of the housing element on or after January 1, 2014, the safety element shall be reviewed and updated as necessary to address the risk of fire for land classified as state responsibility areas, as defined in Section 4102 of the Public Resources Code, and land classified as very high fire hazard severity zones, as defined in Section 51177. This review shall consider the advice included in the Office of Planning and Research's most recent publication of "Fire Hazard Planning, General Plan Technical Advice Series" and shall also include all of the following:

(A) Information regarding fire hazards, including, but not limited to, all of the following:

(i) Fire hazard severity zone maps available from the Department of Forestry and Fire Protection.

(ii) Any historical data on wildfires available from local agencies or a reference to where the data can be found.

(iii) Information about wildfire hazard areas that may be available from the United States Geological Survey.

(iv) General location and distribution of existing and planned uses of land in very high fire hazard severity zones and in state responsibility areas, including structures, roads, utilities, and essential public facilities. The location and distribution of planned uses of land shall not require defensible space compliance measures required by state law or local ordinance to occur on publicly owned lands or open-space designations of homeowner associations.

(v) Local, state, and federal agencies with responsibility for fire protection, including special districts and local offices of emergency services.

(B) A set of goals, policies, and objectives based on the information identified pursuant to subparagraph (A) for the protection of the community from the unreasonable risk of wildfire.

(C) A set of feasible implementation measures designed to carry out the goals, policies, and objectives based on the information identified pursuant to subparagraph (B) including, but not limited to, all of the following:

(i) Avoiding or minimizing the wildfire hazards associated with new uses of land.

(ii) Locating, when feasible, new essential public facilities outside of high fire risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in a state responsibility area or very high fire hazard severity zone.

(iii) Designing adequate infrastructure if a new development is located in a state responsibility area or in a very high fire hazard severity zone, including safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression.

(iv) Working cooperatively with public agencies with responsibility for fire protection.

(D) If a city or county has adopted a fire safety plan or document separate from the general plan, an attachment of, or reference to, a city or county's adopted fire safety plan or document that fulfills commensurate goals and objectives and contains information required pursuant to this paragraph.

(4) Upon the next revision of a local hazard mitigation plan, adopted in accordance with the federal Disaster Mitigation Act of 2000 (Public Law 106-390), on or after January 1, 2017, or, if a local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, the safety element shall be reviewed and updated as necessary to address climate adaptation and resiliency strategies applicable to the city or county. This review shall consider advice provided in the Office of Planning and Research's General Plan Guidelines and shall include all of the following:

(A) (i) A vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts, including, but not limited to, an assessment of how climate change may affect the risks addressed pursuant to paragraphs (2) and (3).

(ii) Information that may be available from federal, state, regional, and local agencies that will assist in developing the vulnerability assessment and the adaptation policies and strategies required pursuant to subparagraph (B), including, but not limited to, all of the following:

(I) Information from the Internet-based Cal-Adapt tool.

(II) Information from the most recent version of the California Adaptation Planning Guide.

(III) Information from local agencies on the types of assets, resources, and populations that will be sensitive to various climate change exposures.

(IV) Information from local agencies on their current ability to deal with the impacts of climate change.

(V) Historical data on natural events and hazards, including locally prepared maps of areas subject to previous risk, areas that are vulnerable, and sites that have been repeatedly damaged.

(VI) Existing and planned development in identified at-risk areas, including structures, roads, utilities, and essential public facilities.

(VII) Federal, state, regional, and local agencies with responsibility for the protection of public health and safety and the environment, including special districts and local offices of emergency services.

(B) A set of adaptation and resilience goals, policies, and objectives based on the information specified in subparagraph (A) for the protection of the community.

(C) A set of feasible implementation measures designed to carry out the goals, policies, and objectives identified pursuant to subparagraph (B) including, but not limited to, all of the following:

(i) Feasible methods to avoid or minimize climate change impacts associated with new uses of land.

(ii) The location, when feasible, of new essential public facilities outside of at-risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in at-risk areas.

(iii) The designation of adequate and feasible infrastructure located in an at-risk area.

(iv) Guidelines for working cooperatively with relevant local, regional, state, and federal agencies.

(v) The identification of natural infrastructure that may be used in adaptation projects, where feasible. Where feasible, the plan shall use existing natural features and ecosystem processes, or the restoration of natural features and ecosystem processes, when developing alternatives for consideration. For the purposes of this clause, “natural infrastructure” means the preservation or restoration of ecological systems, or utilization of engineered systems that use ecological processes, to increase resiliency to climate change, manage other environmental hazards, or both.

This may include, but is not limited to, floodplain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days.

(D) (i) If a city or county has adopted the local hazard mitigation plan, or other climate adaptation plan or document that fulfills commensurate goals and objectives and contains the information required pursuant to this paragraph, separate from the general plan, an attachment of, or reference to, the local hazard mitigation plan or other climate adaptation plan or document.

(ii) Cities or counties that have an adopted hazard mitigation plan, or other climate adaptation plan or document that substantially complies with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions, climate adaptation plan or document, specifically showing how each requirement of this subdivision has been met.

(5) After the initial revision of the safety element pursuant to paragraphs (2) and (3) upon each revision of the housing element, the planning agency shall review and, if necessary, revise the safety element to identify new information relating to flood and fire hazards that was not available during the previous revision of the safety element.

(6) Cities and counties that have flood plain management ordinances that have been approved by FEMA that substantially comply with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions or the flood plain ordinance, specifically showing how each requirement of this subdivision has been met.

(7) Prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county shall consult the California Geological Survey of the Department of Conservation, the Central Valley Flood Protection Board, if the city or county is located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code, and the Office of Emergency Services for the purpose of including information known by and available to the department, the agency, and the board required by this subdivision.

(8) To the extent that a county's safety element is sufficiently detailed and contains appropriate policies and programs for adoption by a city, a city may adopt that portion of the county's safety element that pertains to the city's planning area in satisfaction of the requirement imposed by this subdivision.

(h) (1) An environmental justice element, or related goals, policies, and objectives integrated in other elements, that identifies disadvantaged communities within the area covered by the general

plan of the city, county, or city and county, if the city, county, or city and county has a disadvantaged community. The environmental justice element, or related environmental justice goals, policies, and objectives integrated in other elements, shall do all of the following:

(A) Identify objectives and policies to reduce the unique or compounded health risks in disadvantaged communities by means that include, but are not limited to, the reduction of pollution exposure, including the improvement of air quality, and the promotion of public facilities, food access, safe and sanitary homes, and physical activity.

(B) Identify objectives and policies to promote civil engagement in the public decisionmaking process.

(C) Identify objectives and policies that prioritize improvements and programs that address the needs of disadvantaged communities.

(2) A city, county, or city and county subject to this subdivision shall adopt or review the environmental justice element, or the environmental justice goals, policies, and objectives in other elements, upon the adoption or next revision of two or more elements concurrently on or after January 1, 2018.

(3) By adding this subdivision, the Legislature does not intend to require a city, county, or city and county to take any action prohibited by the United States Constitution or the California Constitution.

(4) For purposes of this subdivision, the following terms shall apply:

(A) “Disadvantaged communities” means an area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.

(B) “Public facilities” includes public improvements, public services, and community amenities, as defined in subdivision (d) of Section 66000.

(C) “Low-income area” means an area with household incomes at or below 80 percent of the statewide median income or with household incomes at or below the threshold designated as low income by the Department of Housing and Community Development’s list of state income limits adopted pursuant to Section 50093.

SEC. 1.5.

Section 65302 of the Government Code is amended to read:

65302.

The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals. The plan shall include the following elements:

(a) A land use element that designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, greenways, as defined in Section 816.52 of the Civil Code, and other categories of public and private uses of land. The location and designation of the extent of the uses of the land for public and private uses shall consider the identification of land and natural resources pursuant to paragraph (3) of subdivision (d). The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The land use element shall identify and annually review those areas covered by the plan that are subject to flooding identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources. The land use element shall also do both of the following:

(1) Designate in a land use category that provides for timber production those parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982 (Chapter 6.7 (commencing with Section 51100) of Part 1 of Division 1 of Title 5).

(2) Consider the impact of new growth on military readiness activities carried out on military bases, installations, and operating and training areas, when proposing zoning ordinances or designating land uses covered by the general plan for land, or other territory adjacent to military facilities, or underlying designated military aviation routes and airspace.

(A) In determining the impact of new growth on military readiness activities, information provided by military facilities shall be considered. Cities and counties shall address military impacts based on information from the military and other sources.

(B) The following definitions govern this paragraph:

(i) “Military readiness activities” mean all of the following:

(I) Training, support, and operations that prepare the men and women of the military for combat.

(II) Operation, maintenance, and security of any military installation.

(III) Testing of military equipment, vehicles, weapons, and sensors for proper operation or suitability for combat use.

(ii) “Military installation” means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the United States Department of Defense as defined in paragraph (1) of subsection (g) of Section 2687 of Title 10 of the United States Code.

(b) (1) A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

(2) (A) Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.

(B) For purposes of this paragraph, “users of streets, roads, and highways” mean bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors.

(c) A housing element as provided in Article 10.6 (commencing with Section 65580).

(d) (1) A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. The conservation element shall consider the effect of development within the jurisdiction, as described in the land use element, on natural resources located on public lands, including military installations. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies, including flood management, water conservation, or groundwater agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the plan is prepared. Coordination shall include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city or county.

(2) The conservation element may also cover all of the following:

(A) The reclamation of land and waters.

(B) Prevention and control of the pollution of streams and other waters.

(C) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.

(D) Prevention, control, and correction of the erosion of soils, beaches, and shores.

(E) Protection of watersheds.

(F) The location, quantity, and quality of the rock, sand, and gravel resources.

(3) Upon the next revision of the housing element on or after January 1, 2009, the conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

(e) An open-space element as provided in Article 10.5 (commencing with Section 65560).

(f) (1) A noise element that shall identify and appraise noise problems in the community. The noise element shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

(A) Highways and freeways.

(B) Primary arterials and major local streets.

(C) Passenger and freight online railroad operations and ground rapid transit systems.

(D) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

(E) Local industrial plants, including, but not limited to, railroad classification yards.

(F) Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

(2) Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average sound level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

(3) The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

(4) The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state’s noise insulation standards.

(g) (1) A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards identified pursuant to Chapter 7.8

(commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

(2) The safety element, upon the next revision of the housing element on or after January 1, 2009, shall also do the following:

(A) Identify information regarding flood hazards, including, but not limited to, the following:

(i) Flood hazard zones. As used in this subdivision, "flood hazard zone" means an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency (FEMA). The identification of a flood hazard zone does not imply that areas outside the flood hazard zones or uses permitted within flood hazard zones will be free from flooding or flood damage.

(ii) National Flood Insurance Program maps published by FEMA.

(iii) Information about flood hazards that is available from the United States Army Corps of Engineers.

(iv) Designated floodway maps that are available from the Central Valley Flood Protection Board.

(v) Dam failure inundation maps prepared pursuant to Section 8589.5 that are available from the Office of Emergency Services.

(vi) Awareness Floodplain Mapping Program maps and 200-year flood plain maps that are or may be available from, or accepted by, the Department of Water Resources.

(vii) Maps of levee protection zones.

(viii) Areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls.

(ix) Historical data on flooding, including locally prepared maps of areas that are subject to flooding, areas that are vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.

(x) Existing and planned development in flood hazard zones, including structures, roads, utilities, and essential public facilities.

(xi) Local, state, and federal agencies with responsibility for flood protection, including special districts and local offices of emergency services.

(B) Establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including, but not limited to:

(i) Avoiding or minimizing the risks of flooding to new development.

(ii) Evaluating whether new development should be located in flood hazard zones, and identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones.

(iii) Maintaining the structural and operational integrity of essential public facilities during flooding.

(iv) Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or identifying construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.

(v) Establishing cooperative working relationships among public agencies with responsibility for flood protection.

(C) Establish a set of feasible implementation measures designed to carry out the goals, policies, and objectives established pursuant to subparagraph (B).

(3) Upon the next revision of the housing element on or after January 1, 2014, the safety element shall be reviewed and updated as necessary to address the risk of fire for land classified as state responsibility areas, as defined in Section 4102 of the Public Resources Code, and land classified as very high fire hazard severity zones, as defined in Section 51177. This review shall consider the advice included in the Office of Planning and Research's most recent publication of "Fire Hazard Planning, General Plan Technical Advice Series" and shall also include all of the following:

(A) Information regarding fire hazards, including, but not limited to, all of the following:

(i) Fire hazard severity zone maps available from the Department of Forestry and Fire Protection.

(ii) Any historical data on wildfires available from local agencies or a reference to where the data can be found.

(iii) Information about wildfire hazard areas that may be available from the United States Geological Survey.

(iv) General location and distribution of existing and planned uses of land in very high fire hazard severity zones and in state responsibility areas, including structures, roads, utilities, and essential public facilities. The location and distribution of planned uses of land shall not require defensible space compliance measures required by state law or local ordinance to occur on publicly owned lands or open space designations of homeowner associations.

(v) Local, state, and federal agencies with responsibility for fire protection, including special districts and local offices of emergency services.

(B) A set of goals, policies, and objectives based on the information identified pursuant to subparagraph (A) for the protection of the community from the unreasonable risk of wildfire.

(C) A set of feasible implementation measures designed to carry out the goals, policies, and objectives based on the information identified pursuant to subparagraph (B) including, but not limited to, all of the following:

(i) Avoiding or minimizing the wildfire hazards associated with new uses of land.

(ii) Locating, when feasible, new essential public facilities outside of high fire risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in a state responsibility area or very high fire hazard severity zone.

(iii) Designing adequate infrastructure if a new development is located in a state responsibility area or in a very high fire hazard severity zone, including safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression.

(iv) Working cooperatively with public agencies with responsibility for fire protection.

(D) If a city or county has adopted a fire safety plan or document separate from the general plan, an attachment of, or reference to, a city or county's adopted fire safety plan or document that fulfills commensurate goals and objectives and contains information required pursuant to this paragraph.

(4) Upon the next revision of a local hazard mitigation plan, adopted in accordance with the federal Disaster Mitigation Act of 2000 (Public Law 106-390), on or after January 1, 2017, or, if a local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, the safety element shall be reviewed and updated as necessary to address climate adaptation and resiliency strategies applicable to the city or county. This review shall consider advice provided in the Office of Planning and Research's General Plan Guidelines and shall include all of the following:

(A) (i) A vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts, including, but not limited to, an assessment of how climate change may affect the risks addressed pursuant to paragraphs (2) and (3).

(ii) Information that may be available from federal, state, regional, and local agencies that will assist in developing the vulnerability assessment and the adaptation policies and strategies required pursuant to subparagraph (B), including, but not limited to, all of the following:

(I) Information from the Internet-based Cal-Adapt tool.

(II) Information from the most recent version of the California Adaptation Planning Guide.

(III) Information from local agencies on the types of assets, resources, and populations that will be sensitive to various climate change exposures.

(IV) Information from local agencies on their current ability to deal with the impacts of climate change.

(V) Historical data on natural events and hazards, including locally prepared maps of areas subject to previous risk, areas that are vulnerable, and sites that have been repeatedly damaged.

(VI) Existing and planned development in identified at-risk areas, including structures, roads, utilities, and essential public facilities.

(VII) Federal, state, regional, and local agencies with responsibility for the protection of public health and safety and the environment, including special districts and local offices of emergency services.

(B) A set of adaptation and resilience goals, policies, and objectives based on the information specified in subparagraph (A) for the protection of the community.

(C) A set of feasible implementation measures designed to carry out the goals, policies, and objectives identified pursuant to subparagraph (B) including, but not limited to, all of the following:

(i) Feasible methods to avoid or minimize climate change impacts associated with new uses of land.

(ii) The location, when feasible, of new essential public facilities outside of at-risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in at-risk areas.

(iii) The designation of adequate and feasible infrastructure located in an at-risk area.

(iv) Guidelines for working cooperatively with relevant local, regional, state, and federal agencies.

(v) The identification of natural infrastructure that may be used in adaptation projects, where feasible. Where feasible, the plan shall use existing natural features and ecosystem processes, or the restoration of natural features and ecosystem processes, when developing alternatives for consideration. For the purposes of this clause, "natural infrastructure" means the preservation or restoration of ecological systems, or utilization of engineered systems that use ecological processes, to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but is not limited to, floodplain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days.

(D) (i) If a city or county has adopted the local hazard mitigation plan, or other climate adaptation plan or document that fulfills commensurate goals and objectives and contains the information required pursuant to this paragraph, separate from the general plan, an attachment of, or reference to, the local hazard mitigation plan or other climate adaptation plan or document.

(ii) Cities or counties that have an adopted hazard mitigation plan, or other climate adaptation plan or document that substantially complies with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions, climate adaptation plan or document, specifically showing how each requirement of this subdivision has been met.

(5) After the initial revision of the safety element pursuant to paragraphs (2) and (3) upon each revision of the housing element, the planning agency shall review and, if necessary, revise the safety element to identify new information relating to flood and fire hazards that was not available during the previous revision of the safety element.

(6) Cities and counties that have flood plain management ordinances that have been approved by FEMA that substantially comply with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions or the flood plain ordinance, specifically showing how each requirement of this subdivision has been met.

(7) Prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county shall consult the California Geological Survey of the Department of Conservation, the Central Valley Flood Protection Board, if the city or county is located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in

Section 8501 of the Water Code, and the Office of Emergency Services for the purpose of including information known by and available to the department, the agency, and the board required by this subdivision.

(8) To the extent that a county's safety element is sufficiently detailed and contains appropriate policies and programs for adoption by a city, a city may adopt that portion of the county's safety element that pertains to the city's planning area in satisfaction of the requirement imposed by this subdivision.

(h) (1) An environmental justice element, or related goals, policies, and objectives integrated in other elements, that identifies disadvantaged communities within the area covered by the general plan of the city, county, or city and county, if the city, county, or city and county has a disadvantaged community. The environmental justice element, or related environmental justice goals, policies, and objectives integrated in other elements, shall do all of the following:

(A) Identify objectives and policies to reduce the unique or compounded health risks in disadvantaged communities by means that include, but are not limited to, the reduction of pollution exposure, including the improvement of air quality, and the promotion of public facilities, food access, safe and sanitary homes, and physical activity.

(B) Identify objectives and policies to promote civil engagement in the public decisionmaking process.

(C) Identify objectives and policies that prioritize improvements and programs that address the needs of disadvantaged communities.

(2) A city, county, or city and county subject to this subdivision shall adopt or review the environmental justice element, or the environmental justice goals, policies, and objectives in other elements, upon the adoption or next revision of two or more elements concurrently on or after January 1, 2018.

(3) By adding this subdivision, the Legislature does not intend to require a city, county, or city and county to take any action prohibited by the United States Constitution or the California Constitution.

(4) For purposes of this subdivision, the following terms shall apply:

(A) "Disadvantaged communities" means an area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.

(B) "Public facilities" includes public improvements, public services, and community amenities, as defined in subdivision (d) of Section 66000.

(C) “Low-income area” means an area with household incomes at or below 80 percent of the statewide median income or with household incomes at or below the threshold designated as low income by the Department of Housing and Community Development’s list of state income limits adopted pursuant to Section 50093.

SEC. 2.

Section 1.5 of this bill incorporates amendments to Section 65302 of the Government Code proposed by this bill and Assembly Bill 2651. It shall only become operative if (1) both bills are enacted and become effective on or before January 1, 2017, (2) each bill amends Section 65302 of the Government Code, and (3) this bill is enacted after Assembly Bill 2651, in which case Section 65302 of the Government Code, as amended by Assembly Bill 2651, shall remain operative only until the operative date of this bill, at which time Section 1.5 of this bill shall become operative, and Section 1 of this bill shall not become operative.

SEC. 3.

No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

Appendix B: AB 1553

State of California

GOVERNMENT CODE

Section 65040.12

65040.12. (a) The office shall be the coordinating agency in state government for environmental justice programs.

(b) The director shall do all of the following:

(1) Consult with the Secretaries of California Environmental Protection, Natural Resources, Transportation, and Business, Consumer Services, and Housing, the Working Group on Environmental Justice established pursuant to Section 71113 of the Public Resources Code, any other appropriate state agencies, and all other interested members of the public and private sectors in this state.

(2) Coordinate the office's efforts and share information regarding environmental justice programs with the Council on Environmental Quality, the United States Environmental Protection Agency, the General Accounting Office, the Office of Management and Budget, and other federal agencies.

(3) Review and evaluate any information from federal agencies that is obtained as a result of their respective regulatory activities under federal Executive Order 12898, and from the Working Group on Environmental Justice established pursuant to Section 71113 of the Public Resources Code.

(c) When it adopts its next edition of the general plan guidelines pursuant to Section 65040.2, but in no case later than July 1, 2003, the office shall include guidelines for addressing environmental justice matters in city and county general plans. The offices hall hold at least one public hearing prior to the release of any draft guidelines, and at least one public hearing after the release of the draft guidelines. The hearings maybe held at the regular meetings of the Planning Advisory and Assistance Council.

(d) The guidelines developed by the office pursuant to subdivision (c) shall recommend provisions for general plans to do all of the following:

(1) Propose methods for planning for the equitable distribution of new public facilities and services that increase and enhance community quality of life throughout the community, given the fiscal and legal constraints that restrict the siting of these facilities.

(2) Propose methods for providing for the location, if any, of industrial facilities and uses that, even with the best available technology, will contain or produce material that, because of its quantity, concentration, or physical or chemical characteristics,poses a significant hazard to human health and safety, in a manner that seeks to avoid over concentrating these uses in proximity to schools or residential dwellings.

(3) Propose methods for providing for the location of new schools and residential dwellings in a manner that seeks to avoid locating these uses in proximity to industrial facilities and uses that will contain or produce material that because of its quantity, concentration, or physical or chemical characteristics, poses a significant hazard to human health and safety.

(4) Propose methods for promoting more livable communities by expanding opportunities for transit-oriented development so that residents minimize traffic and pollution impacts from traveling for purposes of work, shopping, schools, and Recreation.

(e) For the purposes of this section, “environmental justice” means the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.

(Amended by Stats. 2013, Ch. 353, Sec. 108. (SB 820) Effective September 26, 2013. Operative July 1, 2013, by Sec. 129 of Ch. 353.)

Appendix C: Weighted Spatial Interpolation Data

CalEnviroScreen 3.0 - City of Riverside - City Wide Scores		
	Count	**Percentile**
CES 3.0 Scores	**34.35**	**60.37%**
Pollution Burden	**6.2**	**74.40%**
Exposures		
1. Ozone Concentration	0.06	94.68%
2. PM 2.5 Concentration	12.21	81.03%
3. Diesel PM Emissions	20.10	56.15%
4. Pesticide Use	1.75	13.27%
5. Drinking Water Contaminants	899.83	93.41%
6. Toxic Releases from Facilities	3,046.29	65.62%
7. Traffic Density	942.86	53.09%
Environmental Effects		
1. Cleanup Sites	5.13	28.04%
2. Groundwater Threats	4.62	21.57%
3. Hazardous Waste	0.14	36.99%
4. Impaired Water Bodies	0.53	7.16%
5. Solid Waste Sites and Facilities	0.47	11.32%
Population Characteristics	**5.30**	**51.10%**

Sensitive Populations		
1. Asthma ER Visits	46.54	47.51%
2. Cardiovascular Disease	9.07	60.57%
3. Low Birth Weight Infants	5.11	52.49%
Socioeconomic Factors		
1. Educational Attainment	17.95	49.21%
2. Housing Burdened	17.99	48.80%
3. Linguistic Isolation*	--	--
4. Poverty	34.74	48.45%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 1

CalEnviroScreen 3.0 - City of Riverside Ward 1 - Scores		
	Count	**Percentile**
CES 3.0 Score	**18.23**	**31.93%**
Pollution Burden	**4.13**	**29.75%**
Exposures		
1. Ozone Concentration	0.061088	89.90%
2. PM 2.5 Concentration	9.39	38.83%
3. Diesel PM Emissions	11.84	34.53%
4. Pesticide Use	0.46	3.42%
5. Drinking Water Contaminants	801.78	81.71%

6. Toxic Releases from Facilities	261.78	26.33%
7. Traffic Density	657.74	43.01%
Environmental Effects		
1. Cleanup Sites	1.174	7.88%
2. Groundwater Threats	0.36	1.54%
3. Hazardous Waste	0.008386	4.88%
4. Impaired Water Bodies	1.002387	10.31%
5. Solid Waste Sites and Facilities	0.934474	23.82%
Population Characteristics	**4.28**	**36.85%**
Sensitive Populations		
1. Asthma ER Visits	34.22	29.19%
2. Cardiovascular Disease	7.81	44.30%
3. Low Birth Weight Infants	4.86	50.58%
Socioeconomic Factors		
1. Educational Attainment	14.12	47.54%
2. Housing Burdened	14.30	35.08%
3. Linguistic Isolation*	--	--
4. Poverty	28.56	41.43%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 2

CalEnviroScreen 3.0 - City of Riverside Ward 2 - Scores		
	Count	**Percentile**
CES 3.0 Score	**42.47**	**68.59%**
Pollution Burden	**7.03**	**79.00%**
Exposures		
1. Ozone Concentration	0.06282	93.64%
2. PM 2.5 Concentration	12.26	82.83%
3. Diesel PM Emissions	18.29	52.79%
4. Pesticide Use	5.57	26.14%
5. Drinking Water Contaminants	906.79	95.21%
6. Toxic Releases from Facilities	6,663.04	81.90%
7. Traffic Density	1,335.28	68.77%
Environmental Effects		
1. Cleanup Sites	12.83	58.48%
2. Groundwater Threats	6.41	33.07%
3. Hazardous Waste	0.266819	49.58%
4. Impaired Water Bodies	0.017852	0.17%
5. Solid Waste Sites and Facilities	0.029572	0.30%
Population Characteristics	**5.65**	**55.80%**
Sensitive Populations		

1. Asthma ER Visits	46.08	49.48%
2. Cardiovascular Disease	8.54	55.74%
3. Low Birth Weight Infants	4.25	36.10%
Socioeconomic Factors		
1. Educational Attainment	27.53	62.40%
2. Housing Burdened	26.00	70.13%
3. Linguistic Isolation*	--	--
4. Poverty	42.97	59.40%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 3

CalEnviroScreen 3.0 - City of Riverside Ward 3 - Scores		
	Count	**Percentile**
CES 3.0 Score	**25.00**	**48.13%**
Pollution Burden	**6.11**	**70.06%**
Exposures		
1. Ozone Concentration	0.063865	95.05%
2. PM 2.5 Concentration	12.52	85.62%
3. Diesel PM Emissions	27.26	73.73%
4. Pesticide Use	0.40	15.80%
5. Drinking Water Contaminants	943.36	97.36%
6. Toxic Releases from Facilities	2,617.32	69.90%

7. Traffic Density	684.16	42.28%
Environmental Effects		
1. Cleanup Sites	1.03	13.17%
2. Groundwater Threats	0.75	3.18%
3. Hazardous Waste	0.110617	39.47%
4. Impaired Water Bodies	0.23	3.39%
5. Solid Waste Sites and Facilities	0.00085	0.02%
Population Characteristics	**4.06**	**33.49%**
Sensitive Populations		
1. Asthma ER Visits	41.36	43.09%
2. Cardiovascular Disease	7.75	46.69%
3. Low Birth Weight Infants	5.28	59.91%
Socioeconomic Factors		
1. Educational Attainment	8.33	28.37%
2. Housing Burdened	15.15	35.62%
3. Linguistic Isolation*	--	--
4. Poverty	24.29	33.29%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 4

CalEnviroScreen 3.0 - City of Riverside Ward 4 - Scores		
	Count	**Percentile**

CES 3.0 Score	**37.02**	**66.53%**
Pollution Burden	**6.19**	**70.83%**
Exposures		
1. Ozone Concentration	0.061751	90.44%
2. PM 2.5 Concentration	12.88	88.67%
3. Diesel PM Emissions	26.26	70.46%
4. Pesticide Use	1.04	4.87%
5. Drinking Water Contaminants	922.57	96.14%
6. Toxic Releases from Facilities	4,511.68	77.96%
7. Traffic Density	584.27	31.18%
Environmental Effects		
1. Cleanup Sites	2.31	19.57%
2. Groundwater Threats	7.78	36.83%
3. Hazardous Waste	0.11957	36.55%
4. Impaired Water Bodies	0.29	4.40%
5. Solid Waste Sites and Facilities	0.005234	0.02%
Population Characteristics	**5.79**	**57.94%**
Sensitive Populations		
1. Asthma ER Visits	50.07	53.36%
2. Cardiovascular Disease	10.78	80.33%
3. Low Birth Weight Infants	5.06	48.58%

Socioeconomic Factors		
1. Educational Attainment	22.90	61.63%
2. Housing Burdened	17.81	45.04%
3. Linguistic Isolation*	--	--
4. Poverty	30.26	41.66%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 5

CalEnviroScreen 3.0 - City of Riverside Ward 5 - Scores		
	Count	**Percentile**
CES 3.0 Score	**41.92**	**72.69%**
Pollution Burden	**6.79**	**82.58%**
Exposures		
1. Ozone Concentration	0.060491	88.41%
2. PM 2.5 Concentration	12.74	89.83%
3. Diesel PM Emissions	22.61	66.84%
4. Pesticide Use	0.000734	0.02%
5. Drinking Water Contaminants	875.34	93.39%
6. Toxic Releases from Facilities	4,050.76	77.06%
7. Traffic Density	969.06	54.03%
Environmental Effects		
1. Cleanup Sites	7.00	49.79%

2. Groundwater Threats	8.47	36.71%
3. Hazardous Waste	0.219135	58.33%
4. Impaired Water Bodies	0.431557	6.46%
5. Solid Waste Sites and Facilities	0.271299	5.03%
Population Characteristics	**6.08**	**62.16%**
Sensitive Populations		
1. Asthma ER Visits	44.50	46.48%
2. Cardiovascular Disease	10.29	73.29%
3. Low Birth Weight Infants	6.46	73.23%
Socioeconomic Factors		
1. Educational Attainment	23.07	56.18%
2. Housing Burdened	19.71	54.50%
3. Linguistic Isolation*	--	--
4. Poverty	38.29	52.72%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 6

CalEnviroScreen 3.0 - City of Riverside Ward 6 - Scores		
	Count	**Percentile**
CES 3.0 Score	**30.74**	**56.32%**
Pollution Burden	**6.58**	**78.11%**

Exposures		
1. Ozone Concentration	0.063746	95.05%
2. PM 2.5 Concentration	12.82	88.60%
3. Diesel PM Emissions	12.88	37.66%
4. Pesticide Use	4.32	41.72%
5. Drinking Water Contaminants	942.84	95.07%
6. Toxic Releases from Facilities	2,371.56	68.33%
7. Traffic Density	988.75	57.14%
Environmental Effects		
1. Cleanup Sites	0.63	5.90%
2. Groundwater Threats	3.08	14.97%
3. Hazardous Waste	0.161808	37.36%
4. Impaired Water Bodies	1.59	22.60%
5. Solid Waste Sites and Facilities	1.36	31.10%
Population Characteristics	**4.52**	**40.05%**
Sensitive Populations		
1. Asthma ER Visits	34.92	32.67%
2. Cardiovascular Disease	8.22	49.56%
3. Low Birth Weight Infants	4.98	51.64%
Socioeconomic Factors		
1. Educational Attainment	14.05	41.74%
2. Housing Burdened	9.32	30.99%

3. Linguistic Isolation*	--	--
4. Poverty	30.68	41.59%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Ward 7

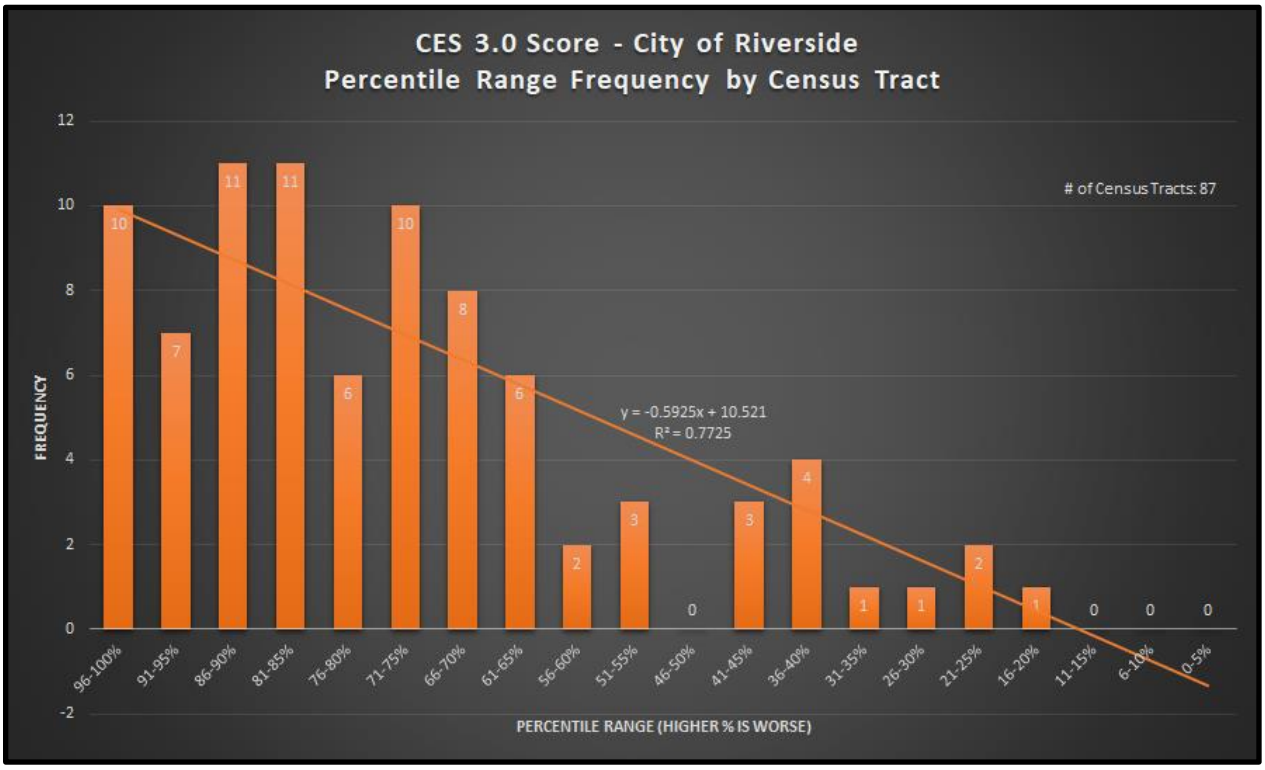
CalEnviroScreen 3.0 - City of Riverside Ward 7 - Scores		
	Count	**Percentile**
CES 3.0 Score	**34.35**	**78.39%**
Pollution Burden	**6.58**	**74.85%**
Exposures		
1. Ozone Concentration	0.064998	97.99%
2. PM 2.5 Concentration	12.87	92.79%
3. Diesel PM Emissions	21.55	57.03%
4. Pesticide Use	0.48	0.98%
5. Drinking Water Contaminants	905.81	95.02%
6. Toxic Releases from Facilities	847.86	57.85%
7. Traffic Density	1,380.78	75.24%
Environmental Effects		
1. Cleanup Sites	10.95	41.50%
2. Groundwater Threats	5.52	24.70%
3. Hazardous Waste	0.160945	32.75%
4. Impaired Water Bodies	0.189248	2.80%
5. Solid Waste Sites and	0.71	18.98%

Facilities		
Population Characteristics	**6.72**	**71.41%**
Sensitive Populations		
1. Asthma ER Visits	74.65	78.31%
2. Cardiovascular Disease	10.13	74.09%
3. Low Birth Weight Infants	4.84	47.39%
Socioeconomic Factors		
1. Educational Attainment	15.69	46.62%
2. Housing Burdened	23.64	70.26%
3. Linguistic Isolation*	--	--
4. Poverty	48.11	69.03%
5. Unemployment*	--	--

**Data output was corrupted for these indicators*

Appendix D: CES Scores by Census Tract

CES Score of Census Tracts by Frequency within Percentile Range

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UNIVERSITY OF CALIFORNIA
School of Public Policy