APPENDIX R – ENVIRONMENTAL JUSTICE ANALYSIS

INTRODUCTION

An important requirement of preparing the 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), also known as Valley Vision Stanislaus (VVS), is conducting an Environmental Justice (EJ) analysis. An EJ analysis is intended to protect low-income and minority individuals in Stanislaus County by identifying and addressing any disproportionately high and adverse effects of the 2018 RTP/SCS on minority and low-income populations (i.e., EJ communities). The goal is to achieve an equitable distribution of benefits and burdens across all communities in the County, including EJ communities.

Environmental Justice means both objectively evaluating the transportation projects and expenditures proposed within the 2018 RTP/SCS and ensuring that there is full and fair participation by all potentially affected communities in the 2018 RTP/SCS decision-making process. This EJ analysis covers the technical methodologies used to measure and evaluate the distribution and effects of the elements contained within the 2018 RTP/SCS. The analysis focuses particularly on the cost and benefits of these projects in relation to EJ communities. The outreach efforts of StanCOG to ensure full and fair participation by impacted communities is described in Chapter 11 in the RTP/SCS as well as Appendix P.

FEDERAL AND STATE REQUIREMENTS

A number of federal and state laws and regulations govern how an EJ analysis is conducted. These include Title VI of the federal Civil Rights Act of 1964, Section 11135 of the California Government Code, Presidential Executive Order 12898 on EJ, and the U.S. Department of Transportation (DOT) EJ Order 5610.2(A):

- Title VI of the Civil Rights Act of 1964 prohibits discrimination by recipients of federal funds on the basis of race, color or national origin. Additionally, Title VI imposes obligations on recipients of federal funds to take affirmative action to assure, among other things, "that no person is excluded from participation in or denied the benefits of the program or activity on the grounds of race, color, or national origin."
- Section 11135 of the California Government Code states that "[n]o person in the State of California shall, on the basis of sex, race, color, religion, ancestry, national origin, ethnic group identification, age, mental disability, physical disability, medical condition, genetic information, marital status, or sexual orientation, be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted, operated, or administered by the state or by any state agency, is funded directly by the state, or receives any financial assistance from the state."
- Presidential Executive Order 12898 requires that federal agencies whose programs, policies, and activities substantially affect human health or the environment conduct them in such a way that they "do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin." It also

requires that federal agencies and recipients of federal funding identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations.

— DOT EJ Order 5610.2(A) specifies that operations carried out or overseen by the department must incorporate (1) identifying and evaluating environmental, public health, and interrelated social and economic effects of its actions; (2) proposing measures to avoid, minimize and/or mitigate disproportionately high and adverse environmental and public health effects and interrelated social and economic effects; (3) considering alternatives that would result in avoiding and/or minimizing disproportionately high and adverse human health or environmental impacts; and (4) eliciting public involvement opportunities including soliciting input from affected minority and low-income populations in considering alternatives.

The requirement for an EJ analysis stems in particular from Presidential Executive Order 12898, with its requirement to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations. Subsequent documentation provides additional guidance on how to carry out an EJ analysis. Federal Transit Administration (FTA) Circular 4703.1, for example, describes a four-step process for conducting an EJ analysis: "Step 1: Know your community by analyzing demographic data. Step 2: Develop Public Engagement Plan that responds to the community. Step 3: Consider proposed project and likely adverse effects and benefits. Step 4: Select alternative, incorporate mitigation as needed."

In short, in the transportation and regional planning context StanCOG must ensure there is equity in the distribution of benefits and impacts resulting from transportation investments proposed in the 2018 RTP/SCS. StanCOG must also provide an equal opportunity for all segments of the population to provide input into the regional transportation planning process. (As noted above, the outreach efforts of StanCOG and the participation by impacted communities are described in the RTP/SCS.) The following sections of this EJ analysis, consistent with the federal and state guidelines and Title VI, describe the technical approach and Scenario 2's performance regarding burdens and/or benefits based on the proposed projects.

METHODOLOGY

Through the use of demographic and transportation data, StanCOG establishes the extent to which identified EJ populations are disproportionately impacted by the proposed transportation investments within Scenario 2. The analysis details the benefits and burdens of the investments by comparing impacts in identified EJ areas against those in non-EJ areas. This process is comprised of three key steps:

1. Collect socio-economic data on target populations.
2. Identify and locate low-income and minority populations (i.e., EJ communities or EJ areas).
3. Quantitatively assess the benefits and burdens of the transportation plan with respect to EJ communities.

Collecting Socioeconomic Data

As described in FTA Circular 4703.1, an EJ analysis starts with collecting basic socioeconomic information about the people who live in the region. This information on minority populations and low-income populations allows for the determination of EJ areas in the county, which are then used as a basis for evaluating the impacts of transportation investments. It should be noted that while documents such as FTA Circular 4703.1 provide guidance on how to determine EJ areas, there is no one right methodology.

Census Bureau data was used to determine the distribution patterns of low-income and minority populations. Specifically, data from the 2011-15 American Community Survey (ACS) 5-Year Estimates was gathered to establish racial, ethnic, and income-distribution patterns in the region. Census data offers the advantage of providing a diverse demographic profile at the census block level that roughly corresponds to the Traffic Analysis Zones (TAZs) used in StanCOG's travel-demand forecasting model.

Identifying EJ Communities

Identifying EJ communities requires that they be defined and mapped, meaning that the geographic units that comprise these communities be determined and that the minority/low-income thresholds that warrant a geographic unit's designation as an EJ area also be determined. The Census Block Group was chosen as the geographic unit of analysis. The Census Block Group is the smallest level of geography for which both racial/ethnic and income data are available. The 2011-2015 ACS 5-Year Estimates – the most recent data available in GIS format as of the initial analysis date – exist for Census Block Groups in Stanislaus County, and the ACS data includes both racial and household income statistics.

Census Bureau definitions of different racial and ethnic populations were used to identify minority status among persons living in Stanislaus County. Minority persons are those who identify as Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, some other race (other than white), multiple races, or Hispanic/Latino of any race. Non-minority persons are those self-reporting as white and not of Hispanic/Latino ethnic origin. According to the ACS, minorities comprised just over 55 percent of Stanislaus County's total population.

The ACS estimates of median household income were used to define "low-income" populations for Stanislaus County. The most recent estimates from the ACS show that the median household income in Stanislaus County was $50,125 in 2015. The standard convention among policymakers is to define "low-

income" households as those households making 80 percent or less of the median, or $40,100 in this case.

For the 2018 RTP/SCS, EJ areas are defined as those Census Block Groups that contained 60 percent or more minority populations or had a median household income of $40,100 or less. This definition was chosen so that EJ areas did not merely reflect Stanislaus County as a whole. Additionally, Census Block Groups with populations less than one person per acre were eliminated from the analysis. EJ and non-EJ Census Block Groups were then translated into the traffic analysis zones (TAZs), which represent the basic geographical unit of StanCOG's travel demand model. All TAZs that were more than 50 percent covered by an identified EJ Census Block Group were included as EJ TAZs. Figure 1 shows a map of EJ TAZs in Stanislaus County based on income (Figure 1 a), a map of EJ TAZs based on race and ethnicity (Figure 1 b), and a map of EJ TAZs based on the combined attributes (Figure 1 c).

Figure 1 (a). Environmental Justice (EJ) Areas by Income in Stanislaus County by Traffic Analysis Zone (TAZ)

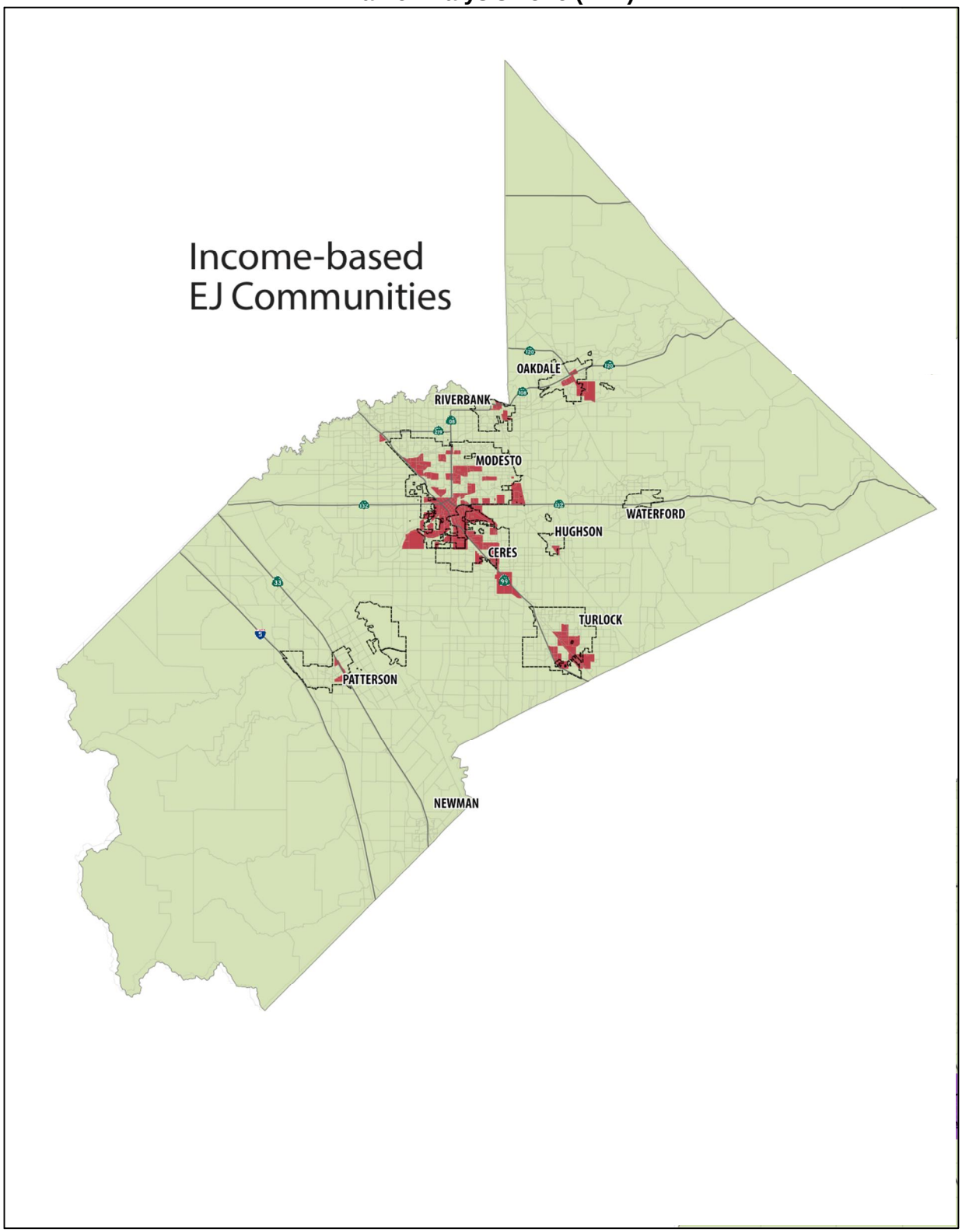


Figure 1 (b). Environmental Justice (EJ) Areas by Race in Stanislaus County by Traffic Analysis Zone (TAZ)

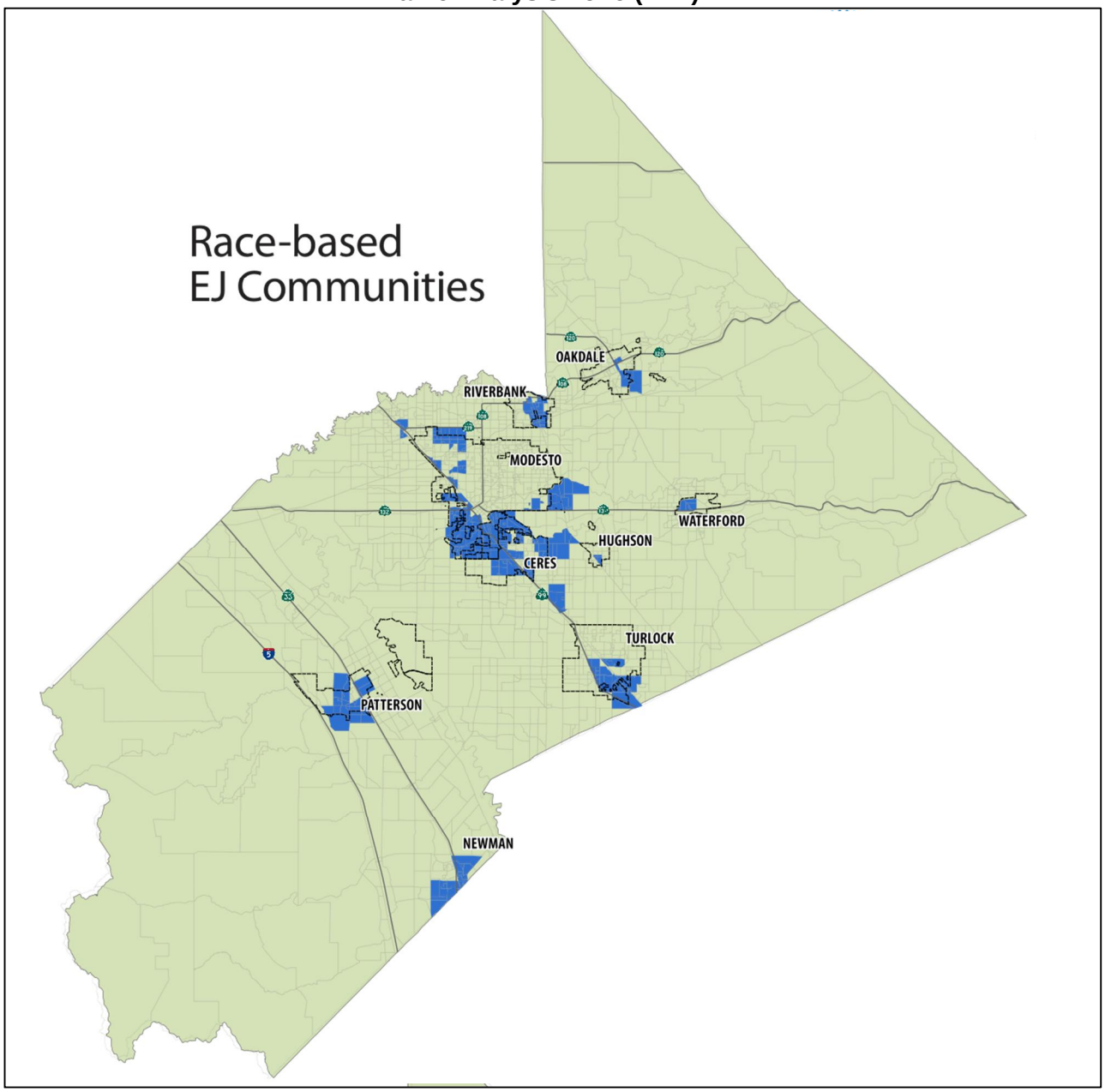
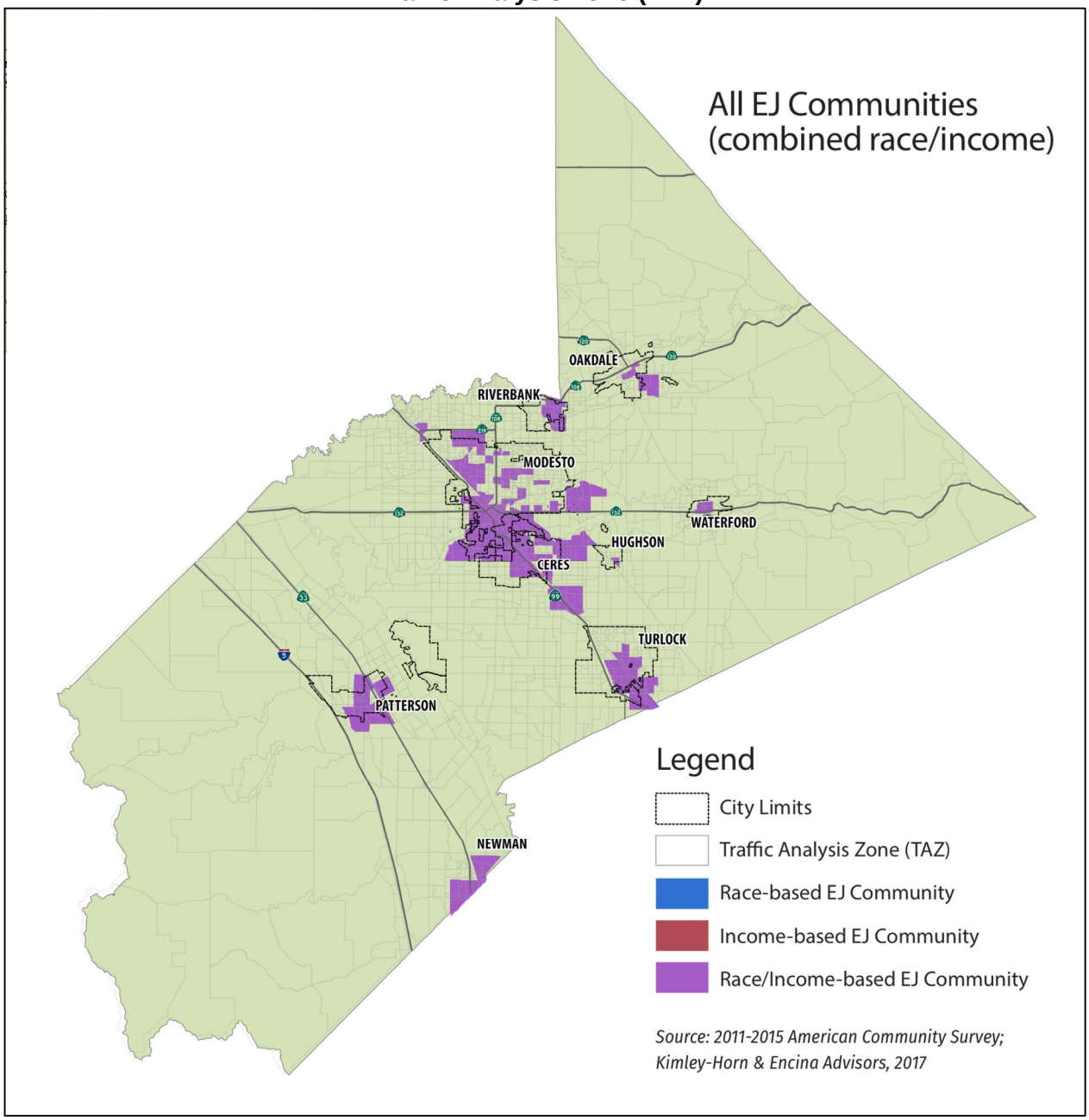


Figure 1 (c). Environmental Justice (EJ) Areas in Stanislaus County by Traffic Analysis Zone (TAZ)



Assessing the Transportation System

To determine if the proposed plan investments unduly benefit or burden any one population under Scenario 2, six performance measures were developed to compare the social equity impacts expected by 2035 within EJ areas and non-EJ areas. Each performance measure was evaluated between the 2018 RTP/SCS relative to a Business as Usual condition. The latter is represented by the RTP/SCS General Plan Trend Scenario. The results of this analysis are discussed in greater detail below.

PERFORMANCE MEASURES

Percentage of Low-Income Housing/Minority Population Within a Half-Mile of Transit

For populations with limited financial, physical or other means, having convenient access to transit is critical due to their potentially lower likelihood of having access to a vehicle. In order to analyze the equity of Scenario 2's transit investments, a comparison of households with walking access (i.e., within one half-mile) to a transit stop in EJ areas versus non-EJ areas was prepared. The percentage of the total EJ populations within a half-mile walking distance of a transit stop with transit service, relative to the percentage of households for the entire County, was calculated in ArcGIS using ESRI's Network Analyst.

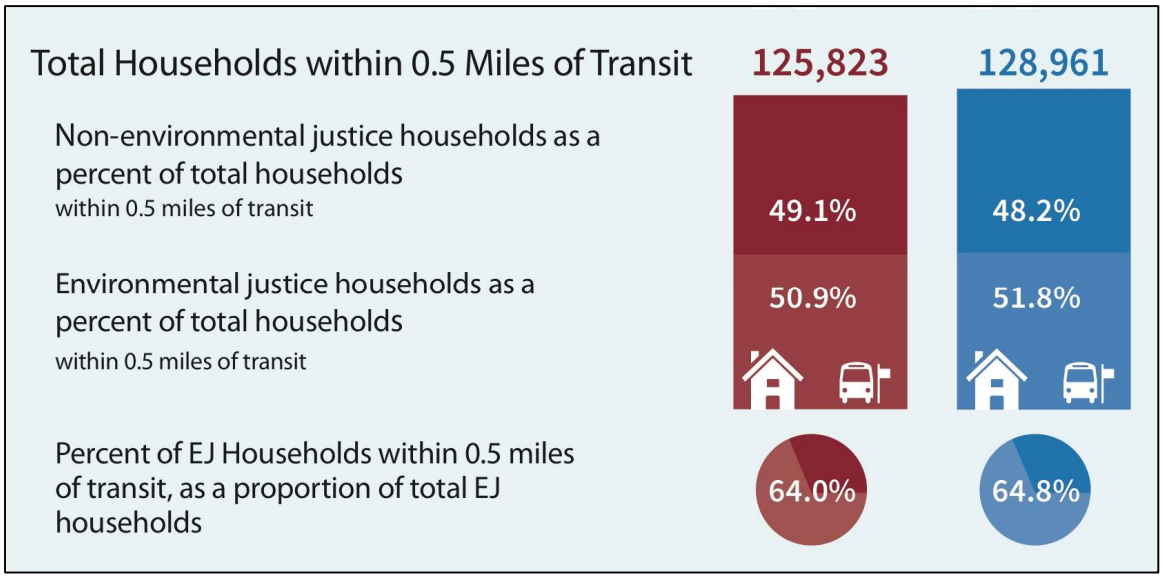
For this analysis, all in-service transit stops across Stanislaus County under Scenario 2 were identified, as well as the in-service transit stops under Scenario 1. ESRI's Network Analyst was used to create half-mile network distance polygons around both sets of transit stops. The number of households estimated to be within walking distance of a transit stop was then determined by estimating the number of TAZ households falling within the transit coverage polygons. These were estimated by measuring the proportion of the polygon areas that overlapped with each of the TAZs and applying these percentages to the TAZ household estimates.

Under Scenario 2, in 2035 an estimated 128,961 total households in Stanislaus County will be located within a half-mile of transit. Of these households, 51.8% will be households located in EJ areas compared with 48.2% located in non-EJ areas, resulting in slightly greater EJ access. This ratio compares favorably to the ratio of EJ households to non-EJ households in Stanislaus County as a whole, 47.4% to 52.6%. Altogether, about 64.8% of all EJ households will be within a half-mile of transit.

Under Scenario 1 , EJ communities would fare well but less well than under Scenario 2. In this case, fewer total households (125,823) would be located within a half-mile of transit, and only 50.9% of the total would be located in EJ areas compared with 49.1% located in non-EJ areas. The ratio would still compare favorably to the ratio of EJ households to non-EJ households in the County, 46.1% to 53.9%, and about 64.0% of all EJ households would be within a half-mile of transit. The comparison between Scenario 1 and Scenario 2 is shown in Figure 2 below.

One reason why Scenario 2 achieves better access to transit than Business as Usual is because of Scenario 2's emphasis on more compact, mixed-use, and infill development, especially in downtowns. This means that more new housing under Scenario 2 is located near transit. Under Scenario 2, 32.4% of new households are located within a half-mile of transit compared with 25.2% under Scenario 1, an increase of nearly 30%. The increase in new EJ households located within a half-mile of transit is larger under Scenario 2 (15.2%) compared with Scenario 1 (9.9%).

Figure 2. Total Households Within a Half-Mile of Transit Under Scenario 1 (in Red) and Scenario 2 (in Blue)



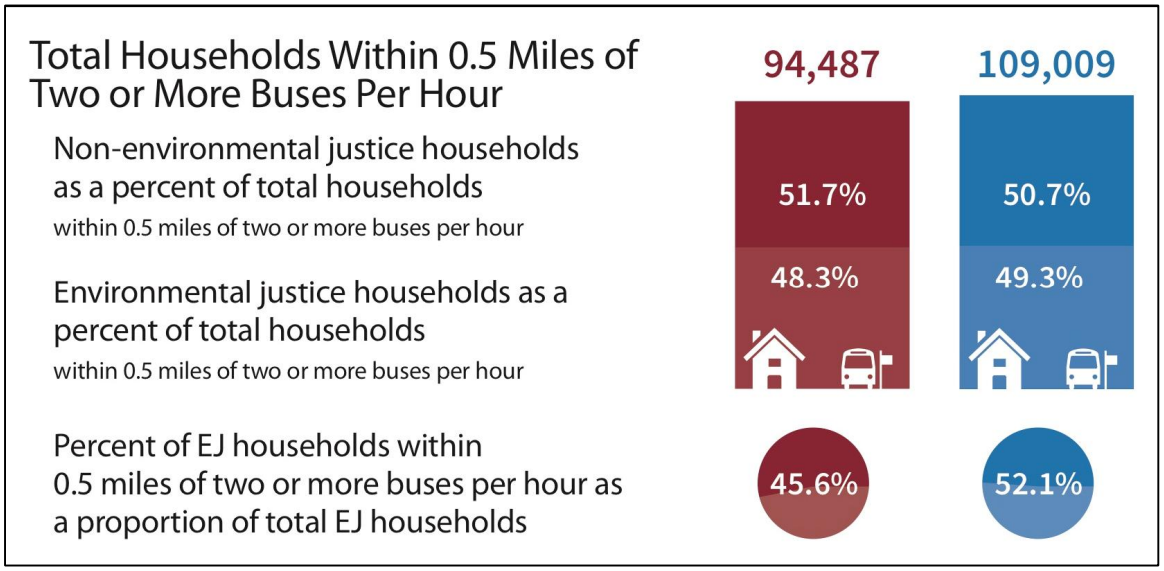
Percentage of Low-Income Housing/Minority Population Within a Half-Mile of Frequent Transit

A similar transit analysis as above was performed with respect to households within a half-mile of frequent transit. Here, transit stops across Stanislaus County were attributed with the number of buses serving them per day and an average headway was calculated using the number of bus arrivals over an average service span of 15 hours. Frequent transit service is defined as two or more buses per hour (i.e., 30 minute headways). ESRI's Network Analyst was used to create a half-mile network distance polygon around all frequent transit stops under Scenario 2 and under Scenario 1. These polygons were then overlapped with TAZs as before.

Under Scenario 2, in 2035 an estimated 109,009 total households in Stanislaus County will be located within a half-mile of frequent transit. Of these households, 49.3% will be households located in EJ areas compared with 50.7% located in non-EJ areas. Although lower than the ratio for all transit, this ratio still compares well against the ratio of EJ households to non-EJ households in the County as a whole, 47.4% to 52.6%. In total, about 52.1% of all EJ households will be within a half-mile of frequent transit.

Under Scenario 1, EJ communities would again fare less well than under Scenario 2. Fewer total households (94,487) would be located within a half-mile of frequent transit, and only 48.3% of these would be located in EJ areas compared to 51.7% located in non-EJ areas. The Business as Usual ratio would still compare favorably to the ratio of EJ households to non-EJ households in the County, 46.1% to 53.9%, but only about 45.6% of all EJ households would be within a half-mile of frequent transit. The comparison between Scenario 1 and Scenario 2 is shown in Figure 3 below.

Figure 3. Total Households Within a Half-Mile of Frequent Transit Under Scenario 1 (in Red) and Scenario 2 (in Blue)



Percentage of Low-Income/Minority Population Benefiting from Roadway Expenditures

To measure the extent that EJ areas benefit from roadway expenditures compared to non-EJ areas, an equity analysis of the relative benefit received from roadway improvement expenditures was performed. Using the StanCOG travel demand model, a select link analysis was performed on approximately 30 Tier I (financially constrained) regionally significant roadway projects identified in Scenario 2. The analysis yields the percentage of vehicle trips on the selected portion of a facility that originated in an EJ area or non-EJ area.

To determine the utilization of improved roadway facilities by EJ communities, Tier I improvements from the RTP/SCS project list that will increase roadway capacity were included. Representative model links for the projects were selected and specified by their model link "A" and "B" nodes. Using select link analysis, trips that traverse the selected links from EJ communities were traced to their origins. The percentage share of these trips in relationship to the total forecasted traffic on these facilities was then determined.

Out of the 33 evaluated projects, eight traverse entirely within environmental justice areas, ten do not, and the remaining 15 traverse both environmental justice and non-environmental justice areas. Based on this 2035 analysis, EJ populations were shown to utilize the improved facilities slightly less than non-EJ populations. EJ population trips accounted for 47% of all trips projected to utilize improved roadways, while non-EJ populations accounted for 53% of all trips. However, the RTP roadway capacity increasing projects provide benefit to environmental justice areas by 7.7% more than would be needed to provide equal benefit to the 39.2% of county residents living in environmental justice areas. So despite a slightly higher percentage of over-all benefit to non-EJ populations, the benefit of roadway capacity increasing project investments identified in the RTP/SCS for EJ populations exceed the relative share of the EJ population in the Stanislaus region.

Percentage of Housing Within 500 feet of a Major Transportation Corridor

Proximity to major transportation facilities can increase a population's exposure to health-based air contaminants emitted from motor vehicles, as well as re-entrained road dust caused by moving vehicles. To determine the proportion of EJ communities that may be subject to these conditions, an analysis was performed to compare the percentage of the EJ households relative to non-EJ households located within 500 feet of a major transportation facility. Major transportation facilities were considered to be any interstate or state-owned highways and arterials. The major transportation facilities in Stanislaus County were identified as follows: State Route 99, Interstate 5, SR 33, SR 132, SR 108, the Oakdale-Waterford Highway, and the North and South County Corridors.

A 500-foot buffer was created in ArcGIS for each of the major transportation facilities. The percentage of each TAZ that overlapped with these buffers was then calculated. The total number of households within each TAZ was then multiplied by the proportion of the overlapping area and combined to generate an estimate of the households within 500 feet of a major transportation facility. This procedure was repeated including only TAZ's that have been designated as environmental justice areas.

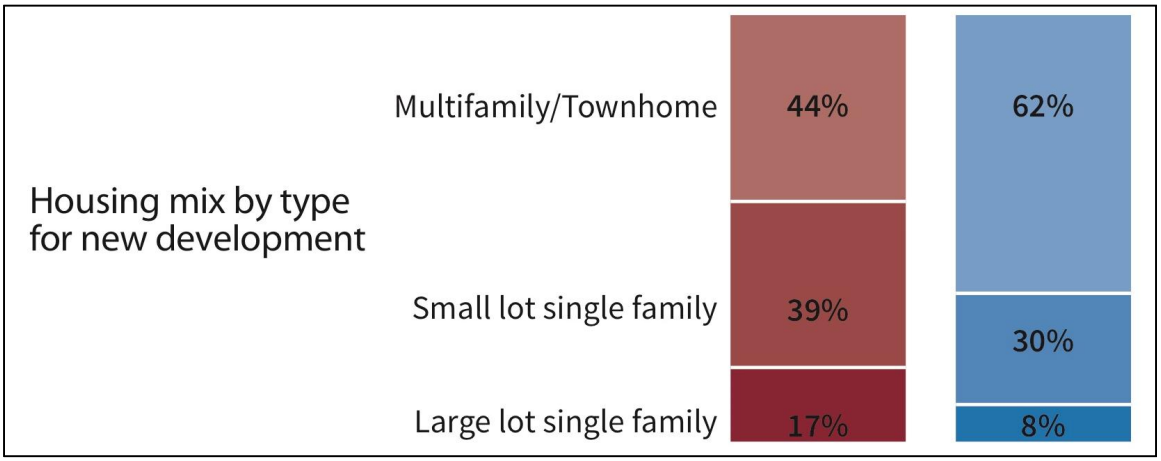
Under Scenario 2, 8.1% of EJ households will be located near major transportation corridors in 2035 while only 4.4% of non-EJ households will be. EJ households therefore will be nearly twice as likely to be within 500 feet of a major transportation corridor. This is, however, an improvement over Business as Usual. Under Business as Usual, 8.7% of EJ households would be located near major transportation corridors in 2035 while only 4.6% of non-EJ households would be. This is because Scenario 2 reduces the percentage of total households near major transportation corridors from 6.5% to 6.2% relative to the Business as Usual. Consequently, it can be inferred that EJ communities are likely to experience reductions in health-based impacts resulting from proximity to major transportation facilities under Scenario 2.

Disparity in Countywide Housing-Type Stock

Scenario 2 was developed using the scenario planning software Envision Tomorrow. Envision Tomorrow provides a suite of comparative measures to develop indicators for a range of factors, including housing-type distribution. A greater mix of housing types provides households greater ability to match their housing choice to their needs. These built-in indicators were used to evaluate the disparity in housing-types in Scenario 2 relative to Scenario 1.

Scenario 2 provides a good mix of housing types, with over 60% of new housing dedicated to multifamily housing and townhomes, and less than 40% dedicated to single-family homes. This compares with 44% of new housing dedicated to multifamily housing and townhomes and 56% dedicated to single-family homes under Scenario 1. Further, Scenario 2 will have half as many large lot and conventional lot single-family homes than Scenario 1, resulting in more affordable housing types. This is shown in Figure 4 below. This wider range of housing choices combined with smaller lot sizes will likely generate more housing choice for EJ communities and increase their ability to meet their housing needs.

Figure 4. Housing Mix by Type for New Development Under Scenario 1 (in Red) and Scenario 2 (in Blue)

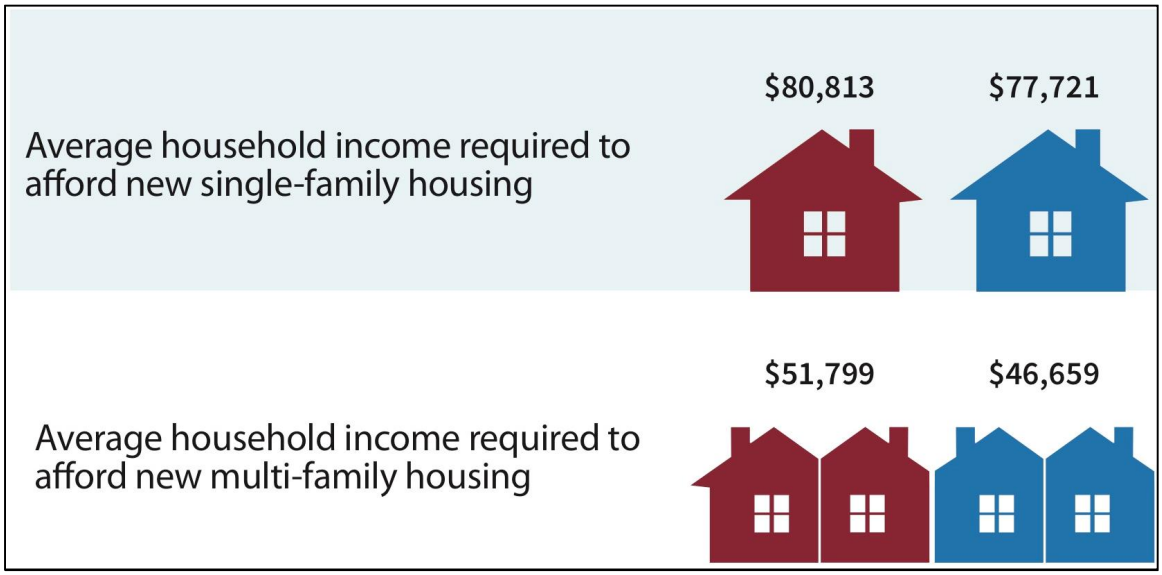


Availability and Variety of Housing at All Economic Levels

In addition to evaluating the distribution of housing types, Envision Tomorrow was also used to analyze the availability of new housing for the region by income level. It is important to provide not only a greater mix of housing, but affordable options for all populations as well. Scenario 2 provides greater access to housing for lower income households. The average household income required to afford new multi-family housing will decrease from $51,799 under Scenario 1 to $46,659 under Scenario 2, a reduction of over $5,000 a year. Similarly, the average household income required to afford new single-family housing will decrease from $80,813 under Scenario 1 to $77,721 under Scenario 2, a difference of more than $3,000. This is shown in Figure 5 below.

It should be noted that lower income households will benefit in many ways other than just more affordable housing. Under Scenario 2, 10.4% of new households in low-income EJ areas will be within walking distance (0.5 miles) of a park compared with only 5.9% under Scenario 1. And 8.6% of new households in low-income EJ areas will be within walking distance of a transit stop compared with only 4.1% under Scenario 1.

Figure 5. Average Household Income Required to Afford New Housing Under Scenario 1 (in Red) and Scenario 2 (in Blue)



BENEFIT AND BURDEN ANALYSIS

The benefit and burden performance metrics use a regional financial analysis comparing the allocation of Scenario 2 expenditures between low-income households and all other households in Stanislaus County to determine if low-income or minority populations are disproportionately impacted by transportation investments. This analysis considers all low-income households in the County, both those within the identified EJ areas and those outside the identified areas.

Expenditure Analysis

RTP/SCS expenditures were divided into four categories: Roadway, Transit, Bicycle and Pedestrian, and Aviation. Expenditures by modal category are shown in Table 1.

Table 1. Funding Expenditures by Mode

Funding Type	Total Funding	Percent of Funding
Roadway	$3,816,145,653	53.9%
Transit	$2,828,286,442	39.9%
Bicycle / Pedestrian	$342,903,950	4.8%
Aviation	$97,543,474	1.4%

Once expenditures were categorized, these allocations were split into low-income or non-low-income expenditures based on the most recent American Community Survey (ACS) 5-year estimates (2012-2016) for workers' means of transportation to work by poverty status. Low-income workers were determined as those meeting the ACS category "Below 100 percent of the poverty level," representing 8.5% of Stanislaus County households, while non-low-income households included all workers above 100 percent of the poverty level, representing the remaining 91.5%.

After identifying low-income and non-low-income workers, expenditures were apportioned to low-income or non-low-income populations based on those populations' share of commutes by mode shown in Table 2. Aviation mode shares and expenditures were excluded from this analysis as it is not included in the work commute mode data.

Table 2. Share of Commute by Mode and Income Status

Commute Mode	Overall Mode Share		Low-Income Mode Share		Non-Low-Income Mode Share	
	Split	Share of County Total	Split	Share of County Total	Split	Share of County Total
Automobile	91.4%	100.0%	84.0%	7.8%	92.1%	92.2%
Transit	0.9%	100.0%	2.0%	18.4%	0.8%	81.6%
Bicycle / Pedestrian	3.3%	100.0%	7.7%	19.7%	2.9%	80.3%

Table 3 shows the amount of total expenditures for each modal category that would benefit low-income and non-low-income populations identified above. Additionally, Table 4 shows the per capita benefits for spending by mode for low-income and non-low-income populations.

Table 3. Project Expenditures by Mode Share and Income Status

Commute Mode	All Expenditures	Low-Income Population	Non- Low-Income Population
Roadway	$3,816,145,653	$297,659,361	$3,518,486,292
Transit	$2,828,286,442	$520,404,705	$2,307,881,737
Bicycle / Pedestrian	$342,903,950	$67,552,078	$275,351,872
Total	$6,987,336,045	$885,616,144	$6,101,719,901

Table 4. Per Capita Project Expenditures by Mode and Income Status

Commute Mode	Low-Income Population	Non- Low-Income Population
Roadway	$2,261	$5,974
Transit	$3,953	$3,919
Bicycle / Pedestrian	$513	$468
Total	$6,727	$10,361

While the non-low-income population benefits more from roadway expenditures per capita than low-income populations based on their commute mode splits, low-income households benefit more from transit and bicycle/pedestrian expenditures due to their disproportionately high use of transit, walking, and bicycling for commutes compared to non-low-income populations. However, the total per capita benefit for low-income populations based on this analysis shows that low-income populations will disproportionately benefit less from overall transportation expenditures compared to the non-low-income population of the County. This is primarily due to the significant influx of additional roadway dollars, some of which are project specific, in Stanislaus County resulting from the passage of Measure L and SB-1.

Title VI Analysis

In addition to analyzing the funding allocation by income status, the financial analysis also analyzed transit funding for total expenditures and state and federal expenditures by minority and non-minority status in compliance with Title VI requirements. As a recipient of U.S. Department of Transportation (DOT) funds, StanCOG is responsible for complying with Title VI regulations.

In 2012, the Federal Transit Administration issued guidance to recipients of FTA funding for compliance with federal Title VI requirements. Part of these requirements is to determine the population compared to the use of public transit investments from state and federal funding sources, and to determine the ratio of per capita benefit for minority populations versus non-minority populations. To meet the requirements of FTA, StanCOG undertook this analysis to determine any disparate impacts. The analysis and results are discussed below.

The most recent ACS 5-year estimates were used to determine total population and the ways in which minority and non-minority populations travel to work. Using the transit mode splits for each minority and non-minority population group, the overall percentage of transit commutes was calculated for each group. State and federal transit expenditures were then split by the percentage of transit commutes for minority and non-minority populations. Per capita benefits were then calculated by the total group populations and a ratio of the minority versus non-minority benefit was calculated. The results of this analysis are presented in Table 5.

Table 5. Transit Funding Benefit

	Total	Minority	Non-Minority
Population	530,561	212,224	318,337
Percent of Total Population	-	40%	60%
Transit Commute Mode Split by Household Type	-	1.5%	0.5%
% of Transit Commutes	-	78.1%	28.9%
Total State and Federal Funding	$2,828,286,442	$2,208,891,711	$619,394,731
Per Capita Benefit, State/Federal Transit Funding	-	$10,408	$1,946
Minority Benefit as a % of Non-Minority Benefit	-	357%	-

CONCLUSION

The region-wide EJ analysis, based on six identified performance measures, indicates that Scenario 2 will not have a disparate impact on the identified EJ communities. Regionally, the amount of benefit within low-income and minority populations is proportional to non-EJ communities with better access to frequent transit service, and fewer households within 500 feet of major transportation facilities in Scenario 2 compared to Business as Usual. Additionally, Scenario 2 will result in a greater mix of housing and more affordable housing (both single-family and multi-family) than Business as Usual.

Furthermore, Scenario 2 reduces vehicle miles of travel for all users of the transportation system while increasing the amount of funding available for alternative modes of transportation, including transit, bicycling and walking – which benefit low-income and minority populations to a greater degree. A financial Benefit and Burden analysis of expenditures by mode share for low-income populations and transit expenditures by minority populations revealed that while roadway expenditures favor non-low-income populations, transit and bicycle/pedestrian expenditures generate an overall benefit for low-income and minority populations in the Stanislaus region. Conversely, due to the significant influx of additional roadway and passenger rail funding resulting from the passage of Measure L, SB-1 and SB-132, the transportation investments identified in the 2018 RTP/SCS over-all slightly favor non-EJ populations of the county. The Benefit and Burden analysis, including a focus on State and Federal Transit funding, also shows that transit funding highly favors EJ populations.

StanCOG will continue to adhere to implementing EJ principles in all future planning processes. Additionally, StanCOG is committed to the continual improvement of its EJ performance measures used to evaluate and analyze the benefits and burdens of its transportation planning efforts on EJ populations within the region.