

# Appendix H

Kingsburg, California - *Downtown at Christmas time*

## Environmental Justice Report

**2018 Regional Transportation Plan**

**Appendix H**

**Environmental Justice Analysis**



March 2018

## **INTRODUCTION**

This report summarizes key findings from the Environmental Justice Analysis for Fresno Council of Governments' 2018 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) for the Fresno County region. The analysis demonstrates Fresno COG's compliance as a metropolitan planning organization (MPO) with federal requirements related to Title VI and Environmental Justice in the RTP development process. At the federal level, requirements include: civil rights protections against discrimination in federally-funded programs and federal aid recipients on the basis of a person's race, color, or national origin; and federal environmental justice objectives aimed at avoiding disproportionately high and adverse effects on minority and low-income populations. At the state level, requirements include: civil rights protections against discrimination 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. At the regional level, Fresno COG has adopted environmental justice principles and objectives that promote equity throughout the agency's regional planning efforts. (See detailed goals and strategies in Chapter 2: Policy Elements and Chapter 4: Action Element).

Environmental justice means identifying and addressing disproportionately high and adverse effects if any as a result of the RTP/SCS programs and policies on minority populations and low-income populations to achieve an equitable distribution of benefits and burdens. This also includes the full and fair participation by all potentially affected communities in the transportation decision making process. The analysis helps policymakers, local jurisdictions and the public understand the equity-related implications of implementing the RTP in the region, especially in the disadvantaged communities.

## **TITLE VI AND ENVIRONMENTAL JUSTICE OVERVIEW**

Title VI states that "No person...shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI establishes the basis for transportation agencies to disclose to the public the benefits and burdens of proposed projects on minority populations. Civil rights have expanded to include sex, age, and disability through the Federal-Aid Highway Act of 1973, Age Discrimination Act of 1975, the Rehabilitation Act of 1973, and Americans with Disability Act of 1990. Title VI was further amended in 1987 to extend non-discrimination requirements for federal aid recipients to all of their programs and activities, not just those funded with federal funds. At the state level, California Government Code Section 11135 prohibits discrimination 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 by any agency receiving state funding.

Additionally, Title VI not only bars intentional discrimination, but also unjustified disparate impact discrimination. Disparate impacts result from policies and practices that are neutral on their face (i.e., there is no evidence of intentional discrimination), but have the effect of discrimination on protected groups. Title VI prohibits discrimination by recipients of federal financial assistance on the basis of race, color, and national origin, including the denial of meaningful access for limited English proficient (LEP) persons.

Furthering the principles of environmental justice (EJ), the 1994 Presidential Order (Executive Order 12898) directed every federal agency to make environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of all programs, policies, and activities on minority populations and low-income populations. Reinforcing Title VI, this presidential order ensures that every federally funded project nationwide considers the human environment when undertaking the planning and decision-making process. The Presidential memorandum accompanying E.O. 12898 underscored certain provisions of existing law that help ensure

all communities and persons live in a safe and healthful environment, and identified Title VI as one of several federal laws that should be applied “to prevent minority communities and low-income communities from being subject to disproportionately high and adverse environmental effects.”<sup>1</sup>

To implement and ensure compliance with these statutes, federal and state agencies have issued a series of orders, regulations and guidance on environmental justice. The U.S. Department of Transportation (DOT) issued DOT Order 5610.2 in 1997 to “summarize and expand upon the requirements of Executive Order 12898 on Environmental Justice.” The order is used as a framework for incorporating Environmental Justice into every DOT activity, policy, and program. Expanding on DOT Order 5610.2, in December 1998 the Federal Highway Administration (FHWA) issued FHWA Order 6640.23 that requires the FHWA to implement Environmental Justice practices described in both DOT Order 5610.2 and Executive Order 12898 into all FHWA activities. DOT Order 5610.2 was updated in 2012, reaffirming DOT’s commitment to environmental justice and clarifying certain aspects of the original Order.<sup>2</sup> FHWA Order 6640.23A was issued in June 2012, updating and replacing the previous 1998 Order.<sup>3</sup> Fresno COG is subject to these laws and executive orders.

The overlap between the statutory obligation placed on Federal agencies under Title VI to ensure nondiscrimination in federally assisted programs administered by State and local entities, and the administrative directive to Federal agencies under the Executive Order to address disproportionate adverse impacts of Federal activities on minority and low-income populations explain why Title VI and Environmental Justice are often paired. The clear objective of the Executive Order and Presidential memorandum is to ensure that Federal agencies promote and enforce nondiscrimination as one way of achieving the overarching objective of environmental justice.<sup>4</sup>

The Environmental Justice Analysis is intended to measure both the benefits and burdens associated with the transportation investments included in the 2018 Regional Transportation Plan, and to ensure environmental justice communities living within Fresno County share equitably in the benefits of the Plan’s investments without bearing a disproportionate share of the burden.

## **FRESNO COG’S ROLE**

As a federally designated MPO, Fresno COG is required to comply with the above mentioned rules and policies. A RTP Environmental Justice Analysis assures that Fresno COG conforms to federal EJ principles, policies and regulations, including Title VI. Fresno COG is required by law to determine whether the RTP/SCS benefits low-income and minority communities equitably and whether the Plan’s transportation investments have any disproportionate negative effects on minority and/or low-income populations in the Fresno COG region, and to minimize negative impacts where they exist. To certify compliance with Title VI and address environmental justice, Fresno COG’s three main principles underlying environmental justice are:

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<sup>1</sup> [https://www.epa.gov/sites/production/files/2015-02/documents/clinton\\_memo\\_12898.pdf](https://www.epa.gov/sites/production/files/2015-02/documents/clinton_memo_12898.pdf)

<sup>2</sup> DOT Order 5610.2(a), [https://www.fhwa.dot.gov/environment/environmental\\_justice/ej\\_at\\_dot/orders/order\\_56102a/](https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/)

<sup>3</sup> FHWA Order 6640.23A, <https://www.fhwa.dot.gov/legregs/directives/orders/664023a.cfm>

<sup>4</sup> FTA Circular 4702.1B: Title VI Requirements and Guidelines For Federal Transit Administration Recipients  
[https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA\\_Title\\_VI\\_FINAL.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Title_VI_FINAL.pdf)

- *To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority and low-income populations.*
- *To provide opportunities for full and fair participation by all potentially affected communities in the transportation decision making process.*
- *Prevent denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations*

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to developing, implementing and enforcing environmental laws, regulations, and policies.

**Fair treatment** means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.

**Meaningful involvement** means that:

- People have an opportunity to participate in decisions about activities that may affect their environment and/or health
- The public's contribution can influence the regulatory agency's decision
- Community concerns will be considered in the decision making process
- The decision makers seek out and facilitate the involvement of those potentially affected

## **PLAN DEVELOPMENT PROCESS**

The 2018 RTP was developed with meaningful and extensive participation from key stakeholders, including community-based advocates, labor organizations, public agencies, business groups, and individual residents. This section describes the public outreach efforts focused on specifically reaching and engaging EJ communities and EJ population groups. Details on overall public participation activities for the RTP process is described in Chapter 6: Public Participation.

Consistent with FCOG's 2016 Public Participation Plan and Title IV Program: Plan or Engaging Individuals with Limited English Proficiency (LEP), Appendix 1<sup>5</sup>, outreach for the RTP incorporated strategies to engage LEP community members by providing interpretation, translated flyers, television and social media campaigns in Spanish and other languages as requested. See public engagement section for additional details.

## **Environmental Justice Subcommittee**

The Environmental Justice Subcommittee was created and serves under Fresno COG's Transportation Technical Committee (TTC). The subcommittee generally meets when Fresno COG staff, the TTC, the

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<sup>5</sup>Appendix 1 – Fresno Council of Governments Plan For Engaging Individuals with Limited English Proficiency [http://www.fresnocog.org/wp-content/uploads/publications/EJ\\_and\\_Title\\_VI/FINAL\\_Fresno\\_COG\\_Title\\_VI\\_Program\\_2016.pdf](http://www.fresnocog.org/wp-content/uploads/publications/EJ_and_Title_VI/FINAL_Fresno_COG_Title_VI_Program_2016.pdf)

Policy Advisory Committee or the Fresno COG Policy Board request recommendations on issues involving EJ populations. Subcommittee members report all advisory actions to the TTC through an EJ representative. Then the TTC's recommendations are referred to the Policy Advisory Committee and Fresno COG Policy Board as needed. The subcommittee also reports to the RTP Roundtable through the Subcommittee Chair, who holds a seat on the Roundtable.

The subcommittee has 11 positions to provide full, diverse and equitable representation from designated EJ populations:

- Three Fresno COG member agencies representatives:
  - Local agency urban
  - East side local agency rural
  - West side local agency rural
- Four minority representatives for the following ethnicities representative of Fresno County's population:
  - Hispanic
  - African American
  - Asian
  - American Indian
- Two low-income representatives
- One senior (65 or older) representative
- One person with disabilities

The Environmental Justice Subcommittee helped to shape the development of the EJ Analysis. The subcommittee met five times to determine the thresholds and criteria for EJ populations. The following is a summary listing of the main topics discussed:

- Regional Transportation Plan: purpose and goals
- Selecting the EJ indicator for the SCS Scenarios
- Federal definition of EJ populations
  - Minority
  - Low Income
- Expanding EJ populations to include the following "Vulnerable Communities":
  - Elderly
  - No vehicle availability
  - Single parent household
  - Housing cost burden: >30% household income spent on housing
  - Educational attainment: over 25 years old without a high school diploma
  - Linguistic isolation: no one in household speaks English "very well"
  - Persons with disabilities
- Fresno County demographics (focused on race & income levels)
- Selection of EJ population parameters
- Selection of Performance Indicators for EJ analysis
- Approval of EJ thresholds and methodology
- Draft EJ Analysis review and comment

The EJ subcommittee approved that Access to Community Resource: Combination of both Mobility and Accessibility as the SCS indicator; established and approved the methodology and threshold for the countywide EJ population and the low income threshold.

## **Outreach and Public Engagement Efforts**

As discussed above, RTP Chapter 6: Public Participation details the RTP's overall outreach process, and includes several strategies and tools specifically for engaging disadvantaged communities and EJ populations. For example, Fresno COG's mini-grant program provided seven, \$5,000 grants for community-based organizations to assist COG staff in soliciting ongoing public input for key activities associated with the 2018 RTP/SCS, including developing scenarios, soliciting RTP projects and selecting a preferred scenario. Several mini-grantees walked door-to-door to meet with neighbors, used online marketing, e-blast and social media communication; canvassed EJ communities with surveys, engaged schools to distribute materials and attended community- and civic group-sponsored events. The mini-grant recipients included:

- Public Health Institute — Cultiva La Salud
- Fresno State Office of Community and Economic Development (OCED) (East County)
- Fresno State OCED (North Fresno & Clovis)
- Central California Environmental Justice Network (CCEJN)
- Central California Asthma Collaborative
- Tides Center/Leadership Counsel for Justice & Accountability
- Fresno Building Healthy Communities

Mini-grantees began working in late March/early April and continued through the draft 2018 RTP's release in spring 2018. They initially worked to encourage participation in the April 2017 Fresno COG RTP/SCS workshop and online survey.

The outreach campaign included hosting evening community workshops and meetings, providing meals for families, providing childcare services, translating all materials and presentations into Spanish and providing onsite interpretation. Beyond traditional meetings and workshops, staff and mini grantees utilized television ads and social media posting as well as attended community/civic events, resource fairs and farmers markets, to engage residents, stakeholders, government institutions, and community and neighborhood associations.

Then, each organization organized one or more RTP's transportation needs workshops in June 2017. Mini-grant recipients hosted 15 community workshops throughout the County between June 5 and July 6, 2017, where 516 people attended workshops, and 413 of them completed the workshop demographic survey. An online survey in English and Spanish allowed transportation project input for those who could not attend the workshops. The survey was available through July 9, 2017. In total, Fresno COG received online input from 92 participants. The June 2017 outreach efforts were focused on providing the public an opportunity to provide transportation project suggestions that could be submitted by local agencies in response to the RTP call for projects issued July 1, 2017. Fresno COG and mini-grantees advertised the workshops via TV spots aired on KSEE 24 and KGPE 47, as well as interviews with Central Valley Today and Univision, a Spanish-language television station. During the workshops and through the online portal, Fresno COG received 1,218 suggestions for projects in English and Spanish. All of the projects suggestions were collected and forwarded to the appropriate local agency for consideration as they developed their list of RTP projects.

In fall 2017, Fresno COG released four SCS scenarios, along with the analysis and modeling results for each, for public review and selection. Both Fresno COG staff and mini-grantees held more than 20 informational booths and 11 presentations and throughout the region, with a targeted focus to further

engage disadvantaged communities. Information booths were staffed at rural farmers markets, community resource fairs, employee fairs, festivals, college campuses, with several on the weekends and evenings. In addition, fliers in Spanish and English were distributed to inner-city and rural transit riders on buses and at stations. Participants were encouraged to share which of the four scenarios best aligns with their priorities and vision for Fresno County, as well as to provide feedback concerning negative impacts, if any, they foresee for their community resulting from those scenarios not selected.

Staff collected 1,339 completed scenario preference surveys online or at outreach events and through presentations in 11 communities, from residents living in 29 towns and cities, covering 50 zip codes throughout the county. Of the 1,339, 1,127 ballots included information for income and household size. Of these ballots, approximately 469 were below the EJ Subcommittee-established poverty threshold of less than 150 percent of the poverty level and 78.1 percent of those surveyed identified as non-white.

EJ community representatives requested that FCOG specifically include the following question in the preference scenarios selection surveys: "What negative impacts to your community, if any, do you foresee from the other scenarios." FCOG included this questions and results from the surveys varied to drastically to provide and overarching theme or area of concern. All the final outreach materials, participant demographics, survey results, project recommendations and all public comments received are available on the Fresno COG's RTP webpage.

In response to recommendations by the RTP Roundtable and also through letters from EJ community representatives, the Environmental Justice Analysis has been updated from the prior year to include the following two additional indicators:

- housing mix, as delineated by EJ and non-EJ areas; and,
- air contaminant exposure, which is measured by the percent of EJ population relative to non-EJ population living within 500 feet of Class 1 (major highways) and Class 2 (expressways) roadways

The outreach measures listed above demonstrate Fresno COG's commitment to an inclusive and transparent public engagement process to meaningfully include all populations, race, socio-economic classes and those living within the EJ communities throughout the RTP/SCS process; and, that input received from EJ communities have been meaningfully considered.

## **FRESNO COUNTY DEMOGRAPHIC PROFILE**

Fresno County is the second largest county in the San Joaquin Valley, encompassing approximately 6,000 square miles. As the nation's third highest-grossing agricultural county, Fresno County's gross value of agricultural products was \$6.6 billion in 2015 and \$6.2 billion in 2016. The estimated population as of January 1, 2017 was 995,975 placing Fresno as the tenth most populous county of the 58 counties in California. There are fifteen incorporated cities and the county contains a federally recognized urbanized area, known as the Fresno-Clovis Metropolitan Area (FCMA), with a population of 636,594. The City of Fresno is now the fifth largest city in the state, with a population of 525,832.

As indicated in the Regional Context Chapter, the population growth rate of Fresno County has outpaced that of California and the United States. During the 40-year period from 1970-2010, Fresno County's population increased by 125% compared to 87% and 52% for the state and nation.

Fresno County has been plagued with high unemployment. The County's 2016 unemployment rate was 9.4% in contrast to 5.4% for the State and 4.9% for the Nation. Education levels for Fresno County



residents lag behind those of California and the United States. Only 19.4% of persons 25 years of age and older in Fresno County have a bachelor's degree or higher, compared with 31.4% for the State and 29.8% for the Nation. 15.5% of the residents have less than a 9th grade education in contrast to 10.0% for the State and 5.7% for the Nation.

With high unemployment and low educational attainment, Fresno County is plagued with a low median household income. Fresno County's median household income of \$45,223 is far below the State and Nation's incomes of \$61,818 and \$53,889, respectively.

The residents of Fresno County are more ethnically diverse than that of California and the United States. In 2010, 67.3% of the County's inhabitants were minority (non-white) compared to 59.9% for the State of California and 36.3% for the Nation. Figure 1 shows the concentration of minority populations throughout Fresno County.

Figure 1: Concentration of Minority Population

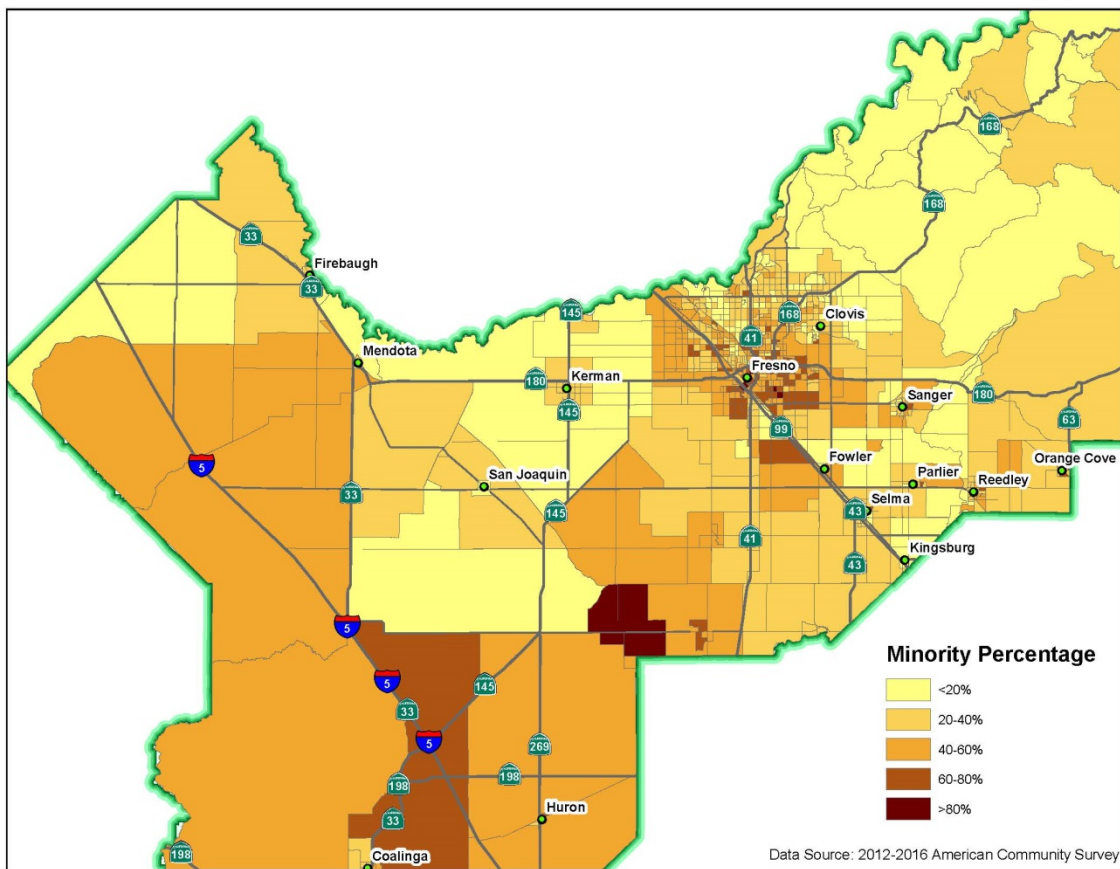


Figure 2: Concentration of Low Income

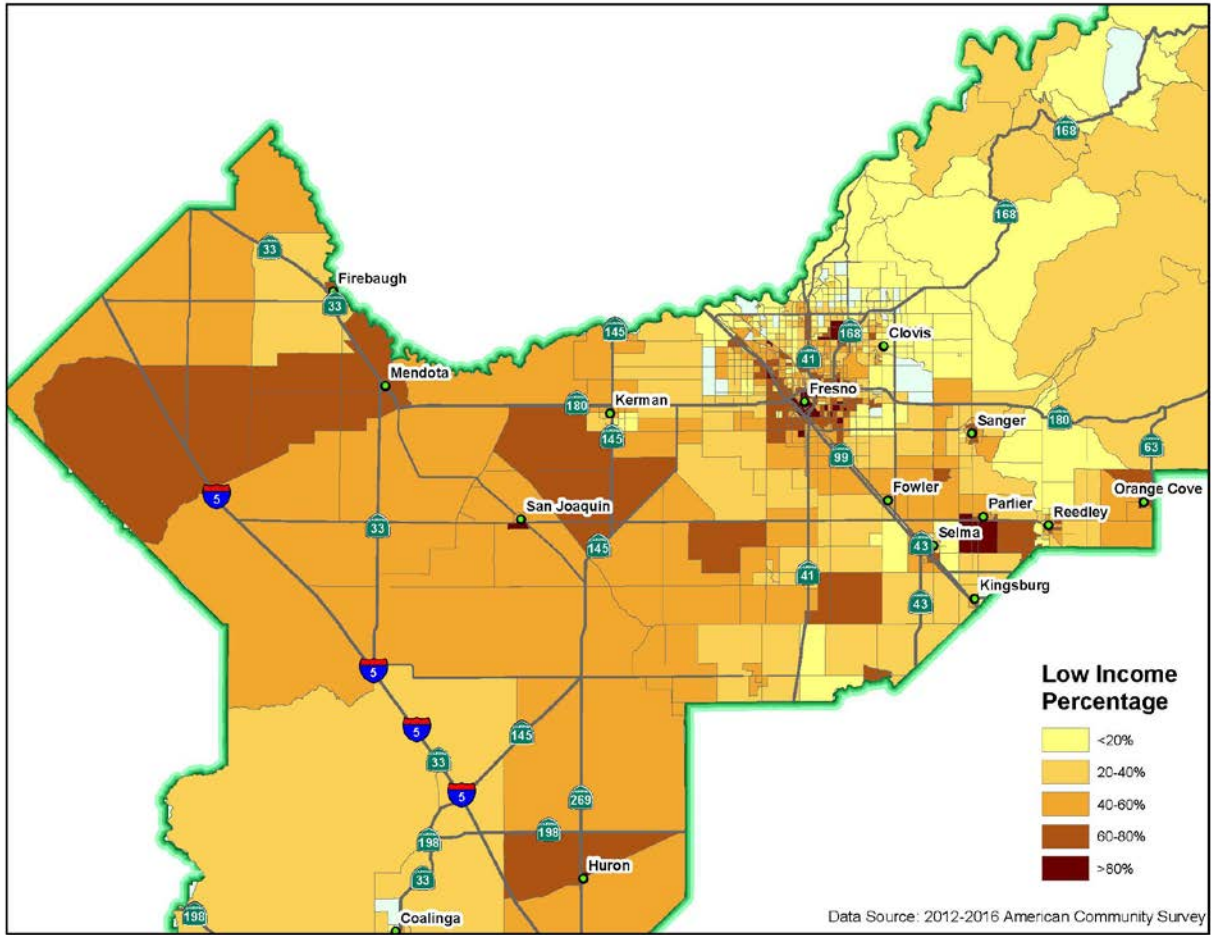


Table 1: Fresno County Demographics

Total population*	908,830	Percentage		
White	308,759	34.0	} Total Minority Population = 66%	
Hispanic or Latino	446,727	49.2		
Black or African American alone	43,673	4.8		
American Indian and Alaska Native alone	4,844	0.5		
Asian alone	83,715	9.2		
Native Hawaiian and Other Pacific Islander alone	1,093	0.1		
Some Other Race alone	2,470	0.3		
Two or More Races	17,549	1.9		
Population for whom poverty status was determined*	890,694	Percentage		
Individuals below 150% of Poverty Line	311,613	35%		
Non Low-Income	579,081	65%		
*American Community Survey 2006-2010				

Table 2: Fresno County Demographics versus California and the United States

Comparison*	Income 150 percent of poverty line	Minority population
Fresno County	35.0%	66.0%
California	23.6%	58.8%
United States	22.9%	35.3%
*American Community Survey 2011-2015		

Furthermore, historical trends and demographic projections indicate that Fresno County’s Hispanic population is growing as the white population has been shrinking.

Table 3: Fresno County Demographic Changes from 2000 to 2010 to 2040

Demographics Changes from 2000 to 2010 to 2040	2000~	2010 <sup>ψ</sup>	2040*
White	36.2%	34.0%	25.0%
Hispanic or Latino	44.0%	49.2%	58.4%
Black or African American	5.3%	4.8%	4.2%
American Indian and Alaska Native	1.6%	0.5%	0.5%
Asian	8.1%	9.2%	9.7%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%
Some Other Race	4.7%	2.2%	2.1%
~2000 Census data			
<sup>ψ</sup> 2006-2010 American Community Survey			
*Population projections from the California Department of Finance			

### ENVIRONMENTAL JUSTICE POPULATION METHODOLOGY

The EJ Analysis’ underlying methodology compares benefits and burdens from proposed policies and investments on Environmental Justice population groups (minority and low-income) and across different geographies (EJ and Vulnerable Communities vs. the remainder of the region) and (EJ vs. the remainder of the region). The section below defines these populations and geographies.

Environmental Justice Methodology	
<b>EJ Population groups</b>	<ul style="list-style-type: none"> <li>• Minority and or low-income</li> </ul>
<b>Comparison across geographies</b>	<ul style="list-style-type: none"> <li>• EJ vs. the remainder of the region</li> <li>• EJ &amp; Vulnerable Communities vs. the remainder of the region</li> </ul>

#### Minority

“Minority population” means “any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.”<sup>6</sup> Minority populations include persons who identify as any of the following groups as defined

<sup>6</sup>DOT Order 5610.2(a), [https://www.fhwa.dot.gov/environment/environmental\\_justice/ej\\_at\\_dot/orders/order\\_56102a/](https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/)

by the Census Bureau<sup>7</sup> in accordance with guidelines provided by the U.S. Office of Management and Budget, as well as DOT Order 5610.2(a).

- Black or African-American – A person having origins in any of the Black racial groups of Africa.
- Hispanic or Latino – A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
- American Indian or Alaska Native – A person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment.
- Asian – A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- Native Hawaiian or Other Pacific Islander – A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

The non-EJ population includes those persons who identify as white and not Hispanic or Latino.

### **Low Income**

Low-income population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.<sup>8</sup> *The EJ Subcommittee define persons as low-income if they live in a household with incomes less than 150 percent of the federal poverty level.*

The Department of Health and Human Services (HHS) issues the annual federal poverty thresholds for individuals based on a combination of an individual's household composition, size and income in Fresno County. In 2017, 100 percent of the federal poverty level was \$12,060 a year for a single person living alone, and approximately \$24,600 a year for a family of four.<sup>9</sup> As of the 2015 American Community Survey, approximately 26.8 percent of Fresno County's population was living below the federal poverty line.

Fresno COG staff used demographic data from U.S. Census American Community Survey 2015 Summary Tables to develop a database with estimated socioeconomic and travel characteristics. This database was used to map EJ communities within Traffic Analysis Zones (TAZ) to determine whether EJ communities are sharing both the benefits and burdens associated with the Plan's projects. A TAZ is an area similar in size to a neighborhood or Census block group. TAZs can range in size from approximately ½ miles square within a metropolitan area to much larger areas in low-density outlying areas of the countryside. There are roughly 2,000 TAZs within Fresno County.

### **EJ and Vulnerable Communities thresholds**

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<sup>7</sup> US Census Bureau's definitions for race and ethnicity, see: <http://www.census.gov/topics/population/race/about.html>.

<sup>8</sup> DOT Order 5610.2(a), [https://www.fhwa.dot.gov/environment/environmental\\_justice/ej\\_at\\_dot/orders/order\\_56102a/](https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/)

<sup>9</sup> HHS Poverty Guidelines for 2017 <https://aspe.hhs.gov/poverty-guidelines>

Fresno COG staff used its travel forecasting software to produce EJ communities’ travel characteristic estimates, comparing them to non-EJ communities across the county and evaluate travel-related equity issues. To determine whether EJ populations would be affected by a proposed program, project, or activity, the EJ Subcommittee and Fresno COG had to identify “EJ TAZs”. The EJ Subcommittee defined EJ TAZs as those traffic analysis zones with the highest concentration of **minority and/or low income populations**, accounting for a total of 30 percent of the entire county’s population (EJ TAZ).

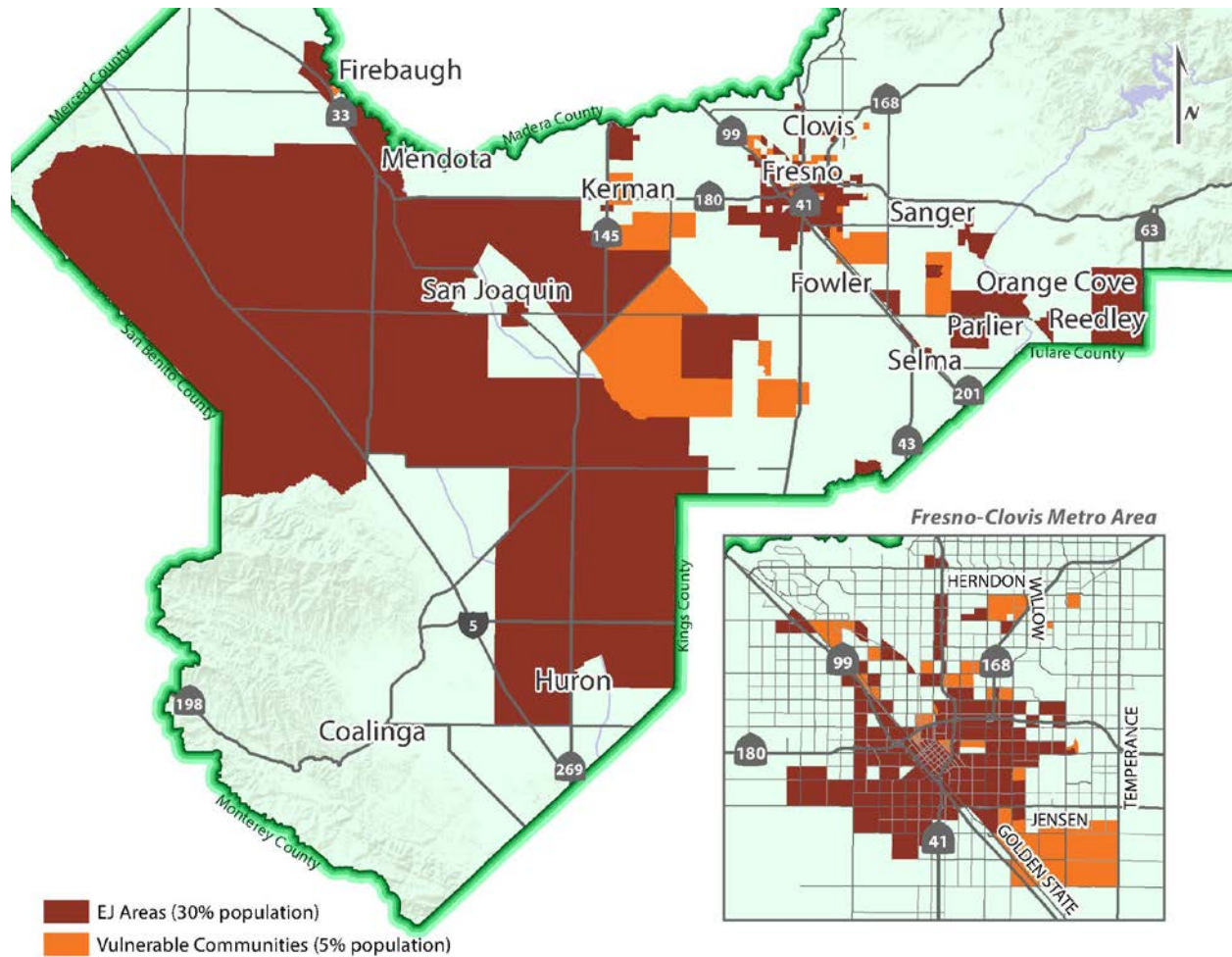
The EJ Subcommittee chose to expand the EJ analysis to identify census tracts that were most vulnerable to becoming “EJ TAZs”. “Vulnerable Communities” (VC) are defined as *low-income* TAZs that were not included in the EJ TAZs, and had the highest concentration of the 6 burdens listed below accounting for an additional 5 percent of the entire county’s population (VC TAZ).

- Housing cost burden = high housing cost-to-income ratio (30%+ income spent on housing)
- Single-parent households
- Elderly (75+)
- Educational attainment = 25 years and older without a high school education
- Linguistic isolation = no one in the household speaks English “very well”
- Persons with disabilities

In total, 35 percent of the Fresno County region’s population qualifies as living within an environmental justice community.

EJ Community	Low income <b>and/ or</b> minority TAZ	30% of entire county population
VC Community	<p><b>Low income</b> TAZ that were not included in EJ with highest concentration of:</p> <ul style="list-style-type: none"> <li>• Housing cost burden = high housing cost-to-income ratio (30%+ income spent on housing)</li> <li>• Single-parent households</li> <li>• Elderly (75+)</li> <li>• Educational attainment = 25 years and older without a high school education</li> <li>• Linguistic isolation = no one in the household speaks English “very well”</li> <li>• Persons with disabilities</li> </ul>	5% of entire county population

Figure 3: Environmental Justice and Vulnerable Community TAZ's



Out of 1,963 TAZs in Fresno County, 510 TAZ are considered EJ communities as defined by the EJ Subcommittee, and 117 TAZs meet the Vulnerable Communities criteria. Combined, there are a total of 627 EJ + VC TAZs which represent 35 percent of the total Fresno County population.

Fresno COG took into consideration the CalEnviroScreen data to further understand burdens beyond what the current modeling capacity could provide. The California Environmental Protection Agency (CalEPA) and the Office of Environmental Health Hazard Assessment (OEHHA) developed the California Communities Environmental Health Screening Tool (CalEnviroScreen). CalEnviroScreen is a science-based, mapping tool that helps identify California communities most affected by multiple sources of pollution and are most vulnerable to pollution's adverse effects. CalEnviroScreen uses environmental, health, and socioeconomic information to produce a numeric score for each Census tract in the state.<sup>10</sup>

CalEnviroScreen helps establish which areas have higher relative environmental burdens in an effort to increase environmental law compliance in disproportionately impacted areas. Additionally, CalEnviroScreen informs the identification of disadvantaged communities pursuant to SB 535 (De León,

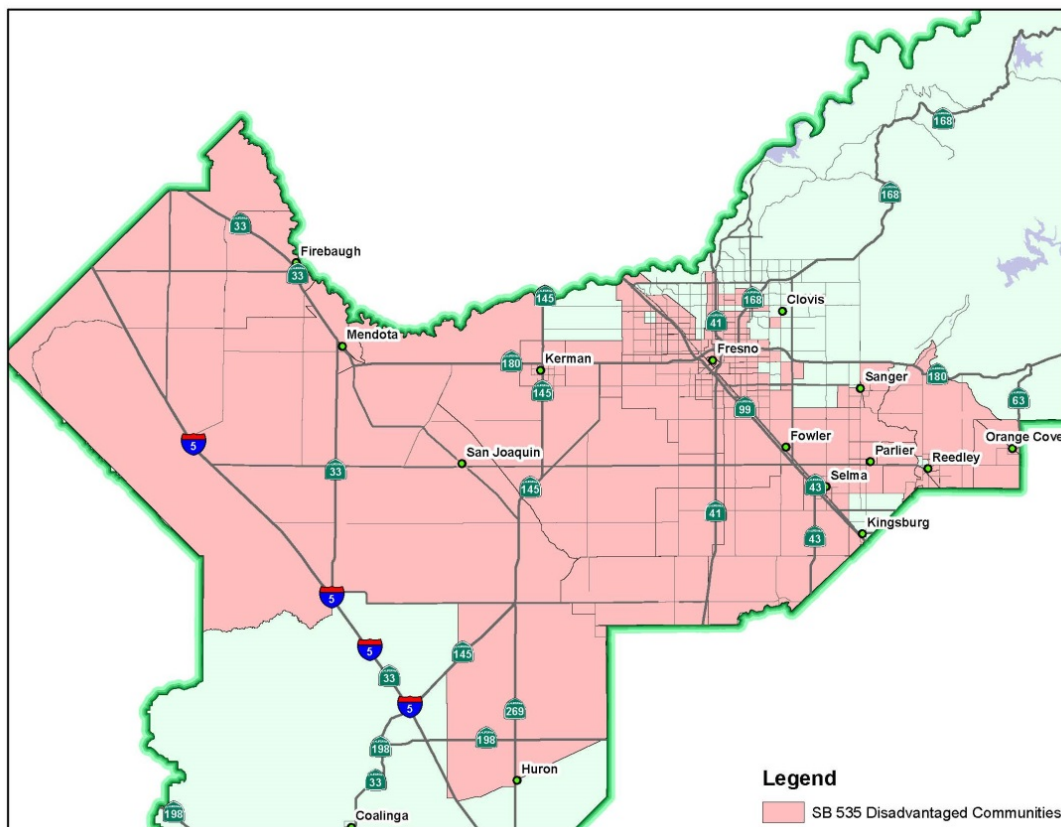
<sup>10</sup>California Environmental Protection Agency (CalEPA), California Communities Environmental Health Screening Tool: CalEnviroScreen, at: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

Chapter 830, Statutes of 2012), based on geographic, socioeconomic, public health and environmental hazard criteria<sup>11</sup>. Figure 1 identifies the communities CalEPA has designated as disadvantaged under SB 535<sup>12</sup>.

There are 119 census tracts in Fresno County that fall within the top 25 percent of highest-scoring Census tracts according to CalEnviroScreen. Census tracts with the highest scores are the most burdened by air pollution, environmental and other socio-economic factors. The State of California's Climate Change Initiative has worked to target Cap-and-Trade program expenditures and other funds to these designated Census tracts.

Figure 4 and Figure 5 shows SB 535 and CalEnviroScreen overlaid with the EJ TAZs. Both maps illustrate that a majority of Fresno County census tracts identified in SB 535 (De Leon) Disadvantaged Communities and the CalEnviroScreen 3.0 directly overlap with the EJ and Vulnerable Communities TAZ. It further emphasizes that transportation investments focused in these areas are in line with the States priorities for mitigating neighborhoods that are most burdened and confirms that the designated EJ TAZs the 2018 RTP are appropriately captured.

**Figure 4: SB 535 Designated Disadvantage Community**



<sup>11</sup>SB 535, De León. California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund: [http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb\\_0501-0550/sb\\_535\\_bill\\_20120930\\_chaptered.html](http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0501-0550/sb_535_bill_20120930_chaptered.html)

<sup>12</sup> SB 535 Disadvantaged Communities Map: <https://oehha.ca.gov/calenviroscreen/sb535>

Figure 5: SB 535 Tracts, Environmental Justice TAZs and Vulnerable Community TAZs map

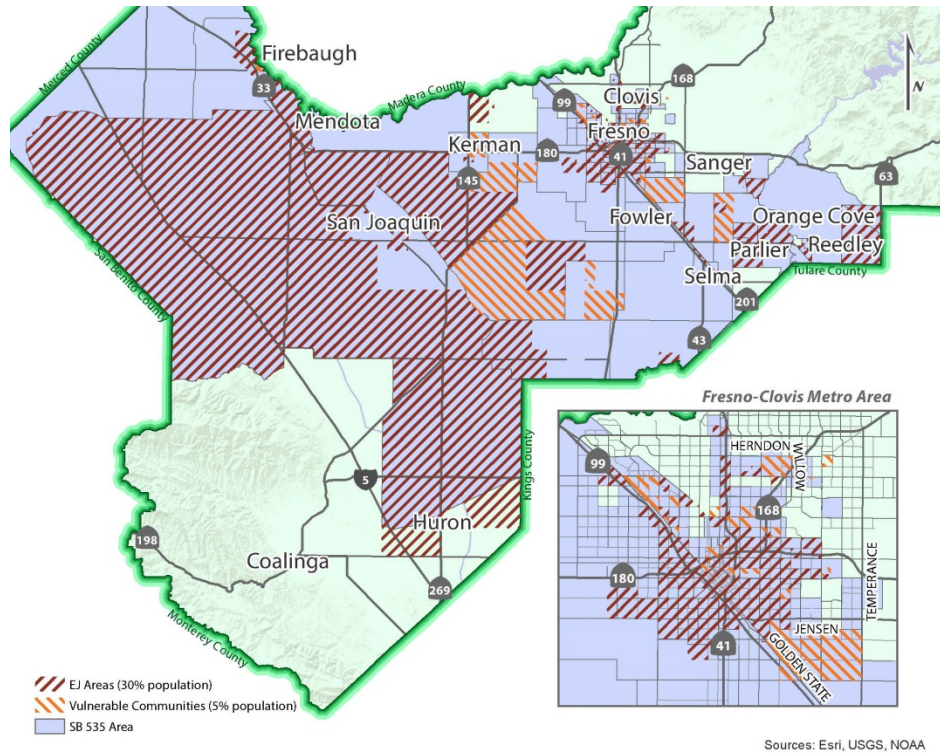
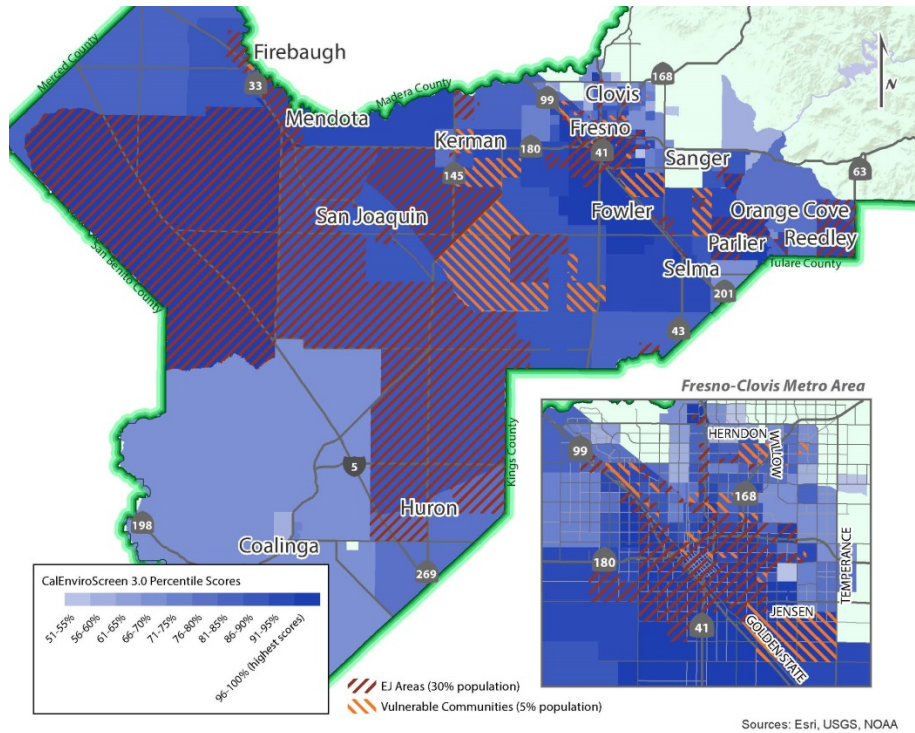


Figure 6: CalEnviroScreen 3.0, Environmental Justice TAZs and Vulnerable Community TAZs map





## MEASURING THE BENEFITS AND BURDENS

To measure the benefits and burdens of the proposed 2018 RTP projects on disadvantaged communities, the subcommittee and RTP roundtable approved the following seven quantitative performance measures. Performance measures are separated into 4 subcategories: transportation, financial, land use/housing and air quality.

### *Transportation*

- Accessibility - Calculate and compare the average AM peak period (work) trip time by mode (auto & transit) from non-EJ TAZs, EJ TAZs and EJ+VC TAZs in Fresno-Clovis Sphere of Influence (SOI), the remaining county and countywide, to areas of interest (major job centers, parks, schools, medical facilities).
- Mobility - Calculate and compare the average PM peak period trip time by mode (auto and transit) from the Fresno-Clovis SOI, the remaining county, and countywide to non-EJ TAZs, EJ TAZs and EJ+VC TAZ
- Reliability - compares the percentage of on-time arrivals; calculates vehicle miles traveled on congested highways or in transit vehicles.

### *Financial*

- Transit investment effectiveness - measures maximized return on transit investments; estimated by calculating the percentage of the new added average number of daily passenger miles traveled (PMT) served by RTP transit projects in 2042 compared to 2014.
- Distribution of investments - ensuring transportation investment benefits are equally distributed; compares the cost per daily passenger miles traveled to the total transit investment.

### *Land Use/Housing*

- Housing mix, as delineated by EJ and non-EJ areas

### *Air Quality*

- Air contaminant exposure, which is measured by the number of households within the impacted area of 150 meters or approximately 500 feet from major highways (Class 1) or as other freeways and expressways (Class 2).

Model assumption inputs for analyzing performance indicators are derived from the demographic forecast for households, employment and land use as detailed in Chapter 1: Regional Context. The forecasts used for the 2018 Fresno COG Regional Transportation Plan/Sustainable Communities Strategy were from the Fresno County 2050 Growth Projections prepared by Applied Development Economics (ADE), May 2017 and is contained in the Sustainable Communities Strategy Appendix I.

The traffic model inputs are based on the 2014 Base Year Validation travel demand model and is consistent with the assumptions from the SCS chapter for land use, population, employment and roadway network. The model for build out year 2042 assumes the construction of all projects proposed on the RTP constrained list for transit, capacity increasing, bike and pedestrian, and maintenance and operation.

## MODELING RESULTS

The following section analyzes the performance indicator results comparing 2018 RTP/SCS' regional benefits and burdens in terms of transportation improvements and investments between EJ/EJ+VC and non EJ areas.

### Transportation

#### *Accessibility and Mobility*

Accessibility and mobility are defined as the ability to move throughout the region, and the time it takes to reach desired destinations. Desired destinations were defined as major job centers, medical facilities, parks and schools. Specifically, accessibility measures the ease of reaching defined areas of interest during AM peak travel time. Mobility measures the travel time it takes to return from the defined areas of interest during PM peak time. Both are measuring average auto and transit travel times to demonstrate the worst possible congestion scenario between the base year 2014 and 2042 Build.

#### Accessibility Metrics

- Average automobile {drive alone & shared-ride} trip time from urban non-EJ communities to areas of interest (from urban EJ communities to areas of interest)
- Average transit travel time from urban non-EJ communities to areas of interest (from urban EJ communities to areas of interest)
- Average automobile {drive alone & shared-ride} trip time from rural non-EJ communities to areas of interest (from rural EJ communities to areas of interest)
- Average transit travel time from rural non-EJ communities to areas of interest (from rural EJ communities to areas of interest)

#### Mobility Metrics

- Average travel time for trips by automobile {drive alone & shared-ride} from the Fresno-Clovis SOI to urban non-EJ communities (to urban EJ communities)
- Average travel time for trips by transit from the Fresno-Clovis SOI to urban non-EJ communities (to urban EJ communities)
- Average travel time for trips by automobile {drive alone & shared-ride} from the remainder of the County to rural non-EJ communities (to rural EJ communities).
- Average travel time for trips by transit from the remainder of the County to rural non-EJ communities (to rural EJ communities).
- Average travel time for trips by automobile {drive alone & shared-ride} Countywide to rural non-EJ communities (to rural EJ communities).
- Average travel time for trips by transit Countywide to non-EJ communities (to rural EJ communities).

The goal for both accessibility and mobility is to ensure that EJ TAZs throughout the county have average travel time lesser than or comparable to the Non-EJ TAZs. The analysis in general shows that under all conditions, EJ TAZs have average travel times to areas of interest equal to or shorter than the travel

times from non-EJ TAZs for all modes of travel (drive alone, carpool and transit) in the Fresno-Clovis SOI, the remainder of the county, as well as countywide. The exception is transit in the rural county, where the EJ travel time is higher than the non-EJ travel time. This is probably to be expected because of the large, low populated EJ areas in the far western part of the county. Any transit trips from rural areas would have to include the time necessary to get from a home to a transit stop, in addition to the comparatively longer transit ride itself. Fresno County Rural Transit Agency (FCRTA) is constantly reviewing routes and seeking solutions for unmet needs by monitoring demonstration routes; however, due to ridership and fare box restrictions, it is difficult to maintain new routes in unincorporated areas of Fresno County beyond the initial demonstration period because actual ridership and fare box recovery often fails to meet the minimum State standards for public transit agencies.

Accessibility and mobility can be an indicator of travel demand. By measuring the travel time, a high number of travel minutes indicate that the demand can be overburdening the limited capacity of the roadway system. This affords an opportunity to further initiatives in ridesharing, van pooling, transportation network company (TNC) and improve the capacity of passengers per vehicle per trip. Travel delays can incentivize transit investment, land-use developments surrounding affordable and efficient transit services over time can lead to changes in travel patterns to utilize alternative travel modes.

Overall accessibility and mobility indicate that EJ and EJ+VC TAZ's will perform better when compared with non-EJ TAZs in the Fresno-Clovis SOI, the remainder of the county and countywide. As shown in Table 4 and Table 5, Fresno-Clovis SOI had shorter average travel times than the remainder of the County and Countywide. This was to be expected since metropolitan commutes are shorter than rural commutes. Considering that countywide is a combination of both rural and urban commutes, it would be natural to assume that Fresno-Clovis SOI would have the shortest commute times and remainder of the County would have the longest times, with Countywide slightly closer to Fresno-Clovis.

EJ TAZs and EJ+VC TAZ's had equal to or shorter average travel times than all TAZs in all instances except for rural transit trips, which had slightly higher travel time than non-EJ TAZs under all situations. This is once again probably because of the large, low-populated EJ areas in the far western part of the county. Fresno COG will continue to work with FCRTA and the EJ Taskforce to address rural transit riders' needs in Fresno County. Countywide EJ and EJ+VC TAZs travel times was lower than Non EJ TAZs.

Tables 4 thru 14

Values represent travel time in minutes by:

Non-EJ TAZs  
(EJ TAZs)  
[EJ+VC TAZs].

**Bold** designates where EJ travel times are higher than non-EJ travel times

*Italics* designates where EJ+VC travel times are higher than non-EJ travel times

Table 4: Accessibility - Cumulative Average Peak travel times (minutes)

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	15 (14) [15]	16 (15) [15]
Shared-Ride	13 (13) [13]	14 (14) [14]
Transit	35 (32) [32]	32 (29) [29]
Remainder of County		
Drive Alone	37 (26) [26]	37 (27) [26]
Shared-Ride	33 (23) [23]	33 (23) [23]
Transit	45 (45) [46]	45 (45) [46]
Countywide		
Drive Alone	22 (18) [18]	22 (19) [19]
Shared-Ride	19 (16) [16]	20 (17) [17]
Transit	36 (33) [34]	32 (30) [30]

Table 5: Mobility - Cumulative Average Peak travel times (minutes)

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	16 (16) [16]	19 (19) [19]
Shared-Ride	14 (14) [14]	16 (16) [16]
Transit	35 (32) [32]	32 (29) [29]
Remainder of County		
Drive Alone	38 (27) [27]	52 (29) [29]
Shared-Ride	34 (24) [24]	44 (25) [25]
Transit	45 (45) [46]	45 (45) [46]
Countywide		
Drive Alone	23 (20) [19]	29 (22) [22]
Shared-Ride	20 (17) [17]	24 (19) [19]
Transit	36 (33) [34]	33 (30) [30]

Table 6: Accessibility Average Peak travel times (minutes) to Major Job Centers

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	11 (11) [10]	12 (11) [11]
Shared-Ride	10 (10) [10]	11 (11) [10]
Transit	34 (32) [32]	31 (29) [29]
Remainder of County		
Drive Alone	38 (26) [26]	38 (26) [26]
Shared-Ride	34 (22) [23]	34 (23) [22]
Transit	46 (52) [52]	44 (51) [51]
Countywide		
Drive Alone	18 (15) [14]	19 (15) [15]
Shared-Ride	16 (13) [13]	16 (13) [13]
Transit	35 (33) [33]	32 (30) [30]

Table 7: Mobility Average Peak travel times (minutes) to Major Job Centers

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	12 (12) [12]	13 (13) [13]
Shared-Ride	11 (11) [11]	12 (12) [11]
Transit	34 (32) [32]	31 (29) [29]
Remainder of County		
Drive Alone	39 (28) [27]	27 (28) [28]
Shared-Ride	35 (24) [23]	50 (24) [24]
Transit	46 (55) [52]	44 (51) [51]
Countywide		
Drive Alone	19 (16) [16]	25 (17) [17]
Shared-Ride	16 (14) [14]	20 (15) [14]
Transit	35 (33) [33]	32 (30) [30]

Table 8: Accessibility Average Peak travel times (minutes) to Parks

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	11 (10) [10]	11 (11) [11]
Shared-Ride	10 (10) [10]	11 (10) [10]
Transit	36 (30) [31]	33 (27) [28]
Remainder of County		
Drive Alone	40 (32) [31]	41 (32) [30]
Shared-Ride	39 (29) [28]	39 (29) [28]
Transit	70 (74) [73]	69 (72) [71]
Countywide		
Drive Alone	18 (15) [14]	18 (15) [15]
Shared-Ride	16 (13) [13]	16 (13) [13]
Transit	37 (32) [32]	34 (29) [29]

Table 9: Mobility Average Peak travel times (minutes) to Parks

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	12 (12) [12]	13 (13) [12]
Shared-Ride	11 (10) [11]	11 (11) [11]
Transit	36 (30) [31]	33 (27) [28]
Remainder of County		
Drive Alone	42 (33) [32]	56 (34) [33]
Shared-Ride	39 (30) [29]	57 (31) [30]
Transit	70 (74) [73]	59 (72) [71]
Countywide		
Drive Alone	19 (16) [16]	23 (17) [16]
Shared-Ride	17 (14) [14]	19 (14) [14]
Transit	37 (32) [32]	34 (29) [29]

Table 10: Accessibility Average Peak travel times (minutes) to Schools

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	15 (14) [14]	15 (14) [14]
Shared-Ride	12 (12) [12]	13 (12) [12]
Transit	40 (35) [35]	36 (32) [32]
Remainder of County		
Drive Alone	33 (14) [23]	33 (23) [23]
Shared-Ride	29 (19) [19]	29 (19) [19]
Transit	56 (52) [53]	58 (51) [52]
Countywide		
Drive Alone	21 (18) [17]	21 (18) [17]
Shared-Ride	17 (14) [14]	18 (14) [14]
Transit	41 (37) [37]	37 (33) [34]

Table 11: Mobility Average Peak travel times (minutes) to Schools

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	16 (15) [15]	17 (16) [16]
Shared-Ride	13 (13) [13]	14 (13) [13]
Transit	40 (35) [35]	36 (32) [32]
Remainder of County		
Drive Alone	34 (25) [24]	47 (25) [24]
Shared-Ride	30 (19) [19]	38 (20) [19]
Transit	56 (52) [53]	58 (51) [51]
Countywide		
Drive Alone	22 (19) [18]	27 (19) [19]
Shared-Ride	19 (15) [15]	21 (15) [15]
Transit	41 (37) [37]	36 (33) [34]

Table 12: Accessibility Average Peak travel times (minutes) to Medical Facility

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	10 (11) [11]	12 (12) [12]
Shared-Ride	10 (11) [10]	11 (11) [11]
Transit	33 (31) [31]	30 (28) [28]
Remainder of County		
Drive Alone	37 (25) [25]	38 (25) [25]
Shared-Ride	34 (22) [21]	34 (22) [21]
Transit	42 (44) [45]	41 (45) [46]
Countywide		

Table 13: Mobility Average Peak travel times (minutes) to Medical Facility

Mode	2014 Base	2042 Build
Fresno-Clovis SOI		
Drive Alone	12 (13) [12]	13 (13) [13]
Shared-Ride	11 (11) [11]	12 (12) [12]
Transit	33 (31) [31]	30 (28) [28]
Remainder of County		
Drive Alone	39 (26) [26]	56 (27) [27]
Shared-Ride	25 (22) [22]	48 (23) [23]
Transit	42 (44) [45]	41 (45) [46]
Countywide		

Drive Alone	18 (15) [15]	19 (16) [15]
Shared-Ride	16 (13) [13]	16 (14) [13]
Transit	33 (32) [32]	31 (29) [29]

Drive Alone	19 (16) [16]	25 (17) [17]
Shared-Ride	16 (14) [14]	20 (15) [14]
Transit	33 (32) [32]	31 (29) [30]

### Reliability

Reliability is estimated as a percent of level of service E or worse VMT inside the EJ TAZs as well as for non-EJ TAZs. A Level of Service of E or worse states that the roadway is operating at or near capacity, with long queues developing on all approaches and long delays. Reliability of the roadway system is important to measure since the time spent in congested traffic delays means longer idling time which produces higher levels of pollutants and makes accessing jobs and service more difficult.

With 2042 build conditions, EJ TAZs in the Fresno-Clovis SOI, have a higher percentage of overall VMT operating at level of service E or worse when compared with non-EJ TAZs. As shown in Table 14, this increase in congestion can be attributed to the fact that the majority of the congested roadways in the urban core traverse thru a highly concentrated portions of EJ TAZ's.

Although the percentage congested VMT may be higher for EJ areas (6.5 compared to 5.8 for Non EJ), the number of Congested Average Daily VMT in the Countywide EJ areas and EJ +VC area are less than half of the Non-EJ areas and therefore indicate there is not an adverse impact to environmental justice communities.

### Reliability Metrics

- Reasonably dependable levels of service as measured by percent of on-time arrivals.
- Reasonably dependable levels of service as measured by congestion on highways.

Table 14: Percent Average Daily Vehicle Miles Traveled (VMT) LOS E or Worse Conditions (very Congested)

Mode	2014 Base	2042 Build
Average Daily VMT		
Fresno-Clovis SOI	10,967,288 (4,592,068 ) [5,320,395]	14,761,005 (6,171,503) [7,050,018 ]
Remainder of County	13,436,253 (4,258,335 ) [5,009,755]	19,498,768 (6,208,884) [7,217,818]
Countywide	24,403,541 (8,850,403 ) [10,330,150]	34,259,773 (12,380,387) [14,267,836]

Congested Average Daily VMT

Fresno-Clovis SOI	319,055 (213,093 ) [221,676]	1,116,590 (667,779) [689,017]
Remainder of County	173,234 (0) [19,892]	885,029 (137,647) [689,017]
Countywide	492,289 (213,093 ) [241,568]	2,001,618 (805,426) [912,485]

Percent Congested Average Daily VMT

Fresno-Clovis SOI	2.19 (4.64 ) [4.17 ]	7.56 (10.88) [9.77]
Remainder of County	4.28 (0 ) [.4 ]	4.54 (2.22) [3.10]
Countywide	3.8 (2.31 ) [2.34]	<b>5.84 (6.51) [6.40]</b>

Table 15: Level of Service Chart

Level of Service	Description
A	Free flow traffic conditions, with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection).
B	Generally stable traffic flow conditions.
C	Occasional back-ups may develop, but delay to vehicles is short-term and still tolerable.
D	During short periods of the peak hour, delays to approaching vehicles may be substantial but are tolerable during times of less demand (i.e., vehicle delayed one cycle or less at signal).
E	Intersections operate at or near capacity, with long queues developing on all approaches and long delays.
F	Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times.

## Financial

### *Transit Investment Effectiveness*

Transit investment effectiveness is measured by calculating the percentage of the new added average number of daily passenger miles traveled (PMT) served by RTP transit projects in 2042 compared to 2014. The goal for transit investment effectiveness is for EJ TAZs to show an increased percentage of transit person miles traveled.

Transit Investment Effectiveness Metric:

- Additional transit passenger miles {above the 2014 base year} in the Fresno-Clovis SOI in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities]
- Additional transit passenger miles {above the 2014 base year} in the Remainder of the County in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities]
- Additional transit passenger miles {above the 2014 base year} Countywide in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities]

The EJ area within the Fresno-Clovis SOI will increase at a greater percentage due to planned higher density developments surrounding transit corridors, populations living within proximity to transit and additional transit options such as Bus Rapid Transit services. Overall, the countywide transit investments in EJ communities will increase passenger miles traveled by an additional 31%.

Table 16: Transit Investment Effectiveness  
Percentage of increased Average Additional Daily Transit Passenger Miles Traveled (PMT)

Area	Non EJ	EJ	VC
Fresno-Clovis SOI	30%	34%	33%
Remainder of County	24%	18%	19%
Countywide	30%	31%	30%

### *Distribution of Investments*

Equitable distribution of transit investment is measured by comparing the total transit person miles traveled (PMT) by the total transit investment through 2042. Transit functions as a system where the main transit investment connects to the surrounding communities; therefore, the total investment in transit as a whole (\$1,176,850,000) was used to evaluate equity in the distribution of investment. The goal for investment equity is show that the investment per PMT in EJ TAZs is equal to or greater than non EJ TAZs.



Distribution of Investment metrics

- 1) Additional transit passenger miles {above the 2014 base year} in the Fresno-Clovis SOI in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities]
- 2) Additional transit passenger miles {above the 2014 base year} in the Remainder of the County in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities]
- 3) Additional transit passenger miles {above the 2014 base year} Countywide in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities]
- 4) Distribution of planned transportation expenditures inside and outside of EJ communities/neighborhoods.

Countywide EJ TAZs and EJ+VC TAZs are provided with approximately the same amount of investment per passenger miles traveled as Non EJ TAZs. It is worth noting that not all rural transit funds (such as LTF formula funds) are administered thru Fresno COG and therefore are not reflected in the 2018 RTP investment total which may contribute to the difference in the expenditure for Non EJ and EJ areas in the category Remainder of the County.

Table 17: Distribution of Investments  
Expenditures for 2042 Build/ Passenger Miles Traveled (PMT)

	Fresno-Clovis SOI	Remainder of County	Countywide
<b>Non-EJ TAZs</b>			
2042 PMT	324,319	48,153	372,472
Expenditure/PMT	\$3.63	\$24.44	\$3.16
<b>EJ TAZs</b>			
2042 PMT	244,699	50,982	295,682
Expenditure/PMT	\$4.81	\$23.08	\$3.98
<b>EJ + VC TAZs</b>			
2042 PMT	289,914	56,310	346,225
Expenditure/PMT	\$4.06	\$20.90	\$3.40

## Land Use / Housing

### *Housing Product Mix*

Housing mix is another important indicator for EJ communities where housing affordability weighs heavily on a household’s ability to pay for other critical needs, such as food, clothing, and transportation. A more diverse housing mix can help to assure that individuals and families at all income levels can find safe and affordable housing. A stock of mixed housing types and multifamily units can contribute to additional economic housing options since multifamily units tend to be more affordable than single family units.

#### Housing Product Mix Metrics:

- Additional new single family, multifamily and townhomes built beyond the base of 2014 in Non-EJ communities (in EJ communities) [EJ+Vulnerable Communities)
- Population Growth forecast by 2042

The 2018 RTP assumes 47,484 new single family, 32,391 new multifamily units and 5,137 new townhomes over the next 20 years to accommodate a countywide population that is anticipated to grow to an estimated 1,347,000 persons by 2042. See Growth Forecast in SCS Chapter.

The 2018 RTP/SCS plans additional, new housing developments with a greater emphasis on increasing the amount of multifamily housing options in the EJ communities compared to non-EJ areas. Multifamily and townhome units increase by two and five percent with the projected growth in 2042.

The 2042 Total Multifamily and Townhome units account for more than 50 percent of the new housing products mix in EJ+VC areas compared to 27 percent in Non EJ, Non VC communities.

Table 18 - Proposed New Housing Product Mix

	2014 Base			2042 Growth			2042 Total		
	SF%	TH%	MF%	SF%	TH%	MF%	SF%	TH%	MF%
Total	66.00%	3.50%	30.50%	52.90%	6.20%	40.90%	62.90%	4.20%	32.90%
EJ Areas	51.60%	5.40%	43.00%	44.10%	7.00%	48.90%	49.90%	5.80%	44.40%
Non-EJ area	70.90%	2.90%	26.20%	55.80%	5.90%	38.30%	67.30%	3.70%	29.10%
EJ+VC	50.90%	5.20%	43.80%	43.30%	7.00%	49.70%	49.40%	5.60%	45.00%
Non-EJ, Non-VC	72.60%	2.80%	24.70%	56.50%	5.90%	37.70%	68.50%	3.60%	27.90%

## Air Quality

### *Air Contaminant Exposure*

Freeways are one of the most pressing concerns for air pollution. Studies suggest that health risks are associated with locating housing near freeways as populations in areas surrounding freeways may have increased risk of asthma, non asthma respiratory symptoms, impaired lung function, and cardio vascular mortality.<sup>13</sup> The Center for Disease Control (CDC) state that traffic emissions are highest at the point of release and typically diminish to near background levels within 150 to 300 meters of the roadway; however, the potential exposure zone around roads can vary considerably depending on the pollutant, traffic volume, ambient pollution concentrations, topography, and land use. In terms of traffic density, adverse health effects associated with residential proximity to roads with average daily traffic volume (ADT) as low as 10,000 vehicles per day.<sup>14</sup> In contrast, the California Air Resource Board published in 2005 the Air Quality And Land Use Handbook: A Community Health Perspective which recommends siting new sensitive land uses such as residence and schools at a distance of greater than 500 feet of a freeway or from with urban roads of 100,000 ADT, or rural roads with 50,000 ADT.<sup>14</sup> Since the publication of the 2005 Handbook, research has demonstrated the public health, climate, financial, and other benefits of compact, infill development along transportation corridors. Moreover, new research has demonstrated promising strategies to help decrease pollution exposure near their sources. These strategies are the focus of a Technical Advisory report.

There are very few roads in the Fresno County region that meet the ARB threshold of urban roads with 100,000 ADT, or rural roads with 50,000 ADT and would not adequately capture the impacts of increased traffic volumes. Therefore, Fresno COG has adopted the CDC's methodology for measuring Air Contaminant Exposure. This methodology closer aligns with the region's ADT and would localize the analysis to include express ways such as Herndon Ave and Jensen Avenue.

The Air Contaminant Exposure indicator measures the number of households within the impacted area of 150 meters or approximately 500 feet from major highways (Class 1) or as other freeways and expressways (Class 2) which is consistent with the CDC's methodology.

#### Air Contaminant Exposure Metrics:

- Base Year 2014 Network of qualifying class 1 and class 2 roadways
- Built Year 2042 Network of qualifying class 1 and class 2 roadways
- Household units within 150 meters in Base year 2014
- Household units within 150 meters in Base year 2042

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<sup>13</sup> HEI Panel on the Health Effects of Traffic-Related Air Pollution. Traffic-related air pollution: a critical review of the literature on emissions, exposure, and health effects. HEI Special Report 17. Boston, MA: Health Effects Institute; 2010

<sup>14</sup> Residential Proximity to Major Highways — United States, 2010  
<https://www.cdc.gov/mmwr/preview/mmwrhtml/su6203a8.htm>

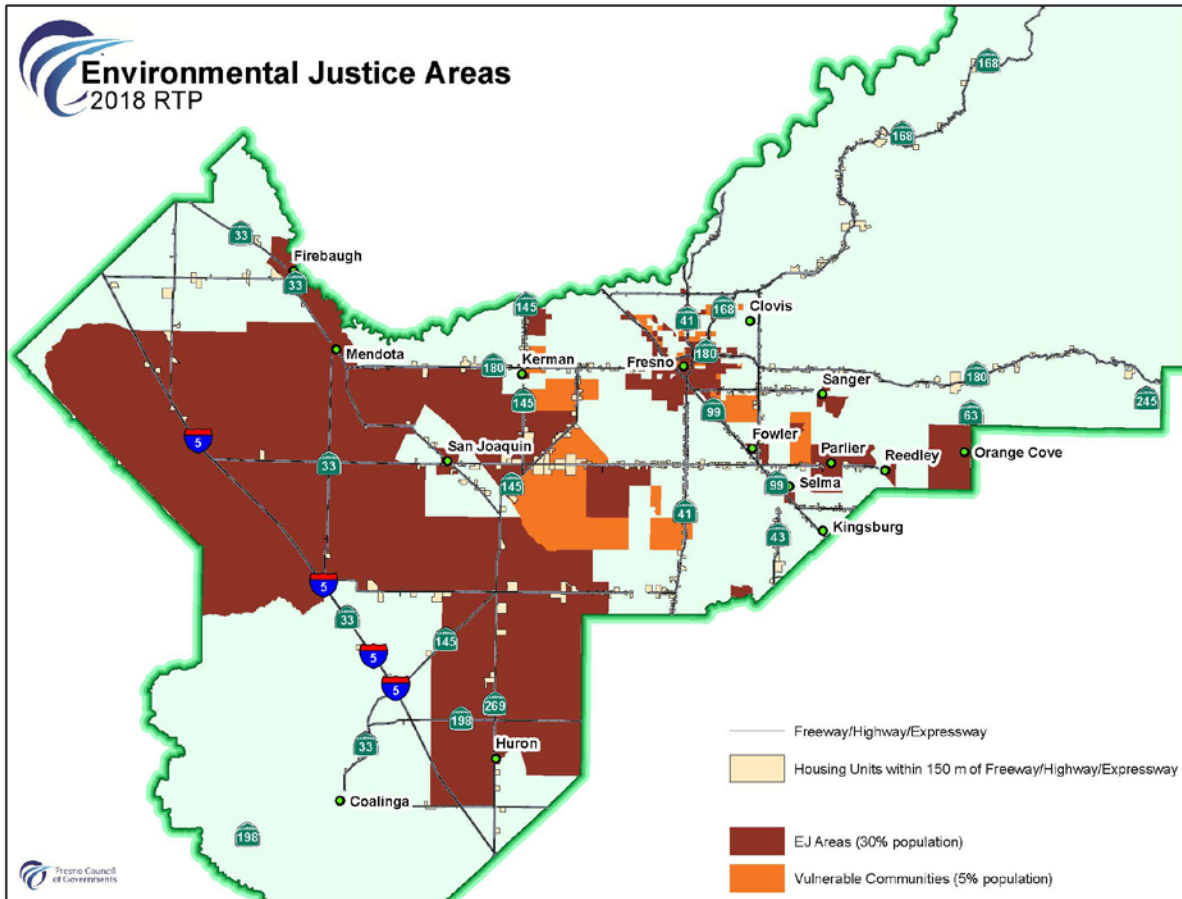
Table 17: Air Contaminant Exposure

Household units within 150 meters of Class 1 and Class 2

	2014 Base		2042 Growth		2042 Total	
	HU in Buffer	%HU in Buffer	HU in Buffer	%HU in Buffer	HU in Buffer	%HU in Buffer
Total	26,842	9.18%	10,274	11.98%	37,116	9.81%
EJ	10,831	14.55%	2,396	11.29%	13,227	13.83%
Non-EJ	16,011	7.34%	7,878	12.21%	23,889	8.45%
EJ+VC	11,796	13.27%	2,696	11.45%	14,492	12.89%
Non EJ, Non VC	15,046	7.39%	7,578	12.18%	22,624	8.51%

The analysis concludes that with a balanced growth plan, EJ and Non EJ communities are showing housing unit growth on average of 11.5 percent. The 2042 Growth assumes 7,878 more units in Non EJ areas compared to 2,396 units in EJ areas. When vulnerable communities are added, there are only an additional 300 units which is less than two thirds of the total new household units. In the 2042, Total (which include existing and new households) 13,000 EJ household units will be located within the 150 meters of the major roadways defined by this EJ report , which is significantly less than the 24,000 household units allocated in Non EJ areas. In addition in 2014 there is 14.55% of EJ household units located within 150 meters of the impacted areas, and by 2042 there will be 13.83% of such EJ households units in such areas, a decrease of 0.70%, which shows the 2018 RTP/SCS's efforts to improve the condition for the EJ population. The Non-EJ area instead will see an increase of 1.1% household units from 2014 to 2042 that will be located within the impacted areas.

Figure 7: Air Quality Indicator – Class 1 Freeway and Class 2 Express way with a buffer of 150 meters.



## CONCLUSIONS

This EJ Analysis is a tool to help determine proposed RTP projects' equitable distribution of benefits and burdens, as well as their overall cost/benefit to our inhabitants, especially those living in disadvantaged neighborhoods. The results show that in terms of overall equity, the 2018 RTP's projects appear to distribute benefits and impacts equitably over Fresno County. In most cases, EJ communities fared better than non-EJ communities. There were only a few instances where the EJ communities did not fare better than the non-EJ communities at a sub regional level. For example, transit travel times in the rest of the county was higher than in the Fresno-Clovis SOI due to the frequency of service and travel distance, however the overall county average for accessibility and mobility was less for EJ TAZ's than non EJ TAZs.

Although this EJ Analysis focuses on racial minorities and low-income populations, Fresno COG is also very involved with programs for elderly and disabled populations. Some of these programs include the

Senior Taxi Scrip program, FTA Section 5310 grants (Transportation for Elderly Persons and Persons with Disabilities), Section 5317 grants (help for Americans with Disabilities) and consulting the Social Services Transportation Advisory Council (SSTAC). The SSTAC serves as a Fresno COG advisory body regarding transit-dependent and transit-disadvantaged population needs, including the elderly, handicapped, and persons of limited means.

Based on the results of the Environmental Justice Analysis, Fresno COG can conclude that EJ communities are not “disproportionately burdened by high and adverse effects and do share equitably in the benefits from the 2018 RTP/SCS.

#### **NEXT UPDATE TO THE EJ ANALYSIS**

Fresno COG is committed to improving the EJ analysis and addressing ongoing performance considerations in its planning activities. Specifically in response to comments from the EJ subcommittee and members of the public, Fresno COG is committed to developing an activity-based model (ABM) for future RTP updates. Having an ABM that can generate household socioeconomic attributes that feed into travel patterns will further refine the EJ Analysis. Fresno COG recognizes that spatially mapping proposed RTP projects on the constrained list would provide a more accurate representation of transportation investment in determining which projects traverse, are adjacent to, and within EJ areas, either benefiting or burdening the EJ communities. Fresno COG plans to develop a tool to map RTP projects for the 2022 RTP