Environmental Justice Report

Prepared by the Stanislaus Council of Governments

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Per Resolution #11-14

Executive Summary

In late 2010, StanCOG undertook a substantive review of the extent to which its transportation planning activities met the requirements of Title VI and environmental justice. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued a joint memorandum on October 7th, 1999, directing regional and division administrators to consider environmental justice requirements in the MPO planning certification review process. The memorandum, however, defined no specific procedural or analytical approaches for demonstrating compliance. Thus, StanCOG, like MPOs around the country, had considerable discretion in developing methods to evaluate its planning programs, policies, and processes to assess the burdens and benefits of the transportation system on minority and low income populations. StanCOG shared its initial efforts to perform an Environmental Justice review and analysis with FHWA and FTA and received further direction on how to focus the effort to better recognize, address, and analyze available information to develop a true measure of the impacts of the transportation system, be it a burden or a benefit on target EJ populations in the Stanislaus Region. This collaborative and interagency consultation with FHWA and FTA resulted in the use of the StanCOG Transportation Model Program which uses the demographic data in the region to estimate travel patterns and develop an approach to analyzing and addressing an equity issue.

The StanCOG *Environmental Justice Report* describes four principal areas of investigation to evaluate whether or not the agency's transportation planning efforts met the letter and spirit of Title VI and the Executive Order on Environmental Justice. The four principal areas of investigation involved:

1. **Demographic Profile and Target Populations:** StanCOG prepared US Census and travel model information by Census Tract in frequency tables to show higher or lower concentrations of minority and low income populations in the county. Thresholds used to define EJ tracts are county averages for minority and low income population concentrations. Census tracts with minority populations greater than 34.4percent and or low income populations greater 15.9 percent were defined as "Environmental Justice" tracts (EJ) in the Stanislaus region.

2. **Identify Transit Transportation Needs for Low Income and Minority Populations:** StanCOG's methodology for identifying transit needs of EJ target populations for its *Draft Environmental Justice Report* was supplemented by feedback provided by its planning partners during committees and planning document updates. Forty-seven (47) of fifty-one (51) EJ tracts are served by fixed route transit and all EJ tracts are served by para-transit service.

3. **Public Involvement Efforts**. StanCOG formalized its commitment to public involvement with the update and adoption of the Public Participation Plan. This report recommends that StanCOG continue to reach out to minority and low income populations regarding the development of transportation plans and policies.

4. **A Methodology to Assess the Benefits and Burdens of the Transportation System:** In coordination with FHWA and FTA staff and a literature review, staff developed a methodology to combine vehicle miles of travel (VMT) and vehicle hours of travel (VHT) with target minority and target low income Census Tracts and Non Target Census Tracts to weigh the benefits and the burdens of the transportation system on populations in EJ tracts and non EJ tracts. VHT works as a proxy measure of congestion impacts and VMT works as proxy measure of air quality impacts.

The Environmental Justice Report concludes that, Vehicle Hours of Travel (travel time) will decrease in EJ tracts and non EJ Tracts based capacity enhancing projects in the RTP. Travel time may decrease up to seven (7%) in EJ tracts and up to eight (8%) in non EJ tracts. Vehicle miles of travel remain about the same between the build and the no-build network. However, select regions (Select Census Tracts) in the Stanislaus region had VHT and VMT increases by more than 100%. The region-wide analysis of VHT (congestion) and VMT (air quality) shows no disparate impacts on EJ Census tracts.

Specific data tables in the report can provide decision makers' a tool to define and prioritize areas with significant minority and low income populations. Similarly, specific information about travel time and VMT by Census tract can help decision makers' prioritize and compare transportation plans and policies with regard to minority and low income populations.

Introduction

Federal guidelines on environmental justice reflect Title VI of the Civil Rights Act. Federal legislation was created to place attention on transportation plans and the need to incorporate environmental justice principles into the transportation planning processes. In response, Metropolitan Planning Organizations (MPOs) have been developing methods to assess the impacts of their transportation plans and planning processes on low-income and minority populations. Stanislaus Council of Governments (StanCOG), the Metropolitan Planning Organization of Stanislaus County, organized local demographic data and transportation data to describe groups of people impacted by transportation plans and policies.

The Environmental Justice Executive Order EO 12898, is described in StanCOG's Public Participation Plan. The Order requires that each federal agency or agencies that receive federal dollars shall to the greatest extent possible administer and implement its programs, policies, and activities that affect human health or the environment so as to avoid 'disproportionately high and adverse' effects on minority and low-income populations. EO 12898, is a follow-up Order to Title VI, which states, each federal agency or federal agency receiving federal dollars, is required to ensure that no person is excluded from participation in, denied the benefit of, or subject to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, disability or religion.

StanCOG's Environmental Justice (EJ) program recognizes the Executive Order and the report are structured to address the Environmental Justice as prescribed. StanCOG through the use of demographic and transportation data, demonstrates whether or not, identified EJ populations are being disproportionately impacted by the transportation investments made by this region. The analysis describes the benefits and burdens of transportation planning in EJ areas compared with the countywide average. In January 2010, StanCOG staff developed a process with which to assess and ensure compliance of the agency's transportation planning efforts with environmental justice requirements of EO 12890 and Title VI. This process ultimately contained four key steps:

- Identify and locate low-income and minority populations.
- Identify transportation needs of target populations.
- Document and evaluate the agency's public involvement process.
- Quantitatively assess benefits and burdens of transportation plans with respect to target populations.

StanCOG's efforts include using analytical techniques and public involvement. These efforts effectively generated frequency tables to locate low-income and minority populations within the urban and non-urban areas of Stanislaus County and used US Census and Geographic Information Systems (GIS) mapping to help identify target populations. This information was incorporated with information from the travel-demand forecasting model to assess the benefits and burdens of existing and planned transportation system investments on target populations.

StanCOG proactively engages and involves the general public to involve them in the agency's planning process. Previous to the work on this *Draft Environmental Justice Report,* StanCOG's primary public outreach efforts were focused on the update and development of the 2011 Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP). Following its draft release in October, 2011, subsequent concurrence and acceptance from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), and adoption by the StanCOG Policy Board, the Final EJ Report will be posted on StanCOG's web site.

Federal guidelines on environmental justice emphasize the need for MPOs to substantiate self-certification of Environmental Justice and Title VI compliance. However, procedural and analytical approaches for doing so are not specific. This EJ Report documents StanCOG's efforts to address these requirements and provides an example and methodology of the best use of available demographic and transportation data.

Implementing Title VI Requirements in Metropolitan and Statewide Planning

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued a memorandum, "Implementing Title VI Requirements in Metropolitan and Statewide Planning," October 7, 1999. The memorandum provides clarification for field offices on how to ensure that environmental justice is considered during current and future planning certification reviews. While Title VI and environmental justice have often been raised during project development, the law applies equally to the processes and products of planning. The FTA and FHWA have concluded that an appropriate time to ensure compliance with Title VI in the planning process is during the planning certification reviews conducted for the Transportation Management Areas (TMAs) and through the statewide planning finding rendered at approval of the Statewide Transportation Improvement Program (STIP). TMAs are MPOs for regions with populations of 200,000 or more.

The memorandum recommends several questions be raised during certification reviews to substantiate the basis upon which self-certification of Title VI compliance is made. If it becomes evident that the self-certification was not adequately supported, a corrective action to rectify the deficiency is to be included in the certification report. The entire memorandum is available online: www.fhwa.dot.gov/environment/ejustice/ej-10-7.htm.

During certification reviews, MPOs are asked to address several important questions related to:

- Overall Strategies and Goals
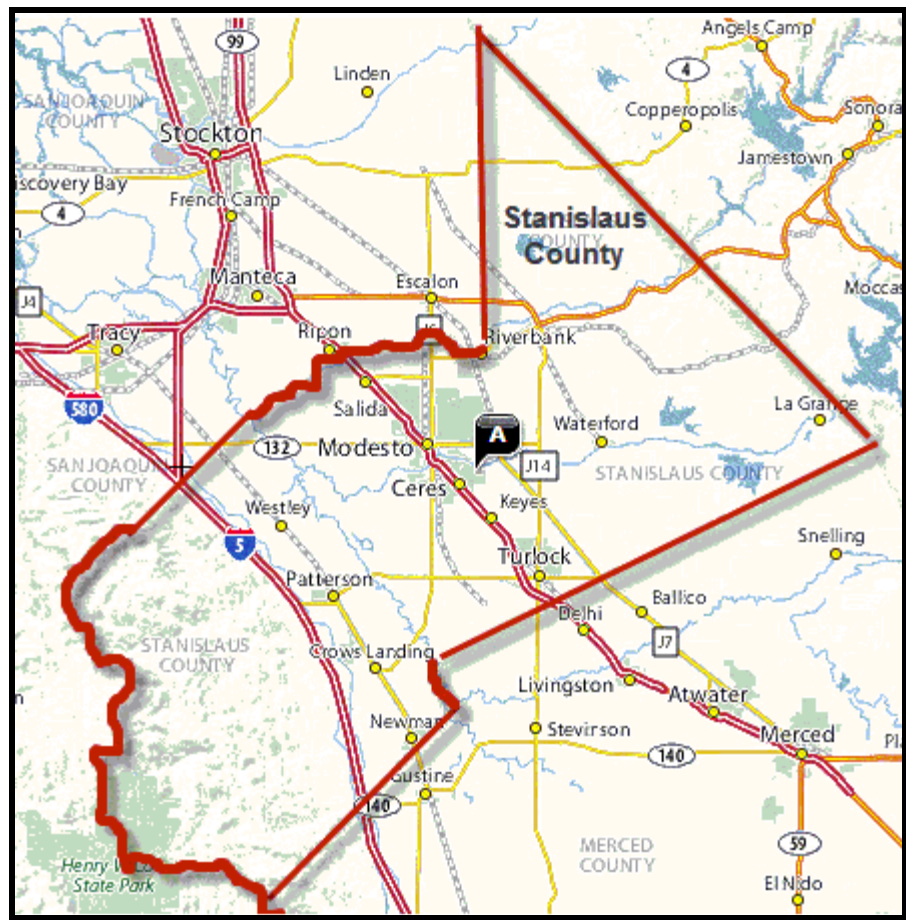- Service Equity
- Public Involvement

Below are specific questions MPOs should be prepared to address about their Overall Strategies and Goals:

Overall Strategies and Goals

- What strategies and efforts has the planning process developed for ensuring, demonstrating, and substantiating compliance with Title VI?
- What measures have been used to verify that the multimodal system access and mobility performance improvements included in the plan and Federal Transportation Improvement Program (FTIP) or STIP and the underlying planning process comply with Title VI?
- Has the planning process developed a demographic profile of the metropolitan planning area or State that identifies the locations of socioeconomic groups, including low-income and minority populations as covered by the Executive Order on Environmental Justice and Title VI provisions?
- Does the planning process identify the needs of low-income and minority populations?
- Does the planning process use demographic information to examine the distributions across these groups of the benefits and burdens of the transportation investments included in the plan and TIP (or STIP)?
- What methods are used to identify imbalances?

StanCOG and EJ

In late 2010, StanCOG undertook a substantive review of the extent to which its transportation planning activities met the requirements of Title VI and environmental justice. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued a joint memorandum on October 7th, 1999, directing regional and division administrators to consider environmental justice requirements in the MPO planning certification review process. The memorandum, however, defined no specific procedural or analytical approaches for demonstrating compliance. Thus, StanCOG, like MPOs around the country, had considerable discretion in developing methods to evaluate its planning programs, policies, and processes.

The U.S. Department of Transportation recognizes StanCOG as the official transportation-planning agency for the Stanislaus region.

StanCOG began work on this Environmental Justice project beginning in January 2010. Staff worked to define the target population, transportation needs and projects, identify the needs of the target population, evaluate the agency's existing public involvement process, and develop appropriate measures for gauging the regional burdens and benefits of transportation system investments on the target population. StanCOG then shared its initial efforts with FHWA and received further direction on how to focus the effort to better recognize, address, and analyze available information to develop a true measure of the impacts, be it burden or benefits on target EJ populations in the Stanislaus County Region. This focused effort recommended the use of the StanCOG Transportation Model Program which functions as a clearinghouse for transportation and demographic data for the region in order to develop an approach to analyzing and addressing what is essentially a social equity issue. The challenge therefore was the approach to merge a highly technical platform and database (the Model Program) and generate factors that served as a proxy variable to analyze and eventually address the social equity issues associated with Environmental Justice in the Stanislaus County Region.

The StanCOG Region

StanCOG's planning area includes nine cities and Stanislaus County. Land development patterns in and around the urban areas including the Modesto metropolitan area, Turlock, Ceres, Riverbank, Patterson and Newman mirror those of other urban centers of the past several decades. Since the 1960s, new development has shifted away from the urban core to the nearby agriculture lands and the urban spheres. New suburban developments, both residential and commercial, have tended to spring up along major freeways and arterials and are heavily oriented toward automobile use.

The Modesto region and Turlock have grown rapidly. Growth can be attributed to inter-regional job housing differentials that exist between the Bay Area and Stanislaus County in addition to significant organic growth that occurred particularly in the last decade. Between 1990 and 2010, StanCOG's' planning area added more than 143,931 people and 51,911 jobs. By 2035, StanCOG predicts that the number of people will increase to 767,836 people from 514,000 and the number of new jobs could increase to 239,479 from 136,000 jobs. According to StanCOG's 2011 Regional Transportation Plan, respective of City and County General Plan documents, much of the anticipated residential development and nonresidential development will occur in the urban spheres of influence around Stanislaus County cities.

Data from the 2010 and the 2000 U.S. Census indicate that 'low-income and minority' populations within StanCOG's planning area exist throughout all Stanislaus County including the rural areas and the cities of Stanislaus County. Ninety-five percent (95%) of the minority population are located in the cities and communities based on the overall county. Ninety-eight percent (98%) of the low income persons are located in the cities and communities. For example, thirty-five percent (35%) of all individuals who live in Modesto are minority. Sixteen percent (15.9%) of all individuals who live in Modesto are considered to be living at the Federal poverty level or below it.

Snapshot of Stanislaus County and the StanCOG
Planning Area

Location

- Modesto is the largest urbanized area in Stanislaus County
- Stanislaus Council of Governments (STANCOG) the MPO/RTPA represents ten jurisdictions including: Stanislaus County, Modesto, Ceres, Turlock, Riverbank, Oakdale, Waterford, Newman, Hughson and Patterson.
- Stanislaus County major industries are agriculture and food processing.
- Travel patterns in Stanislaus County including Vehicle Miles of Travel (VMT) and Vehicle Hours of Travel (VHT) reflect significant inter-city and inter-regional commute patterns and low transit ridership.

Population, Stanislaus County: 514,453 in year 2010;

Population, City of Modesto: 207,404 in year 2010

Minority population:

- City of Modesto – 35.7 percent
- StanCOG Region – 34.9 percent

Median household income:

- City of Modesto -- $48,580
- StanCOG Region -- $50,396
- Stanislaus County Unemployment Rate: 17% (May, 2011)

Households below poverty level:

- City of Modesto --17 percent
- StanCOG Region -- 16 percent

Other Geographic and Demographic Information:

- Stanislaus County has 76 Urban Census Tracts and 13 Rural Census tracts, whereby urban is defined as >400 people per square mile and rural is defined as <400 people per square mile.
- Stanislaus County has 295 people per square mile on average.

Sources: 2010 & 2000 U.S. Census Data

Four (4) Areas of Investigation in StanCOG's Environmental Justice Report

The StanCOG *Draft Environmental Justice Report* contained four principal areas of investigation used to evaluate whether the agency's transportation planning efforts met the letter and spirit of Title VI and the Executive Order on Environmental Justice. The four principal areas of investigation involved:

I. Demographic Profile and Target Populations.

The identification of the size and location of low-income and minority population groups is an important first step toward assessing whether or not transportation system investments disproportionately burden or fail to meet the needs of any segment of the population. StanCOG first reviewed the racial and ethnic and income-distribution patterns using the best data available from the 2000 and 2010 U.S. Census data sets. After screening the advantages and disadvantages of select variables, StanCOG decided to use census data sets of populations in poverty and populations with minorities in Stanislaus County. Although some of the available census data is 10 years old, census data offered the advantage of providing diverse demographic profile information at the census tract. In addition, census tracts at the regional and county level correspond roughly to Traffic Analysis Zones (TAZs) used in StanCOG's travel-demand forecasting model. This became an important consideration in subsequent phases of the analysis. Using census data, StanCOG then calculated percentages of low-income and minority populations for each tract within the planning area. At that point, StanCOG chose to establish "threshold" criteria for determining whether or not a particular tract should be considered an "EJ" target tract. To determine 'target' populations, StanCOG used the county-wide average for minorities and similarly the countywide average for residents in poverty. Census tracts with minority populations greater than the countywide average then were considered "target" EJ census tracts. Likewise census tracts with residents in poverty greater than the countywide average, were also identified as "target" EJ census tracts for the purpose of this analysis

STANCOG prepared US Census and travel model information by Census Tract in frequency tables to show higher or lower concentrations of minority and low income populations in the region. The tables reveal that Census Tracts with highest concentrations of minority or low-income residents, higher than the county averages, were located predominantly in the central cities including Modesto, Turlock and Ceres. By contrast, areas outside the dense urban areas with less population overall had similar high percentages of target populations although the overall populations were much less; for example, Riverbank, Hughson and Patterson represent significant minority and poverty status populations even though the overall population is lower. Table 1 and Table 2: below (next page) shows percent minorities and percent persons in poverty by Census tract that are greater than the county average. County averages are determined below in the shaded inset:

Target Population Identification by Census Tract and County Averages

Consistent with the direction of Executive Order 12898, StanCOG identified minority and low-income populations to analyze whether the agency's programs, policies, and other activities had disproportionately high and adverse human health or environmental effects.

Defining Target E.J.Population "Thresholds.": Averages of regional totals for various target populations were calculated as shown below. StanCOG concluded that using the break point whereby areas that fall above or below the average for the study area alerts planners to special areas of consideration when analyzing the effects of changes to the transportation system. Census Tracts with minority populations and populations with poverty levels greater than the Stanislaus County Average are illustrated in Table 1 and Table 2 below. The 'Low Income" and 'Minority' calculations and how they are calculated are as follows:

Low Income County Average:
(70,406 persons/440,454 pop)=15.9%

Minority County Average:
(177,111 persons/514,453 pop) = 34.4%

Table 1: Based on 2010 US Census					
Target Minority Populations in Stanislaus County by Census Tract					
Minority County Average					
(177,111 persons/514,453) pop=34.4%					
Census Tract	Census Name	Urban Rural	2010 Pop.	Minority Pop	Percent Minority
			Cen 2010	Cen 2010	
3.04	Riverbank	U	5003	2168	**43%**
5.03	Modesto	U	4930	1925	**39%**
5.05	Modesto	U	4895	1948	**40%**
5.1	Salida (County)	R	8480	3213	**38%**
8.03	Modesto	U	4789	2301	**48%**
8.05	Modesto	U	6188	2402	**39%**
9.12	Modesto	U	17129	6498	**38%**
15	County/Modesto	U	6551	2955	**45%**
16.01	Modesto	U	4803	2714	**57%**
16.03	Modesto	U	5706	2891	**51%**
16.04	Modesto	U	3861	2389	**62%**
17	Modesto	U	2589	1544	**60%**
20.02	County (Empire)	U	4527	1983	**44%**
20.04	Modesto	U	6022	2490	**41%**
20.05	Modesto	U	3631	1644	**45%**
20.06	Modesto	U	4458	1888	**42%**
21	Airport (County)	U	4165	1818	**44%**
22	Modesto	U	6223	3365	**54%**
23.01	Modesto	U	7841	4083	**52%**
23.02	Bystrum (County)	U	4010	2002	**50%**
24.01	Modesto	U	3567	1965	**55%**
24.02	Modesto	U	5559	2962	**53%**
25.01	Ceres	U	7036	3386	**48%**
25.03	Ceres	U	4368	1626	**37%**
26.02	Ceres	U	4561	2022	**44%**
26.04	Ceres	U	4681	2127	**45%**
27.02	Ceres	U	6940	3239	**47%**
30.01	County (Ceres-Hughson)	U	9397	4392	**47%**
30.02	County (Keyes)	U	6818	2668	**39%**
32.01	Patterson	U	5055	2336	**46%**
32.02	Patterson	U	16007	8214	**51%**
33	NW County (Grayson, West)	R	5077	2139	**42%**
37	County (S of Turlock)	R	4796	2009	**42%**
38.02	Turlock	U	5860	3000	**51%**
38.03	Turlock	U	3004	1495	**50%**
38.04	Turlock	U	6450	2459	**38%**

Table 2: Based on 2000 US Census					
Target Poverty Populations in Stanislaus County by Census Tracts					
Low Income County Average					
(70,406 persons/440,454 pop)=15.9%					
Census Tract	Census Name	Urban Rural	Persons in Sample	Persons in Poverty	Percent Poverty
			Cen 2000	Cen 2000	
3.01	Riverbank	U	1904	523	**27%**
8.03	Modesto	U	5029	1857	**37%**
8.05	Modesto	U	6289	1137	**18%**
9.09	Modesto	U	4401	819	**19%**
11	Modesto	U	3895	855	**22%**
12	Modesto	U	3908	747	**19%**
14	Modesto	U	6494	1355	**21%**
16.01	Modesto	U	4639	1614	**35%**
16.03	Modesto	U	5846	1496	**26%**
16.04	Modesto	U	3853	1468	**38%**
17	Modesto	U	2793	1162	**42%**
18	Modesto	U	1767	606	**34%**
20.02	County (Empire)	U	4160	868	**21%**
21	Airport (County)	U	4276	1520	**36%**
22	Modesto	U	6509	2943	**45%**
23.01	Modesto	U	7194	1987	**28%**
23.02	Bystrum (County)	U	3774	1181	**31%**
24	Modesto	U	9204	2931	**32%**
25.01	Ceres	U	2693	621	**23%**
26.02	Ceres	U	4784	1168	**24%**
26.04	Ceres	U	3857	896	**23%**
28.01	Waterford E (Co.)	R	4300	766	**18%**
29.02	Hughson (County)	U	4893	862	**18%**
31	County (S of Modesto)	R	3819	953	**25%**
33	NW County (Grayson, V	R	4529	1280	**28%**
34	SW County (Crows Lan	R	1467	388	**26%**
36.03	County	R	4101	768	**19%**
38.02	Turlock	U	5656	1586	**28%**
38.03	Turlock	U	3504	1163	**33%**
39.04	Turlock	U	4336	859	**20%**
39.06	Turlock	U	4823	1306	**27%**
39.08	Turlock	U	2618	581	**22%**

US Census Data Sources and Footnotes (Tables 1 & 2 above)

- Distribution of Demographic Data to Census Tracts was the best available data at the time of this analysis. Census data sets providing information at the most detailed geographic level available are census block groups and TAZ. However, the Census tracts fit with StanCOG's new traffic analysis zones. The new StanCOG TAZ did not fit with Census blocks and Census TAZ. In 2009-2010, StanCOG staff updated and increased its TAZ to 2500 from 500 in number. At this time, staff is working with the US Census to update Census blocks and Census TAZ to use the new 3000 TAZ used by the traffic modeling program.
- U.S. Census Data Source. StanCOG relied upon 2010 and 2000 U.S. Census data, which was available in the geographic detail most consistent with their travel-demand forecasting model, the primary analytical tool used to review the benefits and burdens of their transportation planning efforts.
- National Poverty Guidelines. To identify low-income households, StanCOG drew upon national poverty guidelines issued by the U.S. Department of Health and Human Services (DHHS), which vary by family size. StanCOG's analysis identified $17,674 as the poverty threshold for a family of four in 2010. This figure was taken from the March 10, 2010 Federal Register, part of a package of legislative information that the California Department of Transportation provided to StanCOG to use in environmental justice planning.

II. Identify Transit Transportation Needs for Low Income and Minority Populations.

In addition to establishing the locations of low-income and minority residents, a key element of EJ compliance in statewide and metropolitan transportation planning is due consideration of the transportation needs of the target populations. Every year, pursuant to the California Transportation Development Act (TDA), StanCOG conducts an unmet transit needs (UTN) assessment to identify any unmet transit needs and determine whether they are reasonable to meet, prior to the distribution of local transportation funds (LTF) to street and road claims. The assessment is conducted in collaboration with the region's five public transit operators, representatives of private social service agencies that serve Stanislaus County, and members of the general public who may represent the elderly, disabled, low income, or minority populations in the region. As required by law, StanCOG conducts at least one public hearing during the UTN assessment process to allow members of the public to identify any potential unmet transit need. If an unmet transit need is identified, StanCOG works with the region's five public transit operators and other private social service transit agencies to determine whether or not the unmet transit need can be reasonably met.

Commissioned by the StanCOG Policy Board in July 2010, the Consolidated Transportation Service Agency's (CTSA) creation came about in response to an "unmet transit need", which the Policy Board found as "reasonable to meet" during the FY 2009/10 UTN assessment, for specialized transportation services to seniors and the disabled communities. As commissioned, the CTSA's role is to coordinate with and offer support to the region's existing public transit and social service agencies in an effort to identify and meet the transit needs of Stanislaus County's senior and disabled communities. The CTSA has presently begun a travel training program, which teaches members of the senior and disabled communities how to utilize public transit services. Future goals and objectives of the CTSA include continued coordination with and outreach to local human service agencies in order to provide more door-through-door, volunteer, and other travel assistance programs that would benefit the region's senior/disabled populations that cannot be served by public transit.

Transportation needs are documented in various reports produced by StanCOG, and its partner agencies. In April 2009, Stanislaus County produced the Stanislaus County Transit Needs Assessment, which reviewed the current state of transit services in the region and identified the needs of transit dependent populations in the region. Additionally, StanCOG's Public Transit – Human Services Coordination Plan, adopted in February 2008, identifies some of the transit needs for the region's elderly, disabled, and low income populations, along with goals and measures directed at providing service to those populations through increased coordination among the existing public and private transit agencies that serve the region. Both the Regional Transportation Plan (RTP) and the Federal Transportation Improvement Program (FTIP) also identify transit projects/programs that are designed to address the region's transportation needs.

In 2009, the Merced County Association of Governments reviewed inter-regional transit demands, The San Joaquin Valley Express Transit Study evaluated travel demand projections, existing services and the characteristics of the San Joaquin Valley's diverse communities to determine the transit investments that will best serve the region's inter-county commuters.

The Figure1 below depicts Census Tracts with the most transit dependent populations in Stanislaus County. Forty-seven EJ tracts are served by fixed route service. All EJ and non-EJ tracts are served by par transit in Stanislaus County.

Figure 1: 2001 Census Tracts with the Most Transit Dependent Populations

Census Tracts In Stanislaus County
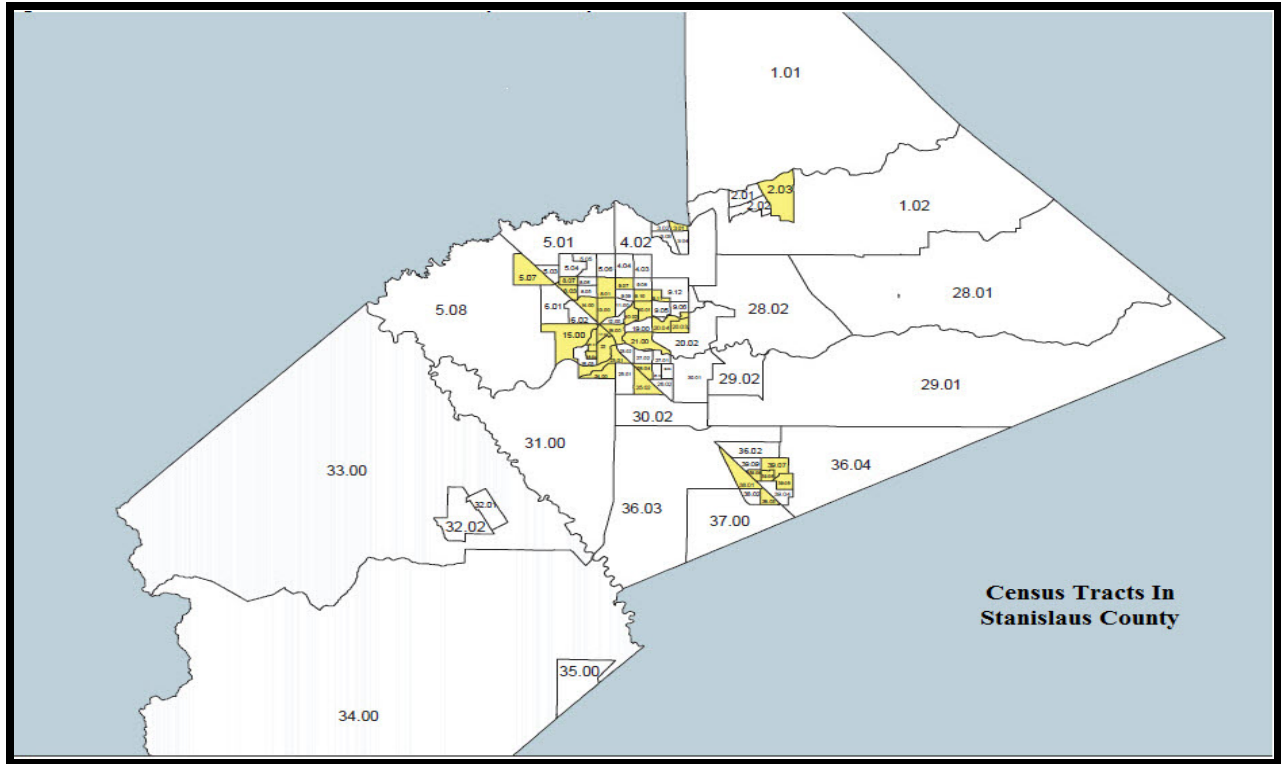
Transit Coverage Summary Table - Transit Service to Environmental Justice Populations				
	Census Tracts with Environmental Justice Population above County Average			
	EJ Tracts Served by Fixed-Route Transit Service	% of EJ Tracts	EJ Tracts Served by Paratransit	% of EJ Tracts	Total Census Tracts with Environmental Justice Population
Number of Census Tracts	47	95.9%	49	100.0%	49
Notes: EJ Tracts are defined as Census Tracts with a low-income population and/or a minority population higher the Stanislaus County average.					

The database, accumulated from recent transit studies, provided commute patterns, transit-labor force accessibility of central city and inter-city residents and established several regional transportation coordination committees including Social Services Transportation Advisory Council, the Mobility Advisory Committee and the Transit Managers Meeting and the Consolidated Transportation Service Agency's (CTSA) . StanCOG staff meets with planning staffs in each of the jurisdiction to determine transportation needs relative to housing need including housing for minorities and low income families in various planning efforts including the RTP update and the Blueprint Process. Transit managers in Stanislaus County maintain a census tract map with overlays showing minority census tracts, transit routes, and major destinations. A similar GIS map was prepared by StanCOG staff showing proposed Tier I projects overlaid on census tracts to compare population segments with the quality and level of road and highway and transit service.

StanCOG's methodology for identifying the transportation needs of EJ target populations for its *Draft Environmental Justice Report* was supplemented by feedback provided by its planning partners during committees and planning document updates. The Transit Unmet Needs document produced by StanCOG focuses on shortcomings within the Modesto-area public transit system because of the heavy reliance on public transportation by low-income and minority residents. StanCOG identified several needs with its partners suggesting the importance of improving public transportation including:

- Greater transit access to emerging employment centers, shopping, and other services located in outlying areas.
- More responsive reverse commute transit service from low-income neighborhoods to employment centers with insufficient or nonexistent service.
- Safer, more easily accessible and user-friendly transit facilities.
- Better transit connections to reduce commute times.
- Transportation systems that cross county lines and adequately serve low-income persons in rural areas and service to the Bay Area, Stockton and Sacramento.

III. Public Involvement Efforts

StanCOG continues to institutionalize its commitment to public involvement with updates and adoption of the latest Public Participation Plan (PPP – adopted September 28, 2011). The PPP identifies procedures to be consistently applied to incorporate public participation in the transportation planning process. Additionally, the Citizens Advisory Committee (CAC) a standing advisory committee to the Policy Board serves as the principle forum for public participation in StanCOG's transportation planning activities. Every effort is made to maintain a broad geographic representation covering the municipalities and county of the entire StanCOG planning area.

StanCOG's evaluation of its public involvement process identified a range of existing strategies and opportunities for public participation, including public meetings, task forces, a quarterly newsletter, direct mail, press releases, community presentations, and citizen involvement on various committees. Low-income and minority residents typically become involved in regional transportation planning when issues arise that concern them directly. StanCOG continues to publicize its activities among low-income and minority populations and make staff available to give presentations at neighborhood meetings.

Implementing Title VI Requirements in Metropolitan and Statewide Planning:

Public Involvement

The October 7th, 1999 memorandum directs FHWA and FTA staff to explore the MPO's commitment to public involvement:

- Does the public involvement process have an identified strategy for engaging minority and low-income populations in transportation decision making?
- What strategies, if any, have been implemented to reduce participation barriers for such populations?
- Has their effectiveness been evaluated?
- Has public involvement in the planning process been routinely evaluated as required by regulation?
- Have efforts been undertaken to improve performance, especially with regard to low-income and minority populations?
- Have organizations representing low-income and minority populations been consulted as part of this evaluation and have their concerns been considered?
- What efforts have been made to engage low-income and minority populations in the certification review public outreach effort?
- Does the public outreach effort use media (such as print, television, radio) targeted to low-income or minority populations?
- What issues were raised, how are their concerns documented, and how do they reflect on the performance of the planning process in relation to Title VI requirements?
- What mechanisms are in place to ensure that issues and concerns are raised by low-income and minority populations and are appropriately considered in the decision-making process?
- Is there evidence that these concerns have been appropriately considered?
- Has the MPO or State Department of Transportation made funds available to local organizations that represent low-income and minority populations to facilitate their participation in planning processes?

IV. A Methodology to Assess the Benefits and Burdens of the Transportation System.

In the final step, StanCOG, examined the agency's planning efforts to determine whether or not the benefits and burdens of existing and proposed transportation system investments are distributed among target and non-target populations equitably within the StanCOG planning area. StanCOG, like any transportation agency, was confronted with the need to make several important defensible assumptions regarding baseline and future socioeconomic conditions, growth rates, and travel-demand forecasting methods to assess the benefits and burdens. In this study, based on targeted population, StanCOG staff reviewed many descriptive variables that could be used to assess burdens and benefits.

In coordination with FHWA and FTA staff and a literature review, staff developed a methodology to combine vehicle miles of travel (VMT) and vehicle hours of travel (VHT) with target minority and target low income Census Tracts and non target census tracts. In the analysis, Vehicle Hours of Travel (VHT) and Vehicle Miles of Travel (VMT) were combined with the 2010 Census Tract information. Together these variables were found to be effective variables to weigh the equitable distribution of transportation investment and transportation policy. Moreover, VHT works as a proxy measure of congestion impacts and VMT works as proxy measure of air quality impacts.

Staff also combined the Census variable 'transit accessibility' with target Census tracts based on Census data. Figure 2 below, illustrates the confluence of Census demographic information by Census polygon in relation to the StanCOG road and highway network used by the model. The red polygons are EJ tracts and the bolded roads and highways are capacity enhancing projects based on the StanCOG RTP. Table 3 and Table 4 show regional estimates of VHT and VMT respectively based on the 2010, the 2035 Build and the No Build model scenarios. Finally, Tables 5 and 6 show Census tracts VHT and VMT by Census Tract and the percentage change between 2010 and the 2035 Build network and between 2010 and the 2035 No-Build network. Estimates of VMT and VHT by Census Tract and the percentage change can be used to assess the benefits and the transportation system.

Alternatively, another methodology was considered by StanCOG to estimate VMT and VHT within Census tract polygons directly off the model network using GIS tools; however, the relative incidence of VMT and VHT generated by through trips in the network could not be associated with local populations as compared with the former methodology considered above. A trip that produces VMT and VHT often occurs over several tracts as with interregional trips and through trips. A trip may start or end in a traffic analysis zone or a tract but the other end may occur in another TAZ or Census tract in another area. Through trips have an origin and a destination outside the model study area. In the Stanislaus region, for example, significant VMT and VHT are generated by trips with a trip end in Stanislaus County and the other trip end in the Bay Area.

Technical Procedures

First, StanCOG staff assembled 2010 population, housing and minority information by Census tract from the US Census website. Year 2000 income and job information was also assembled in the same format. Second, census tract polygon shape files were downloaded from the Census and re-projected in ArcMap (GIS) to overlay on StanCOG's traffic analysis zone polygon shape file which is based on the coordinate system: *California State Plane Coordinate System, NAD 83, for Region 3*. Third, in ArcMap, the Census shape file and the StanCOG TAZ shape file were physically "joined" in the same layer. Fourth, the "join" operation resulted in a layer and a database with tracts and TAZ sharing the same physical features and common data; subsequently, TAZ in the model were directly associated US Census tracts. Fifth, housing, population and jobs in the model land use file were totaled by Census tract in the new database file. Census tract totals were made for the existing 2010 land use, the 2035 land use and the delta 2010-2035. The delta "growth" (based on StanCOG's general plans), were applied to the US Census population by tract to obtain 2035 population estimates. Region-wide VMT and VHT totals for the 2010, build and no-build were applied to the population estimates to obtain VMT and VHT estimates by Census Tracts.

Transportation Modeling Tools at StanCOG

The development of the StanCOG region wide transportation model began as a multi-jurisdictional effort in 2005-07 by the California Department of Transportation (Caltrans), (StanCOG) and the City of Modesto. The purpose was to integrate models used in the County for planning purposes using the City of Modesto General Plan Model and the StanCOG air quality and RTP model. The integration of the models included up to date land use and roadway network and improved model components used in the 4 step modeling process.   In 2008-09, StanCOG staff continued to update key model components of the model including a detailed centerline road and highway network, an increased number of traffic analysis zones from 500 to 3000, peak period and off period trip assignments, methods to better measure congestion through a feedback loop, a cross classification trip generation component and a new system to account for land use by city and community. Network from San Joaquin and Merced counties where inter regional projects are planned were also included in the model.   The updated model is an important tool in the development of the 2010 RTP, the 2009 CMP and the 2010 air quality conformity analysis.   Model improvements will continue in 2010-11 period to integrate origin-destination information at the gateways and implement a mode choice component using a nested logit function from Consumer Economics.

Figure 2:
Proposed Road & Highway Network over EJ
Census Tracts in the Stanislaus Region

Red Polygons = EJ Tracts
Black Lines = Capacity Enhancing Projects
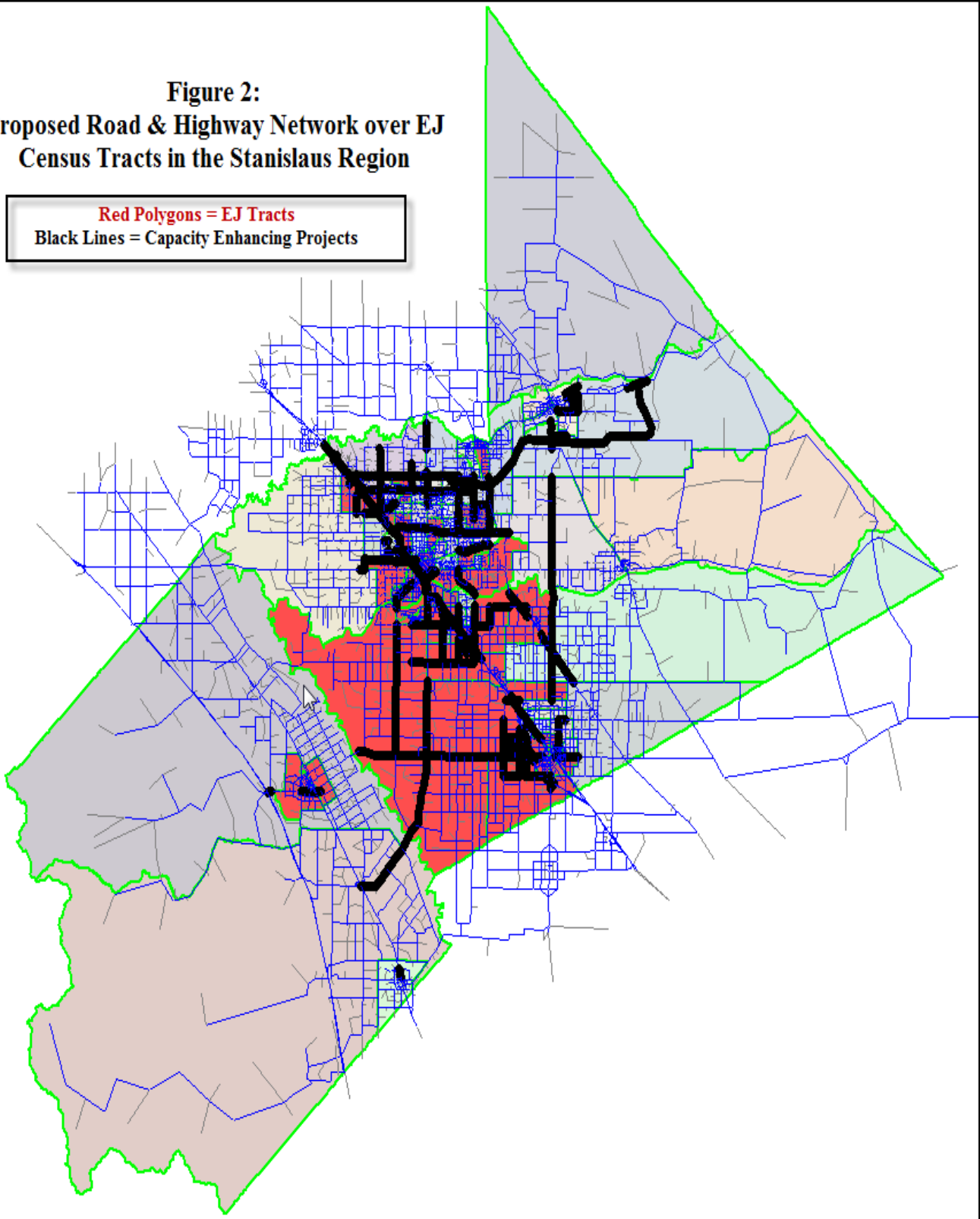
Central to StanCOG's study plan was the agency's use of the travel-demand forecasting model to prepare the *2011 Regional Transportation Plan and the 2011 Air Quality Conformity Analysis*. The transportation model employs land use and demographic information by traffic analysis zone (TAZ) within the StanCOG planning area to estimate trip generation for existing and future traffic volumes on the regional transportation network. Staff was able to aggregate demographic information by TAZ to the larger Census Tract level as defined by Census polygons. In this regard, General Plans and forecast of population and jobs were fully accounted for by Census Tract as determined by StanCOG's member agencies. From there, staff were able to estimate (VMT) and (VHT) at the 'Census Target Tract level' by factoring region-wide estimates of VMT and VHT from the model with the population within each tract to determine unique values of VMT and VHT by tract. VMT and VHT estimates by tract were made in the existing 2010 condition and the forecast 2035 transportation model. Moreover, by expanding the modeling process and the transportation data relative to population within the Census Tract, a common variable among the model and the Census, StanCOG was able to relate Census low-income and minority populations to the demographic information used by the model. The format could then be used to determine whether or not populations by region are equitably served by transportation investment and policies relative to travel. Region-wide estimates of VMT and VHT for the 2010 and 2035 Build and No Build scenarios were generated and are described below in Table 3 and Table 4.

Table 3: A Measure of Congestion:

Vehicle Hours of Travel (VHT) 2010-2035

	Base Year 2010	No-Build 2035	Build 2035
EJ Tracts	504,016	869,768	835,415
Change from 2010		73%	66%
Non-EJ Tracts	454,002	828,577	793,396
Change from 2010		83%	75%
Total	966,973	1,707,300	1,637,766

Table 4: A Measure of Air Quality:

Vehicle Miles of Travel (VMT) 2010-2035

	Base Year 2010	No-Build 2035	Build 2035
EJ Tracts	6,276,033	8,648,694	8,706,870
Change from 2010		38%	39%
Non-EJ Tracts	5,653,249	8,083,152	8,142,731
Change from 2010		43%	44%
Total	12,040,783	16,843,348	16,961,103

Region wide, vehicle hours of travel (congestion) were shown to decrease in the network from the no-build condition to the build condition for EJ tracts from 73% to 66%. Similarly , VHT decreased for Non-EJ tracts between the no-build and the build tracts from 83% to 75%. There was an overall improvement in travel time for all tracts in the Stanislaus region in consideration of the road and high projects accounted for in the RTP and the transportation model. Vehicle miles of travel (air quality) increased marginally from the no-build to the build scenario among the EJ and non-EJ tracts which may suggest improved access for trips in the model but remain about the same. The figures suggests that travel time and congestion can be improved in Stanislaus County if the transportation network is built out as proposed in the RTP and the FTIP for the benefit of EJ and non-EJ populations. The region-wide analysis of VHT (congestion) and VMT (air quality) shows no disparate impacts on EJ Census tracts.

Key Variables Used in the StanCOG EJ Analysis

And their Definitions

StanCOG screened and categorized potential variables for their immediate and future application to environmental justice evaluations. Key variables used in the analysis and described in tables 5 and 6 are defined. Variables considered included income, number of accessible job opportunities, and incidence of alternative modes of transportation among others found in the US Census and the transportation model. Transportation variables and estimates were calculated on the 2010 StanCOG transportation network and the 2035 build and no-build network whereby build refers to new roads and highway lanes coded in the transportation network. The 2035 build scenario assumed all of the projects in the FTIP and the RTP. A major analytical step in StanCOG's benefits and burdens assessment involved identifying key variables and measuring them to compare the respective treatment of *target* and *non-target* populations in the planning process. Target minority and target low income populations are previously described in Tables 1 and 2. During the study process, StanCOG distinguished measures to assess burdens and benefits and identified the following variables after reviewing available data sources and a literature review. The variables used in Table 5 and 6 are defined below:

- *Census EJ Tracts:* EJ tracts in Table 5 and 6 are geographic units defined by the US Census that contain various census data. In this analysis, EJ target tracts (included minority and poverty populations); they were segregated from non EJ tracts (Appendix A) based on county averages (See table 1 and 2 for a list of minority and low income census tracts)
- *Census Name:* it generally describes the city or community planning areas by the US Census.
- *Urban/Rural.* Defined by the US Census as rural <400 people per square mile verses urban >400 people per square mile.
- *Target EJ Population Criterion*: tracts were defined and segregated from the other county tracts if the minority population in a tract was greater than the county average of 34.4%; similarly tracts in the county were segregated and defined as target tracts if the people in poverty were greater than 15.9% in the county.
- *EJ Rank VMT/VHT*: there are 88 usable US Census Tracts in Stanislaus County. The database of 88 Tracts were sorted from highest to lowest VMT/VHT for the whole county with "1" having the highest VMT and VHT in the county. Notably, tracts 9.12 and 32.02 had the highest VMT in the county and were found to be target EJ tracts.
- Daily 2010 VMT: Vehicle Miles of Travel is defined as all the distances in the StanCOG Transportation Model (ref. Figure 2) respective of all the lanes times the number of trips that traverse each link in a typical 24 hour period. VMT in this analysis is an indicator of all travel in Stanislaus County and serve as a proxy for air quality as it is a determinant used in air quality calculations. VMT is expressed in miles.
- Daily 2011 VHT: Vehicle Hours of Travel is defined as all the travel times expressed in minutes on all the links in the model times all the trips that traverse each link in the StanCOG model network in a typical 24 hour work day. The VHT can be a proxy for congestion. The travel times in each tract were divided by 60 minutes so that time could be reported in hours. In theory, as lanes and road and highway improvements are added to the model network VHT decreases.
- Daily 2035 Build VHT: VHT in the 2035 build network is defined as all travel times multiplied by all trips in the 2035 model expressed in hours. The 2035 build network used in this calculation was based on the existing network plus all the capacity enhancing projects that were coded from the Tier 1 project list in the 2011 RTP built out to the year 2035.
- Daily 2035 No Build VHT: all travel times multiplied by all trips in the 2035 model expressed in hours based on a 2010 road and highway network excluding any road and highway improvements.
- Transit Access: Defined as tracts with transit trips collected by sampling in Census 2000. Many tracts in Stanislaus County are served by local transit agencies. Likewise many communities and rural areas are served by intercity transit such as dial a ride and Start (Stanislaus Area Regional Transit)
- Tier 1 RTP Projects Proposed: defined as tracts having proposed road and highway projects or not.

Indicators to Assess the Benefits and the Burdens of the Proposed Transportation System on EJ and Non EJ- Populations.

Table 5: Travel Time (VHT) in Stanislaus County & Percent Change (2010-2035) by EJ Tracts
Indicators Used to Assess the Burdens and Benefits of the Proposed Transportation System
Sorted By Highest to Lowest VHT by Census Tract

Census Tracts EJ	Census Name	Urban Rural	Target Pop. Criterion	Daily 2010 VHT (Hrs)	Daily 2035 NO-BLD VHT 2010-2035 (Hrs)	(Per Chg)	Daily 2035 BLD VHT 2010-2035 (Hrs)	(Per Chg)	Daily Workers Using Public Transport Over Age 16	Are Tier 1. RTP Projects Proposed Here?
					No-Build		Build			
9.12	Modesto	U	Minority	32,196	48,629	51%	47,086	46%	0	na
32.02	Patterson	U	Minority	30,087	33,701	12%	33,361	11%	9	Yes
30.01	County (Ceres-Hugh	U	Minority	17,663	19,321	9%	19,166	9%	0	na
5.1	Salida (County)	R	Minority	15,939	18,713	17%	18,452	16%	0	na
23.01	Modesto	U	Poverty & Minority	14,738	22,270	51%	21,563	46%	52	Yes
29.02	Hughson (County)	U	Poverty	14,302	20,525	44%	19,940	39%	8	Yes
25.01	Ceres	U	Poverty & Minority	13,225	15,723	19%	15,489	17%	0	Yes
27.02	Ceres	U	Minority	13,045	13,092	0%	13,088	0%	48	Yes
30.02	County (Keyes)	U	Minority	12,815	43,398	239%	40,525	216%	9	Yes
15	County/Modesto	U	Minority	12,313	30,618	149%	28,899	135%	40	Yes
38.04	Turlock	U	Minority	12,124	27,853	130%	26,376	118%	0	na
14	Modesto	U	Poverty	12,086	15,242	26%	14,946	24%	62	Yes
22	Modesto	U	Poverty & Minority	11,697	17,641	51%	17,083	46%	79	Yes
8.05	Modesto	U	Poverty & Minority	11,631	13,672	18%	13,480	16%	58	Yes
20.04	Modesto	U	Minority	11,319	14,158	25%	13,892	23%	33	Yes
38.02	Turlock	U	Poverty & Minority	11,015	15,500	41%	15,079	37%	25	Yes
16.03	Modesto	U	Poverty & Minority	10,725	11,039	3%	11,009	3%	40	Yes
28.01	Waterford E (Co.)	R	Poverty	10,571	13,184	25%	12,939	22%	0	Yes
24.02	Modesto	U	Minority	10,449	10,759	3%	10,730	3%	0	na
33	NW County (Grayson	R	Poverty & Minority	9,543	22,151	132%	20,967	120%	0	Yes
32.01	Patterson	U	Minority	9,501	11,927	26%	11,699	23%	10	Yes
3.04	Riverbank	U	Minority	9,404	13,016	38%	12,677	35%	0	Yes
5.03	Modesto	U	Minority	9,266	11,280	22%	11,091	20%	21	na
5.05	Modesto	U	Minority	9,201	15,973	74%	15,337	67%	12	Yes
39.06	Turlock	U	Poverty	9,173	13,047	42%	12,683	38%	38	Yes
16.01	Modesto	U	Poverty & Minority	9,028	9,044	0%	9,043	0%	24	Yes
37	County (S of Turlock)	R	Minority	9,015	14,665	63%	14,134	57%	19	Yes
8.03	Modesto	U	Poverty & Minority	9,001	25,531	184%	23,978	166%	5	Yes
26.04	Ceres	U	Poverty & Minority	8,798	10,096	15%	9,974	13%	69	Yes
26.02	Ceres	U	Poverty & Minority	8,573	10,498	22%	10,317	20%	5	Yes
20.02	County (Empire)	U	Poverty & Minority	8,509	15,307	80%	14,669	72%	6	Yes
20.06	Modesto	U	Minority	8,379	8,379	0%	8,379	0%	0	na
9.09	Modesto	U	Poverty	8,274	13,951	69%	13,418	62%	9	Yes
39.04	Turlock	U	Poverty	8,221	9,826	20%	9,675	18%	7	Yes
25.03	Ceres	U	Minority	8,210	10,178	24%	9,993	22%	0	na
21	Airport (County)	U	Poverty & Minority	7,829	11,414	46%	11,077	41%	56	Yes
23.02	Bystrum (County)	U	Poverty & Minority	7,537	10,167	35%	9,920	32%	14	Yes
31	County (S of Modest	R	Poverty	7,518	13,870	84%	13,273	77%	0	Yes
36.03	County	R	Poverty	7,428	80,976	990%	74,068	897%	8	Yes
11	Modesto	U	Poverty	7,329	9,500	30%	9,296	27%	17	Yes
16.04	Modesto	U	Poverty & Minority	7,257	13,223	82%	12,662	74%	22	Yes
12	Modesto	U	Poverty	6,810	8,681	27%	8,505	25%	19	Yes
24.01	Modesto	U	Minority	6,705	7,831	17%	7,725	15%	0	na
38.03	Turlock	U	Poverty & Minority	5,646	6,952	23%	6,829	21%	3	Yes
17	Modesto	U	Poverty & Minority	4,866	7,665	58%	7,402	52%	15	Yes
39.08	Turlock	U	Poverty	4,184	6,610	58%	6,382	53%	0	Yes
18	Modesto	U	Poverty	4,128	13,597	229%	12,708	208%	9	Yes
3.01	Riverbank	U	Poverty	3,735	17,321	364%	16,045	330%	0	Yes
34	SW County (Crows La	R	Poverty	3,009	42,051	1297%	38,384	1176%	0	Yes
20.03	Modesto	U	Minority	N/A	-	0%	-	0%	18	Yes
24	Modesto	U	Poverty	N/A	-	0%	-	0%	36	Yes
	County Total (EJ + Non-EJ):			966,973 Hrs.	1,707,300 Hrs.		1,637,766 Hrs.		1,645 Sample Trips	

Indicators to Assess the Benefits and the Burdens of the Proposed Transportation System on EJ and Non EJ- Populations Continued.

Table 6: Travel Distance (VMT) in Stanislaus County & Percent Change (2010-2035) by EJ Tracts

Indicators Used to Assess the Burdens and Benefits of the Proposed Transportation System

Sorted By Highest to Lowest VMT by Census Tract

Census Tracts EJ	Census Name	Urban Rural	Target Pop. Criterion	2010 VMT (Hrs)	2035 N0-BLD VMT 2010-2035 (Hrs)	(Per Chg)	2035 BLD VMT 2010-2035 (Hrs)	(Per Chg)	Daily Workers Using Public Transport Over Age 16	Are Tier 1. RTP Projects Proposed Here?
					No-Build		Build			
9.12	Modesto	U	Minority	400,905	507,508	27%	510,122	27%	0	na
32.02	Patterson	U	Minority	374,644	398,086	6%	398,661	6%	9	Yes
30.01	County (Ceres-Hugh	U	Minority	219,937	230,696	5%	230,960	5%	0	na
5.1	Salida (County)	R	Minority	198,475	216,468	9%	216,909	9%	0	na
23.01	Modesto	U	Poverty & Minority	183,519	232,382	27%	233,580	27%	52	Yes
29.02	Hughson (County)	U	Poverty	178,089	218,456	23%	219,445	23%	8	Yes
25.01	Ceres	U	Poverty & Minority	164,678	180,885	10%	181,282	10%	0	Yes
27.02	Ceres	U	Minority	162,431	162,740	0%	162,747	0%	48	Yes
30.02	County (Keyes)	U	Minority	159,575	357,967	124%	362,831	127%	9	Yes
15	County/Modesto	U	Minority	153,326	272,073	77%	274,984	79%	40	Yes
38.04	Turlock	U	Minority	150,962	253,001	68%	255,503	69%	0	na
14	Modesto	U	Poverty	150,494	170,969	14%	171,471	14%	62	Yes
22	Modesto	U	Poverty & Minority	145,649	184,211	26%	185,156	27%	79	Yes
8.05	Modesto	U	Poverty & Minority	144,830	158,069	9%	158,393	9%	58	Yes
20.04	Modesto	U	Minority	140,945	159,365	13%	159,816	13%	33	Yes
38.02	Turlock	U	Poverty & Minority	137,153	166,251	21%	166,964	22%	25	Yes
16.03	Modesto	U	Poverty & Minority	133,549	135,585	2%	135,635	2%	40	Yes
28.01	Waterford E (Co.)	R	Poverty	131,630	148,583	13%	148,999	13%	0	Yes
24.02	Modesto	U	Minority	130,109	132,120	2%	132,169	2%	0	na
33	NW County (Grayson	R	Poverty & Minority	118,827	200,621	69%	202,626	71%	0	Yes
32.01	Patterson	U	Minority	118,312	134,047	13%	134,433	14%	10	Yes
3.04	Riverbank	U	Minority	117,095	140,529	20%	141,104	21%	0	Yes
5.03	Modesto	U	Minority	115,387	128,451	11%	128,771	12%	21	na
5.05	Modesto	U	Minority	114,568	158,501	38%	159,578	39%	12	Yes
39.06	Turlock	U	Poverty	114,216	139,352	22%	139,969	23%	38	Yes
16.01	Modesto	U	Poverty & Minority	112,414	112,520	0%	112,523	0%	24	Yes
37	County (S of Turlock)	R	Minority	112,250	148,905	33%	149,803	33%	19	Yes
8.03	Modesto	U	Poverty & Minority	112,087	219,315	96%	221,944	98%	5	Yes
26.04	Ceres	U	Poverty & Minority	109,559	117,975	8%	118,182	8%	69	Yes
26.02	Ceres	U	Poverty & Minority	106,750	119,238	12%	119,545	12%	5	Yes
20.02	County (Empire)	U	Poverty & Minority	105,955	150,054	42%	151,136	43%	6	Yes
20.06	Modesto	U	Minority	104,340	104,340	0%	104,340	0%	0	na
9.09	Modesto	U	Poverty	103,029	139,858	36%	140,761	37%	9	Yes
39.04	Turlock	U	Poverty	102,374	112,784	10%	113,039	10%	7	Yes
25.03	Ceres	U	Minority	102,233	115,001	12%	115,314	13%	0	na
21	Airport (County)	U	Poverty & Minority	97,482	120,740	24%	121,311	24%	56	Yes
23.02	Bystrum (County)	U	Poverty & Minority	93,854	110,917	18%	111,335	19%	14	Yes
31	County (S of Modest	R	Poverty	93,620	134,823	44%	135,833	45%	0	Yes
36.03	County	R	Poverty	92,497	569,609	516%	581,307	528%	8	Yes
11	Modesto	U	Poverty	91,256	105,339	15%	105,685	16%	17	Yes
16.04	Modesto	U	Poverty & Minority	90,367	129,064	43%	130,013	44%	22	Yes
12	Modesto	U	Poverty	84,796	96,934	14%	97,232	15%	19	Yes
24.01	Modesto	U	Minority	83,486	90,794	9%	90,973	9%	0	na
38.03	Turlock	U	Poverty & Minority	70,309	78,778	12%	78,985	12%	3	Yes
17	Modesto	U	Poverty & Minority	60,596	78,751	30%	79,196	31%	15	Yes
39.08	Turlock	U	Poverty	52,100	67,835	30%	68,221	31%	0	Yes
18	Modesto	U	Poverty	51,397	112,826	120%	114,332	122%	9	Yes
3.01	Riverbank	U	Poverty	46,506	134,643	190%	136,804	194%	0	Yes
34	SW County (Crows L	R	Poverty	37,471	290,739	676%	296,949	692%	0	Yes
20.03	Modesto	U	Minority	N/A	-	0%	-	0%	18	Yes
24	Modesto	U	Poverty	N/A	-	0%	-	0%	36	Yes
	County Total (EJ + Non-EJ):			12,040,783 Miles	16,843,348 Miles		16,961,103 Miles		1,645 Sample Trips	

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Tables 5 and 6 (above) are designed to show VHT and VMT by Census Tact and the percentage increase in VHT and VMT between the existing condition and the build and no-build networks in 2035. The percentage change between the 2010 existing condition and the 2035 no-build condition and the 2010 and 2035 build condition are significant in select EJ tracts. Region-wide, VHT (travel time) decreases for EJ and non-EJ tracts however travel time increases in select tracts as shown in table 5 above. Decision makers and transportation planners can prioritize EJ tracts based on percentage change in travel time and target transportation plans and policies to benefit minority and disadvantaged populations.   EJ tracts showing significant growth in VHT (congestion) or VMT (air quality) may also suggest that more review and diagnostics about transportation services, infrastructure and transportation policy be considered in the planning processes. The region-wide analysis of VHT (congestion) and VMT (air quality) shows no disparate impacts on EJ Census tracts.

Conclusion: Assessing the Benefits and the Burdens of Transportation System Investments

The region-wide analysis of VHT (congestion) and VMT (air quality) shows no disparate impacts on EJ Census tracts.

The number of Census Tracts with minorities and low income populations compare with the number of Census tracts with fewer minorities and fewer low income populations in Stanislaus County. There are 41 EJ Tracts and 40 non-EJ tracts identified. Usable Census Tracts vary from Census 2000 to Census 2010. Census 2010 is incomplete at the time of this report while population, housing and race are available at the time of this report. Economic and Census Travel indicators are available in the 2000 Census at this time..

Region wide, vehicle hours of travel (travel time) was shown to decrease in the network from the no-build condition to the build condition for EJ tracts from 73% to 66%. Similarly , VHT decreased for Non-EJ tracts between the no-build and the build tracts from 83% to 75%. There was an overall improvement in travel time for all tracts in the Stanislaus region in consideration of the road and high projects accounted for in the RTP and the transportation model.

Nine EJ tracts in the Stanislaus region show a percentage increase of over 100% in VHT and VMT between 2010 and 2035.

Tables 5 and 6, *Indicators to Assess the Benefits and the Burdens of the Proposed Transportation System on EJ and Non EJ- Populations.* provide decision makers' a tool to prioritize and compare transportation investment and policies by regions with regard to minority and low income populations.

All Census Tracts in Stanislaus County have significant minority and low income populations; however, several EJ tracts generate and distribute the greatest VMT and VHT in Stanislaus County. Four Census tracts in Stanislaus County have some of the highest VHT in Stanislaus County and qualify as EJ tracts because they have significant minority populations.   Alternatively, they have lower than average low income populations.

Populations in rural areas may have more minorities, more low income populations and higher rates of VHT on a percentage basis than urban Census Tracts in Stanislaus County.

Transit and road and highway investments are proposed and planned universally in EJ and non-EJ tracts in Stanislaus County. Low-income and minority residents may be at least as well served by proposed investments as other segments of the population in urban areas.

Challenges Ahead

The inclusion of environmental justice principles into regional transportation planning is an evolving process. The challenges that StanCOG encountered were about data limitation. StanCOG's used the ten year-old 2000 census data to identify locations of low income populations which were the best available information. However, by mid 2012 the Census 2010 income and economic information may be available for the next EJ analysis. Future work in Stanislaus County on Environmental Justice may include a review of the complete 2010 Census and Transportation Planning Project (CTPP) when it is available next year. New measures for minority and persons in poverty could be re-estimated as compared with using the county averages.

Another methodology was considered by StanCOG to estimate VMT and VHT within Census tract polygons directly from the model's network using GIS tools; however, at this time, the relative incidence of VMT and VHT generated by through trips in the network could not be accounted for and described in this analysis. StanCOG is upgrading its traffic model to a three county network and has been collecting data at the gateways to determine proportions of through trips that traverse the county and data on trips that have either a trip origin or a destination outside the county. It is expected that this information will be built in to the traffic model so that an accounting of through trips can be made. Then, VMT and VHT caused by trough trips can be subtracted from total VMT and the VHT at the Census tract level. In this manner, a fair assessment about VMT and VHT caused by local trips and by through trips could be made by Census tract. This analysis assumes that some Census tracts receive a higher proportion of through trips than others.

StanCOG's use of travel-demand modeling to identify benefits and burdens of transportation system investments reveal certain data limitations. For instance, the analysis assumed that target populations had access to at least as many quality jobs as other groups which may not be a realistic assumption but hard to quantify. Also, methods to account for interregional trips and their contribution to VMT and VHT estimates have a critical effect on calculations and raise questions about the social and economic externalities caused by interregional trips on people and regions. Although this type of information was available at the time StanCOG was developing its environmental justice methodology, it is important that such data limitations be acknowledged and addressed in future modeling efforts. Additionally, StanCOG's analysis of travel times and accessibility for public transit did not consider frequency of service. Bus lines are assumed to have uniform service implicit in the analysis, even if lack of evening or weekend service, as an example, prevented individuals from using certain bus routes from accessing jobs or other destinations. Finally, the geographic unit, Census Tract, used to account for land use and macro transportation statistics, may introduce significant error in the analysis because of their scale. Smaller geographic areas such as block or block groups may provide enhanced measurements when accounting for demographic and travel statistics.

Shortcomings such as these do not obscure StanCOG's commitment to assessing the benefits and burdens of its transportation planning efforts, investing considerable time and resources in developing a methodology, carrying out the analysis and documenting the process. StanCOG is committed to the challenge of holding its findings up to further scrutiny in the environmental justice review process and incorporating the information learned into its transportation planning efforts.

StanCOG's *Draft Environmental Justice Report* is more than a summary of findings from Census mapping and the application of evaluation measures drawn from a travel-demand forecasting exercise. The report gives an overview of the public-involvement processes, partnerships, and other initiatives undertaken by the MPO and its member agencies including its planning partners. The overview clarifies how environmental justice requirements are addressed in the overall regional transportation planning process. StanCOG is committed to the challenge of public participation and its special role to communicate information about transportation policy and planning with minority and disadvantaged populations.