

Appendix I

Sequoia National Park, California

Environmental Justice Report

Environmental Justice Report

3.7.14



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FRESNO COG'S PLANNING APPROACH TO ENVIRONMENTAL JUSTICE

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of 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*
- *Their concerns will be considered in the decision making process*
- *The decision makers seek out and facilitate the involvement of those potentially affected*

BACKGROUND

An Environmental Justice (EJ) Analysis of the RTP is needed to assure that Fresno COG conforms to federal environmental justice principles, policies, and regulations including Title VI of the Civil Rights Act of 1964. 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 need for transportation agencies to disclose to the public the benefits and burdens of proposed projects on minority populations. The understanding of civil rights has expanded to include gender, religion, and disability. Title VI was further amended in 1987 to extend non-discrimination requirements for recipients of federal aid to all of their programs and activities, not just those funded with federal funds.

A 1994 Presidential Order (Executive Order 12898) directed every federal agency to make Environmental Justice part of its mission by identifying and addressing the effects of all programs, policies, and activities on underrepresented groups 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 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.”

To implement and ensure compliance with these statutes, federal and state agencies have issued a series of orders, regulations and guidance on environmental justice. In 1994, President Clinton issued Executive Order 12898 on “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.”¹ In 1997, the Department of Transportation followed up with an Order on Environmental Justice designed to implement the Executive Order.² In December 1998, the Federal Highway Administration (FHWA) issued its own environmental justice order. As a federally designated metropolitan transportation planning organization (MPO), Fresno COG is required to comply with the rules and policies set forth by FHWA. Fresno COG’s three main principles underlying environmental justice are:

- *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.*
- *Ensure 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 populations and low-income groups.*

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.

¹ <http://www.archives.gov/federal-register/executive-orders/pdf/12898.pdf>

² http://www.fhwa.dot.gov/environment/environmental_justice/facts/dot_ord.cfm

The Environmental Justice Equity Analysis is intended to measure both the benefits and burdens associated with the transportation investment alternatives included in the 2040 Regional Transportation Plan, and to make sure that the environmental justice communities living within Fresno County share equitably in the benefits of the Plan's investments without bearing a disproportionate share of the burdens.

DEMOGRAPHIC PROFILE

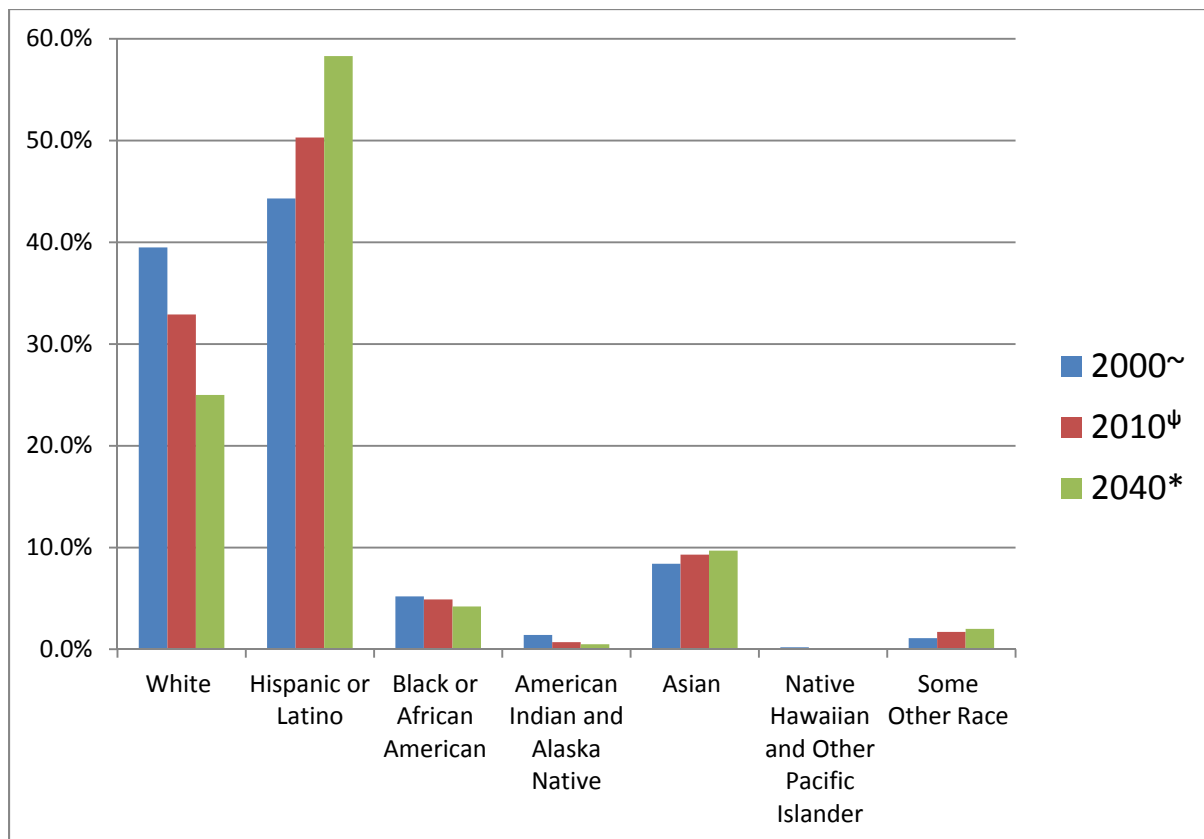
Our EJ analysis starts with understanding the demographics of our community. Fresno County has high percentages of both minority and low-income populations. See tables below.

Total population*	908,830	Percentage		
White	308,759	34.0		
Hispanic or Latino	446,727	49.2	}	Total Minority Population = 66%
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				

Comparison*	Income 150% of the Poverty Line	Minority Population
Fresno County	35.0%	66.0%
California	23.6%	58.8%
United States	22.9%	35.3%
*American Community Survey 2006-2010		

Furthermore, historical trends and projections predict that Fresno County's Hispanic population is growing as the White population's share of the total is shrinking. See tables below.

Demographics Changes from 2000 to 2010 to 2040	2000~	2010 ^ψ	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			
^ψ 2006-2010 American Community Survey			
*Population projections from the California Department of Finance			



Fresno COG's Environmental Justice Outreach – Public Involvement Process

As part of the RTP effort, Fresno COG has increased public outreach activities to ensure all populations have the opportunity to provide input into the planning process. Please refer to **Chapter **** for information on this effort.

EQUITY ANALYSIS

Defining Population Groups

Minority

Fresno COG uses the U.S. Census Bureau's definitions of racial and ethnic populations to determine minority status. Minority persons are those who identify as Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, some other race or multiple races, or Hispanic/Latino of any race. The Non-Environmental Justice population includes those persons who identify as white and not Hispanic or Latino. The largest ethnic group in our region is Hispanic (49.2%), followed by White (34.0%).

Low Income

Defining "low-income" populations is less straightforward than the minority definition. Federal guidance suggests the use of the poverty threshold as utilized by the U.S. Census as an appropriate measure of low-income populations. As of the 2010 5-year American Community Survey, approximately 22.5% of Fresno County's population was living below the poverty line.

Defining Environmental Justice Communities within Fresno County

In order to determine whether Environmental Justice communities are sharing both the benefits and burdens associated with the projects in the Plan, it was necessary to determine where these communities are located within Fresno County. Demographic data from U.S. Census American Community Survey 2006-2010 Summary Tables was used to develop a database with estimated socioeconomic and travel characteristics. This database was used to map the Environmental Justice communities within Traffic Analysis Zones (TAZ). 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.

To evaluate equity, Fresno COG's travel forecasting software was utilized to produce estimates of travel characteristics of Environmental Justice communities compared to Non-Environmental Justice communities across the county.

In order to determine whether EJ populations would be affected by a proposed program, project, or activity, it was necessary to define the parameters of an EJ community and then determine where they were located. The existing guidance from federal government suggest that a minority population may be present if the minority population of the affected area is "meaningfully greater" than the minority population percentage in the general population.

Environmental Justice Taskforce

For help in defining Fresno County's EJ communities, Fresno COG formed the Environmental Justice Taskforce. Fresno COG advertised for interested parties who represent Environmental Justice Communities to sit on the EJ Task Force. Those communities include those with low incomes, minorities, seniors and the disabled, representing public, private or non-profit sectors. No experience or understanding of transportation plans was required. Serving on the Fresno COG EJ Taskforce were members from:

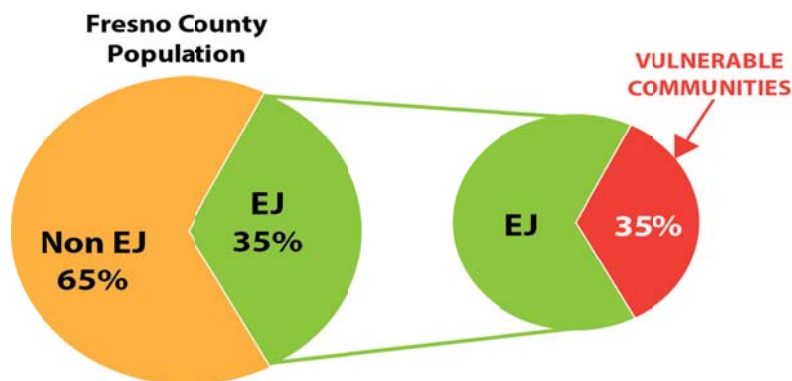
- Valley Latino Environmental Advancement Project
- Fresno Madera Medical Society
- Housing Alliance of Fresno
- Fresno Metro Ministry
- California Rural Legal Assistance
- Sierra Club
- Fresno Area Express Paratransit Specialist
- CalTrans District 6 Environmental Justice Liaison

FCOG held four EJ Taskforce meetings that focused on defining the EJ communities within Fresno County. The following is a summary of the main topics discussed at the meetings:

- Regional Transportation Plan: purpose and goals
- Fresno COG's Environmental Justice analysis
- Federal definition of Environmental Justice populations
 - Minority
 - Low Income
- Possibility of expanding the definition of Environmental Justice 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"
- The demographics of Fresno County (focused on race & income levels)
- Voting on the parameters of the Environmental Justice populations

At the end of our fourth meeting, the EJ Taskforce defined the Environmental Justice communities for FCOG's EJ analysis as:

- A total of 35% of Fresno County's population
- The Low Income threshold was set as households earning at or below 150% of the federal poverty level
- 65% of the EJ Community would consist of Minority and Low-Income populations
- 35% of the EJ Community would consist of communities that met the threshold of at least two of the "Vulnerable Communities" criteria



Environmental Justice Area Characteristics

Upon review of Fresno COGs definition of the EJ communities, our representative from the Federal Highway Administration (FHWA) requested Fresno COG include only the Minority and Low-Income thresholds and not the Vulnerable Communities. Therefore, the FHWA EJ community would use the original definition of Executive Order 12898 and focus strictly on the Minority and Low-Income populations.

The following tables illustrate the differences in the EJ Communities:

1. As defined by the EJ Taskforce (EJ - TF)
2. As requested by FHWA (EJ - FHWA)

Environmental Justice Populations	EJ - TF		EJ - FHWA
	% of TAZs		% of TAZs
Minority	21%		27%
Low-Income	21%		27%
Vulnerable Communities			
·Housing Burden	15%		0%
·Single Parent	15%		0%
·Elderly	15%		0%
·Education	15%		0%
·Linguistic Isolation	15%		0%
·Vehicle Availability	15%		0%
TOTAL:	35%*		35%*

***The percentages do not add up arithmetically because many TAZs met more than one of the Environmental Justice thresholds.**

EJ Taskforce Parameters

Of the 1,963 TAZs in Fresno County, 788 make up the areas labeled as Environmental Justice Areas as defined by the EJ Taskforce. A total of 136 TAZs meet the low-income criteria alone, 181 meet the minority criteria alone, and 163 meet both the low-income and minority criteria. Together these 480 TAZs account for 61% of the EJ area. The other 39%* or 308 TAZs meet the Vulnerable Communities threshold criteria. Within these EJ TAZs, the minority population is 84.4% and the low-income population is 55.9%.

FHWA Parameters

Of the 1,963 TAZs in Fresno County, 692* make up the areas labeled as Environmental Justice Areas as defined by the FHWA. A total of 170 TAZs meet the low-income criteria alone, 156 meet the minority criteria alone, and 366 meet both the low-income and minority criteria. Within these EJ TAZs, the minority population is 89.0% and the low-income population is 58.3%.

*The total number of TAZs (EJ Taskforce's compared to FHWA's) are not the same because population varies within each TAZ.

Comparing the two different EJ communities (EJ – TF vs. EJ – FHWA), the FHWA defined communities clearly are a better representation of the low-income and minority populations that the Civil Rights Act of 1964 and Executive Order 12898 intended. Furthermore, because the Environmental Justice analysis is a federally mandated task, it was decided that the EJ analysis would be modeled with the version of the EJ Communities limited to only Low-Income and Minorities (EJ - FHWA).

Please see **Appendix # (my Figures 1 and 2)** for maps of the EJ - FHWA and EJ – TF Communities.

Performance Measures

The following performance measures were used in Fresno COG's Environmental Justice analysis:

Accessibility – Calculate and compare the average AM peak period (work) trip time by mode (auto & transit) from the Non-EJ TAZs and EJ 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 and to EJ TAZs.

Cost-effectiveness - Calculate the additional person-miles traveled on transit projects per \$1,000 of project investment inside Non-EJ TAZs compared to the EJ TAZs in the Fresno- Clovis SOI, the remaining county and countywide.

Equity - Calculate percentages of person-miles of travel with percentages of transportation investment for the Non-EJ TAZs compared to the EJ TAZs in the Fresno-Clovis SOI, the remaining county and countywide.

Reliability - Calculate the percent of total Vehicle Miles Traveled (VMT) operating at level of service E or worse on links inside Non-EJ TAZs compared to EJ TAZs in the Fresno-Clovis SOI, the remaining county and countywide.

Consumer satisfaction - Calculate the percent changes between 2008 and 2035 and 2040, in average trip delay on roadway projects after feedback between constrained and unconstrained roadways on links inside EJ TAZs and compare with Non-EJ TAZs in the Fresno-Clovis SOI, the remaining county and countywide. Delay refers to the amount of additional time a vehicle spends on the road because of congestion. Constrained and unconstrained roads refer to those streets, highways or freeways where congestion is either typical or atypical.

Measures of the seven criteria include:

Accessibility

- 1) 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)
- 2) Average transit travel time from urban Non-EJ communities to areas of interest (from urban EJ communities to areas of interest)
- 3) 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)
- 4) Average transit travel time from rural Non-EJ communities to areas of interest (from rural EJ communities to areas of interest)

Mobility

- 1) 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)
- 2) Average travel time for trips by transit from the Fresno-Clovis SOI to urban Non-EJ communities (to urban EJ communities)
- 3) 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).
- 4) Average travel time for trips by transit from the Remainder of the County to rural Non-EJ communities (to rural EJ communities).
- 5) Average travel time for trips by automobile {Drive alone & Shared-ride} Countywide to rural Non-EJ communities (to rural EJ communities).
- 6) Average travel time for trips by transit Countywide to Non-EJ communities (to rural EJ communities).

Cost-effectiveness

- 1) Additional transit passenger miles {above the 2008 base year} in the Fresno-Clovis SOI per \$1,000 invested in Non-EJ communities (in EJ communities)

- 2) Additional transit passenger miles {above the 2008 base year} in the Remainder of the County per \$1,000 invested in Non-EJ communities (in EJ communities)
- 3) Additional transit passenger miles {above the 2008 base year} Countywide per \$1,000 invested in Non-EJ communities (in EJ communities)

Equity

- 1) Investment comparisons relating to livable and/or walkable communities that support transit.
- 2) Distribution of planned transportation expenditures inside and outside of EJ communities/neighborhoods.

Reliability

- 1) Measures the travel in congested conditions as a percentage of total travel.

Consumer Satisfaction

- 1) Average trip delay time (urban, auto, countywide)
- 2) Average trip delay time (rural, auto, countywide)
- 3) Average trip delay time (urban, auto, environmental justice area)
- 4) Average trip delay time (rural, auto, environmental justice area)
- 5) Average trip delay time (urban, transit, countywide)
- 6) Levels of service on roads countywide (A-F)
- 7) Levels of service on roads in environmental justice target areas (A-F)

Level of Service (LOS) is the 'yardstick' in standard use to categorize the flow, or efficiency, of highways, roads, and intersections.

Table 1 Roadway LOS Descriptions

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.

MODELING RESULTS

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 from specific origins. The criterion is measured by calculating average travel times during the base year 2008, in 2035 Build and 2040 Build, when all RTP projects are completed, and in a 2035 No Build and 2040 No Build scenarios where none of the RTP projects are completed.

Specifically, accessibility is defined as the ease of reaching destinations as measured by the average AM peak trip times to the defined areas of interest. Mobility looks at PM peak average auto and transit travel times to demonstrate the worst possible scenario.

The goal for both accessibility and mobility is to ensure that the EJ TAZs throughout the county have average trip times lesser than or comparable to the Non-EJ TAZs. In general 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 rural county, where the EJ travel times are higher than the non-EJ travel times. This is probably to be expected because of the large, low populated EJ areas in the far western part of the county. It should also be noted that the travel times for rural county to areas of interest are between 50% and 100% higher than Fresno-Clovis SOI travel times. Any transit trips from rural areas would have to include the time necessary to get from their home to the transit route 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 farebox restrictions, it is difficult to maintain new routes in unincorporated areas of Fresno County beyond the initial demonstration period because actual ridership and farebox recovery fail to meet the minimum State standards for public transit agencies. [See EJ Communities Map with overlay of rural transit routes \(My Figure 3\)](#) Also please see Chapter ___ for FCRTA's report/section.

Although the travel time for Accessibility and Mobility account for the congestion, travel times, and overall delay for travel, land use development and changes to the transportation system over time lead to changes in the home, work and shopping location selection to minimize travel time. The behavioral change to select activity locations that minimize time can be seen in the accessibility tables, where travel times to given areas of interest for modes between scenarios and years are roughly the same. With a balanced land use plan, the opportunities within each area do not drastically change and there are enough opportunities to reach a balance without causing a change in accessibility. It should be noted that the accessibility times for the Fresno Clovis SOI are roughly half that of the remainder of the county, but that is as expected due to the urban nature of the Fresno-Clovis SOI compared to the remainder of the County.

Table 2 Accessibility to Major Job Centers

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Fresno-Clovis SOI					
Drive Alone	13 (13)	14 (14)	14 (13)	14 (14)	14 (13)
Shared-Ride	15 (14)	16 (15)	15 (15)	16 (15)	16 (15)
Transit	32 (32)	32 (31)	29 (27)	32 (31)	29 (27)
Remainder of County					
Drive Alone	42 (22)	39 (21)	40 (21)	40 (21)	41 (21)
Shared-Ride	31 (26)	30 (27)	29 (27)	30 (27)	30 (27)
Transit	46 (52)	47 (53)	45 (52)	47 (53)	45 (52)
Countywide					
Drive Alone	20 (15)	19 (15)	19 (15)	20 (16)	20 (15)

Shared-Ride	18 (18)	18 (18)	18 (18)	19 (19)	19 (18)
Transit	33 (33)	33 (33)	30 (29)	33 (33)	30 (29)

Values represent travel time in minutes designated as Non-EJ TAZs (EJ TAZs).

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

Table 3 Accessibility to Parks

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Fresno-Clovis SOI					
Drive Alone	13 (13)	14 (13)	14 (13)	14 (13)	14 (13)
Shared-Ride	14 (13)	15 (14)	15 (14)	15 (14)	15 (14)
Transit	34 (32)	34 (32)	31 (28)	34 (32)	31 (28)
Remainder of County					
Drive Alone	42 (27)	41 (26)	41 (26)	41 (26)	42 (26)
Shared-Ride	31 (30)	30 (30)	30 (30)	30 (30)	30 (30)
Transit	53 (67)	53 (68)	52 (67)	53 (69)	53 (67)
Countywide					
Drive Alone	19 (16)	19 (16)	19 (15)	19 (16)	19 (15)
Shared-Ride	17 (17)	18 (18)	18 (18)	18 (18)	18 (18)
Transit	35 (33)	35 (33)	32 (29)	35 (33)	32 (29)

Values represent travel time in minutes designated as Non-EJ TAZs (EJ TAZs).

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

Table 4 Accessibility to Schools

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Fresno-Clovis SOI					
Drive Alone	15 (14)	16 (15)	16 (15)	16 (15)	14 (13)
Shared-Ride	18 (17)	19 (18)	19 (18)	19 (18)	15 (14)
Transit	36 (35)	36 (35)	33 (31)	36 (35)	31 (28)
Remainder of County					
Drive Alone	39 (22)	38 (21)	37 (20)	38 (21)	42 (26)
Shared-Ride	30 (28)	29 (28)	29 (28)	30 (28)	30 (30)
Transit	44 (48)	45 (48)	43 (48)	45 (49)	53 (67)
Countywide					
Drive Alone	22 (17)	22 (17)	22 (17)	22 (17)	19 (15)
Shared-Ride	21 (21)	22 (21)	21 (21)	22 (22)	18 (18)
Transit	37 (36)	37 (36)	34 (33)	37 (36)	32 (29)

Values represent travel time in minutes designated as Non-EJ TAZs (EJ TAZs).

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

Table 5 Accessibility to Medical Facilities

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Fresno-Clovis SOI					
Drive Alone	13 (13)	14 (14)	14 (14)	14 (14)	14 (14)
Shared-Ride	14 (14)	15 (15)	15 (15)	16 (15)	15 (15)
Transit	32 (31)	32 (31)	28 (27)	32 (31)	28 (27)
Remainder of County					
Drive Alone	42 (22)	38 (20)	39 (20)	39 (20)	40 (20)
Shared-Ride	30 (25)	29 (24)	29 (24)	29 (24)	29 (24)
Transit	45 (46)	45 (46)	44 (46)	45 (46)	44 (47)
Countywide					
Drive Alone	19 (15)	19 (15)	19 (15)	19 (15)	19 (15)
Shared-Ride	17 (17)	18 (18)	18 (17)	18 (18)	18 (17)
Transit	33 (32)	33 (32)	29 (29)	33 (32)	29 (29)

Values represent travel time in minutes designated as Non-EJ TAZs (EJ TAZs).

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

In terms of overall mobility, EJ TAZs also perform well compared with Non-EJ TAZs in the Fresno-Clovis SOI, the remainder of the county, as well as countywide. As shown in Table 6, Fresno-Clovis SOI had shorter average travel times than the Remainder of the County and Countywide. This was to be expected as metropolitan commutes are shorter than rural commutes. Considering that countywide is a combination of both rural and urban commutes, one would expect that Fresno-Clovis SOI would have the shortest commute times and Remainder of the County would have the largest times, with Countywide slightly closer to Fresno-Clovis.

EJ TAZs had equal to or shorter average travel times than all TAZs in all instances except for rural transit trips, which had slightly higher travel times than non-EJ TAZs under all situations. This is once again probably to be expected because of the large, low populated EJ areas in the far western part of the county. FCOG will continue to work with FCRTA and the EJ Taskforce to address the needs of the rural transit riders in Fresno County. See EJ Communities Map with overlay of rural transit routes (My Figure 3) Also please see Chapter ___ for FCRTA's report.

Table 6 Mobility (PM Peak Period Average Travel Time)

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Fresno-Clovis SOI					
Drive Alone	14 (14)	15 (15)	15 (15)	16 (15)	15 (15)
Shared-Ride	16 (16)	17 (16)	17 (16)	18 (17)	17 (16)
Transit	34 (32)	34 (32)	31 (28)	34 (32)	31 (28)
Remainder of County					
Drive Alone	38 (22)	36 (21)	36 (21)	37 (20)	37 (20)
Shared-Ride	29 (25)	28 (24)	28 (24)	28 (24)	28 (24)
Transit	45 (48)	45 (48)	44 (48)	45 (48)	44 (48)
Countywide					
Drive Alone	20 (17)	21 (17)	20 (17)	21 (17)	21 (17)
Shared-Ride	19 (19)	20 (19)	20 (19)	20 (19)	20 (19)
Transit	35 (34)	35 (34)	31 (30)	35 (34)	32 (30)

Values represent travel time in minutes designated as Non-EJ TAZs (EJ TAZs).

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

Cost-effectiveness

Cost-effectiveness is measured by maximized returns on transit investments. This measure is estimated by dividing the new added average number of daily passenger miles traveled (PMT) served by RTP transit projects in the full project list from 2008 to 2035 and 2040, by the total \$1,000s of investment inside and outside of EJ TAZs. Because the cost-effectiveness criterion assumes that RTP projects will be built, the no-build scenario is not displayed. The goal for Cost-effectiveness is for EJ TAZs to show an average cost per passenger mile for transit that is no less than the Non-EJ TAZs. The PMT served per \$1,000 invested is higher for all conditions for the EJ TAZs compared to the Non-EJ TAZs

To capture the entire distance traveled, the PMT is a zone-to-zone calculation rather than only the distance covered by transit. The benefit of this calculation method is sensitivity to walk access, stop distance, or park-n-ride locations compared to only accounting for the distance covered on the transit vehicle.

As shown in Table 7, higher returns are realized for transit investments in EJ TAZs within Fresno-Clovis SOI, rural areas, and countywide than Non-EJ TAZs when looking at average additional daily passenger miles traveled per \$1,000 investment dollars. As expected due to the population of each area, the Fresno-Clovis SOI has a much higher value than the Remainder of County.

Table 7 Average Additional Daily Transit Passenger Miles Traveled (PMT) per \$1,000 Investment

Area	2035 Build	2040 Build
Fresno-Clovis SOI	35.37 (36.71)	40.26 (42.01)
Remainder of County	5.01 (8.89)	5.34 (9.46)
Countywide	40.38 (45.6)	45.61 (51.47)

Values represent additional PMT over 2008 per \$1,000 investment designated as Non-EJ TAZs (EJ TAZs).

Equity

Equity is defined as an equitable distribution of transportation investment benefits based on the share of person miles traveled. Fresno COG took a similar approach to equity as with cost-effectiveness, comparing the total investment in transit through 2040, with total passenger miles traveled in the Fresno-Clovis SOI, rural areas and the county as a whole. Since transit functions as a system and the main transit investments connect communities and would have less value without the connectivity, the investment in transit as a whole (\$1,591,878) was used to evaluate Equity rather than the portion of the transit improvement within each area. Under 2040 build conditions which includes projects through 2040, EJ TAZs will have a higher benefit from expenditures (53%) compared to their non-EJ counterparts. Fresno-Clovis SOI EJ TAZs will account for over 52% and over 62% percent for the EJ zones in the remainder of the county.

Table 8 Percentage of Passenger Miles Traveled (PMT) and Expenditures for 2040 Build

	Fresno-Clovis SOI	Remainder of County	Countywide
Non-EJ TAZs			
2040 PMT	115,927	16,571	132,498
Expenditure/PMT	\$13.73	\$96.06	\$12.01
EJ TAZs			
2040 PMT	125,544	26,617	152,161
Expenditure/PMT	\$12.68	\$59.81	\$10.46
EJ TAZs Ratio			
2040 PMT	52%	62%	53%

Reliability

Reliability is estimated as a percent of level of service E or worse VMT inside the EJ target TAZs as well as for the Non-EJ TAZs. With 2035 and 2040 Build conditions, all EJ TAZs in the Fresno-Clovis SOI, the remaining county and countywide have a lower percentage of overall VMT operating at level of service E or worse when compared with Non-EJ TAZs. This was the goal. As shown in This is could be due to the fact that the congested parts of the freeways in the Fresno-Clovis SOI are mostly in EJ communities. Freeway congestion on state highways falls under the jurisdiction of Caltrans. In the future, this measure could be changed so that it is calculated without the state routes.

Table 9, the VMT at LOS E or worse is roughly 30% Countywide for all future scenarios, with the Fresno-Clovis SOI being about 10% of VMT at LOS E or worse. Since most of the freeways are outside of the Fresno-Clovis SOI, the large increase in VMT at LOS E or worse for Remainder of County makes sense. Although Fresno-Clovis SOI has a lower percentage of VMT at LOS E or worse, and the future scenario non-EJ areas have a reduction in the percentage, the EJ areas increase by roughly 2%, resulting in a higher percentage than non-EJ areas for all future circumstances. This is could be due to the fact that the congested parts of the freeways in the Fresno-Clovis SOI are mostly in EJ communities. Freeway congestion on state highways falls under the jurisdiction of Caltrans. In the future, this measure could be changed so that it is calculated without the state routes.

Table 9 Percent Average Daily Vehicle Miles Traveled (VMT) LOS E or Worse Conditions

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Average Daily VMT					
Fresno-Clovis SOI	7,261,900 (3,690,300)	9,899,400 (4,970,800)	9,668,300 (4,944,500)	10,373,400 (5,189,500)	10,145,100 (5,171,100)
Remainder of County	5,331,100 (5,605,200)	8,141,200 (9,026,900)	7,762,100 (8,932,800)	8,593,500 (9,537,100)	8,140,500 (9,435,500)
Countywide	12,592,900 (9,295,500)	18,040,600 (13,997,700)	17,430,400 (13,877,400)	18,966,900 (14,726,600)	18,285,600 (14,606,500)
Average VMT LOS E or Worse					
Fresno-Clovis SOI	1,553,300 (568,600)	1,277,800 (891,100)	1,185,800 (868,100)	1,548,700 (1,023,700)	1,391,500 (981,700)
Remainder of County	521,000 (72,300)	1,141,200 (540,100)	1,174,000 (536,400)	1,261,300 (622,000)	1,273,300 (597,900)
Countywide	2,074,300 (640,900)	2,419,000 (1,431,300)	2,359,800 (1,404,500)	2,810,000 (1,645,700)	2,664,800 (1,579,600)
Percent Average VMT LOS E or Worse					
Fresno-Clovis SOI	21.39% (15.41%)	12.91% (17.93%)	12.26% (17.56%)	14.93% (19.73%)	13.72% (18.98%)

Remainder of County	9.77% (1.29%)	14.02% (5.98%)	15.12% (6.%)	14.68% (6.52%)	15.64% (6.34%)
Countywide	16.47% (6.89%)	13.41% (10.23%)	13.54% (10.12%)	14.82% (11.18%)	14.57% (10.81%)

Values represent VMT LOS E or worse designated as Non-EJ TAZs (EJ TAZs).

Bold designates where EJ VMT LOS E or worse is a higher percentage than the non-EJ percentage

Consumer satisfaction

Consumer satisfaction is defined as the condition where consumers can largely agree that their transportation needs are being met in a safe, reliable, efficient and cost-effective manner. The goal is for EJ TAZs to have less Vehicle Hours of Delay (VHD) than the Non-EJ TAZs. When there is less delay, there is less congestion on the roadway. The criterion is estimated by the percent change between 2008 and 2035 and 2040, in the daily amount of trip delay in hours on roadway and transit projects. Trip delay refers the difference between the time a trip should take and the time it actually requires, or the difference between uncongested traffic (free flow) and some level of congestion. Although coordination with Caltrans is required for projects on the freeways, the Vehicle Hours of Delay (VHD) includes freeways throughout the county.

Table 10 Average Vehicle Hours of Delay (VHD)

Mode	2008	2035 No Build	2035 Build	2040 No Build	2040 Build
Average Daily Vehicle Delay (hours)					
Fresno-Clovis SOI	69,811 (21,297)	24,207 (10,709)	23,057 (10,913)	29,704 (13,115)	27,736 (13,084)
Remainder of County	10,813 (476)	355,244 (4,541)	355,577 (4,518)	656,304 (10,947)	656,896 (10,897)
Countywide	80,623 (21,774)	379,451 (15,249)	378,633 (15,431)	686,008 (24,062)	684,633 (23,981)

Values represent vehicle hours of delay designated as Non-EJ TAZs (EJ TAZs).

Conclusions

This section of FCOG's 2014 RTP attempts to determine the equitability of the proposed RTP's list of projects, as well as their overall cost/benefit to our inhabitants, especially on those living in disadvantaged neighborhoods. The results of the EJ Analysis show that in terms of overall equity, the 2014 RTP projects appear to distribute impacts evenly 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 in the EJ analysis. It is widely known that transportation projects do not achieve immediate transportation goals, but frequently they will create fundamental changes on our physical and socioeconomic environment. Notwithstanding all the enhancements they create, it is inevitable that some transportation projects will produce negative impacts.

Although our EJ analysis focuses on racial minorities and the low-income populations, FCOG is very involved with programs for the elderly and disabled populations. Some of these 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 consultation with Social Services Transportation Advisory Council (SSTAC). The SSTAC serves as an advisory body to FCOG regarding the transit needs of the transit dependent and transit disadvantaged persons, including the elderly, handicapped, and persons of limited means.

Although improvements are needed in a couple of areas, the analysis in the Environmental Justice Report confirms that the EJ communities are not "disproportionately burdened by high and adverse" effects and do share equitably in the benefits from the 2014 RTP/SCS.

Figure 1 Environmental Justice Areas (EJ – FHWA)

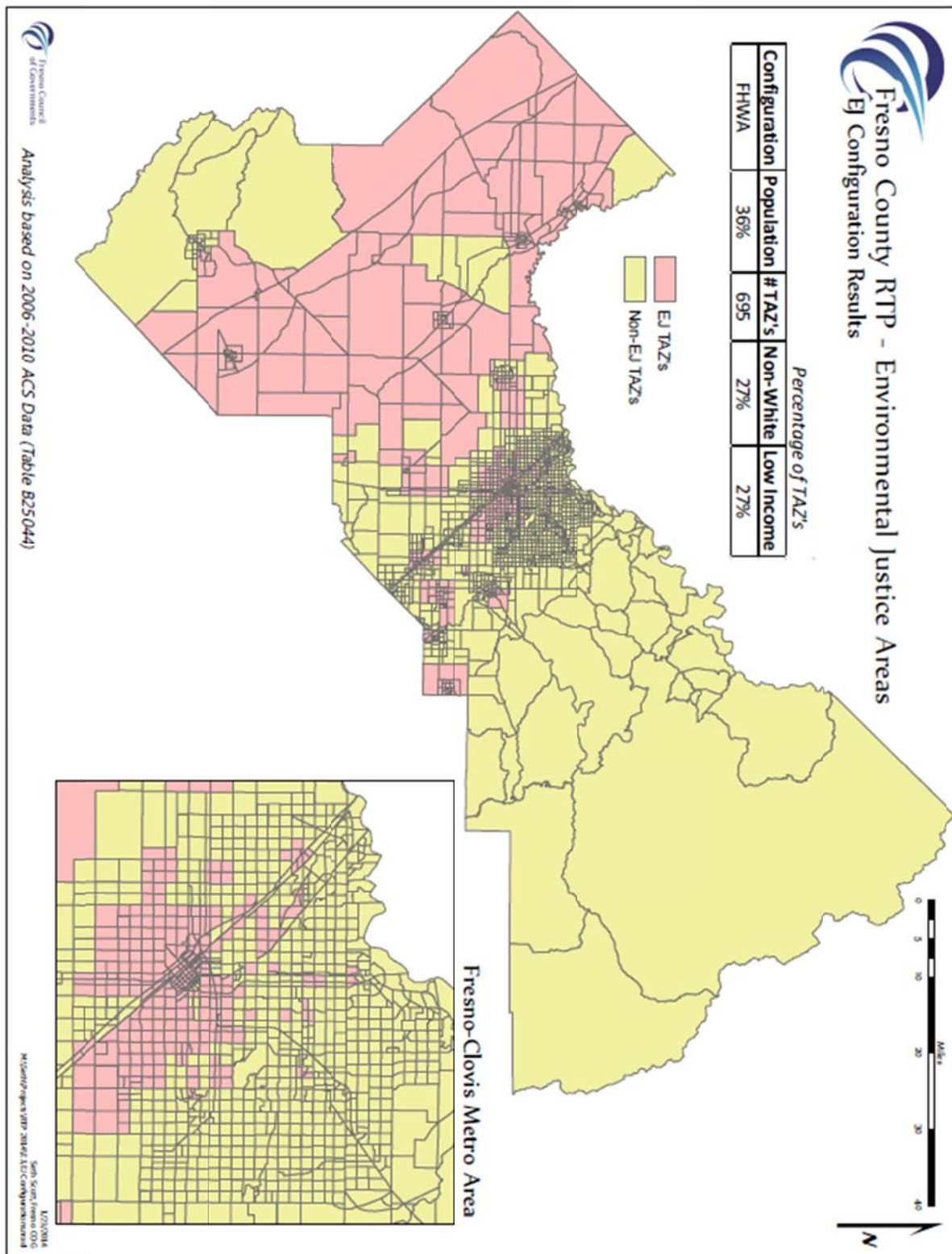


Figure 2 Environmental Justice Areas (EJ – TF)

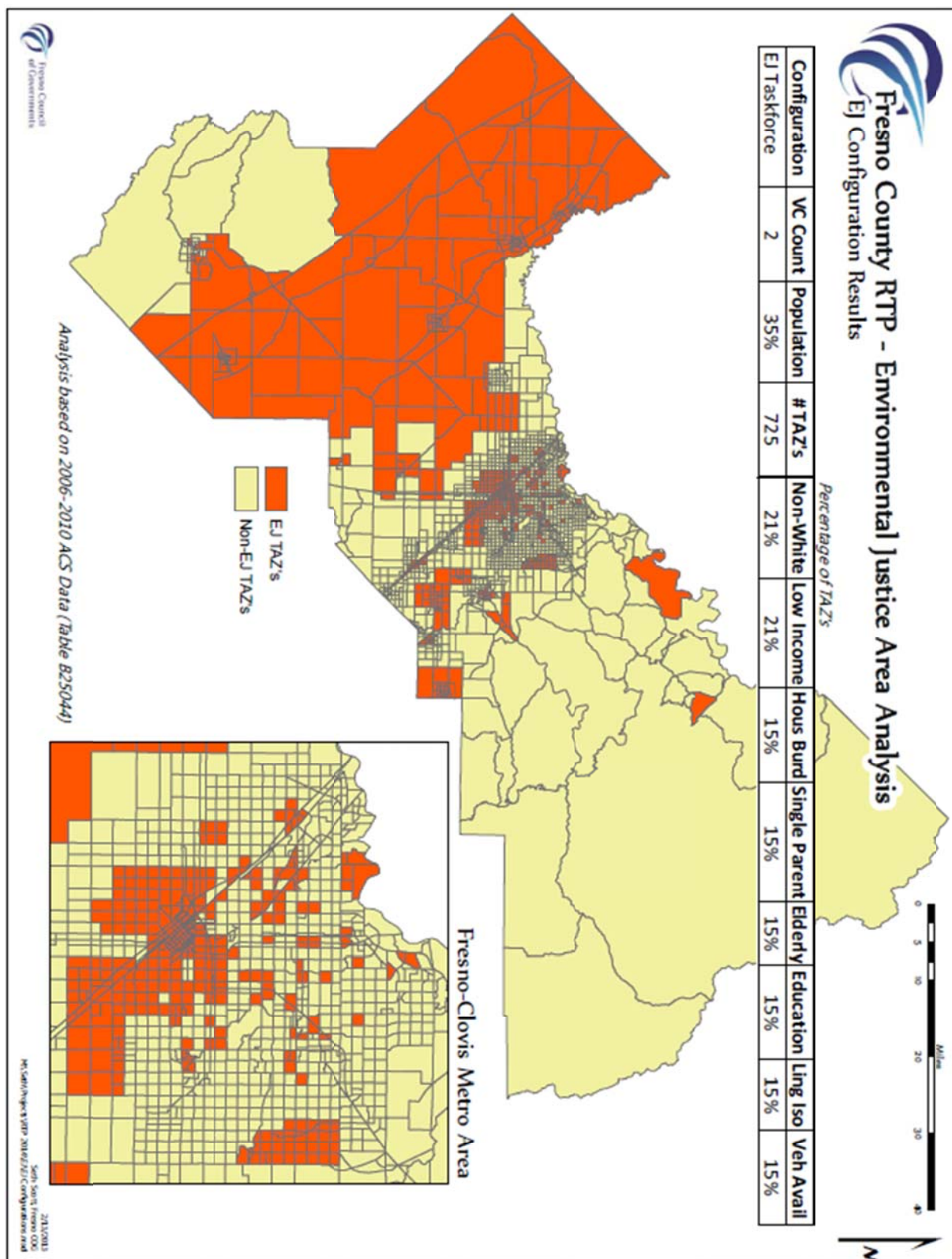


Figure 3 Environmental Justice Areas and rural transit routes

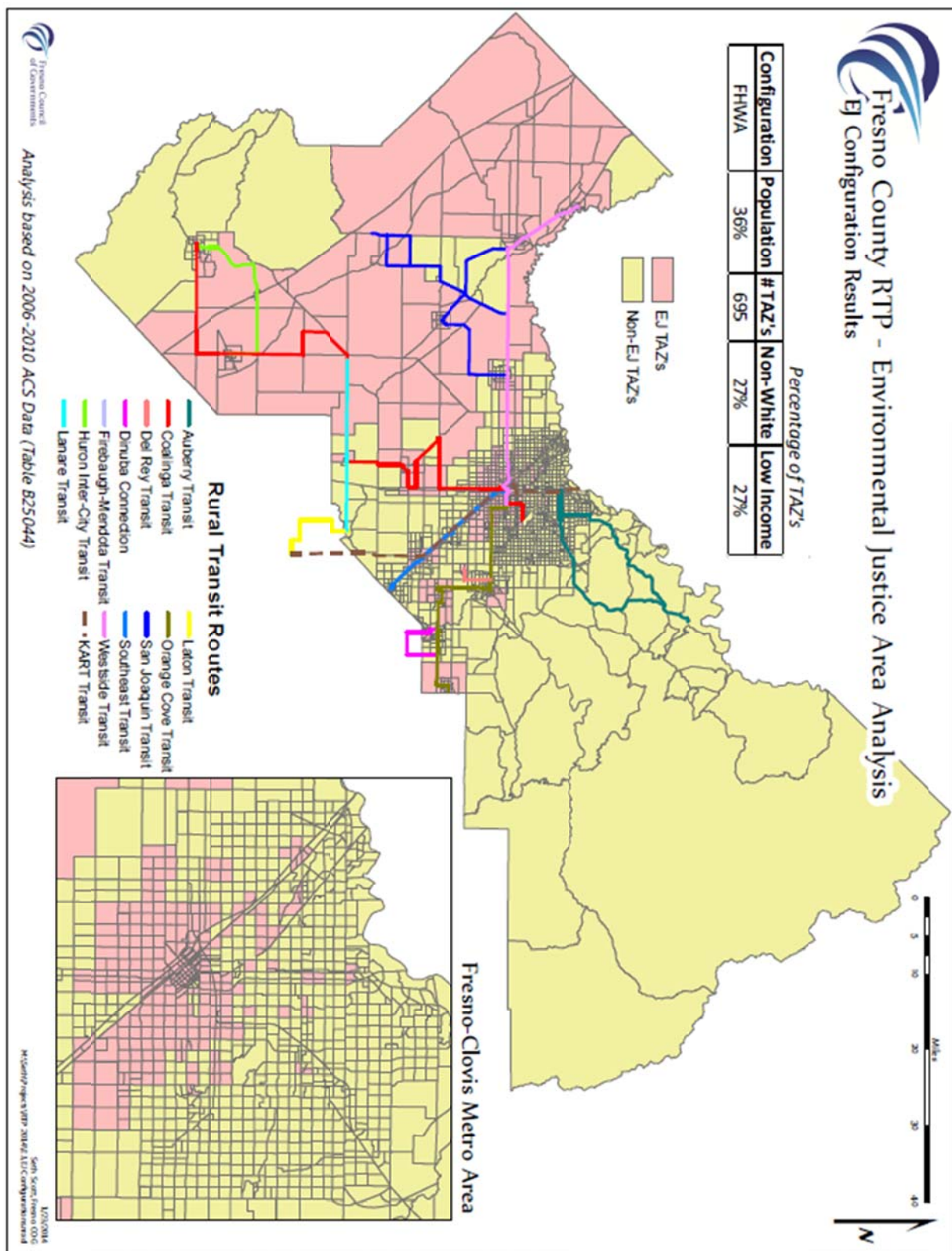
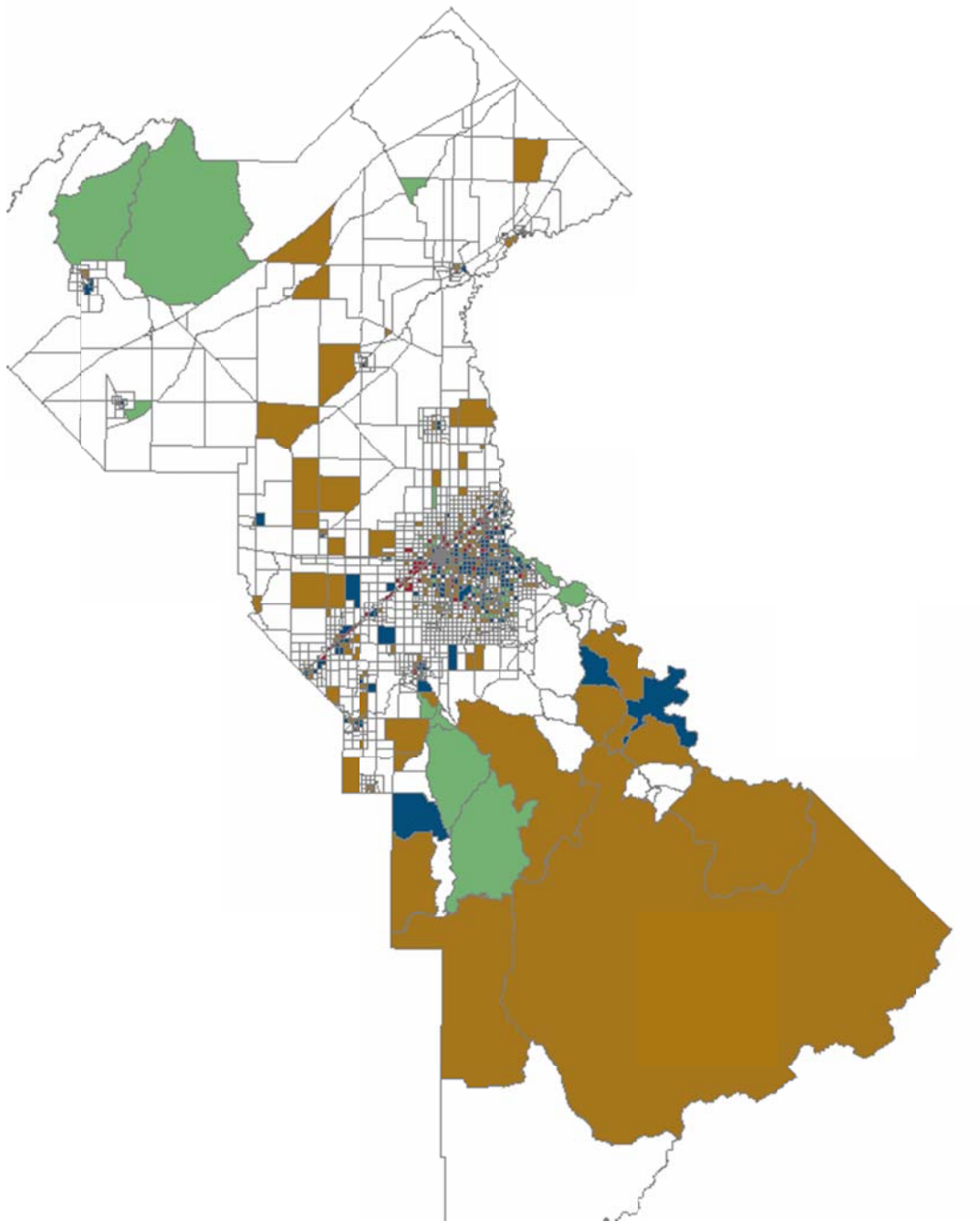
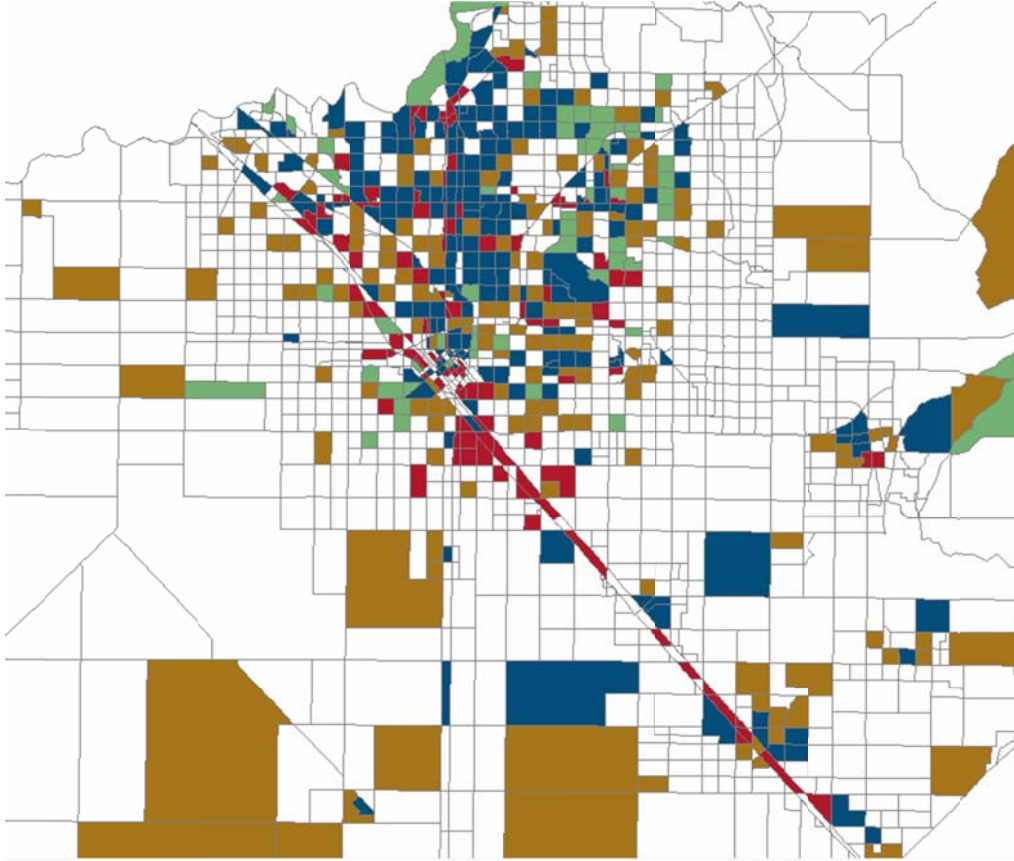


Figure 4 Employment Centers, Parks, Schools, and Medical Facilities



Major Job Centers, Parks, Schools, Medical Facilities

Figure 5 Fresno-Clovis Sphere of Influence (SOI)



Major Job Centers, Parks, Schools, Medical Facilities