

Chapter 6 ENVIRONMENTAL JUSTICE

Planning Approach

The goal of Kern COG's Environmental Justice process is to ensure that all people, regardless of race, color, national origin or income, are protected from disproportionate negative or adverse impacts caused by the Destination 2030 RTP Program of Projects.

This chapter examines the methodology Kern COG uses to determine whether all neighborhoods have reasonable shares of the benefits from the Destination 2030 RTP. Chapter 6 incorporates by reference Kern Council of Governments' *Environmental Justice Report* dated November 2003, and adopted at its January 15, 2004 public hearing, as well as Kern Council of Governments' *Environmental Justice Policies and Procedures*, adopted at the same public hearing.

Background

The legal basis for environmental justice (EJ) is rooted in the United States Constitution of the United States and civil rights laws. Title VI of the Civil Rights Act of 1964 provides protection from discriminatory actions or results from programs or activities receiving federal financial assistance. Title VI not only bars intentional discrimination, but it also prohibits unjustified and disparate-impact discrimination, i.e., a neutral policy or practice that has a disparate impact on protected groups. As a governmental agency receiving federal funding, Kern Council of Governments is responsible for implementing Title VI and conforming to federal environmental justice principles.

President Clinton signed Executive Order 12898 in February 1994 that considered *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population*. EO 12898 requires that federal agencies shall, to the greatest extent allowed by law, administer and implement their programs, policies, and activities that affect human health or the environment so as to identify and avoid disproportionately high and adverse effects on minority and low-income populations.

Kern COG's Environmental justice principles are:

1. To avoid, minimize or mitigate disproportionately high and adverse human health or environmental effects, including social and economic impacts, on traditionally disadvantaged communities, especially racial minority and low-income communities;
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;

3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

Demographic Profile

Kern County is California’s third largest county, encompassing approximately 8,200 square miles. Kern County comprises 11 incorporated cities and a federally recognized urban area, Metropolitan Bakersfield, with a population of just over 400,000 (2000 Census), as well as 42 Census-recognized unincorporated communities.

Federal environmental justice guidelines call for identification of traditionally under-represented populations, including classified minorities such as those of Hispanic/Latino descent, African-Americans, Asian-Americans, Native Americans and others, as well as low-income populations;. To these groups, Kern COG added seniors of 65 and older and the disabled.

Kern County Population = 662,000	Percentage of Total Population
White	49.5
Hispanic / Latino	38.4
African American	6.0
Native American	1.5
Asian	3.4
Other	1.2

Approximately 17% of households and 21% of individuals live below the federal poverty line, generally defined as \$13,290 for households (of three members) and \$8,501 for individuals.

In addition, 9.4% of the county’s population identify themselves as seniors age 65 and older, while 22.4% of the civilian non-institutionalized population are considered to have a disability.

Kern County has experienced a rapid population growth in the past decade. Census data indicates that the county has gained more than 150,000 persons from 1990 to 2003, which translates to a 29% increase. However, this population growth is not equally distributed among racial groups. Racial minorities experience a much faster population growth rate, based on the data from the 2000 Census. Countywide, the proportion of whites shrank noticeably in the past decade, down from 63% in 1990 to 50% in 2000. All racial minorities except Asians have experienced gains in the population share. It is likely that the racial composition of the population growth will follow this pattern in the near future, mirroring the general population growth pattern for the State. Consequently, addressing these racial minority neighborhoods’ special transportation needs becomes even more urgent and significant in transportation planning.

From 1990 to 2000, the Hispanic population grew from 28% to 38% of Kern County's total population. The rise and shift in Kern County's population is primarily because of births within the Hispanic population, along with an influx of new immigrants. The next largest non-Hispanic population groups (Black: 6%; Asian: 4%; and American Indian: 2%) each increased by 1% over the past decade, according to the California Dept. of Finance. This population growth mirrors the rest of the state, which is one of the most diverse in the nation. Population growth resulted from large net increases in three population groups: aging baby boomers, their young children (echo boomers) and immigrants, mostly from Mexico and Central America.

Natural increase (births minus deaths) accounted for most of the population gain between 1990 and 2002. Natural increase accounted for 61% of the population gain and net migration, that is, those moving in minus those moving out of the region, accounted for 39%. Nearly two-thirds of the net migration was the result of immigration from outside the U.S.

Kern County's changing demographics necessitate a shift in the manner environmental justice concerns are received and addressed.

Environmental Justice Process

In January 2002, Kern COG appointed representatives from 22 government and community-based agencies to serve on an environmental justice task force. In addition to the environmental justice populations identified by FHWA and FTA – non-white and low-income groups – Kern COG added senior citizens and transportation-disabled individuals to its list of “targeted” groups. The agencies were chosen based on the services they provided to environmental justice populations.

Participating agencies included:

- Native American Heritage Council
- Kern County Economic Opportunity Corporation
- Kern Senior Collaborative/Center for Living and Learning
- Independent Living Center
- City of Shafter
- Kern Council Housing Authority
- Kern County Office on Aging and Adult Services
- Consolidated Transportation Services Agency
- Hispanic Chamber of Commerce
- California Highway Patrol
- Hispanic Chamber Foundation
- NOR Recreation and Parks District
- American Indian Health Project.

The task force was provided an overview of requirements that government agencies such as Kern COG must meet to conform to federal mandates as well as graphic representations of the environmental justice populations using 2000 Census data for the county as a whole and metropolitan Bakersfield in particular. Distributions included:

- Non-white people
- People age 65 and older
- Transit-disabled people (defined as those who declared themselves unable to go outside the home alone to shop or attend appointments because of a disability)
- Hispanics/Latinos
- Low-income households (defined as households at or below the federal poverty level)
- Zero car households.

Population Concentrations

The challenge was to identify all populations within the Kern region that qualify as “traditionally disadvantaged” without counting the same people more than once. In addition, because of Kern County’s farm- and oil-based economies, significant portions of both its rural and urban regions would qualify under one or more of the criteria if population “floors” were not established to represent minimum concentrations.

To account for these issues, Kern COG limited its inquiry to four populations: low-income, non-white, seniors and transit-disabled. Specific demographic groups, such as the homeless or migrant farm workers, were discussed as particularly identifiable. Because these groups often share characteristics with other groups already identified as traditionally disadvantaged, Kern COG determined that they were already being considered in the process.

Population concentrations of traditionally disadvantaged groups were established to better focus the examination onto particular neighborhoods rather than attempting to look at the entire county *en masse*. The maps showed significant concentrations of environmental justice populations outside more densely populated areas, but near major transportation facilities, such as Routes 46 (Wasco) and 178 (Lake Isabella).

Transportation System Criteria

For its environmental justice program, Kern COG assessed environmental justice impacts using the same criteria identified in Destination 2030’s Transportation Planning Policies Element. Seven criteria were used to assess environmental justice impacts. They comprised:

- Accessibility – the ease of reaching destinations as measured by the percent of commuters who can get to work within a given period of time;
- Mobility – the ability to move throughout the region and the time it takes to reach desired destinations within a reasonable amount of time;
- Environment – enhancing the existing transportation system while improving the environment;
- Cost-effectiveness – maximizing the return on transportation investments;
- Reliability – percentage of on-time arrivals by both transit and automobiles;
- Safety – minimizing risk of accidents/injuries as measured by accident rates;
- Equity – equitable distribution of transportation investment benefits;
- Consumer satisfaction – conditions under which users agree that their transportation needs are being met in a safe, reliable, efficient and cost-effective manner.

Transportation System Objectives

This set of objectives are intended to define measurable outputs that ensure transportation system investments benefit all populations, without consistently burdening any single one.

Because Kern COG’s transportation model was not calibrated to address rural transit operations, it was difficult to establish specific, time-constrained goals for transit that could be measured effectively. The transportation model is a computerized database that assimilates data from physical traffic counts to establish baseline travel patterns. By adding past and current Census data to the model, travel pattern projections can be forecasted to 2030. Census data that addresses such issues as the number of miles traveled to work, how many vehicles per household, and the number of drivers per household are particularly germane in modeling transportation behavior.

With the model’s inability to reliably test transit travel times, Kern COG worked to broaden its Destination 2030 RTP goals and policies to ensure that EJ populations fared no worse than the region as a whole for accessibility and mobility. Furthermore, because the model is incapable of predicting such factors as accident rates, project impacts on the environment, and transportation system investments, Kern COG chose to compare countywide averages versus identified EJ areas for each of the eight criteria. This level of analysis demonstrates whether EJ areas fare better or worse than the general population.

Objectives for the eight criteria include:

Accessibility

- a. Projects in the Destination 2030 RTP will bring services for environmental justice populations up to countywide average.

- b. If already maintaining countywide average, projects in the Destination 2030 RTP will show no degradation of service.

Mobility

- a. Projects in the Destination 2030 RTP will bring services for environmental justice populations up to countywide average.
- b. If already maintaining countywide average, projects in the Destination 2030 RTP will show no degradation of service.

Environment

Projects in the Destination 2030 RTP will demonstrate no difference in unmitigated impacts between environmental justice populations and the Kern region as a whole.

Cost-Effectiveness

In environmental justice areas, projects in the Destination 2030 RTP will show an average cost per passenger mile for both auto and transit that is no less than the countywide average.

Reliability

- 1. Projects in the Destination 2030 RTP will provide 85% on-time arrivals (transit).
- 2. Environmental justice areas will suffer the same or less congestion in vehicle hours traveled as Kern County as a whole (auto).

Safety

On new facilities inside environmental justice areas, projects in the Destination 2030 RTP will demonstrate no more accidents than the Kern County average.

Equity

Accounting for context-sensitive design factors, projects in the Destination 2030 RTP will show an equitable distribution of transportation expenditures, inside and outside environmental justice areas.

Consumer Satisfaction

Projects in the Destination 2030 RTP will maintain delay times for environmental justice areas that are less than or meet the Kern County average.

Measurement of Objectives

Kern COG's transportation model was used to develop tangible EJ measures that would assist the agency in meeting its environmental justice objectives. The model's limitations necessitated a substantial financial investment for upgrades to measure accurately transit trip times and lengths, as well as to compare all trip

times and lengths between metropolitan Bakersfield and more rural areas of the county.

For criteria whose objectives the model was unable to quantify (such as environment, reliability, safety and equity), Kern COG developed other measures based on Census and accident data. Measurements for the eight criteria include:

Accessibility

1. Average automobile trip time to major job centers (from target urban neighborhoods to major job centers)
2. Average transit travel time to major job centers (from target urban neighborhoods to major job centers)
3. Average automobile trip time to major job centers (from target rural neighborhoods to major job centers)
4. Average transit time to major job centers (from target rural neighborhoods to major job centers)

Mobility

1. Average travel time for all trips by automobile (urban)
2. Average travel time for all trips by transit (urban)
3. Average travel time for all trips by automobile (rural)
4. Average travel time for all trips by transit (rural)
5. Average travel time for all trips by automobile (countywide)
6. Average travel time for all trips by transit (countywide)

Environment

1. Conformity with the Clean Air Act Amendments of 1990 according to measures of pollutants such as nitrous oxide and reactive organic gases

Cost-Effectiveness

1. Average cost per passenger mile (urban, auto, countywide)
2. Average cost per transit trip mile (urban, transit, countywide)
3. Average cost per passenger mile (urban, auto, EJ target areas)
4. Average cost per transit trip mile (urban, transit, EJ target areas)
5. Average cost per passenger mile (rural, auto, EJ target areas)
6. Average cost per transit trip mile (rural, transit, EJ target areas)

Reliability

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

Safety

1. Number of high crash locations improved

Equity

1. Investment comparisons across modes of transportation, including livable and/or walkable communities
2. Distribution of planned transportation expenditures inside and outside of target-communities/neighborhoods

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, EJ area)
4. Average trip delay time (rural, auto, EJ 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 EJ target areas (A-F).

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

LOS A	Free flow traffic conditions, with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection)
LOS B	Generally stable traffic flow conditions
LOS C	Occasional back-ups may develop, but delay to vehicles is short-term and still tolerable
LOS 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)
LOS E	Intersections operate at or near capacity, with long queues developing on all approaches, and long delays
LOS F	Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times

Project-Level Evaluation

General funding priorities addressing equity across transportation modes are handled primarily through the RTP. Because capital projects identified in this RTP will be funded and move toward completion by the time they are included in the short-range Federal Transportation Improvement Program (FTIP), EJ concerns at the later stage will address project-specific issues.

Fundamental questions about whether a specific project should be prioritized over any other or generally where the project should be located are decided through the RTP process; attempting to do so at the FTIP level is too late. Conversely, the RTP cannot hope to answer environmental questions or

aesthetic issues about a specific project. Those project-level questions will be addressed at Caltrans' and/or local agency workshops as projects move forward.

Modeling Results

Once EJ populations were identified and mapped – and criteria, measures and goals established – Kern COG used the transportation model to determine whether the goals for mobility, accessibility, cost-effectiveness, consumer satisfaction, reliability and safety were being met.

The process involved preparing and testing a series of “scripts” or small programs that allow the model to run projections for the 1998 base year and future years on measures established for environmental justice criteria. Specific model scripts requested were:

- **Accessibility** – Calculate average trip time by mode (auto and transit) to major job centers from a group of approximately 600 Traffic Analysis Zones (TAZs).
- **Mobility** – Calculate average trip time by mode (auto and transit) from environmental justice TAZs and countywide.
- **Cost-effectiveness** – Passenger miles traveled. Calculate passenger miles traveled by both vehicle and transit networks for current and planned transit projects (increased headway, new routes) and capacity increasing road projects links in future years, inside EJ TAZs and countywide. These figures are divided by the total investment in these projects and used to calculate their cost-effectiveness.
- **Reliability** – Calculate the distance of level of service D through F links inside environmental justice TAZs and countywide.
- **Consumer satisfaction** – Calculate the average trip delay after feedback between constrained and unconstrained roadways on links inside EJ TAZs and countywide.¹
- **Safety** – Calculate the percentage increase between property damage, injury and fatal accident rates between base year 1998 and 2030.

Environment was not included in the model because it is not a component the model can measure readily. The model generated several factors, including: travel times, vehicle miles traveled, passenger miles traveled, transit boardings, transit trip hours, transit trip distance and miles of LOS C or worse roads for 1998 (base year), 2030 build scenario, and the 2030 no-build scenario. The 2030 build scenario assumes all projects listed in the Destination 2030 Regional Transportation Plan will have been completed, whereas the no-build scenario assumes 2030 traffic on the same network used in 1998. Additional assumptions include funding sources and technology will remain constant. The model also

¹ 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.

stratified its factors along three separate lines: All of metropolitan Bakersfield (urban); all other areas of Kern County, including the 10 other incorporated cities (rural); and countywide. Kern COG paid particular attention to the accessibility and mobility criteria because they represented overall system performance now and in the future.

Mobility

Mobility is defined as the ability to move throughout the region, and the time it takes to reach desired destinations. The criterion is measured by calculating average travel times during the base year 1998, in 2030 when all RTP projects are completed, and in a 2030 no-build scenario where none of the RTP projects are completed. The goal for mobility is to demonstrate that EJ TAZs perform better, or at least no worse, than the countywide average. Peak highway and transit trip periods (evening commute times) were used to demonstrate the worst-case scenario.

Metropolitan Bakersfield’s average travel time in 1998 for all trips was 15.17 minutes, compared to a rural time of 17.25 for a countywide average of 16.15. In considering just metro Bakersfield’s EJ TAZs, the average travel time was 14.68, versus rural EJ TAZs at 14.43, for a countywide average of 14.6 minutes. During the 1998 base year, EJ TAZs throughout the county enjoyed shorter average travel times than the county as a whole. As depicted in the chart below, that trend is maintained over both the 2030 and the 2030 no-build scenario. On the whole, people living in EJ TAZs will have shorter average travel times anywhere within the county than the county will have as a whole.

Average Travel Time – Peak Highway Trips (in minutes)

Region	1998	2030	2030 No Build
Bakersfield	15.17	16.54	18.45
Rural Areas	17.25	17.75	17.44
Countywide	16.15	17.44	18.14

EJ TAZs Average Travel Time – Peak Highway Trips

Region	1998	2030	2030 No Build
Bakersfield	14.68	15.91	17.56
Rural Areas	14.43	15.91	16.45
Countywide	14.6	15.91	16.59

Because rural transit ridership comprises such a small percentage of trips throughout the county as a whole, and because no data is kept by rural transit agencies regarding trip lengths and travel times, staff is unable to compare the

rural transit network to the Golden Empire Transit system in metro Bakersfield. However, in judging average travel times for transit trips between EJ TAZs in Bakersfield and the rest of Bakersfield as a whole, EJ TAZs also continue to fare better in this category across the board. In 1998, the average peak hour transit trip took 46.33 minutes in Bakersfield. However, transit trips emanating from EJ TAZs were clocked at 46.21 minutes. In 2030, the model estimates the difference to increase from 49.54 minutes in Bakersfield as a whole to 48.11 minutes in Bakersfield EJ TAZs.

Average Travel Time – Peak Transit Trips²

Region	1998	2030	2030 No Build
Bakersfield	46.33	49.54	47.34
Rural Areas	N/A	N/A	N/A
Countywide	46.33	49.54	47.34

EJ TAZs Average Travel Time – Peak Transit Trips

Region	1998	2030	2030 No Build
Bakersfield	46.21	48.11	46.59
Rural Areas	N/A	N/A	N/A
Countywide	46.21	48.11	46.59

Accessibility

Accessibility differs from mobility in that it is measured by commuter trip times to major job centers rather than overall trip times. Major job centers are defined as those TAZs containing employment sites with 75 or more workers. Specifically, accessibility is defined as the ease of reaching destinations as measured by the percent of commuters who can get to work within a given period of time. As with mobility, the goal is to ensure that commuters in EJ TAZs throughout the county have average trip times that are shorter, or at least no longer, than the county as a whole.

²No data are maintained on average travel times for rural fixed route and dial-a-ride services. The countywide average listed under Average Travel Time – Peak Transit Trips and EJ TAZs Average Travel Time – Peak Transit Trips reflects statistics on the Golden Empire Transit network only. Rural transit ridership is a small percentage of countywide and would result in a negligible increase.

In 1998, the average trip length from anywhere in Bakersfield to a major job center was 15.64 minutes. For areas outside Bakersfield, the time was approximately five minutes longer – 20.73 minutes. The average commute time to a major job center in Kern County was 18.03 minutes in 1998. This compares to 15.55 minutes for all commutes from EJ TAZs to major job centers throughout the county in 1998.

Again, EJ TAZs generally fare better across the board against urban, rural and countywide averages for commutes to major job centers in 1998, under the 2030 build and 2030 no-build scenarios. This is true for both private vehicle trips countywide and transit trips in Bakersfield. Rural transit data are unavailable.

Average Travel Time to Major Job Centers – Highway

Region	1998	2030	2030 No Build
Bakersfield	15.64	15.91	17.76
Rural Areas	20.73	23.97	25.79
Countywide	18.03	20.54	21.41

Average Travel Time from EJ TAZs to Major Job Centers – Highway

Region	1998	2030 Build	2030 No Build
Bakersfield	14.96	14.91	18.12
Rural Areas	16.77	18.63	19.51
Countywide	15.55	16.98	17.1

Average Travel Time to Major Job Centers – Transit ³

Region	1998	2030 Build	2030 No Build
Bakersfield	46.87	51.39	48.06
Rural Areas	N/A	N/A	N/A
Countywide	46.87	51.39	48.06

Average Travel Time from EJ TAZs to Major Job Centers – Transit

³ No data are maintained on average travel times for rural fixed route and dial-a-ride services. The countywide average listed under Average Travel Time – Peak Transit Trips and EJ TAZs Average Travel Time – Peak Transit Trips reflects statistics on the Golden Empire Transit network only.

Region	1998	2030 Build	2030 No Build
Bakersfield	47.64	51	48.3
Rural Areas	N/A	N/A	N/A
Countywide	15.55	16.98	17.1

Cost-Effectiveness

Cost-effectiveness is measured by maximized returns on transportation investments. Staff calculated this criterion by dividing the average daily investment from 2000 RTP projects through 2025 by the average number of daily passenger miles traveled (PMT) on the transportation network, both inside and outside of EJ TAZs.

In the metropolitan Bakersfield area, the average daily investment in roads will amount to \$.0019 per PMT versus \$.0023 per PMT in Bakersfield EJ TAZs. In rural areas outside Bakersfield, the cost is \$.0022 versus \$.0025 in rural EJ TAZs. For transit service in Bakersfield, the daily investment per PMT is \$.0724, versus \$.0723 in Bakersfield EJ TAZs. While the daily investment per PMT for roads indicates that the transportation system will meet the goal of spending more money per PMT in EJ areas than in the county as a whole, *the transit system does not measure up to that criterion, with all factors constant.* However, more funding will be spent per PMT in EJ TAZs than the county as a whole, and mobility and accessibility for EJ TAZs will also be higher.

Because the cost-effectiveness criterion assumes that RTP projects will be built, the no-build scenario is not displayed.

Average Daily Investment per Passenger Mile Traveled – Highways

Region	2030 Build
Bakersfield	\$.0019
Rural Areas	\$.0022
Countywide	\$.0021

Average Daily Investment per Passenger Mile Traveled – Highways: EJ TAZs

Region	2030 Build
Bakersfield	\$.0023
Rural Areas	\$.0025
Countywide	\$.0024

Average Daily Investment per Passenger Mile Traveled – Transit⁴

Region	2030
Bakersfield	\$.0724
Rural Areas	N/A
Countywide	N/A

Average Daily Investment per Passenger Mile Traveled – Transit: EJ TAZs

Region	2030
Bakersfield	\$.0723
Rural Areas	N/A
Countywide	N/A

Equity

Equity is defined as an equitable distribution of transportation investment benefits (as a share of benefits). Kern COG took a similar approach to equity as with cost-effectiveness, comparing the total investment in roads and transit through 2030 with total passenger miles traveled in Bakersfield, rural areas and the county as a whole. All numbers were converted to percentages for simplicity.

In 2030, Bakersfield EJ TAZs will account for 39% of all passenger miles traveled in the region. However, approximately 47% of transportation expenditures will go directly into the metropolitan EJ TAZs. Similarly, rural EJ TAZs, will represent 18.2% of countywide PMT; however, 20.6% of all transportation funding will be spent in those areas. Countywide, approximately 26% of all passenger miles traveled will occur in EJ TAZs, which will collect 30% of funding and projects.

Although Kern COG cannot reliably project the number of passenger miles traveled by rural transit agencies in 2030, the model does predict that EJ TAZs in the metro Bakersfield region will make up approximately 61% of transit PMT. Those same TAZs, however, will receive 73% of all transit funding attributable to the metropolitan area. Stratification between metro and rural transit services is impractical because of the rural transit PMT variable.

Percent of Expenditures versus Passenger Miles Traveled in 2030 - Highways

Region	2030 PMT	Total investment	PMT (percent)	Investment (percent)
Bakersfield	20,393,176	\$431,347,252	38.5	35.2

⁴ Because Kern COG's regional transportation model cannot estimate passenger miles traveled for rural transit services, estimates for daily investment per PMT countywide are unable to be made.

Rural Areas	32,522,947	\$791,051,531	61.5	64.8
Countywide	52,916,123	\$1,222,398,783	100	100

**Percent of Expenditures versus
Passenger Miles Traveled in EJ TAZs by 2030 - Highways**

Region	2030 PMT	Total investment	PMT (percent)	Investment (percent)
Bakersfield	7,901,6801	\$202,995,526	38.7	47.1
Rural Areas	5,933,711	\$162,630,218	18.2	20.6
Countywide	13,835,392	\$365,265,744	26.1	29.9

**Percent of Expenditures versus
Passenger Miles Traveled in 2030 - Transit**

Region	2030 PMT	Total investment	PMT (percent)	Investment (percent)
Bakersfield	100,921	\$80,000,000	N/A	80.1
Rural Areas	N/A	\$19,985,000	N/A	19.9
Countywide	N/A	\$99,985,000	100	100

**Percent of Expenditures versus
Passenger Miles Traveled in EJ TAZs by 2030 - Transit**

Region	2030 PMT	Total investment	PMT (percent)	Investment (percent)
Bakersfield	61,639	\$48,800,000	N/A	73.1
Rural Areas	N/A	\$17,986,500	N/A	26.9
Countywide	N/A	\$66,786,500	100	100

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 criterion is measured by the daily amount of trip delay in hours. On roadways, 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.

For example, between 1998 and 2030, Kern COG’s traffic model estimates the number of daily trip delay hours to rise from 43,724 to 92,249 – a 111 percent increase. However, in Bakersfield’s EJ TAZs, the number would increase from 26,164 to 48,533, an 85% rise. While neither scenario is desirable, EJ TAZs within Bakersfield continue to perform better than the area as a whole. The same situation is found in rural Kern County, where the delay goes from 19,971 delay hours to 77,447 by 2030, a 288% increase.⁵ Nevertheless, in rural EJ TAZs, delay time increases by 54% – from 6,906 hours in 1998 to 10,620 hours in 2030.

Average Trip Delay Time in Hours

Region	1998	2030	Percent increase
Bakersfield	43,724	92,249	111
Rural Areas	19,971	77,447	288
Countywide	63,696	169,696	166

Average Trip Delay Time in Hours for EJ TAZs

Region	1998	2030	Percent increase
Bakersfield	26,164	48,533	85
Rural Areas	6,906	10,620	54
Countywide	33,070	59,152	79

Reliability

Reliability is the percentage of on-time arrivals for both transit and highway trips. For highways, it is measured by the number of hours daily passengers spent in congestion. Congestion is measured by levels of service (LOS) on roadways and also by the amount of time in hours that a vehicle is not able to reach the speed limit on a given roadway segment. For transit, reliability is judged by the percent of on-time arrivals for each operator.

Golden Empire Transit District in Bakersfield has developed its own environmental justice analysis, “Title VI Update” last produced in April 2001 and scheduled for update in June 2004. Based on observation through February

⁵ In 1998, Rosamond Blvd., which leads to Edwards Air Force Base, was the only roadway outside metropolitan Bakersfield to report LOS D or worse traffic during peak commute times. In 2030, portions of at least 11 roads outside the metro area are expected to suffer LOS D traffic delays.

2004, GET estimates its on-time arrival rate at 92% of all trips.⁶ It does not stratify by EJ TAZ.

Congestion levels, measured by Kern COG’s traffic model in vehicle hours, show the worst degradation in rural EJ TAZs by 2030. However, the extremely low level of congestion apparent in 1998 skews that result. According to the model, all rural roads outside metropolitan Bakersfield experienced a cumulative total of 18 hours of congestion daily. By 2030, that number will have risen to 8,772 hours.

By contrast, metropolitan Bakersfield will see the number of hours spent in congested traffic rise from 25,194 in 1998 to 116,854 in 2030. However, its level of congestion to begin with is far greater than the rest of the county combined. Relative to increases regionally, EJ TAZs in Bakersfield and countywide still see lower levels of congestion than rural areas of the county.

Average Level of Congestion in Hours

Region	1998	2030	Percent increase
Bakersfield	25,194	116,854	364
Rural Areas	7,014	161,861	2208
Countywide	32,209	278,714	765

Average Trip Delay Time in Hours – EJ TAZs

Region	1998	2030	Percent increase
Bakersfield	14,622	49,643	240
Rural Areas	18	8,772	48,633
Countywide	14,622	58,416	300

Safety

For Kern COG’s environmental justice policy purposes, safety is considered to be the minimal risk of accident or injury as measured by reduced accidents. While the model does make predictions regarding the number of accidents that cause property damage, injury and fatalities, it cannot stratify that information specifically by project, as the environmental justice safety goal requires: On new facilities inside environmental justice TAZs, projects outlined in the Destination 2030 RTP will demonstrate no more accidents than countywide average.

⁶ GET acknowledges potential bias in its observation system. Global positioning system hardware was installed on all GET buses in Winter 2003 ensuring a more accurate assessment of on-time arrivals.

Despite the model's inability to predict accident rates on specific projects, it does provide an aggregate look at annual accidents in 1998 compared to 2030. Results show that injury accidents in particular will rise sharply throughout the county by 2030, however, EJ TAZs will see half the rate increase for injury accidents as countywide. For example, in rural Kern County, the injury accident rate is predicted to rise from 996 in 1998 to 2,239 in 2030, a 124.8% increase. In rural EJ TAZs, however, the same type of accident will go from 214 to 425, a 49.65% rise.

Annualized Accident Statistics for Annual Average Daily Traffic

Region	1998	2030	Percent increase
Bakersfield			
Property damage	1,207	2,556	52.78
Injury	690	1,461	111.74
Fatal	43	92	53.26
Rural			
Property damage	1,742	4,076	57.26
Injury	996	2,239	124.8
Fatal	13	147	91.16
Countywide			
Property damage	2,949	6,631	55.53
Injury	1,686	3,790	124.79
Fatal	106	239	55.65

Annualized Accident Statistics for Annual Average Daily Traffic – EJ TAZs

Region	1998	2030	Percent increase
Bakersfield			
Property damage	552	990	44.24
Injury	316	566	44.17
Fatal	20	36	44.44
Rural			
Property damage	375	744	49.6
Injury	214	425	49.65
Fatal	13	27	51.85
Countywide			
Property damage	927	1,734	46.54
Injury	530	991	46.52
Fatal	33	62	46.77

Environment

Environment is defined as enhancing the existing transportation system while improving the environment. It is the one factor in Kern COG's environmental justice criteria set that the transportation model cannot measure. Environmental effects vary wildly among different transportation projects, and can only be determined meaningfully on a project-by-project basis. The goal is for projects in the Destination 2030 RTP to demonstrate no difference in unmitigated impacts between environmental justice populations and the region as a whole. This goal is measured through conformity with the Clean Air Act Amendments of 1990 according to measures of certain pollutants such as nitrous oxide and reactive organic gases.

Both Kern COG's long-range Destination 2030 RTP and the short-term Federal Transportation Improvement Program (FTIP) require a demonstration of air quality "conformity" prior to being adopted by Kern COG and the federal government. This conformity process is necessary because of the San Joaquin Valley air basin's designation as "severe" for ozone and particulate matter less than 10 microns (PM-10). The process ensures that new transportation projects will either benefit, or at least have no negative effect on air quality. Kern COG's conformity analysis for its most recent FTIP, covering 2002-2004, was approved by the U.S. Department of Transportation on October 4, 2002. A revised conformity analysis has been undertaken to support the Destination 2030 RTP and the 2004-2006 FTIP.

Conclusion

Ideally, transportation projects not only achieve immediate transportation goals (such as congestion relief) but contribute to the betterment of our physical and socioeconomic environment. It is inevitable, however, that some transportation projects generate negative impacts as well. This chapter identifies the methodology used to determine the Destination 2030 RTP projects' equitability and their overall cost and benefit to the residents of Kern County, particularly on traditionally-disadvantaged neighborhoods.

From a public information perspective, Kern COG's commitment to environmental justice is demonstrable through its efforts at gathering public input. These efforts include broadcasting its monthly meetings on television; using display advertising and flyers to announce workshops and public hearings; and developing radio advertisements for long-range planning efforts. Kern COG staff has been visible in every community over the last two years during city council meetings, street fairs and community festivals. Press releases are generated at project milestones. Kern COG's quarterly newsletter is distributed to over 1,000 organizations and individuals.

From a planning standpoint, the transportation model indicates that, with few exceptions, Kern COG has and will continue to divide its resources equitably, with no single population group suffering disproportionate and adverse effects from agency activity. Analyses demonstrated some shortcomings that will be addressed, however. For example, in Bakersfield during 1998, average transit commute times to major job centers took approximately 7% longer (about one minute) in metropolitan EJ Areas than in the city as a whole. The model predicts that this situation will be reversed by 2030, assuming all constrained RTP projects are completed.

Kern COG's position that it is meeting the rigors of environmental justice is based largely on averages, and in some cases predicated on a worst-case scenario for every portion of the Kern region. The fact that delay times will rise by *only* 300 percent in EJ Areas versus 765% countywide over the long-term is nothing to trumpet; however, it does demonstrate that despite substantial financial commitments, and with all issues remaining constant, the Kern region's transportation network will continue to deteriorate for every segment of the population. The transportation model simply shows that the transportation network will not deteriorate in EJ Areas as quickly as in the county as a whole.

Kern COG expects to re-evaluate its environmental justice policies and procedures at least every three to five years. In its initial analysis, Kern COG determined that several of the criteria were measured redundantly. For example, consumer satisfaction is measured in delay time whereas reliability is measured in the number of vehicle hours spent in congestion. The two measures, while different, may be similar enough to use one or the other, though not both.

Similarly, cost-effectiveness and equity both attempt to determine how expenditures are being divided between EJ Areas and the region as a whole. While each measure uses a different analysis method, the conclusions appear to be the same. Because environmental issues such as noise, air quality, wildlife disturbances, and context-sensitive design must be addressed through the mitigation process on a project-by-project basis, no substantive means are available to measure environmental effects as a criterion in this analysis.

Considering all the analyses as a whole, it is sufficient to conclude that the Destination 2030 RTP meets the environment justice requirements by ensuring that all of the population is subject to proportionate benefits and detriments. It also must be understood that environmental justice does not create an entitlement; however, it does attempt to assure that transportation projects do not have discriminatory effects or disparate impacts on any segment of the population, especially those traditionally disadvantaged groups such as racial minorities and low-income communities. The above analyses demonstrate that the Destination 2030 RTP has met those expectations.