

Kern Council of Governments



Environmental Justice Report

November 2003



Introduction

Since early 2001, the Federal Highways Administration (FHWA) and the Federal Transit Administration (FTA) – and by extension those agencies receiving federal transportation funding – have placed a renewed emphasis on environmental justice. Put simply, environmental justice is a concept born of the 1964 Civil Rights Act that demands no single population consistently bears the burden of government activity. However, the steps necessary to ensure that seemingly simple outcome are considerably more complicated, and involve a significant adjustment in the way transportation planning has traditionally been approached.

Recognizing that no two regions are identical, FHWA and FTA have granted considerable latitude to metropolitan planning organizations (MPOs) such as Kern COG regarding approaches to environmental justice within the planning process. Through requests for guidance, documents addressing the issue and informational workshops, however, certain key elements have emerged that are intended to provide a framework for MPOs use in changing their approach to transportation planning.

For example: *Minority and low-income populations – defined as those that are predominately non-white and/or that earn no more than the federally established poverty rate – have traditionally carried the environmental burden of infrastructure projects throughout the nation, without necessarily enjoying the benefits of those improvements.* According to the California Department of Transportation's Desk Guide for Environmental Justice in Transportation Planning and Investments,

“Many feel that the environmental justice movement really began in 1982 in Warren County, North Carolina – a small, predominately African-American and low-income community. The state of North Carolina decided to build a toxic waste landfill for the disposal of PCB-contaminated soil in Warren County ... The U.S. Accounting Office conducted a study of the states in EPA Region IV (southeastern states) and found that three out of every four landfills were located near predominately minority communities. In 1987, a Commission on Racial Justice suggested that the most significant factor in determining the siting of hazardous waste facilities was race, and also found that three out of every five African-Americans and Hispanics lived in a community buttressing unregulated toxic waste sites ...”

Among other elements outlined by the federal government in addressing environmental justice during the planning process:

- Traditional planning methodology should be reversed, with the public, and affected communities in particular, providing input regarding project need and potential alternatives at the beginning of the planning process instead of toward the end, as well as helping to make ultimate decision for the type and location of a project.

- To facilitate this change in methodology, efforts to garner public participation must be both more aggressive and better tailored to attract those people with whom environmental justice is most concerned – minorities and low-income populations.

In practice, this could mean holding informational meetings in less formal surroundings such as churches or senior centers instead of during formal public hearings during regularly scheduled agency meetings. It may involve having schoolchildren take fliers advertising the workshop home to their parents instead of just announcing it through a legally required public notice. Or it may mean offering day care and mariachi music to entice Latino families to join the planning effort.

- The equity of resource distribution must be considered when formulating long- and short-range transportation plans. Does a decision to build a new freeway benefit transit riders as much as it does single-occupant vehicle commuters? In Los Angeles, for example, decisions to increase funding for light-rail infrastructure were successfully overturned when it was determined that bus riders – who were far more likely to be non-white and low-income than rail users – lost service because of budget cuts.¹

Kern COG's effort to address this myriad, complex objective has led to major revisions in its public involvement process, a new environmental justice policy and an extensive evaluation of Kern COG's transportation investments from 1998 through those projects planned by 2020. Approximately \$37,000 in upgrades to the agency's transportation model was spent to specifically answer questions posed by environmental justice concerns.

This report details a short history of the environmental justice movement, including examples intended to illustrate how the definition of environmental justice can change depending on circumstances. It also addresses Kern COG's process in developing its environmental justice policies, procedures and evaluation techniques; demographic issues; the transportation model analysis and recommendations for the future.

¹ *Labor/Community Strategy Center v. Los Angeles County Metropolitan Transportation Authority*. October 1996

Background

The legal basis for environmental justice is rooted “in both the Constitution of the United States – notably the Equal Protection Clause of the Fourteenth Amendment – and U.S. civil rights laws. Titles VI and IX of the Civil Rights Act of 1964 provide protection from discriminatory actions or results from federal, or federally assisted or approved, actions.”² Additional support for these concepts are derived from the National Environmental Policy Act (NEPA) of 1969, which requires federal agencies to take a “systematic, interdisciplinary approach” to planning and decision making when the results may have an impact on the environment.

More foundation for environmental justice rests in the Federal Aid Highway Act of 1970, which requires states and MPOs that develop long-range plans to consider “the overall social, economic, energy and environmental effects of transportation decisions.” In addition, a spate of executive orders has enhanced earlier regulations. Most recently, Executive Order 12898, signed by President Clinton in 1994, directs each federal agency to develop a strategy for preventing its actions from having “disproportionately high and adverse human health or environmental effects” on low-income and minority populations. Other legal foundations rest in the Americans with Disabilities Act of 1990, the California Environmental Quality Act (CEQA) and a variety of recent case law and California state legislation.

Federal guidelines have repeatedly expressed that there is no single correct avenue for pursuing environmental justice requirements. Approaches are as varied as the demographics among different regions. However, regulators have established a generic implementation structure that calls for project-specific impacts to be assessed for social and economic benefits and burdens. Once questions are answered about project costs, who will pay, who reaps benefits and who suffers burdens, projects can be designed to promote environmental justice in three different ways, by:

- Influencing who benefits from them;
- Influencing who bears the burdens from them, and;
- Influencing who pays for them.³

Many MPOs have used performance measures to examine benefits and burdens. Typically, specific objectives are established, which may apply to both projects and plans. Indicators to track performance are then chosen, with target values for those indicators sometimes identified. Performance measures generally come in three forms: **input-oriented, output-oriented and outcome-oriented.**⁴ Input-oriented indicators track investments in the transportation system, such as the number of lanes or highway miles.

² “Environmental Justice and Transportation: A Citizen’s Handbook,” Institute of Transportation Studies, University of California Berkeley, 2003

³ IBID

⁴ IBID

Output-based measures address what the transportation system produces, such as traffic volumes or transit rider ship. Outcome-oriented indicators consider whether a transportation investment meets its stated goals.

Whether using one or all three of these measures, in order to ensure that the needs of the disadvantaged are protected, specific requirements must be addressed. This concept is reflected in the idea that any unequal distribution of benefits and burdens should favor the least advantaged. Ideally, everyone should be able to benefit from a given policy. The Institute of Transportation at UC Berkeley poses a scenario where train fares are used for deck improvements on a bridge used by both cars and trains versus car tolls used to improve train service.⁵ The distinction between the two cases is that all car drivers could benefit from rail improvements (either through riding the train themselves or by seeing reduced congestion on the roadways), while rail users would not tangibly benefit from a bridge deck resurfacing.

⁵ “Environmental Justice and Transportation: A Citizen’s Handbook,” Institute of Transportation Studies, University of California Berkeley, 2003

Public Involvement Procedures

In attempting to address regional environmental justice issues, Kern COG began in May 2001 by revisiting its public involvement procedures to better reflect non-traditional outreach strategies. The original policies emphasized legally required public notices, hearings and ads for documents such as the Regional Transportation Plan (RTP) and the Federal Transportation Improvement Program (FTIP), as well as other corridor and special studies.

The revised procedures take note of how varied media availability is in the Kern region, and how no single approach could be expected to cover the entire county. Eastern Kern, for example, is unable to access television network affiliates in Bakersfield. Most “local” TV for the cities of Tehachapi, California City and Ridgecrest comes from Los Angeles. Since placing TV ads on L.A. stations is impractical, Kern COG will rely on radio, newspaper and direct mail to achieve its outreach goals.

The new policies included a matrix which details what public outreach efforts will be required at different points during the planning process, depending on the document. For example, the RTP will require radio and newspaper display ads at the beginning, middle and end of the development process, as well as public workshops, community fliers, public notices and press releases at specific points in its development. The procedures also call for distributing fliers about upcoming workshops to non-traditional venues such as churches or schools.

Through its ongoing partnerships with dozens of other governmental agencies, as well as non-profit and community-based organizations, Kern COG has maintained a policy to “notify interested or affected public members who will be potentially impacted by the plan through customary meeting announcements, newspapers, public service announcements, press releases, special mailers, publications and agendas of committees, meetings and other opportunities to participate, as appropriate. Community members or organizations may include but are not limited to:”

- Elected officials
- Business and industry
- Academic and scientific communities
- Environmental organizations
- Service organizations
- Youth services groups
- Recreation groups
- Health and handicapped organizations
- Native Americans
- Local public and private transit operators
- Operators of major modes of transportation
- Airport authorities
- Traffic, ridesharing, parking, and enforcement agencies
- Senior citizen groups
- Appropriate private transportation providers
- Minority and ethnic groups
- Local, State and Federal agencies

Accordingly, Kern COG has increased its mailing list for brochures, newsletters, agendas, fliers and announcements to approximately 1,000 individuals and organizations. Those projects that are sub-regional in nature are targeted by ZIP code for mailings.

Other activities have evolved from the agency's intent to increase awareness of Kern COG itself and its desire to seek input on its transportation plans. Staff has, for the past two years, attended six to 10 community festivals throughout the region annually, offering copies of its documents, maps, and other handouts explaining the agency's roles and functions. Staff also collects surveys about transportation issues at the festivals. Kern COG's Web site (www.kerncog.org) also contains a comprehensive list of resource documents and maps for the public to peruse.

In January 2003, Kern COG became one of the first MPOs in the nation to broadcast its regular Board meetings, and the workshops that precede them, to a countywide audience via Kern Government Television (KGOV), a cable access network. KGOV has, since 2001, also taped and rebroadcast Kern COG's annual Regional Awards of Merit program. Display advertising in both English and Spanish-language newspapers to promote documents and workshops has more than doubled. Press releases issued to more than 60 media outlets countywide have tripled since 1999.

Finally, for its Destination 2030 RTP, Kern COG retained a public relations consultant to secure radio time for public service announcements promoting the document's development process. In addition, public workshops on the RTP at low-income health clinics, senior centers, recreation centers, and a university campus already have been held. These workshops were advertised through two column newspaper display ads and fliers distributed throughout the affected communities.

During its recertification process in 2002, the Intermodal Planning Group (IPG) – comprised of representatives from FHWA, FTA and the California Department of Transportation – commended Kern COG for its public involvement process, specifically noting the agency's varied approaches depending on which part of the Kern region it is attempting to reach. At the same time, however, the IPG filed a "corrective action" requiring the agency to fashion and implement a set of environmental justice policies and procedures, including evaluation techniques, by December 2003.

Kern COG's Environmental Justice Process

In January 2002, staff sought permission from the Board of Directors to request a representative from 18 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. Board members amended the list to include four agencies not already represented. In March 2002, staff mailed letters to the following organizations seeking volunteers for the task force:

- Catholic Social Services
- Kern County Commission on Aging
- Community Service Organization
- Greater Bakersfield Legal Assistance
- Kern County Hispanic Chamber of Commerce
- Hispanic Chamber of Commerce Foundation
- Independent Living Center
- Indian Health Services
- Kern County Economic Opportunity Commission
(now known as Community Action Partnership of Kern County)
- Kern County Housing Authority
- Kern County Office on Aging and Adult Services
- Kern Regional Occupational Program
- Latina Leaders of Kern County
- Mexican American Opportunity Foundation
- North of the River Senior Services
- Kern Senior Collaborative
- Kern County Veterans Services
- Volunteer Center
- Martin Luther King, Jr. Center
- United Farm Workers
- N.E.E.D.S Center (Taft)
- Four Winds Intertribal Council

Although only three agencies responded with nominees, nine members of the task force attended the first meeting on May 6, 2002. The initial meeting consisted of an orientation and introduction to environmental justice. Staff established a timeline and work schedule that called for the establishment of transportation system criteria in June 2002; transportation system goals by July; evaluation measures and public outreach strategies in August 2002; a draft policy set by September; and the final policies and procedures in October.

In order to offer the task force a graphic representation of the environmental justice populations being described, staff mapped the most recent (1990) U.S. Census data on several categories in both the county as a whole and metropolitan Bakersfield in particular. These maps were later updated when 2000 Census data became available. Distributions included:

- Non-white people
- People age 65 or 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.)
- General population
- Zero-car households

Population Concentrations

The challenge for staff was to identify all populations within the Kern region that qualify as “traditionally disadvantaged” without resorting to redundant classifications that would count the same people more than once. In addition, because of Kern County’s farm-and oil-based economy, 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, or neighborhoods.

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. However, because these groups historically share characteristics with other groups already identified as “traditionally disadvantaged,” staff determined that they were already being considered in the process. If better information is developed on other disadvantaged groups, they will be included in the planning evaluation process. Population concentrations of traditionally disadvantaged groups, by Transportation or Traffic Analysis Zone (TAZ), were established to better focus the examination onto particular neighborhoods rather than attempting to look at the entire county en masse. The Census defines a TAZ as a special-purpose geographic entity delineated by state and local transportation officials for tabulating traffic related data from the census, especially journey-to-work and place-of-work statistics from the Census Transportation Planning Package distributed by the Federal Bureau of Transportation Statistics.

Staff began with a low-range scenario of 50 people or more, but determined that such a small number included every inhabited portion of Kern County. Relying on that data would have diluted the analysis too significantly for it to be useful. Using the high-end concentration of 500 excluded too many neighborhoods that staff knew from Census data included environmental justice populations.

In its analysis, the Mid-Ohio Regional Planning Commission (MORPC) used a concentration of 200 to determine which areas qualified geographically under environmental justice. At a mid-range scenario of 200, a clearer picture of which neighborhoods in Kern County constituted “environmental justice (EJ) populations” emerged. Far from excluding rural households, the new maps showed significant concentrations of EJ populations outside urban centers, but near major transportation facilities, such as State Routes 46 and 178. Raising the concentrations painted a better picture of those transportation facilities most significantly employed by EJ populations. See attached maps.

Transportation System Criteria

Working from case studies detailed in FHWA's publication "Transportation & Environmental Justice Case Studies," Kern COG staff –with concurrence from the environmental justice task force – culled several potential transportation system criteria from other regional examples, most notably the Metropolitan Transportation Commission (MTC) in California's Bay Area; Southern California Association of Governments (SCAG) in Los Angeles; and Mid-Ohio Regional Planning Commission (MORPC) in Columbus. Both MTC and SCAG used accessibility and mobility as criteria. SCAG went further, however, adding reliability, safety, cost-effectiveness, environment, and consumer satisfaction to the list of criteria developed for its 1997 RTP. MORPC used more than 20 measures to gauge system performance.

In June 2002, staff brought to the task force the seven criteria SCAG used, along with a new criterion – equity – and definitions for each modified from both MTC and SCAG. They included:

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

Maximized return on transportation investment.

Reliability

Percentage of on-time arrivals by both transit and highways.

Safety

Minimal risk of accident or injury as measured by reduced accidents.

Equity

Equitable distribution of transportation investment benefits (as a share of benefits).

Consumer satisfaction

The condition where consumers can largely agree that their transportation needs are being met in a safe, reliable, efficient and cost-effective manner.

The task force unanimously approved the criteria and their definitions at the June meeting without significant comment.

Transportation System Goals & Measures

At its July meeting, staff presented the task force with a set of proposed goals for the transportation system to meet. The intent was to develop definitive, measurable outputs to ensure that transportation system investments benefit all populations, without consistently burdening any single one.

Because Kern COG's transportation model was not calibrated to address transit operations, however, it became difficult to establish specific, time-constrained goals for transit that could be effectively measured. 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 for five, 10 or 20 years can be determined. Census data that addresses such issues as the number of miles traveled to work, how many vehicles per household, the number of drivers per household and so forth are particularly germane in modeling transportation behavior.

With the model's inability to reliably test transit travel times, Kern COG staff worked with the task force to broaden policy goals to ensure that environmental justice 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, staff and task force members chose to compare countywide averages versus identified environmental justice areas for each of the eight criteria. This type of analysis demonstrates whether EJ areas fare better or worse than the general population.

Concentrations of 200 or more people who met at least one of the four established environmental justice criteria – low-income, non-white, transportation-disabled or senior populations – defined environmental justice transportation analysis zones. Those areas were surveyed according to transportation or traffic analysis zones (TAZ).

Goals for the eight criteria, include:

Accessibility

- Bring services for environmental justice populations up to countywide average.
- If already maintaining countywide average, show no degradation of service.

Mobility

- Bring services for environmental justice populations up to countywide average.
- If already maintaining countywide average, show no degradation of service.

Environment

- Projects in the Regional Transportation Plan will demonstrate no difference in unmitigated impacts between environmental justice populations and the region as a whole.

Cost-effectiveness

- In environmental justice TAZs, show an average cost per passenger mile for both auto and transit that is no less than the countywide average.

Reliability

- 85 percent on-time arrivals (transit)
- Environmental justice TAZs will suffer the same or less congestion in vehicle hours traveled as the county as a whole (auto)

Safety

- On new facilities inside environmental justice TAZs, demonstrate no more accidents than countywide average.

Equity

- Accounting for context-sensitive design factors, show an equitable distribution of transportation expenditures, inside and outside environmental justice TAZs.

Consumer satisfaction

- Delay time for environmental justice TAZs is less than or meets the countywide average.

To develop measures that could tangibly determine whether Kern COG was meeting its environmental justice goals, staff relies largely on its transportation model. The model's limitations necessitated more than \$37,000 in upgrades between September and December 2002 to accurately measure transit trip times and lengths, as well as comparing all trip times and lengths between metropolitan Bakersfield and more rural areas of the county.

Originally, staff did not distinguish between urban and rural environmental justice TAZs. However, members of Kern COG's Transportation Technical Advisory Committee requested the breakdown to ensure that metro Bakersfield results did not reduce transportation performance averages in Kern's smaller cities and rural areas.

For criteria whose goals the model was unable to quantify – such as environment, reliability, safety and equity – staff developed other measures based on Census and accident data. Staff also relied on Kern COG's own Regional Transportation Plan and Federal Transportation Improvement Plan, which chart short- and long-term transportation capital expenditures. Some of the measures, like those for environment and safety, were changed after public comment derided them as vague and not quantifiable. Measures 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 travel 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 according to measures of certain pollutants such as nitrus 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, or efficiency, of highways, roads and intersections. (This term is also used in most other infrastructures descriptions, but the “yardstick” or units of measurement vary, depending upon the specific type of infrastructure; i.e., water, sewer, power, etc.)⁶

Figure 1

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

⁶ “Roads to Ruin: Transportation Funding Options for Kern County” Kern Council of Governments 2001

Evaluation Procedures

Staff relied on guidelines from FHWA, FTA and Caltrans to develop its environmental justice and public involvement evaluation techniques. The intent was to establish both quantitative and qualitative measures that Kern COG could use to determine whether its efforts at improving outreach to environmental justice populations, and to compare investments across transportation modes, were having the intended effect. The policy's evaluation section is divided into output and outcome considerations followed by a two-tiered evaluation procedure for public hearings, workshops and planning documents designed to ensure outreach efforts are reaching their intended audiences.

The output and outcome considerations listed in the policy were culled from environmental justice workshops sponsored by FHWA and FTA and address questions staff should be asking itself throughout the public involvement process. They include:

Output Considerations

- How many people are attending meetings, hearings and workshops? How many people does staff talk to during community fairs or events?
- How large is the mailing list? How often is information (newsletters, project briefs, annual reports) being disseminated? Is the mailing list up to date? Can information be distributed more effectively through e-mail?
- How many visitors does the Web site have? What resources are available on it? Is the site updated regularly with new documents, agendas, notices and minutes? Does the agency host a discussion group where ideas can be generated and alternatives discussed?
- Are traditionally underrepresented groups involved? Do sign-in sheets and surveys ask questions about ethnicity, income, age and disabilities? Is a survey form or "guest book" available on the Web site? Is the agency tailoring its messages and requests to particular stakeholders or taking a one size fits all approach?
- Are people reading our fact sheets and project briefs? Does staff take inventories of materials before and after public contacts? Does staff track requests for particular documents or information as well as the types of questions being asked at workshops and hearings?
- Do people see agency fliers and ads? Do agency surveys question how people came to learn about the project or document? Does staff track circulation and readership rates and/or Nielsen and Arbitron ratings?
- Do the number of requests for demographic information increase on an annual basis?

Outcome Considerations

- Are meetings useful and informative for participants? Is the workshop/hearing format lecture with Q&A, or are other methods such as games and interactive

activities employed? Does staff have a method, such as a questionnaire, to measure “usefulness”?

- Is Kern COG getting relevant information from the public? Does staff receive, track and respond to all comments in writing? Are questions and comments categorized and enumerated by topic?
- Is public input reshaping the document/plan/policy findings? Are there more alternatives as the result of public input? Are existing alternatives being refined?
- Are participants able to “see their fingerprints” in the process? Is the public satisfied that its recommendations are being seriously considered and/or implemented? Are all questions being answered satisfactorily?

Project-level Evaluation

The public will identify changes to projects through oral and written input during workshops for both the Regional Transportation Plan (RTP) and the various stages of the shorter-term Federal Transportation Improvement Program (FTIP) no less than once every three years. General funding priorities addressing equity across transportation modes will be handled primarily through the RTP. Because capital projects identified in the RTP will necessarily be funded and move toward completion by the time they are included in the FTIP, environmental justice concerns at the later stage will address project-specific issues such as context-sensitive design. Fundamental questions about whether a specific project should be prioritized over any other or generally where the project should be located are to be decided through the RTP process. Attempting to do so at the FTIP level is too late. Conversely, the RTP cannot hope to answer environmental concerns or aesthetic issues about a specific project. Those specific, project-level questions should be addressed at a Caltrans or local agency workshop as projects are developed and designed.

Kern COG’s environmental justice task force met for the last time on October 14 and approved the policies and procedures, pending current model numbers and updated maps of EJ populations. On January 16, 2003, staff presented a final version to the Board of Directors. Public comment at that meeting criticized the agency for not circulating the policies. In response, staff mailed out fliers to approximately 1,000 individuals, agencies and non-profit and community-based organizations announcing the policies’ availability. This version was also sent to task force members for review and comment on January 21, 2003. In addition, staff purchased display ads in the Bakersfield Californian and El Mexicalo promoting the policy’s availability. Between January 16 and February 20, 2003 – the next Board meeting – staff received approximately 12 requests for the documents, and three sets of comments. No task force members, or their agencies, responded to the January 21 final draft.

On March 21, 2003, Kern COG staff presented the Intermodal Planning Group with a third iteration of the agency's Environmental Justice Policies and Procedures. This version – the companion piece to this report – was formatted more closely to policies already adopted in Kern COG's employee manual. In addition, it included many of the provisions already established in the Public Involvement Policies and Procedures.

Mapping Environmental Justice Populations

In order to evaluate who comprises Kern County's environmental justice populations, and where they live, Kern COG employed its Geographic Information System (GIS) to import U.S. Census data to create demographic "overlays" onto aerial photos of the entire county or particular sub-regions. These overlays can appear as lines or shaded sections, depending on what is being demarcated.

However, using demographic data from the Census and rendering it visually on an aerial photo or map is not a simple process, particularly in regard to environmental justice. In Kern COG's case, using traditional geographic Census designations such as blocks, block groups or tracts⁷ became impractical because these geographic boundaries would not conform to the transportation model's use of transportation analysis zones (TAZs) to measure system performance.

While the Census Bureau assigns TAZs, TAZ-based data is not released at the same time as the other Census data. Data specifically formatted by TAZ from the 2000 Census still has not been released because of privacy concerns. To fit Census data into TAZ boundaries, staff estimated to determine which blocks or block groups would fit into a particular TAZ. By creating "centroids" or center points for each of the census geography layers, GIS staff determined which TAZ area each of the centroids fit into and then assigned the relevant TAZ number to the centroid.

⁷ A block group (BG) is a cluster of census blocks having the same first digit of their four-digit identifying numbers within a census tract. For example, block group 3 (BG 3) within a census tract includes all blocks numbered from 3000 to 3999. BGs generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. BGs on American Indian reservations, off reservation trust lands, and special places must contain a minimum of 300 people. (Special places include correctional institutions, military installations, college campuses, worker's dormitories, hospitals, nursing homes, and group homes.)

Census blocks are areas bounded on all sides by visible features, such as streets, roads, streams, and railroad tracks, and by invisible boundaries, such as city, town, township, and county limits, property lines, and short, imaginary extensions of streets and roads. Generally, census blocks are small in area; for example, a block bounded by city streets. However, census blocks in sparsely settled areas may contain many square miles of territory. All territory in the United States, Puerto Rico, and the Island Areas has been assigned block numbers, as was the case for the 1990 census. To improve operational efficiency and geographic identifications, the U.S. Census Bureau has introduced different numbering systems for tabulation blocks used in decennial census data products, and for collection blocks, used in administering the census. (In 1990, there generally was a single numbering system.) Collection block numbers are available only in the TIGER/Line® data products; the U.S. Census Bureau does not tabulate data for collection blocks.

Census tracts are small, relatively permanent statistical subdivisions of a county or statistically equivalent entity delineated by local participants as part of the U.S. Census Bureau's Participant Statistical Areas Program. The U.S. Census Bureau delineated census tracts where no local participant existed or where a local or tribal government declined to participate. The primary purpose of census tracts is to provide a stable set of geographic units for the presentation of decennial census data.

This process allowed staff to fit blocks and block groups into TAZs. All blocks and block groups were then aggregated by the TAZ number to get the correct TAZ level data.

An alternative method of aggregating the block or block group data to TAZs is to determine the percentage of area inside of each TAZ and proportionally assign the Census data based on this percentage. Staff chose not to use this method due to longer processing times and the greater chance for error.

Modeling Results

Once EJ populations were identified and mapped – and criteria, measures and goals established – staff turned to the transportation model to determine whether the goals for mobility, accessibility, cost-effectiveness, consumer satisfaction, reliability and safety were being met. However, in order to juxtapose countywide results against those of EJ populations, Kern COG first had to update its model.

In July 2002, staff issued a formal request for proposals from consultants to update Kern COG's transportation model to convert new modes (park-and-ride and bus service) into TP+ format, the software now used by the model, from the MINUTP script – the old software. This task allowed for a more accurate measure of transit trips in metropolitan Bakersfield, primarily measuring the Golden Empire Transit network. Because of minimal transit ridership outside of the metropolitan area, staff determined adding rural transit service to the model was too expensive a proposition for the results that would be garnered.

A second task 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 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.⁸
- **Safety** – Calculate the percentage increase between property damage, injury and fatal accident rates between base year 1998 and 2030.

Environment as not included in the model upgrade because it is not a factor the model can readily measure. The model generated several numbers, including: travel times, vehicle miles traveled, passenger miles traveled, transit boardings,

⁸ 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.

transit trip hours, transit trip distance and miles of LOS C or worse roads for 1998 (base year), 2030 and the 2030 no-build scenario. The 2030 readout assumes all projects listed in the 2000 long-range Regional Transportation Plan will have been completed, whereas the no-build scenario assumes 2030 traffic on the same network used in 1998.⁹ Additional assumptions include funding sources and technology will remain constant. The model also stratified its numbers along three separate lines: All of metropolitan Bakersfield (urban): all other areas of Kern County, including the 10 other incorporated cities (rural) and countywide. Consultants from Parsons-Brinkerhoff delivered the new data on February 3, 2003. Staff paid particular attention to the accessibility and mobility criteria because they represented overall system performance now and in the future. The modeling results are based on projects contained in the 2000 Regional Transportation Plan. Kern COG is in the process of developing its 2004 RTP and is following environmental justice guidelines spelled out in the Environmental Justice Policies and Procedures.

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 possible 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.

⁹ While Kern COG's traffic model data extends to 2030, the most recent Regional Transportation Plan, certified in 2000, provides projects only through 2025. Additional projects built between 2025 and 2030 are assumed to benefit the transportation network, but are not reflected in current modeling results.

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 Trips¹⁰

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

¹⁰ 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.

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.

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, 2030 and even under the 2030 no-build scenario. 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	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 – transit¹¹

Region	1998	2030	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

¹¹ 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.

Average travel time from EJ TAZs to major job centers – transit

Region	1998	2030	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.

For example, 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, generally speaking, 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 – roads

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

Average daily investment per passenger mile traveled – roads: EJ TAZs

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

Average daily investment per passenger mile traveled – transit¹²

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 2025 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 (using a model that includes projects through 2025), Bakersfield EJ TAZs will account for 39 percent of all passenger miles traveled in the region. However, approximately 47 percent of transportation expenditures will go directly into the metropolitan EJ TAZs. Similarly, rural EJ TAZs, will represent 18.2 percent of countywide PMT, however 20.6 percent of all transportation funding will be spent in those areas. Countywide, approximately 26 percent of all passenger miles traveled will occur in EJ TAZs, which will collect 30 percent of funding and projects.

Although staff 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 percent of transit PMT. Those same TAZs, however, will receive 73 percent 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.

Roads – Percent of expenditures vs. passenger miles traveled in 2030

Region	2030 PMT	Total investment	PMT (percent)	Investment (percent)
Bakersfield	20,393,176	\$431,347,252	38.5%	35.2%
Rural Areas	32,522,947	\$791,051,531	61.5%	64.8%
Countywide	52,916,123	\$1,222,398,783	100%	100%

¹² Because Kern COG’s regional transportation model cannot estimate passenger miles traveled for rural transit services, there is no way to estimate daily investment per PMT countywide.

Roads – Percent of expenditures vs. passenger miles traveled in EJ TAZs by 2030

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%

Transit – Percent of expenditures vs. passenger miles traveled in 2030

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%

Transit – Percent of expenditures vs. passenger miles traveled in EJ TAZs by 2030

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 Bakerfield's EJ TAZs, the number would increase from 26,164 to 48,533, or an 85 percent 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 or a 288 percent increase.¹³ Nevertheless, in rural EJ TAZs, delay time increases by 54 percent – from 6,906 hours in 1998 to 10,620 hours in 2030.

¹³ In 1998, Rosamond Boulevard, which leads to Edwards Air Force Base, was the only road 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.

Average trip delay time in hours

Region	1998	2030	Percent increase
Bakersfield	43,724	92249	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 on roadways (see Figure 1, page 13) 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. Based on observation through June 2003, GET estimates its on-time arrival rate at 94 percent of all trips.¹⁴ 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 – a 48,633 percent increase.

By contrast, metropolitan Bakersfield will see the number of hours spent in congested traffic rise 364 percent 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 other parts of the county.

¹⁴ GET acknowledges potential bias in its observation system. Global positioning system hardware is scheduled to be installed on each GET bus by Winter 2003 ensuring a more accurate on-time arrival average.

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, which is what the environmental justice safety goal calls for: On new facilities inside environmental justice TAZs, demonstrate no more accidents than countywide average.

Nevertheless, 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 the region as a whole. For example in rural Kern County outside of metropolitan Bakersfield, the injury accident rate is predicted to rise from 996 in 1998 to 2,239 in 2030, a 124.8 percent increase. In rural EJ TAZs, however, the same type of accident will go from 214 to 425, a 49.65 percent rise.

Annualized accident statistics based on 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 based on 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 Regional Transportation Plan 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 according to measures of certain pollutants such as nitrus oxide and reactive organic gases.

Kern COG's Transportation Improvement Program (TIP) – the region's short-range transportation planning and expenditure document – requires a demonstration of air quality "conformity" prior to being adopted by Kern COG and the federal government. This conformity process is necessary due to 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 TIP, covering 2002-2004, was approved by the U.S. Department of Transportation on October 4, 2002.

Conclusions and Recommendations

From a public information perspective, Kern COG's commitment to environmental justice is demonstrable through its efforts at gathering public input, which now include broadcasting its meetings on television four times a month; using display advertising and fliers to announce workshops and public hearings; and developing radio advertising for its long-range planning efforts. Staff has been visible in every community over the last two years during city council meetings, street faires and community festivals. Press releases are generated liberally at project milestones. A mailing list of approximately 1,000 organizations receives a quarterly newsletter, fliers and monthly updates of Kern COG Board Actions. The public has been exposed more to Kern COG and its planning processes over the past three years than in the previous 10 combined.

From a planning standpoint as defined in the 2000 Regional Transportation Plan, 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 adverse effects from agency activity. Analysis demonstrated some shortcomings that will have to be addressed, however: In Bakersfield during 1998, average transit commute times to major job centers were worse in metropolitan EJ TAZs than in the city as a whole by approximately one minute. The model predicts that situation to be reversed by 2030, assuming all RTP projects are completed.

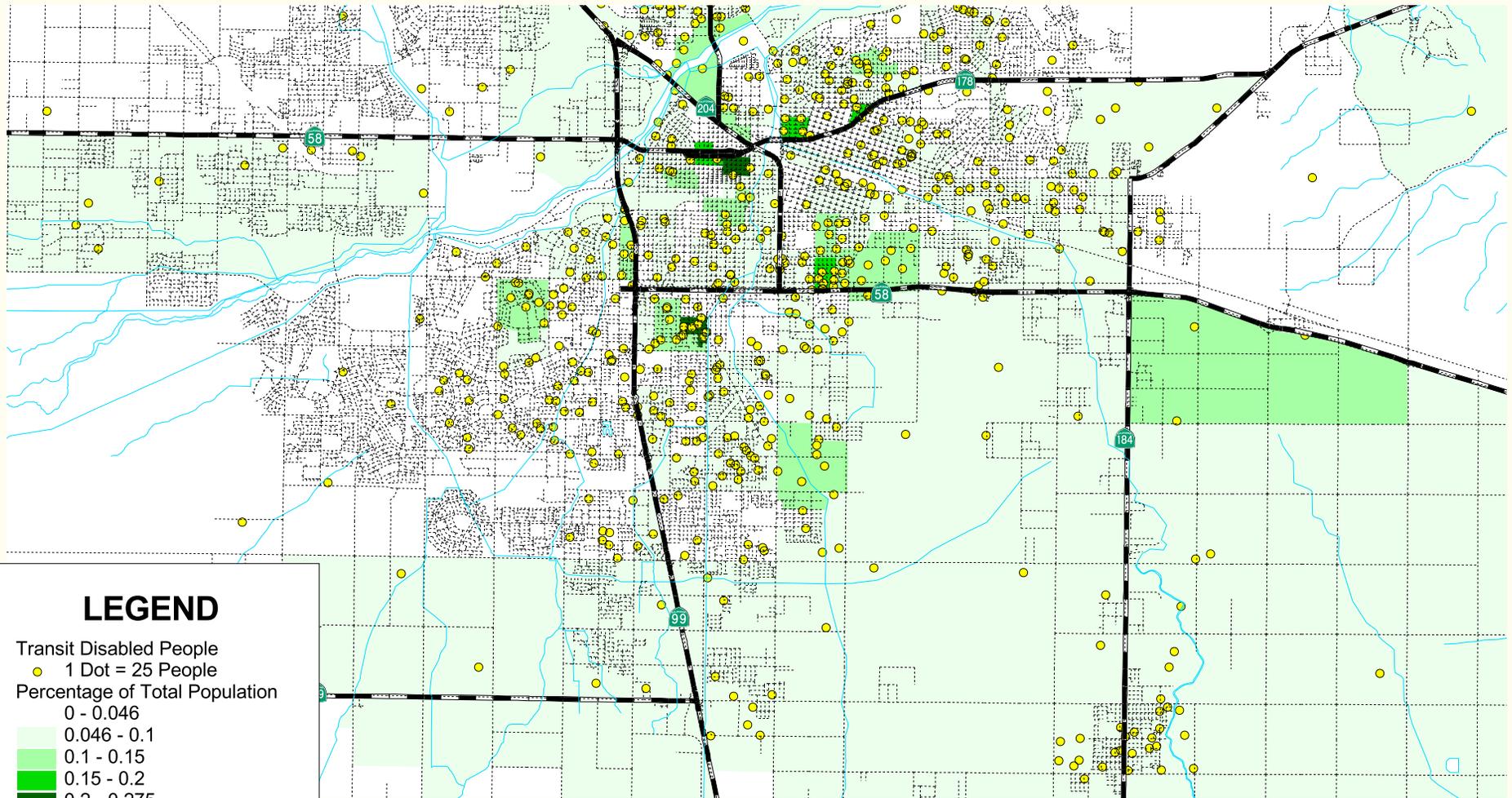
However, Kern COG's position that it is meeting the rigors of environmental justice is based largely in averages, and in some cases predicated on a worst-case scenario for every portion of the region. The fact that delay times will rise by *only* 300 percent in EJ TAZs versus 765 percent countywide over the next 27 years 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 tells us that the network will not deteriorate in EJ TAZs 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, staff determined that several of the criteria established through Kern COG's Environmental Justice Task Force were being measured in redundant fashion. 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, but not both.

Similarly, cost-effectiveness and equity both attempt to determine how expenditures are being divided between EJ TAZs and the region as a whole. While each uses a different method, the conclusions appear to be the same. And 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, there appears to be no good way of measuring environment as a criterion in an analysis such as this one.

Kern COG's Environmental Justice Policies and Procedures have been designed as a living document with a substantial amount of flexibility to adapt to changing times, cultures and approaches. As with any process, the intent of each succeeding iteration is to improve on the result by considering issues that may not have been raised in preceding years. Data gleaned from the transportation model so far, provide a detailed portrait of how well the Kern region's transportation system is performing, who is benefiting the most from transportation investments, and where additional resources will be needed in the future to maintain performance. The policies will instruct Kern COG staff on how best to use that data in the planning process.

1990 Distribution of Transit Disabled Persons By Percentage of Total Population



LEGEND

- Transit Disabled People
 ● 1 Dot = 25 People
 Percentage of Total Population
 0 - 0.046
 0.046 - 0.1
 0.1 - 0.15
 0.15 - 0.2
 0.2 - 0.275

Water Features

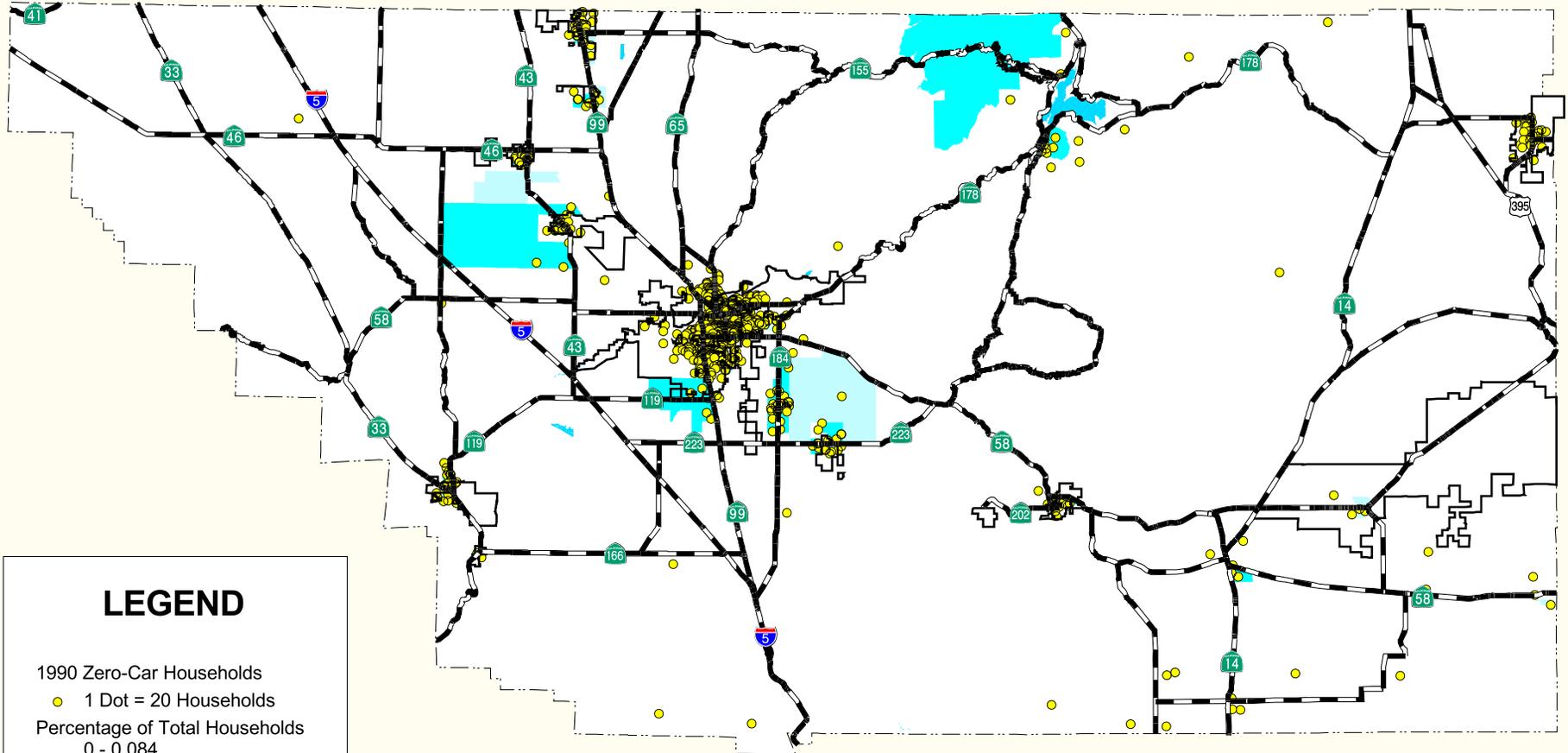
1990 County Average = 4.6%

Source:

Population figures are calculations based upon US
 Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Zero-Car Households By Percentage of Total Households



LEGEND

1990 Zero-Car Households

● 1 Dot = 20 Households

Percentage of Total Households

0 - 0.084

0.084 - 0.1

0.1 - 0.25

0.25 - 0.5

0.5 - 1

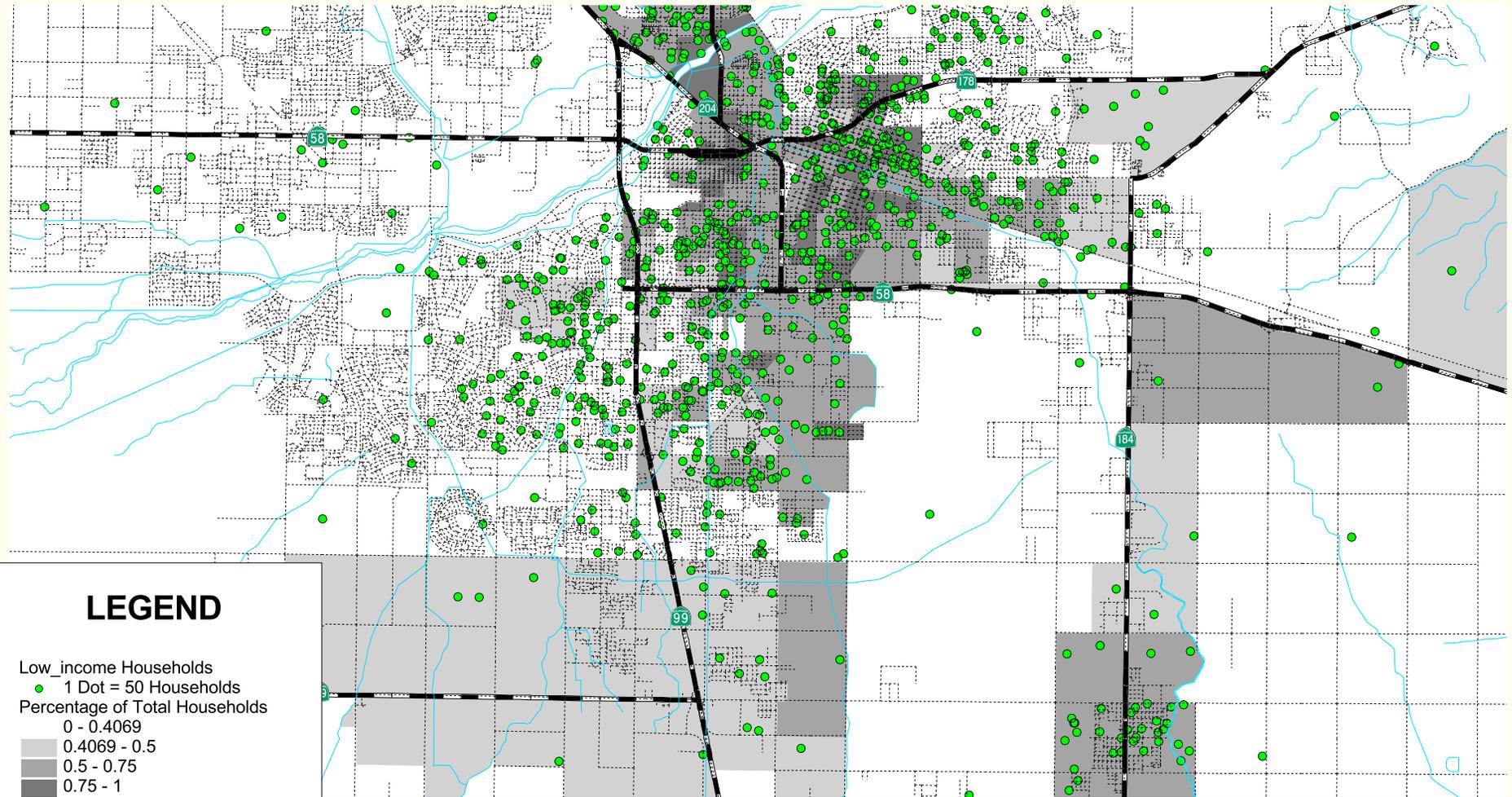
1990 County Average = 8.45%

Source:

Population figures are calculations based upon US Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Low Income Households By Percentage of Total Households



LEGEND

- Low_income Households
● 1 Dot = 50 Households
Percentage of Total Households
0 - 0.4069
0.4069 - 0.5
0.5 - 0.75
0.75 - 1
Water Features

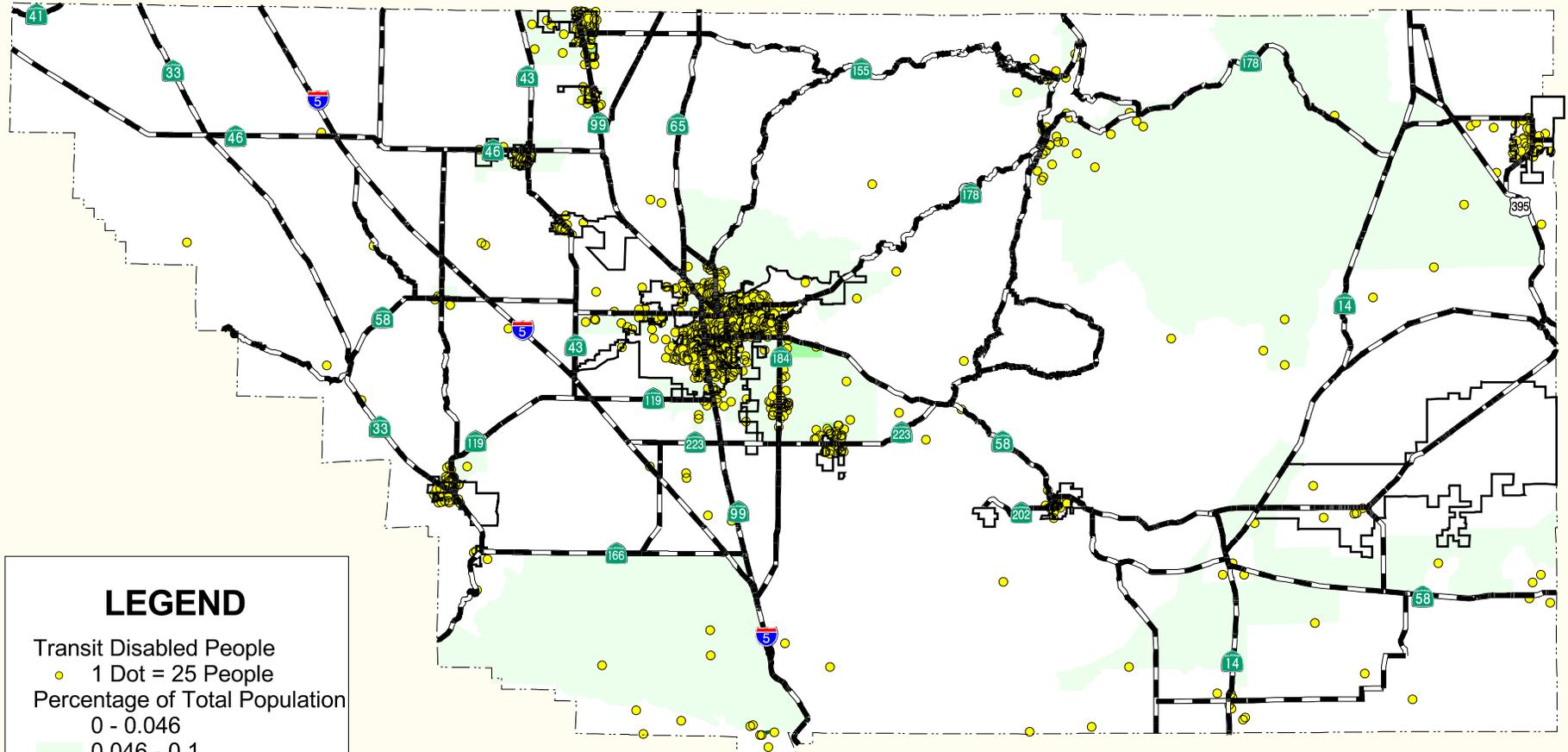
1990 County Average = 40.69%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Transit Disabled Persons By Percentage of Total Population



LEGEND

- Transit Disabled People
 • 1 Dot = 25 People
 Percentage of Total Population
 0 - 0.046
 0.046 - 0.1
 0.1 - 0.15
 0.15 - 0.2
 0.2 - 0.275

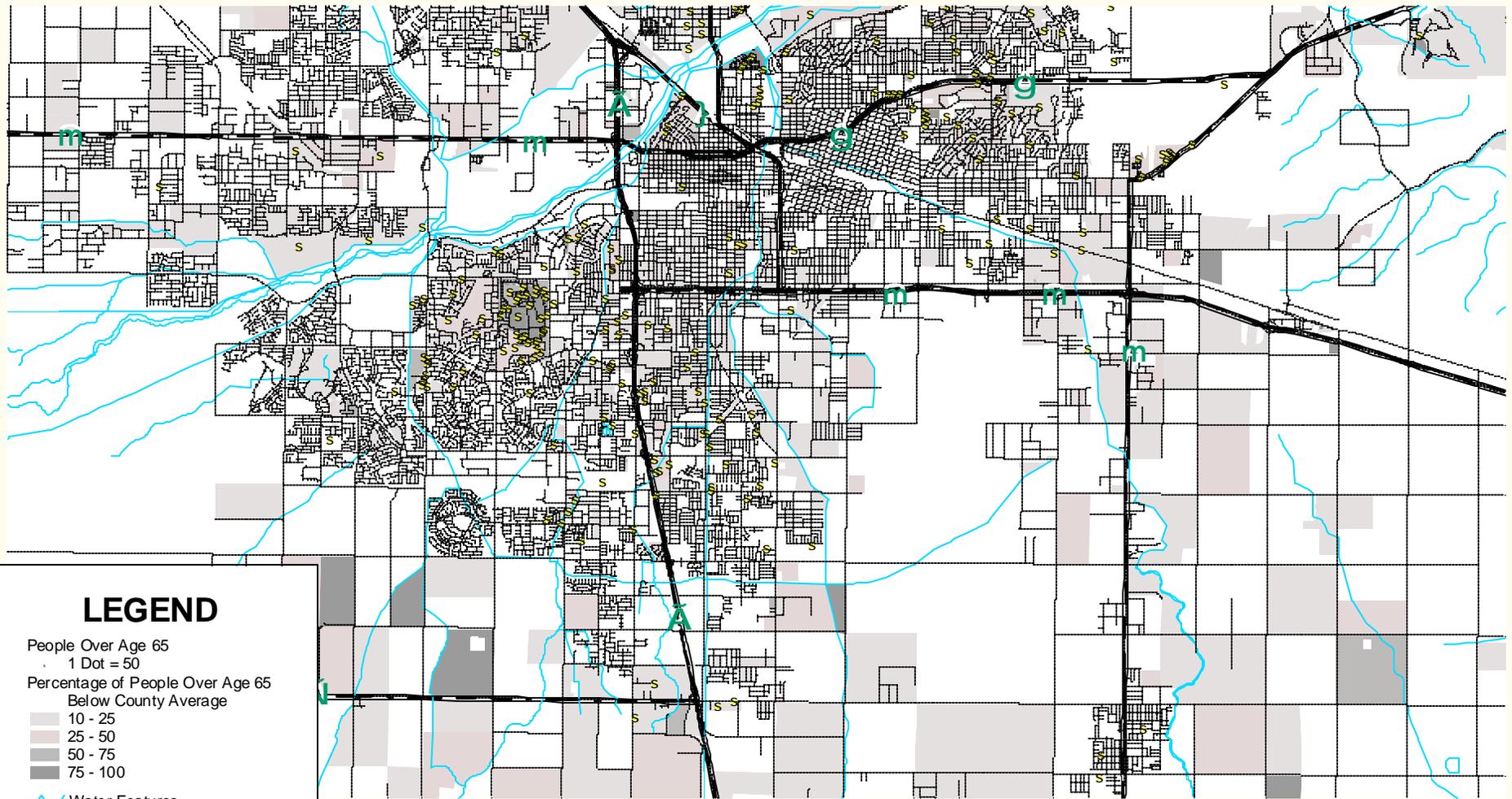
1990 County Average = 4.6%

Source:

Population figures are calculations based upon US
 Census Bureau 2000 SF1 data files at the block level.



Distribution of Persons Over Age 65 By Percentage of Total Population



LEGEND

- People Over Age 65
- 1 Dot = 50
- Percentage of People Over Age 65
- Below County Average
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 100

Water Features

2000 County Average = 9.4%
2000 State Average = 10.6%

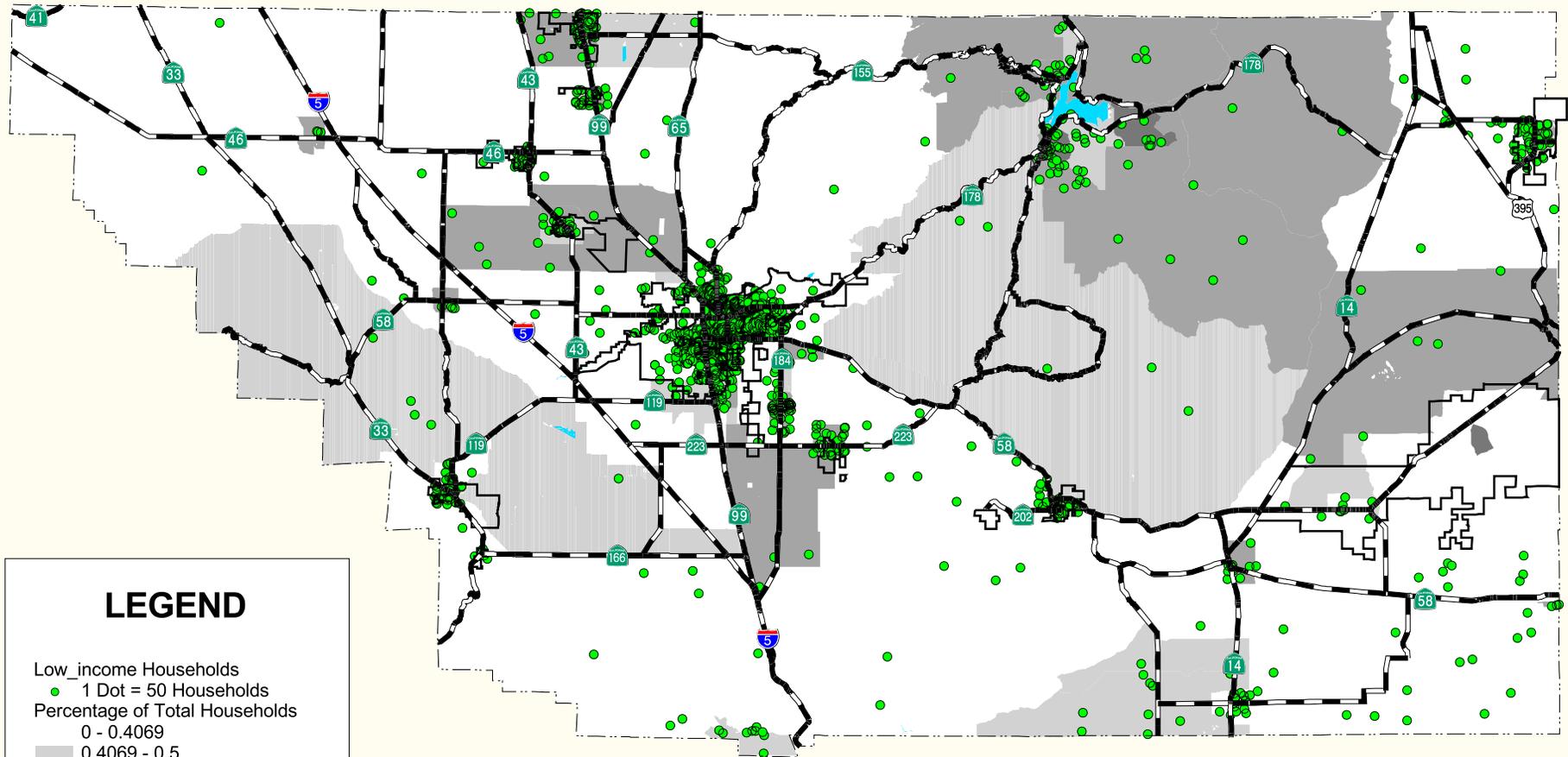
Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



0 1 2 3 4 5 Miles

1990 Distribution of Low Income Households By Percentage of Total Households



LEGEND

Low_income Households
● 1 Dot = 50 Households
Percentage of Total Households

0 - 0.4069
0.4069 - 0.5
0.5 - 0.75
0.75 - 1

1990 County Average = 40.69%

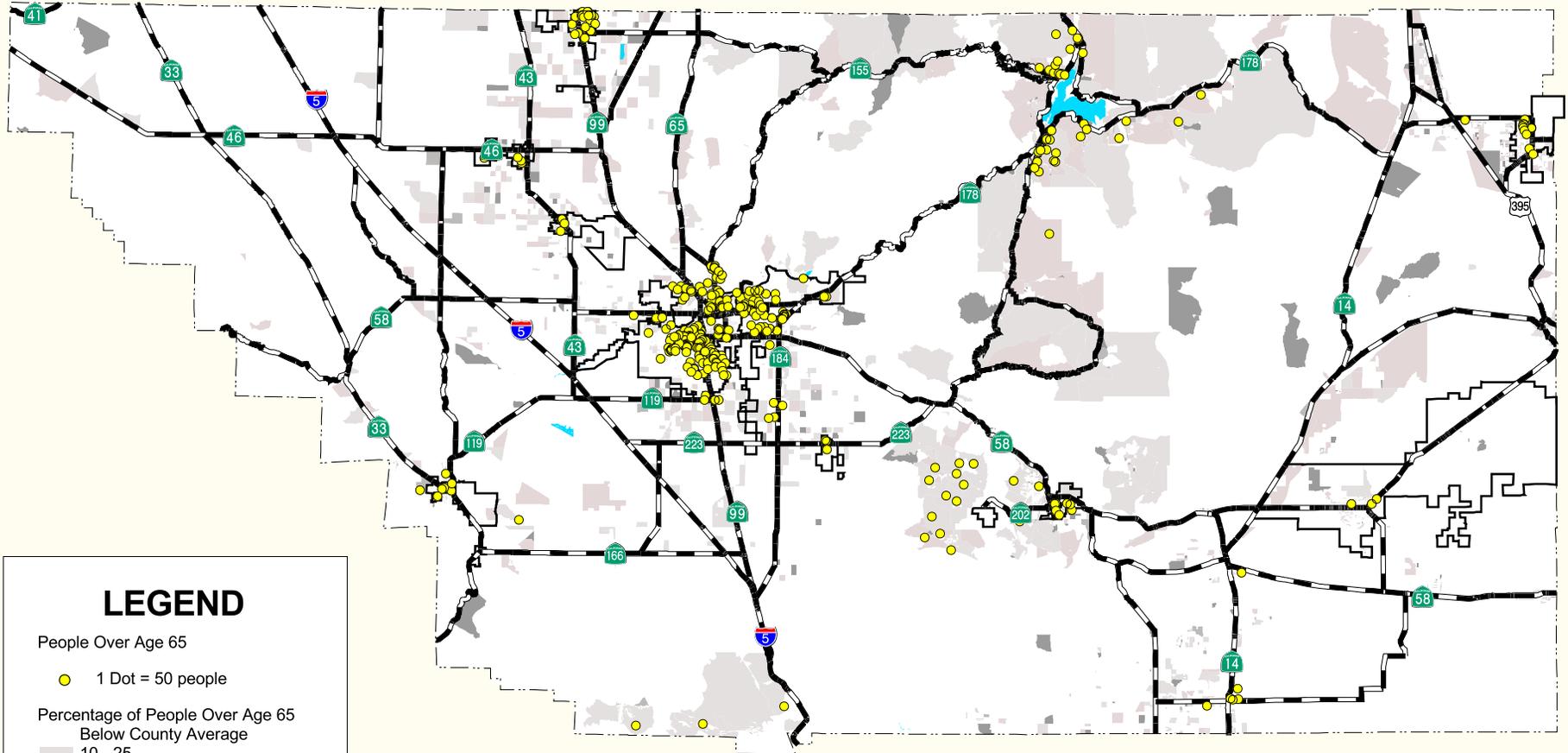
Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



0 10 20 30 40 Miles

Distribution of Persons Over Age 65 By Percentage of Total Population



LEGEND

People Over Age 65

● 1 Dot = 50 people

Percentage of People Over Age 65
Below County Average



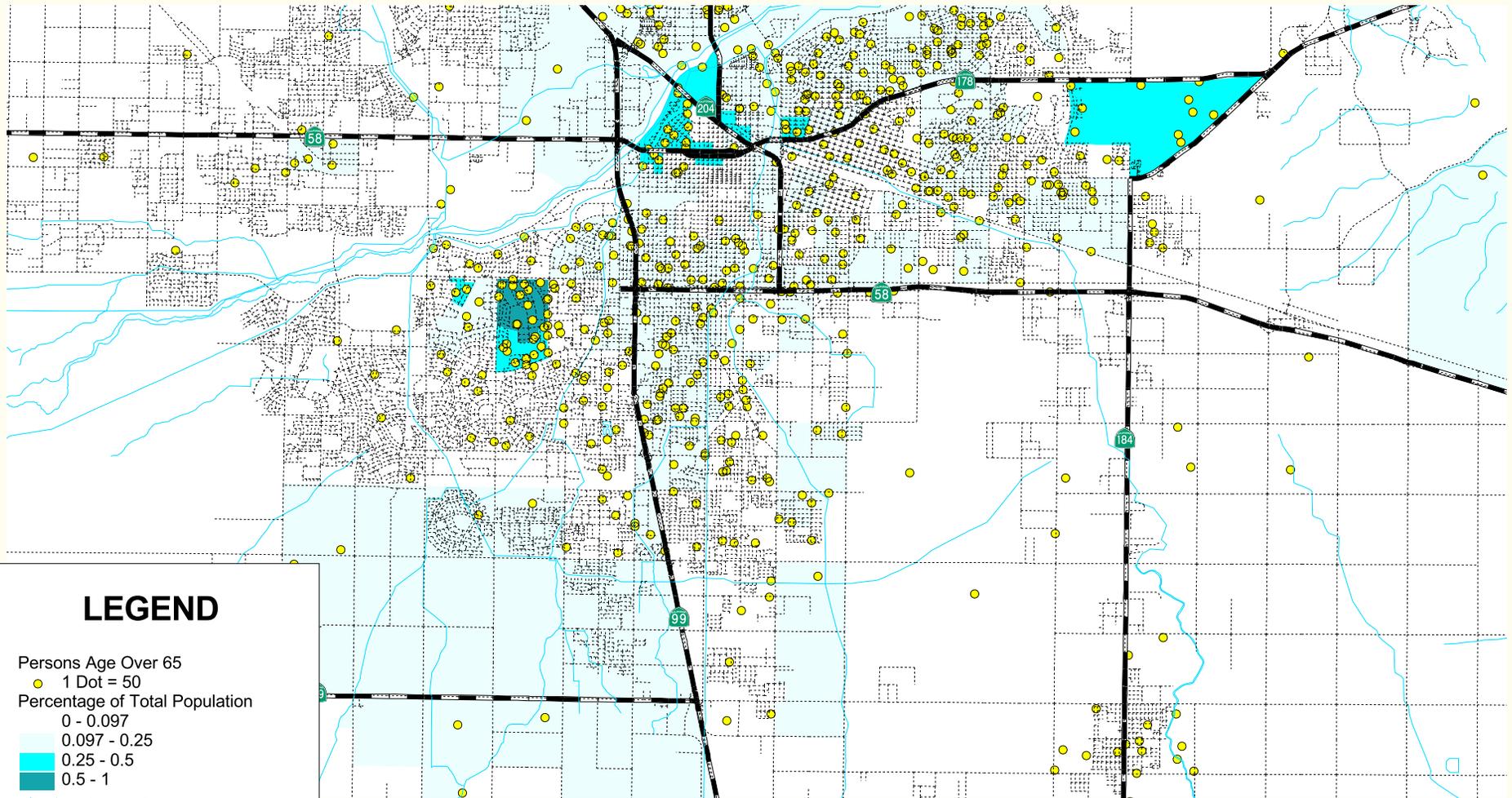
2000 County Average = 9.4%
2000 State Average = 10.6%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Persons Age Over 65 By Percentage of Total Population



LEGEND

Persons Age Over 65

● 1 Dot = 50

Percentage of Total Population

0 - 0.097

0.097 - 0.25

0.25 - 0.5

0.5 - 1

Water Features

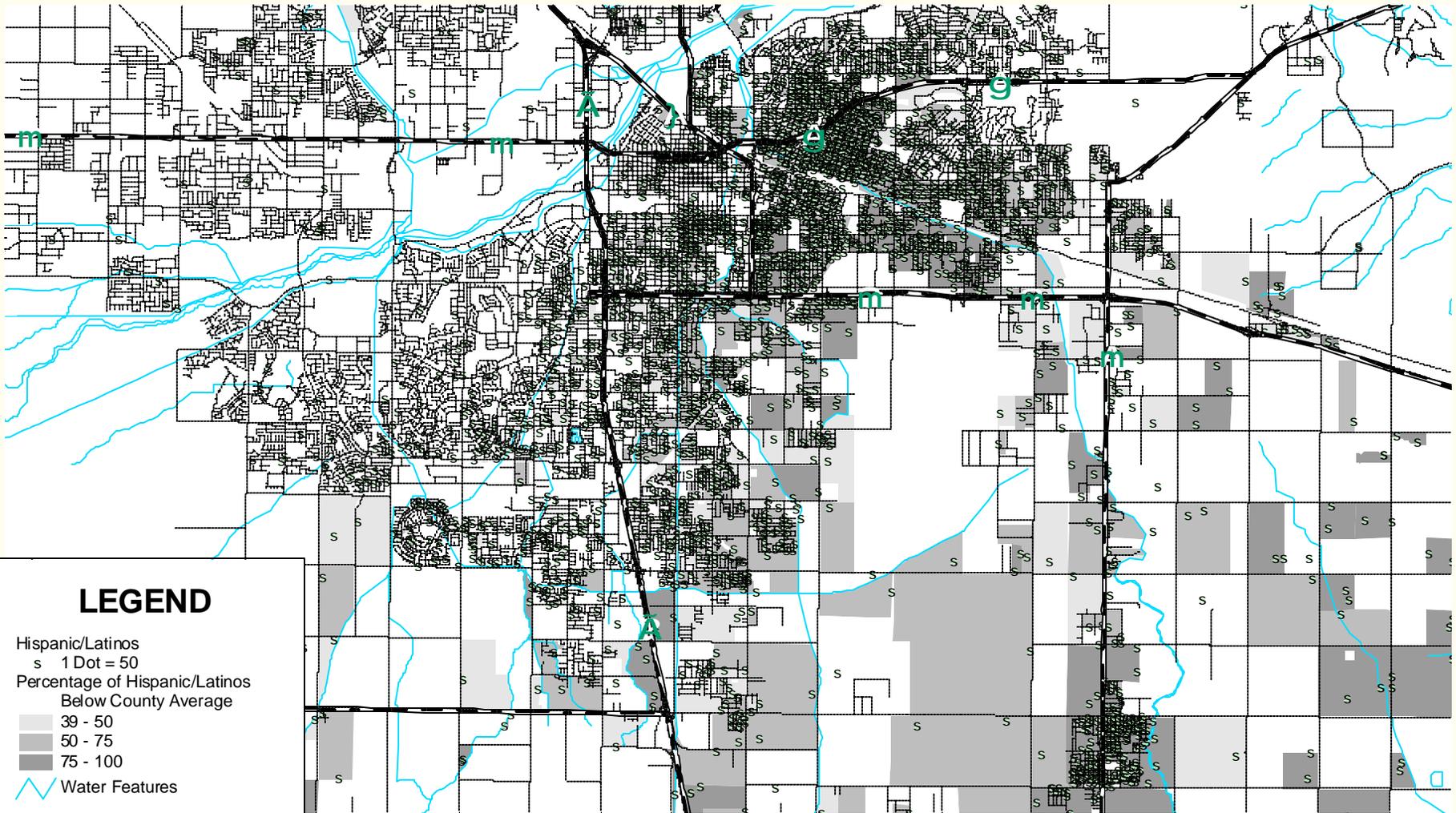
1990 County Average = 9.7%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



Distribution of Hispanic/Latinos By Percentage of Total Population



LEGEND

Hispanic/Latinos
 s 1 Dot = 50
 Percentage of Hispanic/Latinos
 Below County Average

- 39 - 50
- 50 - 75
- 75 - 100

Water Features

2000 County Average = 38.4%
 2000 State Average = 32.4%

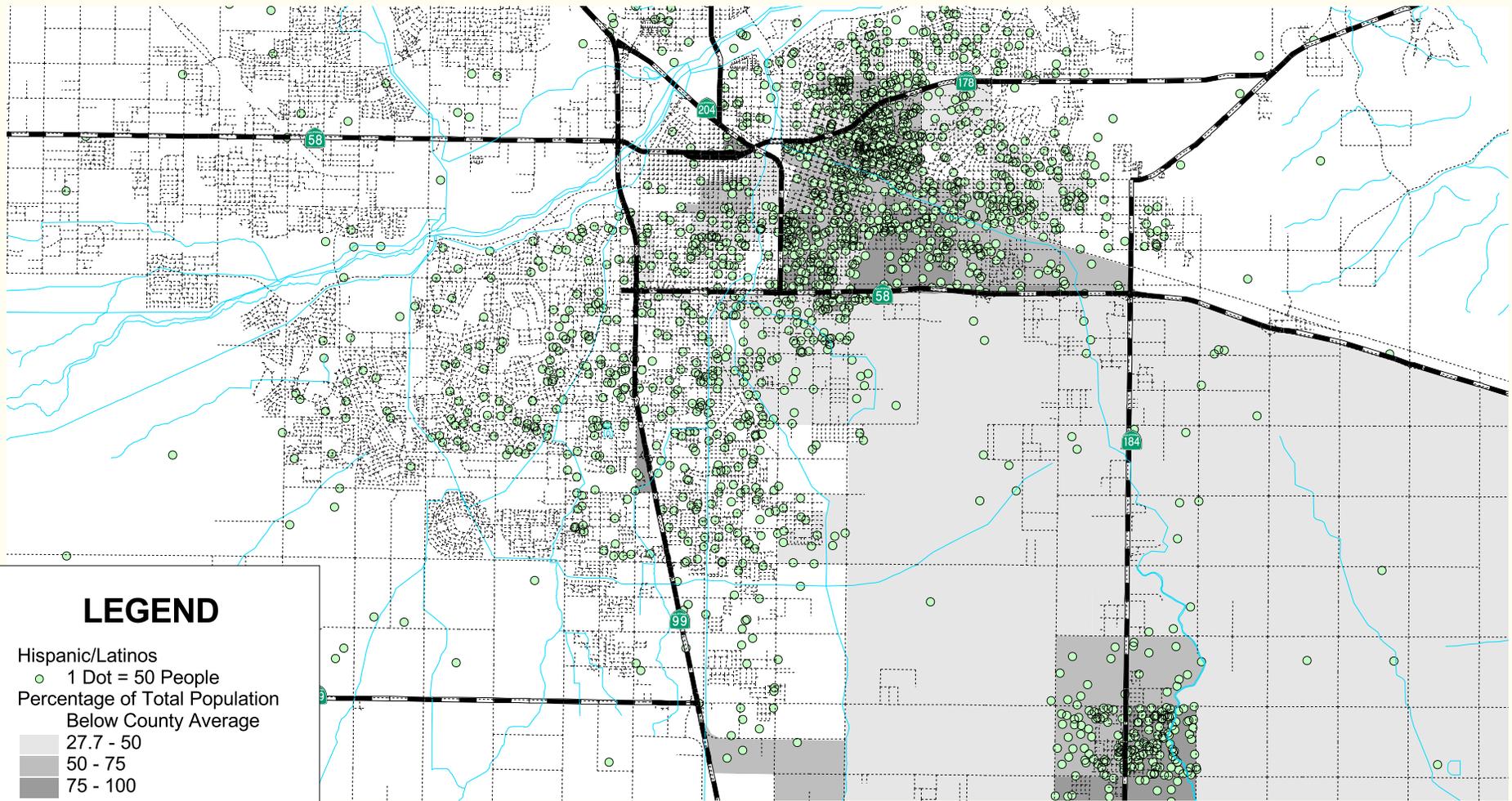
Source:

Population figures are calculations based upon US
 Census Bureau 2000 SF1 data files at the block level.



April 2002

1990 Distribution of Hispanic/Latinos By Percentage of Total Population



LEGEND

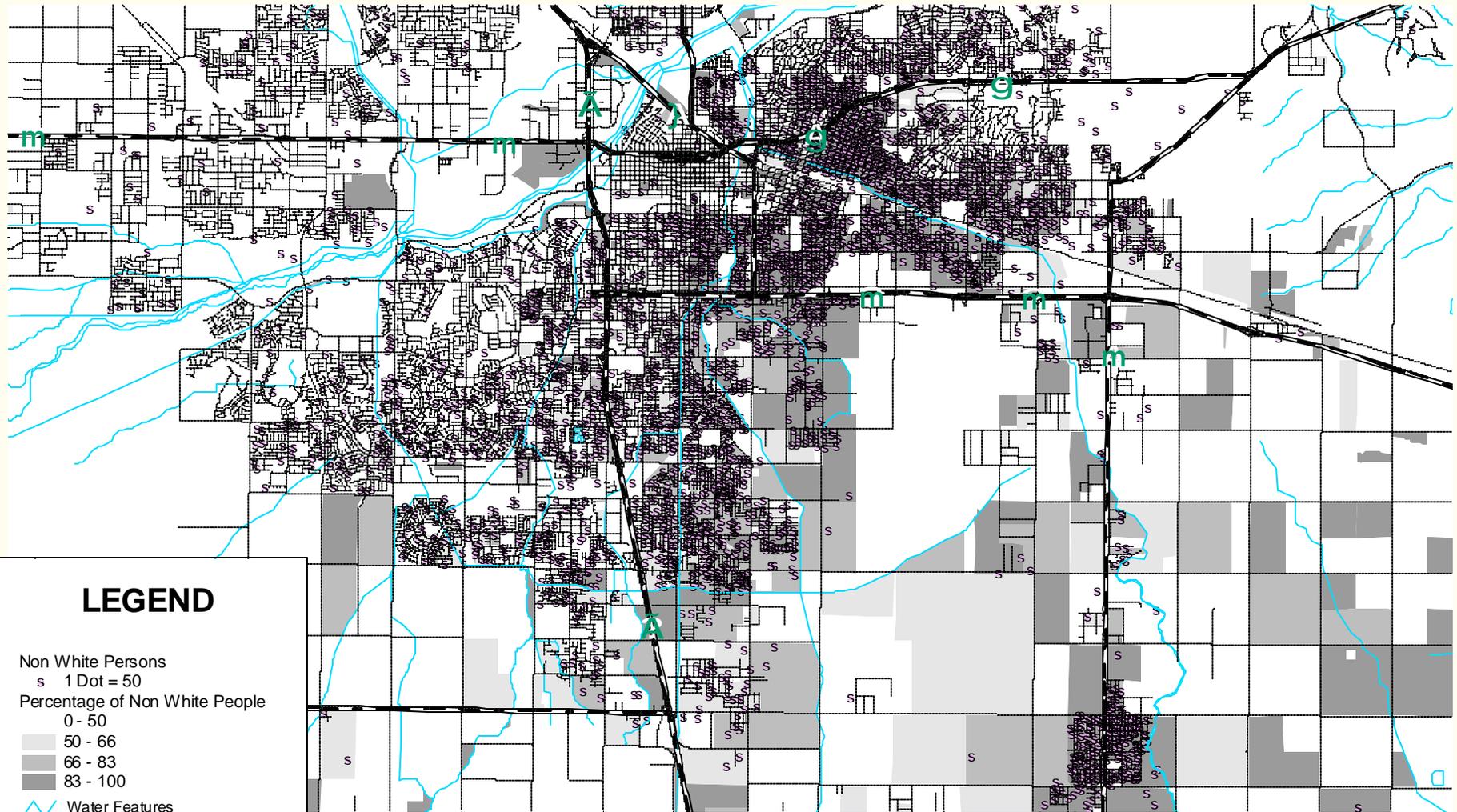
- Hispanic/Latinos
● 1 Dot = 50 People
Percentage of Total Population
Below County Average
- 27.7 - 50
 - 50 - 75
 - 75 - 100
- Water Features

1990 County Average = 27.7%

Source:
Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



Distribution of Non White Persons By Percentage of Total Population



LEGEND

Non White Persons

s 1 Dot = 50

Percentage of Non White People

0 - 50

50 - 66

66 - 83

83 - 100

Water Features

2000 County Average = 50.5%

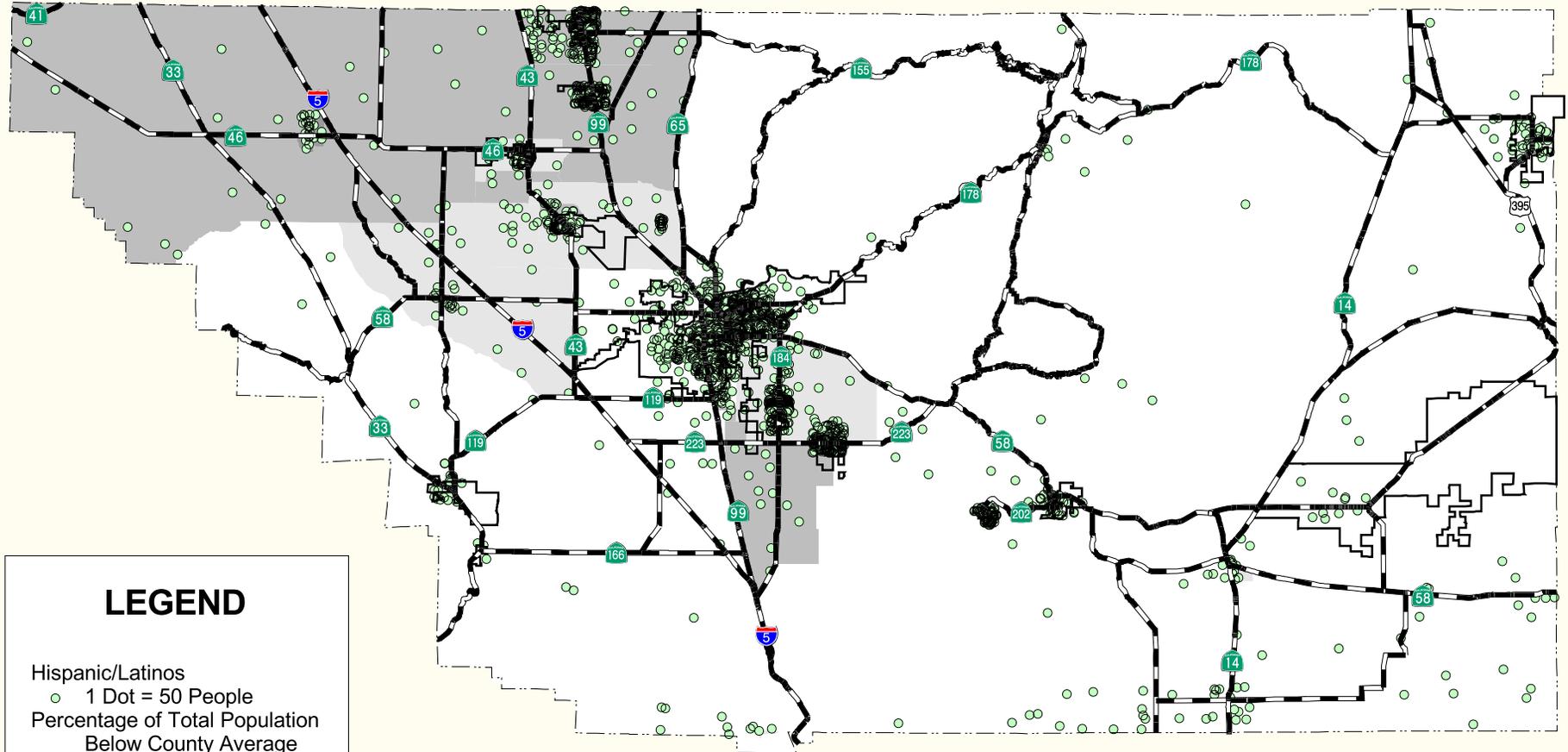
2000 State Average = 53.3%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Hispanic/Latinos By Percentage of Total Population



LEGEND

Hispanic/Latinos

● 1 Dot = 50 People

Percentage of Total Population
Below County Average



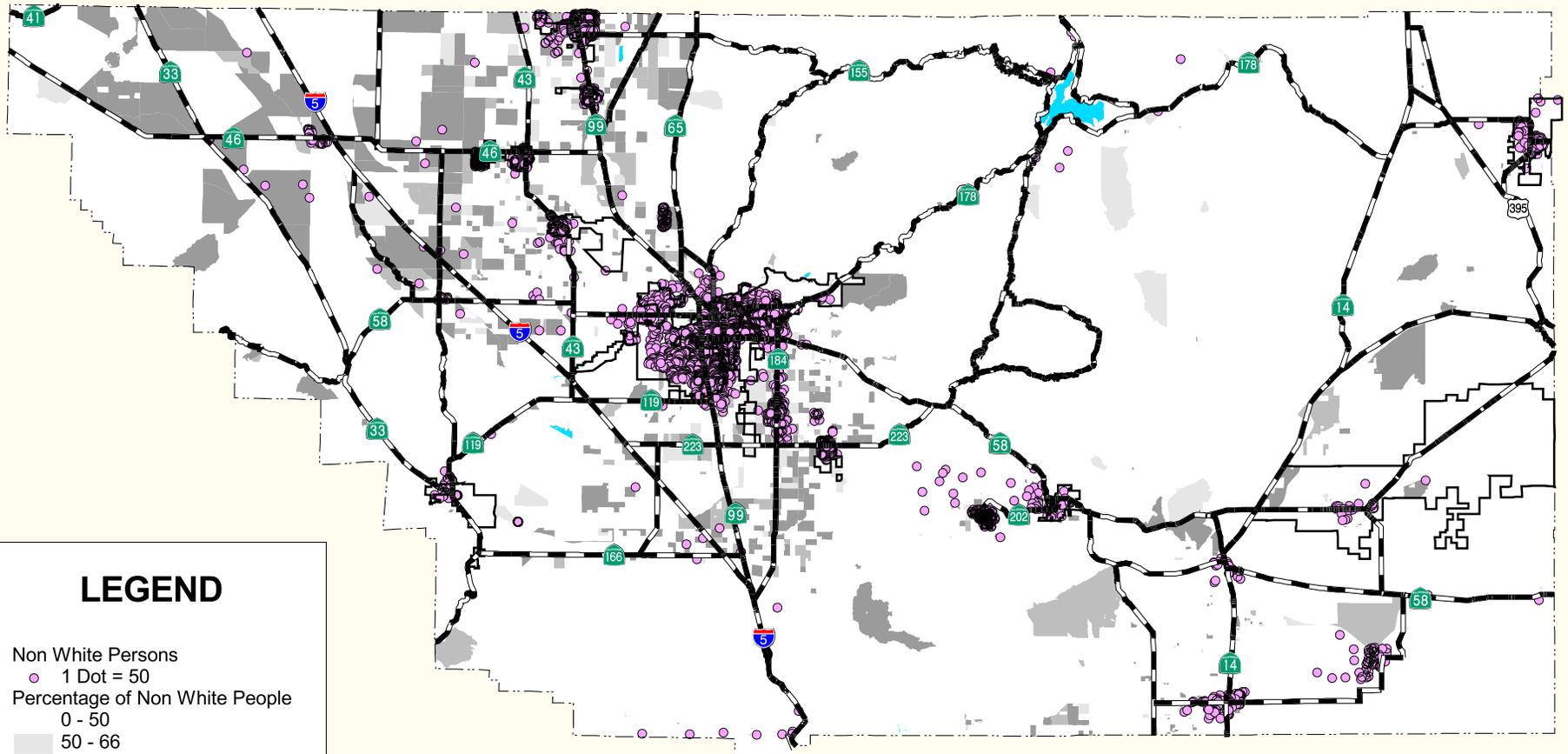
1990 County Average = 27.7%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



Distribution of Non White Persons By Percentage of Total Population



LEGEND

Non White Persons

● 1 Dot = 50

Percentage of Non White People

0 - 50

50 - 66

66 - 83

83 - 100

2000 County Average = 50.5%

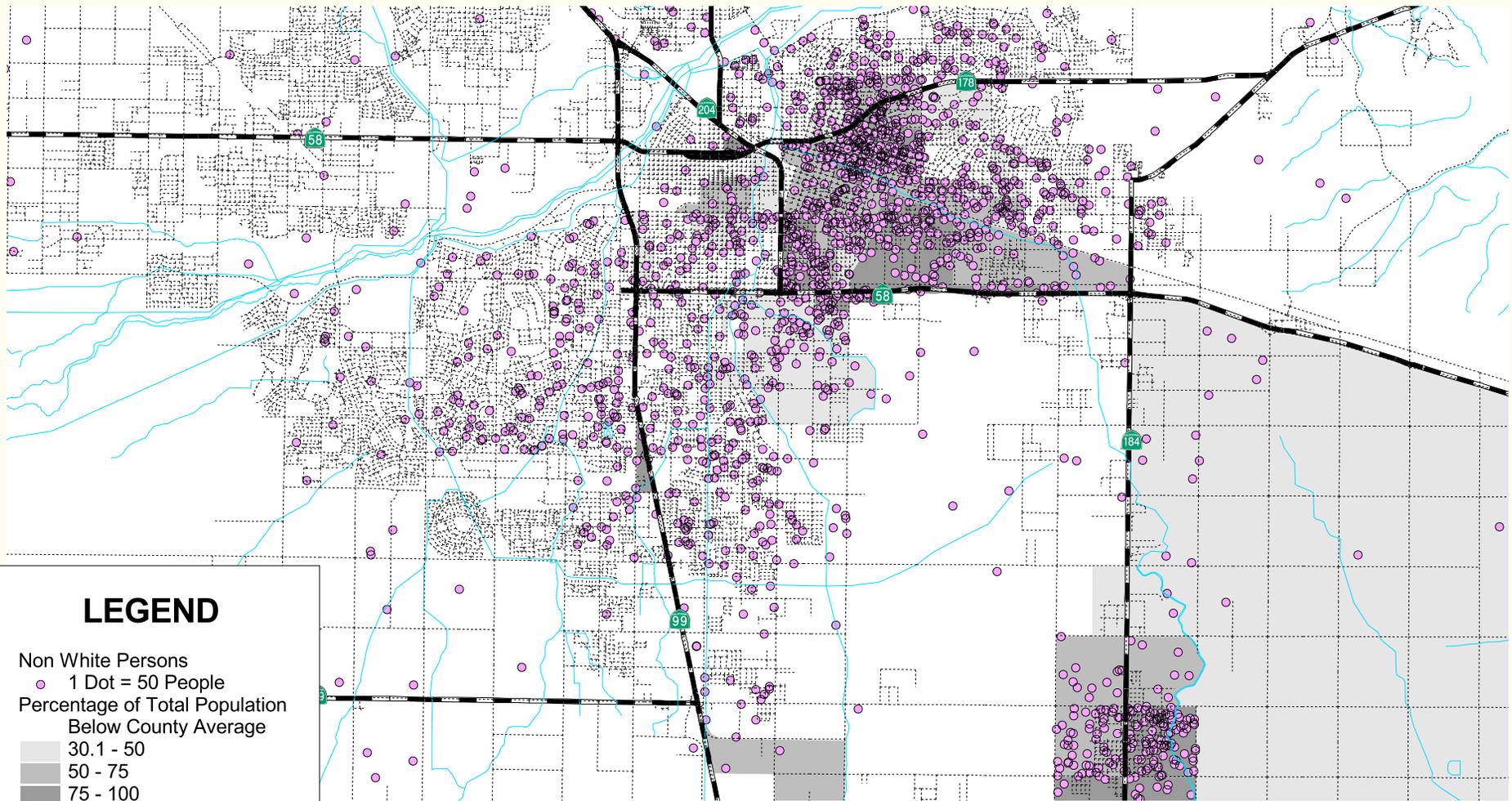
2000 State Average = 53.3%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Non White Persons By Percentage of Total Population



LEGEND

- Non White Persons
● 1 Dot = 50 People
- Percentage of Total Population
Below County Average
- 30.1 - 50
 - 50 - 75
 - 75 - 100
- Water Features

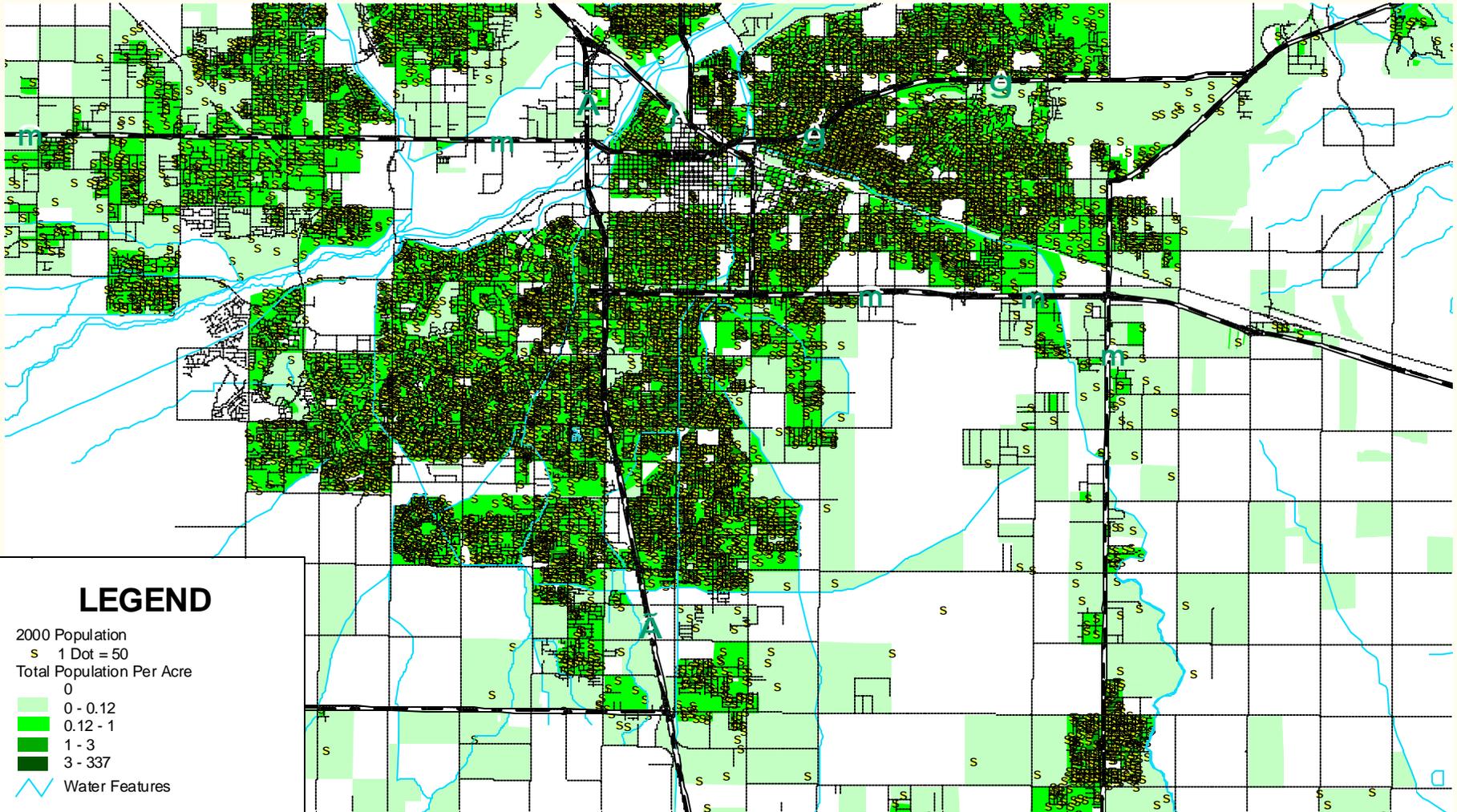
1990 County Average = 30.1%

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



Distribution of Population By Persons per Acre



LEGEND

2000 Population

S 1 Dot = 50

Total Population Per Acre

0

0 - 0.12

0.12 - 1

1 - 3

3 - 337

Water Features

2000 County Average = 0.12

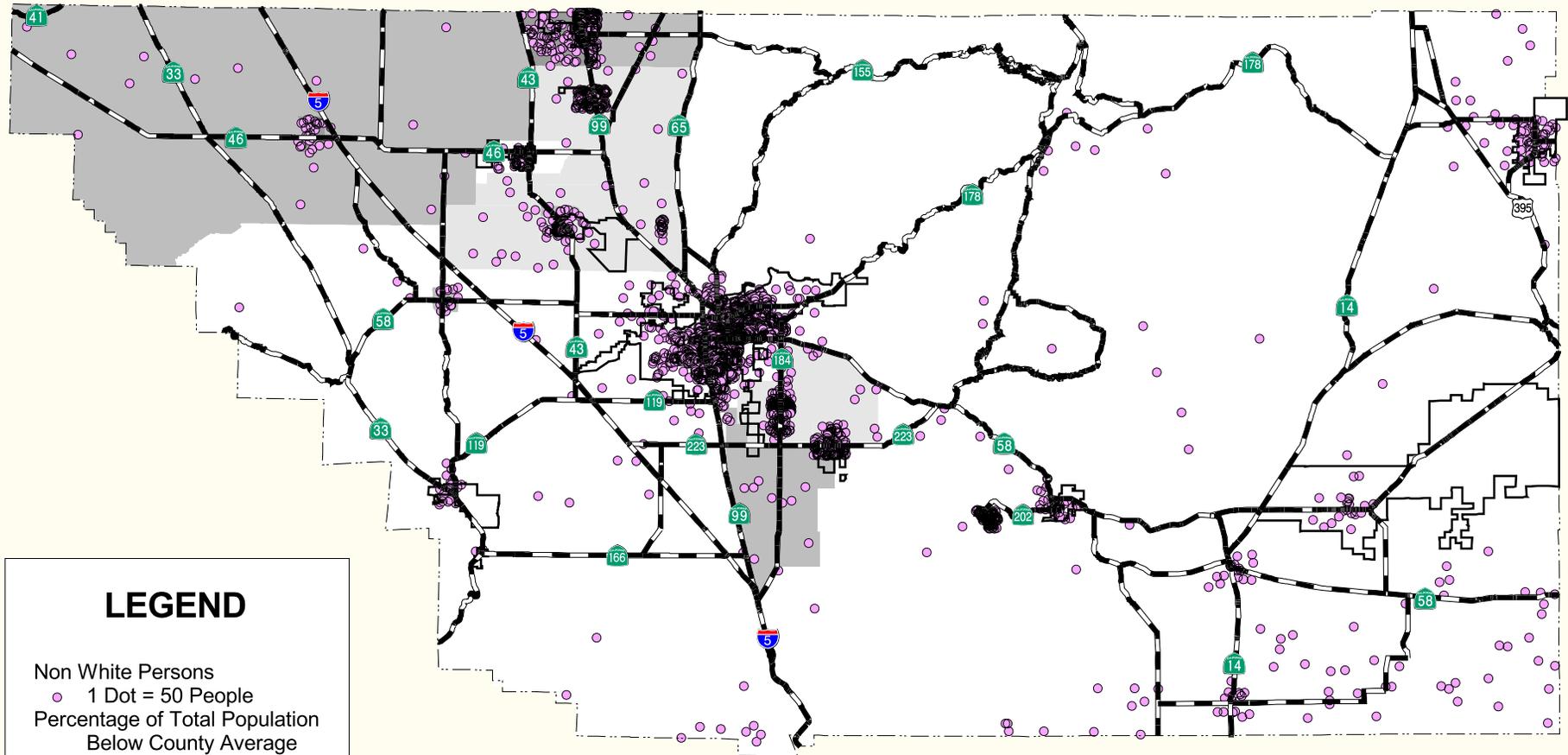
2000 State Average = 0.34

Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



1990 Distribution of Non White Persons By Percentage of Total Population



LEGEND

- Non White Persons
● 1 Dot = 50 People
- Percentage of Total Population
Below County Average
- 30.1 - 50
 - 50 - 75
 - 75 - 100

1990 County Average = 30.1%

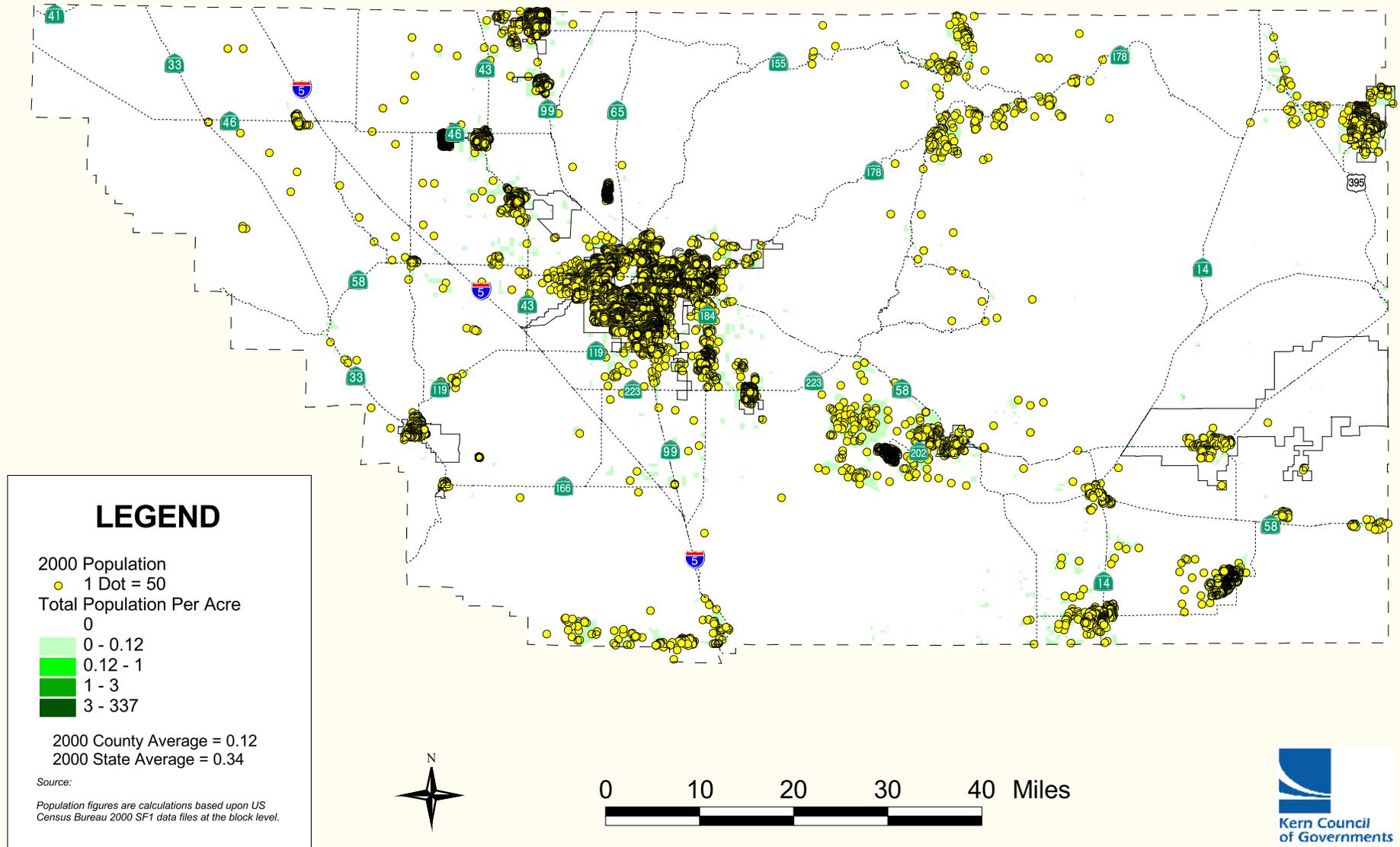
Source:

Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.

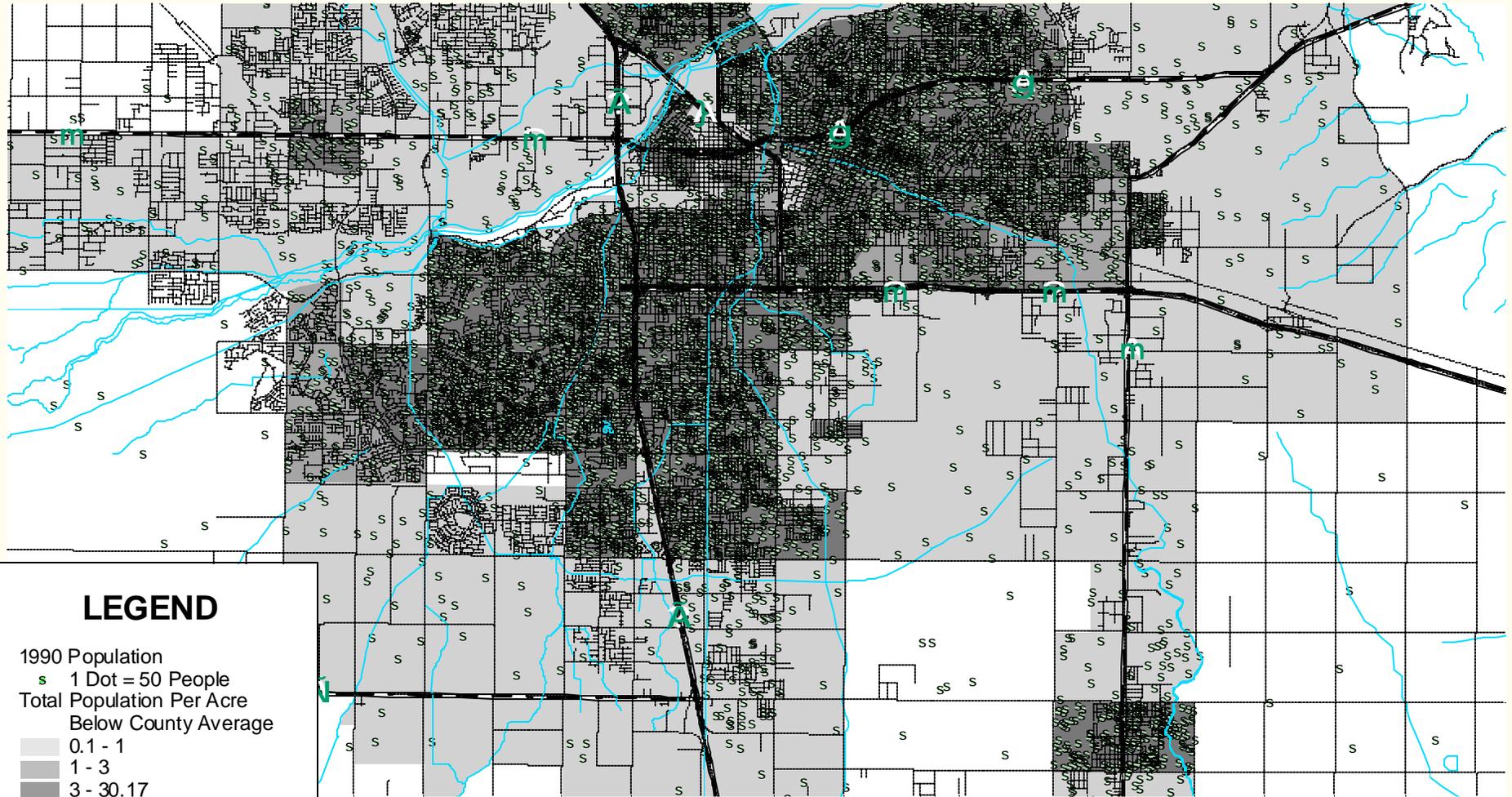


0 10 20 30 40 Miles

Distribution of Population By Persons per Acre



1990 Distribution of Population By Persons per Acre



LEGEND

1990 Population

s 1 Dot = 50 People

Total Population Per Acre
Below County Average

0.1 - 1
1 - 3
3 - 30.17

Water Features

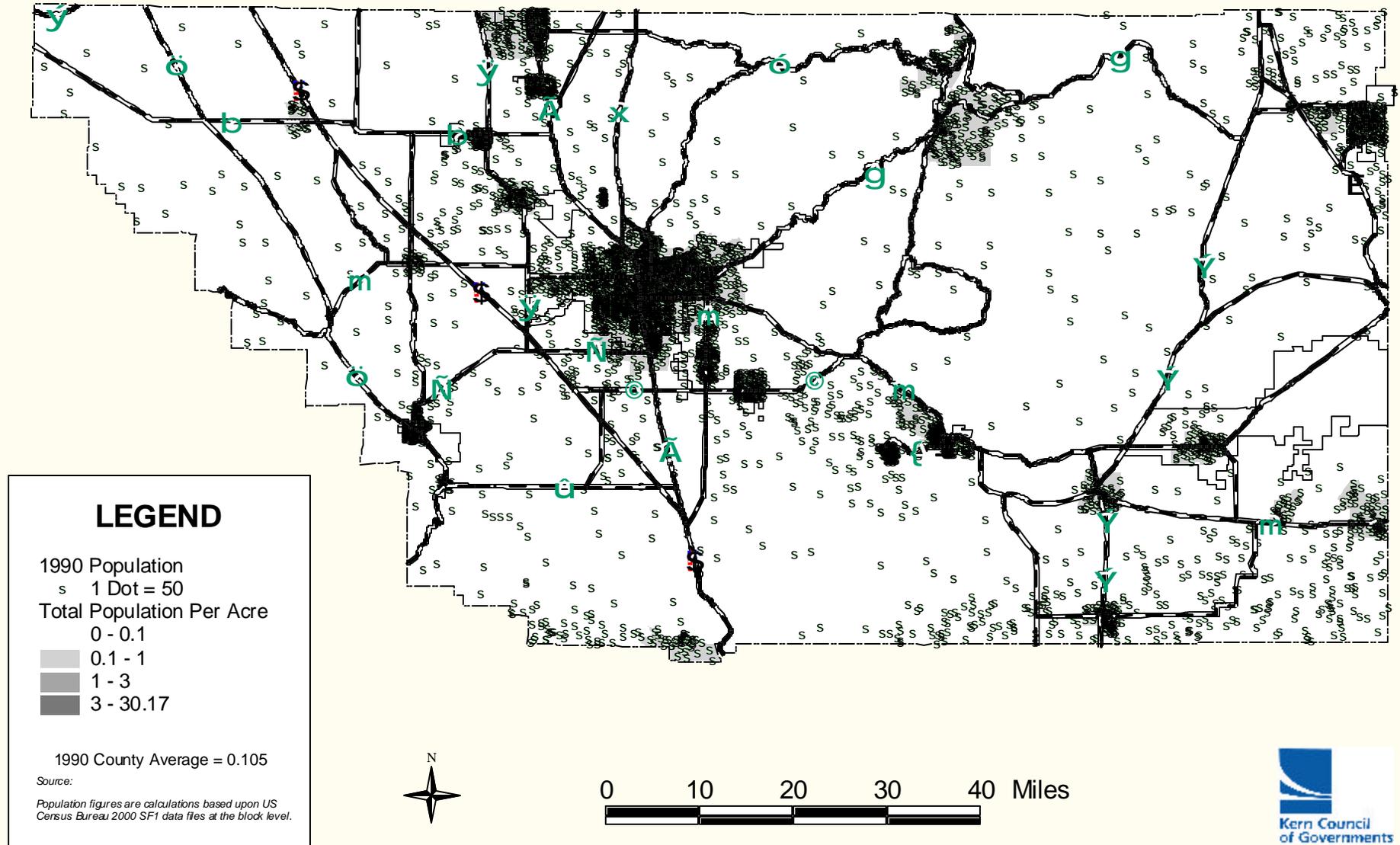
1990 County Average = 0.105

Source:

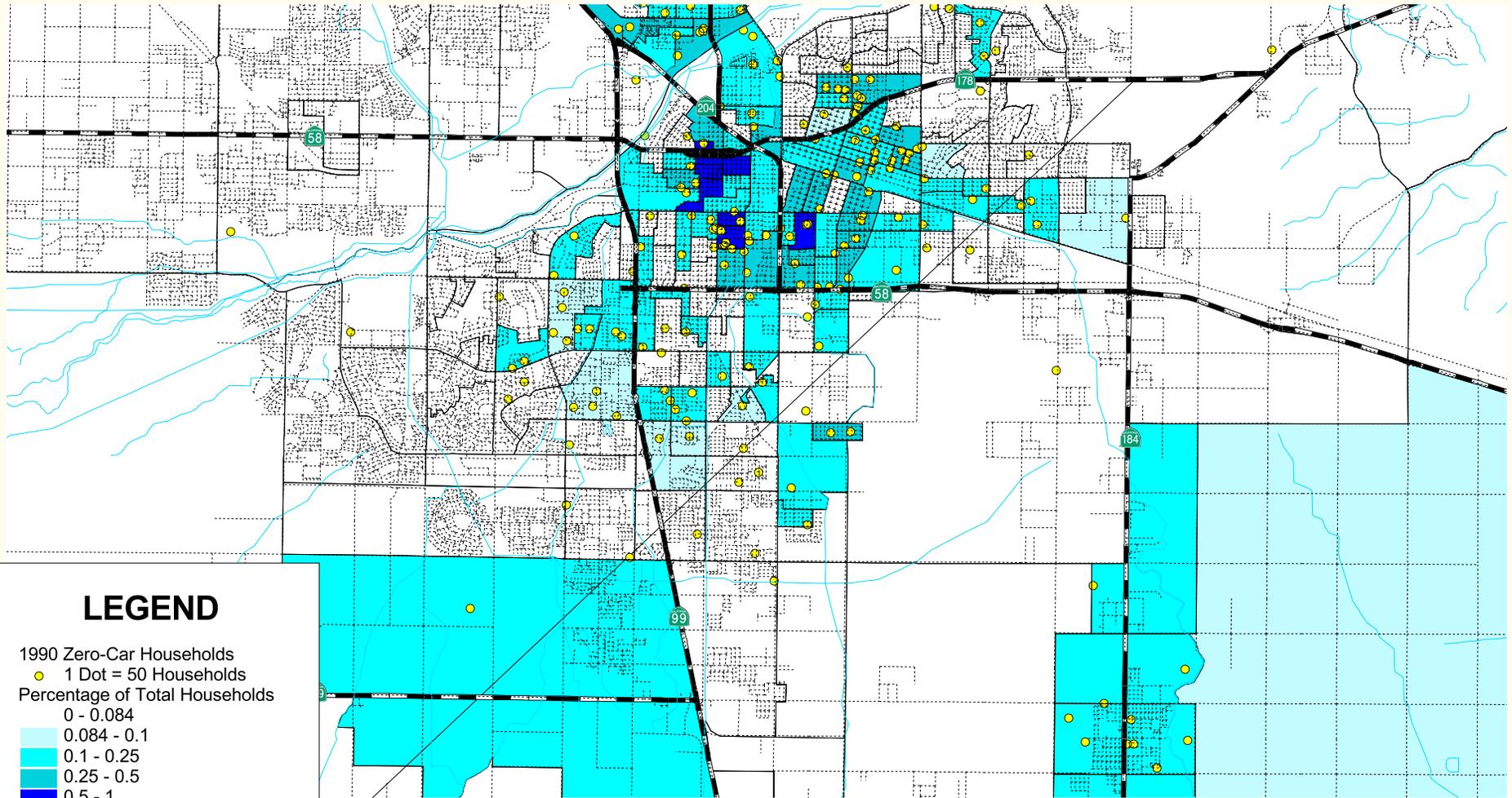
Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



Distribution of Population By Persons per Acre



1990 Distribution of Zero-Car Households By Percentage of Total Households



LEGEND

- 1990 Zero-Car Households
- 1 Dot = 50 Households
- Percentage of Total Households
- 0 - 0.084
- 0.084 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1

Water Features

1990 County Average = 8.45%

Source:
Population figures are calculations based upon US
Census Bureau 2000 SF1 data files at the block level.



Appendix A

Maps of Environmental Justice Transportation Analysis Zones