

# **NJTPA Environmental Justice Regional Analysis Proportional Distribution of Benefits of Transportation Projects in the NJTPA Region**

## **Executive Summary**

The NJTPA Environmental Justice Regional Analysis is a multi-phased study intended to assess how well environmental justice populations are served by the current transportation system. In this report, the North Jersey Transportation Planning Authority (NJTPA) presents the second phase of the Environmental Justice Regional Analysis. This phase of the NJTPA Environmental Justice Regional Analysis is intended to determine if there has been a proportional distribution of transportation investments in identified environmental justice (EJ) communities when compared with the remainder of the region.

The first phase of the NJTPA Environmental Justice Regional Analysis, *Baseline and Time Series Data*, evaluated population trends and geographic locations of environmental justice (EJ) populations in the NJTPA region, and conducted statistical and geographic analyses to identify the travel characteristics of these populations. The EJ communities included in *Baseline and Time Series Data* consisted of minority, low-income, elderly, and disabled persons (hereafter referred to as EJ populations). As shown in Table 1, the EJ populations, especially the minority population, comprised a substantial portion of the NJTPA region's total 2000 population, concentrated particularly in the older core counties.

The scope of the second phase of the EJ Regional Analysis is intended to:

1. Identify the highway and bridge investments that are in the Regional Transportation Plan, including recent past and current TIPs and the current PDWP, and ascertain what areas and populations will benefit from them.
2. Compare the benefits of projects to EJ and non-EJ populations.
3. Identify any segments of the EJ populations that are disproportionately underserved by highway and bridge investments, and recommend policies to mitigate any disproportionality.

The study evaluated projects at two stages of development: the Transportation Improvement Program (TIP) and Study and Development. Projects in the TIP are far enough along in their planning to justify the scheduling of funding. This means that they can be authorized to proceed with detailed engineering and design, right-of-way acquisition, and construction.

Projects in Study and Development are in earlier phases of planning, including concept development, feasibility assessment, and preliminary design. At the NJTPA, Study and Development projects are included in the Project Development Work Program (PDWP), as are Local Scoping projects. PDWP projects are recommended by the NJTPA through its planning

process, and then handed off for development to the implementing agencies, the New Jersey Department of Transportation (NJDOT) and NJ Transit. Local Scoping projects are developed by county engineering and planning agencies. The Local Scoping program is funded and administered by the NJTPA.

NJ Transit projects were not assessed in this study. They will be the subject of future EJ analyses.

### ***Distribution of EJ Populations***

As noted above, the second phase of the NJTPA Environmental Justice Regional Analysis builds upon the first phase, *Baseline and Time Series Data*, which was completed in February, 2004. That report identified the sizes and locations of EJ populations, which are summarized on Table 1. Table 1 shows the distribution of EJ populations by county in the NJTPA in the 2000 US Census.

The emphasis of the second phase of the NJTPA Environmental Justice Regional Analysis is geographic in nature, juxtaposing EJ populations with transportation projects. Much of it was based upon work conducted for the Strategy Evaluation (SE) study completed in 2003.<sup>1</sup> The SE study divided the region into 158 districts that were used to identify the distribution of transportation needs throughout the region, and to determine the benefits of various strategies for meeting those needs.

In the present study, the EJ population distributions that were identified in the *Baseline and Time Series Data* report were overlaid upon the SE Districts so that estimates could be made of the transportation needs of EJ and non-EJ populations. In the *Baseline and Time Series Data* report, 2000 US Census block groups were identified as EJ communities if they fell within the following thresholds:

- If the 2000 minority population of a block group was 35.7 or more percent of the population (the regional average), it was considered to be a minority community.
- Low-income communities were identified based upon research conducted for the *NJTPA Regional Job Access & Reverse Commute Transportation Plan (JARC)* of October 1999. Communities were considered to be low-income if 20 percent or more of their population was in poverty according to the 2000 Census.<sup>2</sup>
- If the 2000 elderly population of a block group was 13.3 percent or more of the total population (the regional average), it was considered to be an area of elderly population concentration.
- If the 2000 mobility impaired population of a block group was 7 percent or more of the total population (the regional average), it was considered to be an area of mobility impaired population concentration.

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<sup>1</sup> See *North Jersey Strategy Evaluation Summary Report*, May 2003.

<sup>2</sup> In 2000 the national poverty threshold for a family of four was an annual income of \$17,603.

Elderly and disabled populations are distributed uniformly throughout the region, and do not lend themselves to a geographic analysis of SE Districts.<sup>3</sup> These populations can be addressed only in connection with broader study conclusions. Therefore, throughout this study the term “EJ communities” refers to minority communities and/or high poverty areas, as defined above.

A map of the minority communities and high poverty areas was overlaid on a map showing the SE District boundaries. If an EJ block group fell within an SE district, that SE district was considered to include an EJ community. Of the 158 SE Districts, 123 (77.8% of the total) include at least one EJ community. These 123 Districts are referred to as EJ Districts. The distribution of EJ Districts is shown on Figure 1.

The study was divided into four parts, as follows:

- **Part 1** evaluated Congestion Management System (CMS) projects, which are intended to specifically address problems associated with traffic congestion through improving traffic flow and expanding traffic capacity.
- **Part 2** evaluated projects that are not in the CMS category. Generally, these include roadway maintenance projects such as pavement restoration or drainage improvements, minor operational improvements such as signalization and roadway channelization, and projects that address other needs such as bicycle-pedestrian traffic, freight movement, and intelligent transportation systems (ITS).
- **Part 3** evaluated bridge repair (maintenance and reconstruction) projects.
- **Part 4** drew conclusions from the first three analyses.

## **Part 1: Congestion Management System Projects**

Congestion Management System (CMS) projects include those that are intended to address a traffic congestion problem. The CMS is structured on a data base that includes information about traffic volumes and measures of congestion, such as volume/capacity (V/C) ratios, recorded at many locations on major roadways throughout the NJTPA region. This data base was at the heart of the Strategy Evaluation (SE) study.

The SE study identified quantitative transportation needs based on statistical data derived from running the North Jersey Regional Transportation Model (NJRTM). Needs were grouped into eight categories, three of which were used in Phase 2 of the NJTPA Environmental Justice Regional Analysis:

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<sup>3</sup> The chances are good that any district in the region will contain areas with a high percentage of elderly or disabled people: 93% of all districts included a large elderly population, and 87% included a large disabled population, as defined in the *Baseline and Time Series Data* report.

- **Accessibility**, which considers the total number of jobs that can be reached by driving 40 minutes from any district, and the size of the labor force accessible from each district.
- **Highway Mobility**, which includes measures of traffic delay and congestion.
- **Transit Mobility**, which measures the percent of employment that can be reached by transit, the availability of one-seat rides, and crowding. Transit mobility is considered in studying highways and bridges because of the importance of bus transit to regional mobility.

Transportation needs were generally higher for EJ populations than for non-EJ populations. Specifically, the needs of minority districts were higher than those of non-minority districts in the categories of Accessibility and Transit Mobility, and the needs of high poverty districts were higher than those of non-high-poverty districts in Accessibility, Highway Mobility, and Transit Mobility. This can be expected because minority and high-poverty areas tend to be located in the older, more highly-congested areas of the region.

The Strategy Evaluation Study identified 24 ways to address regional transportation needs. Examples include New Bus Service (Strategy 8), Sidewalks/Pedestrian Improvements (Strategy 16), Minor Roadway Capacity (Strategy 22), and Major New Roadway Facilities (Strategy 24). Each strategy was modeled in the NJRTM to estimate the benefits that would accrue to each area of the region if the strategy were employed there.

Strategies are associated only with CMS projects, which are a small portion of those in the PDWP and TIP. The benefits of each CMS project to EJ and non-EJ Districts were estimated using the data from the SE study. Figure 2 shows the geographic distribution of the EJ communities, the CMS projects evaluated in this analysis, and the districts with the highest needs, as calculated in the Strategy Evaluation study.

There were no significant differences between the benefits of CMS projects and the distribution of EJ Districts. The nine TIP CMS projects studied benefited 7 EJ Districts and 2 non-EJ Districts. The 17 PDWP projects benefited 19 EJ Districts and 9 non-EJ Districts (benefits of CMS projects can affect more than one SE District). Thus, of the total 37 SE Districts receiving benefits from CMS projects, 26 were EJ Districts and 11 were non-EJ Districts. Therefore, over 70% of the SE districts receiving benefits from CMS projects were EJ Districts. This compares proportionally with the 78% of all SE Districts that were EJ Districts.

## **Part 2: Non-Congestion Management System Projects**

Many projects are not specifically intended to deal with traffic capacity problems. These are called “non-CMS projects”. The Congestion Management System does not produce the needs that generate these projects. Rather, they are generated by problems with pavement conditions, drainage, safety, traffic signals, lane conflicts, and so forth. While there may be limited traffic capacity changes resulting from these projects, that is not their main intent.

A different framework was used to analyze the non-CMS projects, which are far more numerous than the CMS projects discussed in Part 1. For TIP data, funding levels served as an indicator of project benefits. Funding information was not available for PDWP and Local Scoping projects. For them, the location of the project was the only comparative information that could be used.

TIP funding of 241 non-CMS projects for FY 2003-2005 was summed for the SE districts. This provided a basis for comparison of benefits of the projects among districts. The measure for comparison was whether or not there was any funded project in a district, and, if so, whether or not that district fell above or below the median level of funding for all districts. This provided a reasonable measure for comparison of districts. Figure 3 is a map illustrating the locations of districts with no TIP funding, overlaid on the EJ Districts.

The distribution of Districts receiving no TIP funding was approximately 20% of both EJ Districts and non-EJ Districts. Further analysis showed, however, that non-EJ districts received somewhat less funding benefit from recent TIPs than EJ Districts. Among the 98 EJ Districts that received TIP funding for non-CMS projects, nearly 78% exceeded the regional funding level median; among non-EJ districts, this percentage was only 16%, out of 31 non-EJ Districts receiving a funding benefit.

The weight of TIP funding was therefore balanced somewhat in favor of the EJ areas. This result is not surprising, because EJ populations are generally located in areas with higher population densities and older transportation infrastructures. Moreover, the very large projects tend to be located in EJ areas. Hence, one would expect TIP funding to be higher in EJ areas. However, a quantitative comparison of transportation infrastructure needs (not *CMS needs*, which were covered in Part 1) versus funding levels among these districts was beyond the scope of this study.

Funding data is not available for PDWP and Local Scoping projects, so only the number, but not the magnitude, of projects were compared. Project location was therefore used as the measure of comparability among types of EJ districts. There were 152 PDWP projects and 57 Local Scoping projects included in this study. FY 2005 PDWP and Local Scoping projects were overlaid on SE districts, and the number of projects in each district were counted. Figure 4 is a map illustrating the locations of districts with no PDWP or Local Scoping projects, overlaid on the EJ Districts.

The differences between distributions of PDWP or Local Scoping projects and EJ districts were not statistically significant. The 209 PDWP and Local Scoping projects spanned 416 SE Districts. Of these SE Districts, 19% were in non-EJ Districts and 81% were EJ Districts, compared with a regional distribution of 78% EJ Districts out of the total 158 SE Districts.

### **Part 3: Bridge Repair Projects**

Northern New Jersey includes around 7,000 bridges on state, and local roadways. Detailed data on structural condition and functionality are available for 5,292 of these bridges from the NJDOT's Bridge Management System (BMS) data base. The information from the BMS used in this study was current as of 2003.

The BMS classifies bridges according to a statistic called the “sufficiency rating” (SR). The SR considers the structural condition of the bridge plus its functionality, i.e., its ability to handle traffic in accordance with up-to-date standards. The SR is therefore a good indicator of need. Generally, bridges with SR above 60 are considered sound, while bridges with SR below 20 are considered to be badly in need of repair. Bridge SR is one of the important factors the NJTPA uses in prioritizing projects for advancement into the TIP, PDWP and Local Scoping programs.

Bridge location information was not available at a geographic level below the county. Therefore, this analysis aggregated the bridge data by county. In FY 2005, of the 5,292 bridges in the BMS, 236, or 4.5% of the total, were programmed for repair. The bridges slated for repair were taken as a percentage of all bridges in each SR category, as an indicator of how well the needs are being met. A higher proportion of low-SR bridges are being programmed for repair than those with high SR. Of 139 bridges in the Region with SR less than or equal to 20, 39.6%, were programmed for repair. Reinforcing this finding, 19.0% of bridges with SR between 20 and 40 were slated for repair, while only 1.7% of those with SR over 60 were. The percentage scheduled for repair with SR between 40 and 60 was 13.4%. The regional distribution of programmed bridge repair is therefore in accord with overall needs.

The geographic location data for bridges does not permit conclusions beyond broad-brush. The distribution of programmed repairs by county showed that two counties (Bergen and Sussex) have 11 bridges each with SR below 20, but none of these were slated for repair. The highest percentages of low-SR bridges programmed for repair are in Hudson and Morris Counties: Hudson County had 5 bridges in the seriously substandard (SR≤20) category, all of which were scheduled for repair, while in Morris County, 16 of its 17 seriously substandard bridges were programmed for repair. Two of the aforementioned counties, Bergen and Hudson, have fairly high proportions of EJ populations, while Morris and Sussex generally have smaller EJ populations. It can therefore be reasonably concluded that while there are bridge-repair imbalances between counties that may need to be addressed, they probably do not have implications for environmental justice.

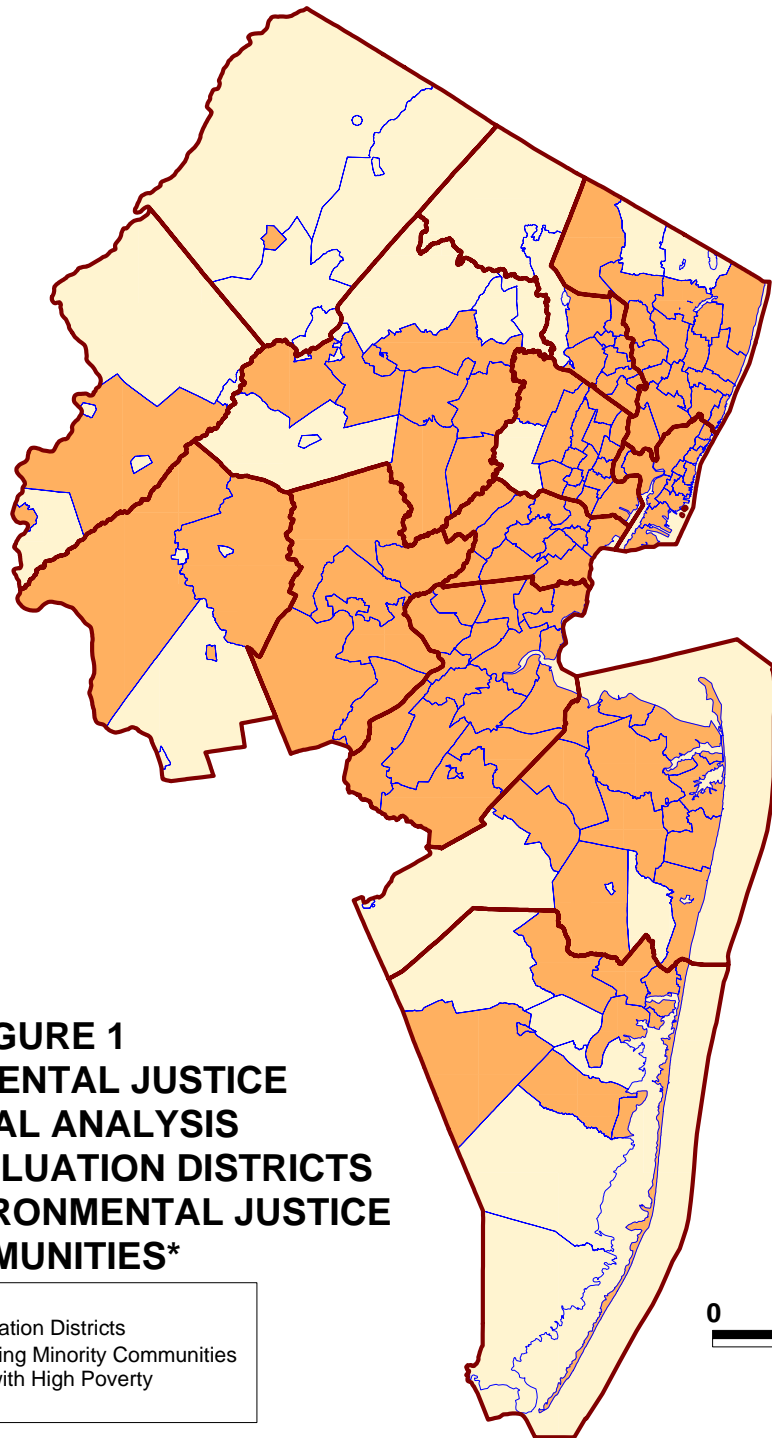
## **Part 4: Conclusions and Recommendations**

The following conclusions were drawn from this study:

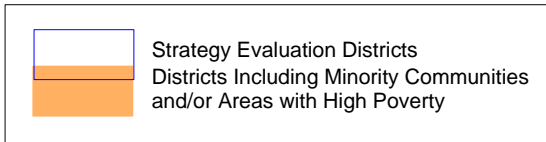
- Non-EJ districts were compared with EJ Districts (those that include minority populations and/or areas of high poverty). The benefits of CMS projects in the FY 2003-2005 TIPs and the FY 2005 PDWP were proportionally distributed among non-EJ and EJ Districts.
- Funding from the FY 2003-2005 TIPs was balanced somewhat in favor of EJ districts.
- PDWP and Local Scoping projects were proportionally distributed between EJ and non-EJ Districts.
- Based on a county-level analysis, bridge repair projects were proportionally distributed between EJ and non-EJ populations.

From a regional perspective, therefore, transportation investments have been, during the years studied (2003 through 2005), proportionally distributed among EJ and non-EJ Districts. It can be expected that this proportionality of investment will continue in the future. Several opportunities exist to ensure that this continues to be the case:

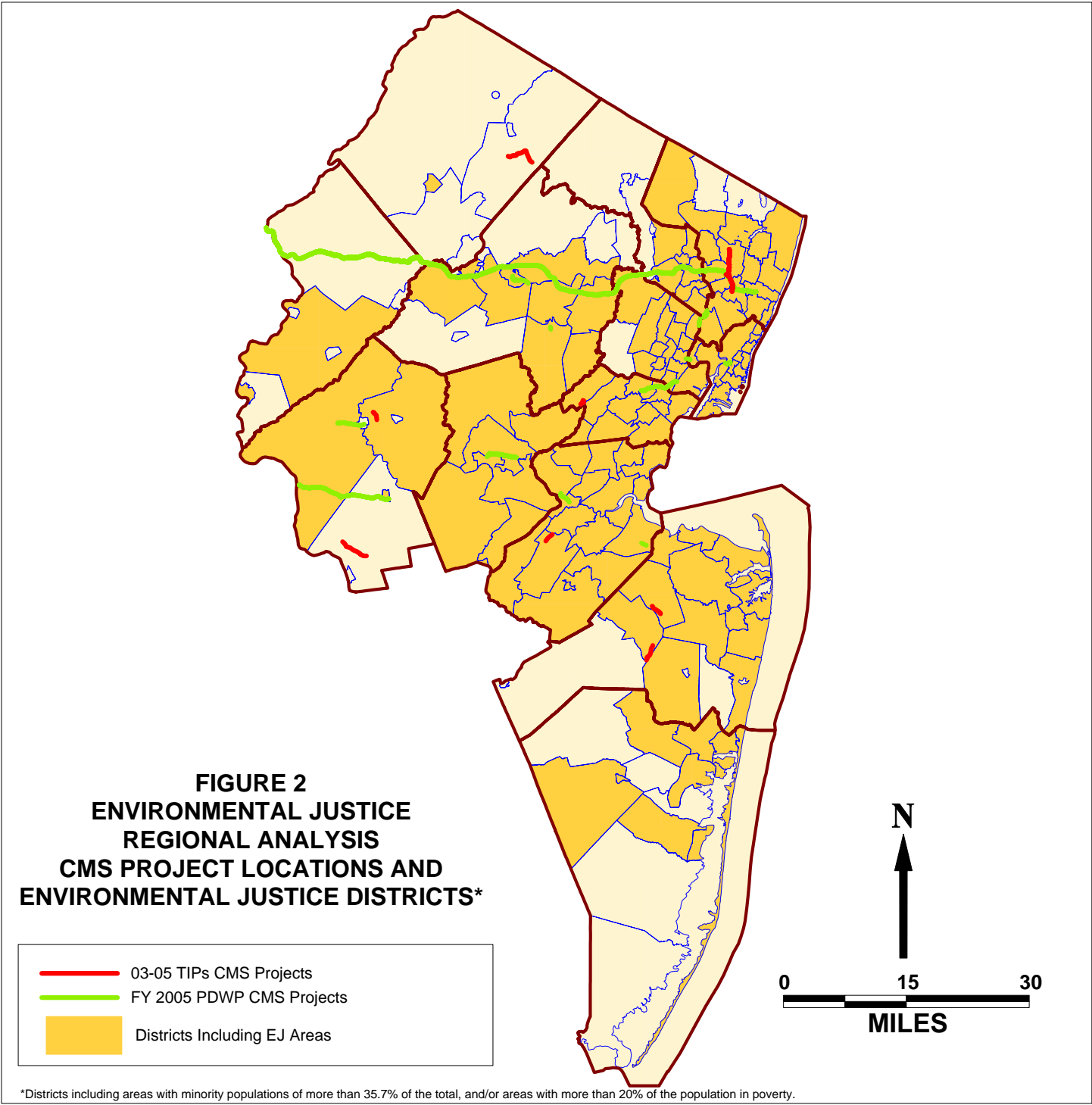
- Project needs have been, and will continue to be, identified as part of the regional planning process, taking into account the needs of all EJ communities, including minority and low-income people, as well as the elderly and disabled populations.
- Projects currently in the PDWP can be moved forward as appropriate to ensure that CMS projects are proportionally distributed among EJ Districts and non-EJ Districts.
- The Strategy Refinement Study, currently on-going, has identified specific CMS projects in areas of need originally identified in the 2003 SE study, and has taken into account the needs of EJ populations. Project Concept Reports resulting from this study will be handed off to the appropriate implementing agencies for project development. During that process, EJ needs will continue to be considered as part of the project development and prioritization processes.
- Finally, the Project Prioritization Criteria, used for ranking projects in the PDWP, will be re-evaluated during FY 2006. This offers an opportunity to give emphasis in the project selection process to the EJ issues mentioned in this report.

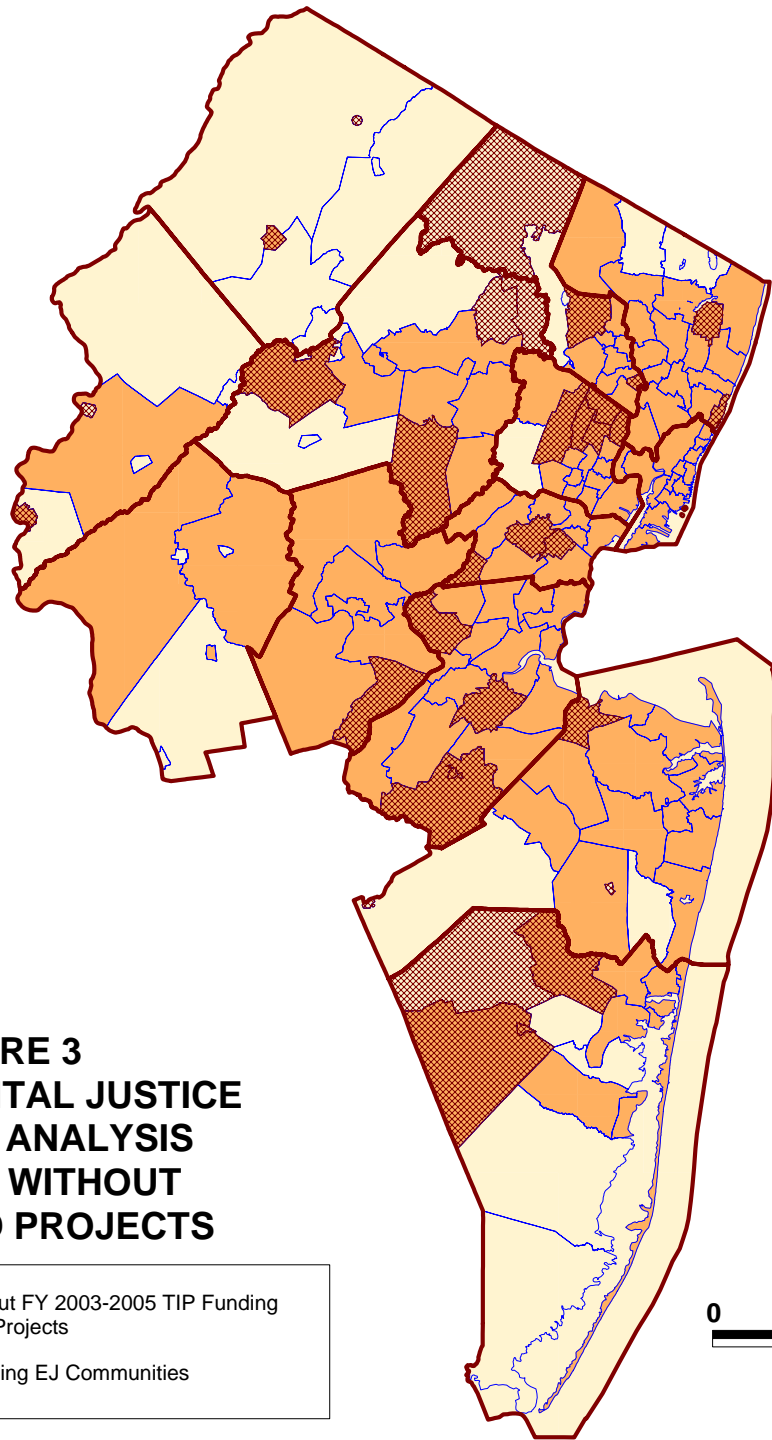


**FIGURE 1  
 ENVIRONMENTAL JUSTICE  
 REGIONAL ANALYSIS  
 STRATEGY EVALUATION DISTRICTS  
 INCLUDING ENVIRONMENTAL JUSTICE  
 COMMUNITIES\***





\*Districts including areas with minority populations of more than 35.7% of the total, and/or areas with more than 20% of the population






**FIGURE 3**  
**ENVIRONMENTAL JUSTICE**  
**REGIONAL ANALYSIS**  
**DISTRICTS WITHOUT**  
**TIP-FUNDED PROJECTS**

	Districts Without FY 2003-2005 TIP Funding for Non-CMS Projects
	Districts Including EJ Communities

N



0 15 30

MILES

**FIGURE 4  
ENVIRONMENTAL JUSTICE  
REGIONAL ANALYSIS  
DISTRICTS WITHOUT PDWP OR  
LOCAL SCOPING PROJECTS**

