

Chapter 16

Community Impact Assessment

CHAPTER 16

COMMUNITY IMPACT ASSESSMENT

INTRODUCTION

Community impact assessment is a process to evaluate the effects of a transportation action on a community and its quality of life. The assessment process is an integral part of project planning and development that shapes the outcome of a project.¹ Community assessment can be both a quantitative and qualitative measure of items important to people. They may be social or economic impacts or even both. Consideration of such impacts is not only required by law but is simply good planning. This chapter will examine a representative sample of impacts on the community as a whole and identify the impacts on particular social groups where appropriate.

DEFINING ENVIRONMENTAL JUSTICE (EJ)

The concept of Environmental Justice (EJ) is rooted in Title VI of the Civil Rights Act of 1964 which prohibits discriminatory practices in programs and activities receiving federal funds. Transportation planning regulations issued in October 1993 require that metropolitan planning processes be consistent with Title VI. In February 1994, President Clinton signed an executive order which amplified the provisions of Title VI by requiring federal agencies to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low income populations." (Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations)

In compliance with this directive, OKI has incorporated EJ evaluation into its long range planning process. OKI has assembled an Environmental Justice Committee to develop processes and procedures to more effectively address the needs of various populations in the region. Specific groups in the OKI region identified for environmental justice evaluation include minority populations, low income populations, the elderly, disabled and zero car households. The definition (as applicable to 1990 census data) of each EJ population is as follows:

- Minority: people of African, Hispanic, Asian, American Indian or Alaskan Native origin
- Low income: income for a family of four less than or equal to \$12,674 (according to national poverty guidelines issued by the Department of Health and Human Services for 1990)
- Elderly: aged 65 or older

- Disabled: people with a mobility limitation, self-care limitation, or people with both mobility and self-care limitations (as defined by the U.S. Census Bureau)
- Zero car households: households without access to a vehicle

EJ POPULATION CONCENTRATION IDENTIFICATION

Identification of concentrations of EJ populations within the OKI region was achieved by establishing thresholds based on the averages of regional totals for the various target populations according to 1990 census data (Table 16-1).

Census data from 1990 was utilized in this analysis because the only applicable data currently available from Census 2000 at the small geographic level required for this analysis is related to minority status. The EJ data will be updated following the release of comprehensive Census 2000 data products.

Table 16-1
1990 EJ Population Thresholds

Population	1990 Total for OKI Region	Threshold
Total Population	1,744,122	Not applicable
Total Households	652,917	Not applicable
Minority Population	229,708	16.5%
Population in Poverty	190,610	13.6%
Elderly (65+ years)	204,909	14.6%
People with Disabilities	153,134	11.0%
Zero Car Households	75,592	14.5%

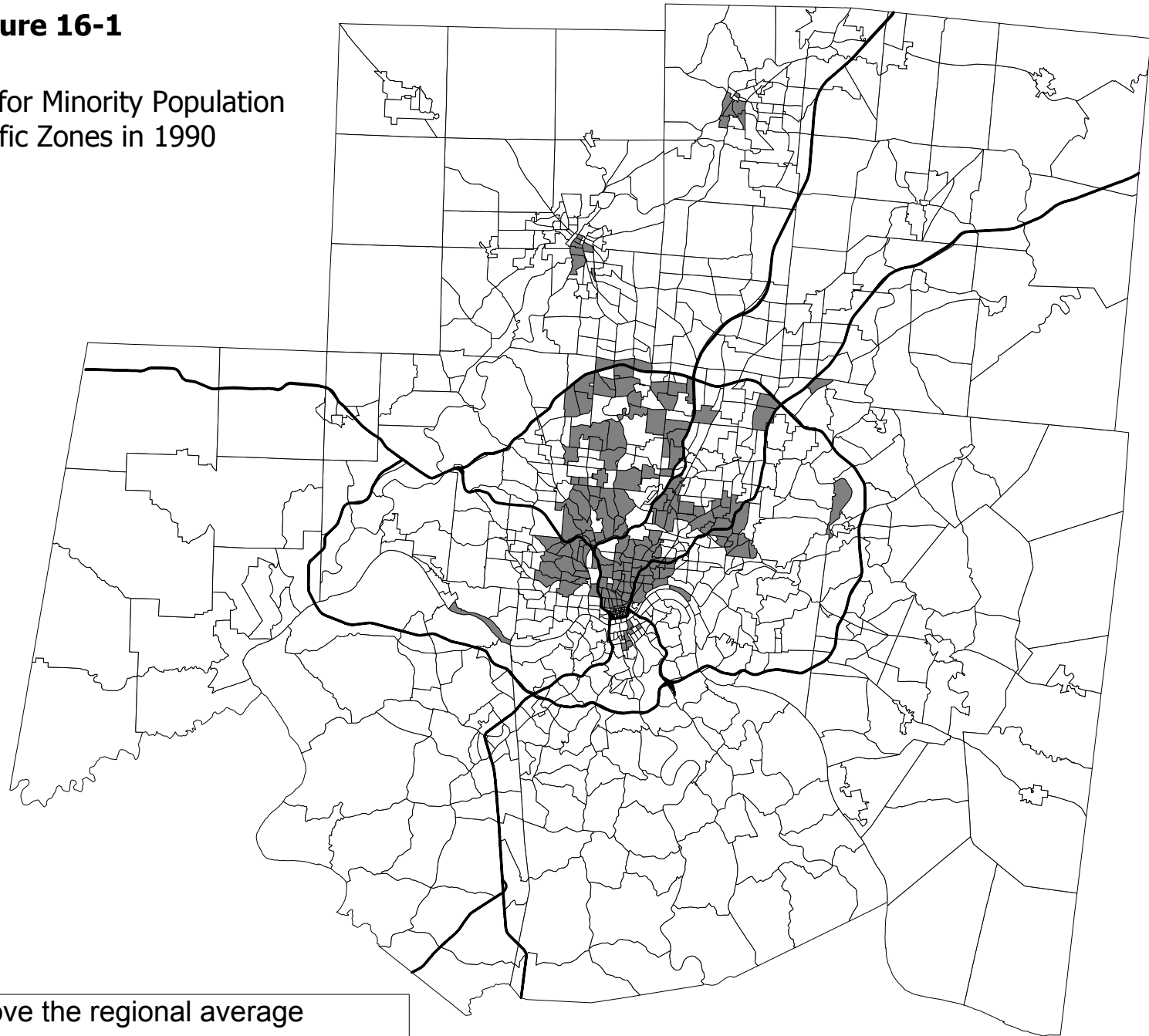
Using a methodology developed by the Ohio Department of Transportation, geographic areas exceeding the threshold values are classified as target zones for impact assessment purposes. The threshold is defined as a value 25 percent higher than the regional average for that population. For example, for minority, the 1990 regional average is 13.2 percent. The threshold for individual geographic areas is 1.25*13.2 or 16.5 percent.

Data for each EJ population were aggregated by Traffic Analysis Zone (TAZ), the geographic unit used in OKI’s transportation analysis. TAZs in which the percent of each EJ population exceeded its threshold were identified as containing concentrations of that population type. In order to evaluate the effects of the recommended transportation plan against the base conditions, the TAZ data for 1995 and 2030 were used.

Figures 16-1 through 16-5 on the following pages highlight the concentrations of the target populations by TAZ in the OKI region.

Figure 16-1

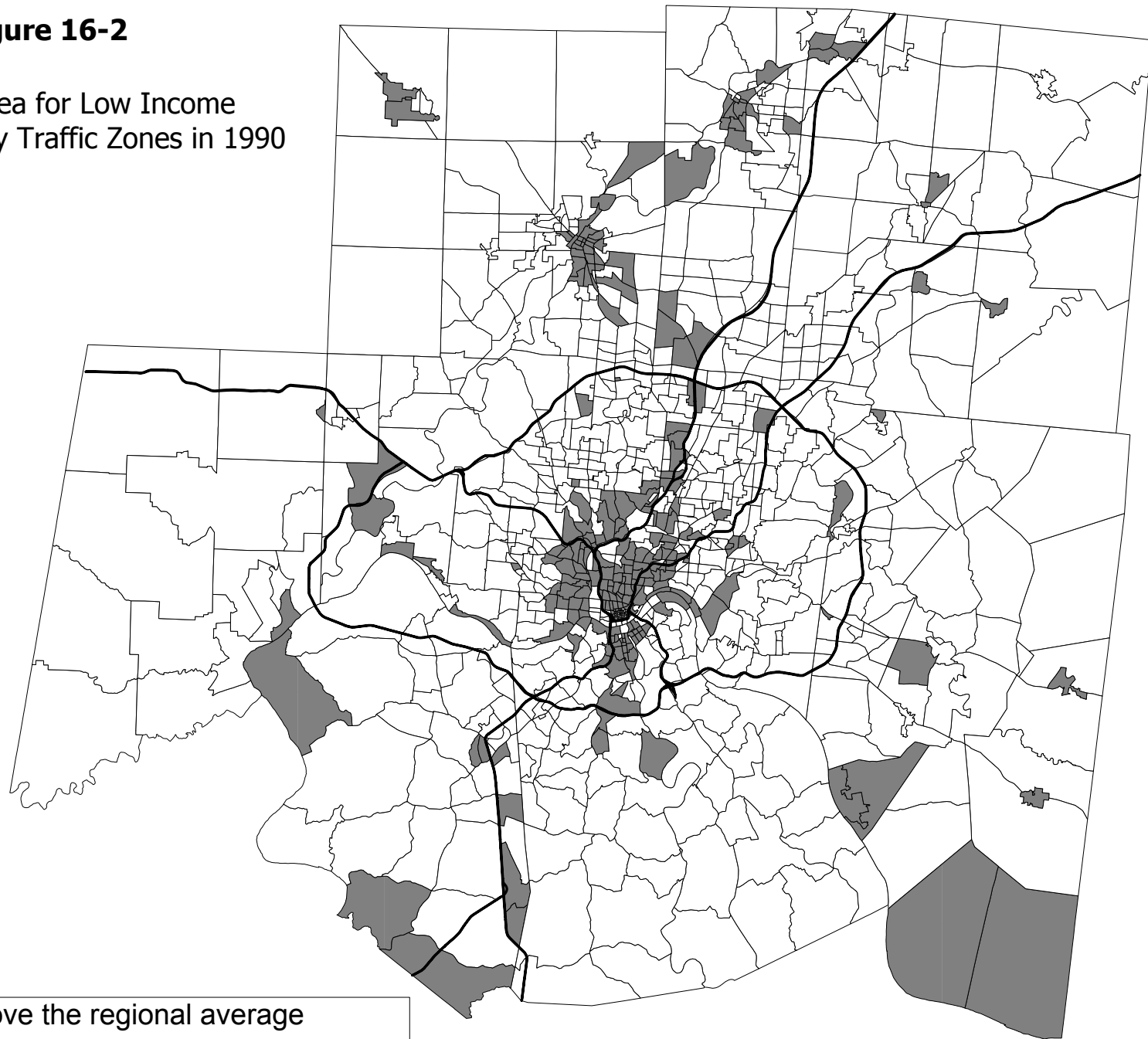
Target Area for Minority Population
by Traffic Zones in 1990



■ 25% above the regional average

Figure 16-2

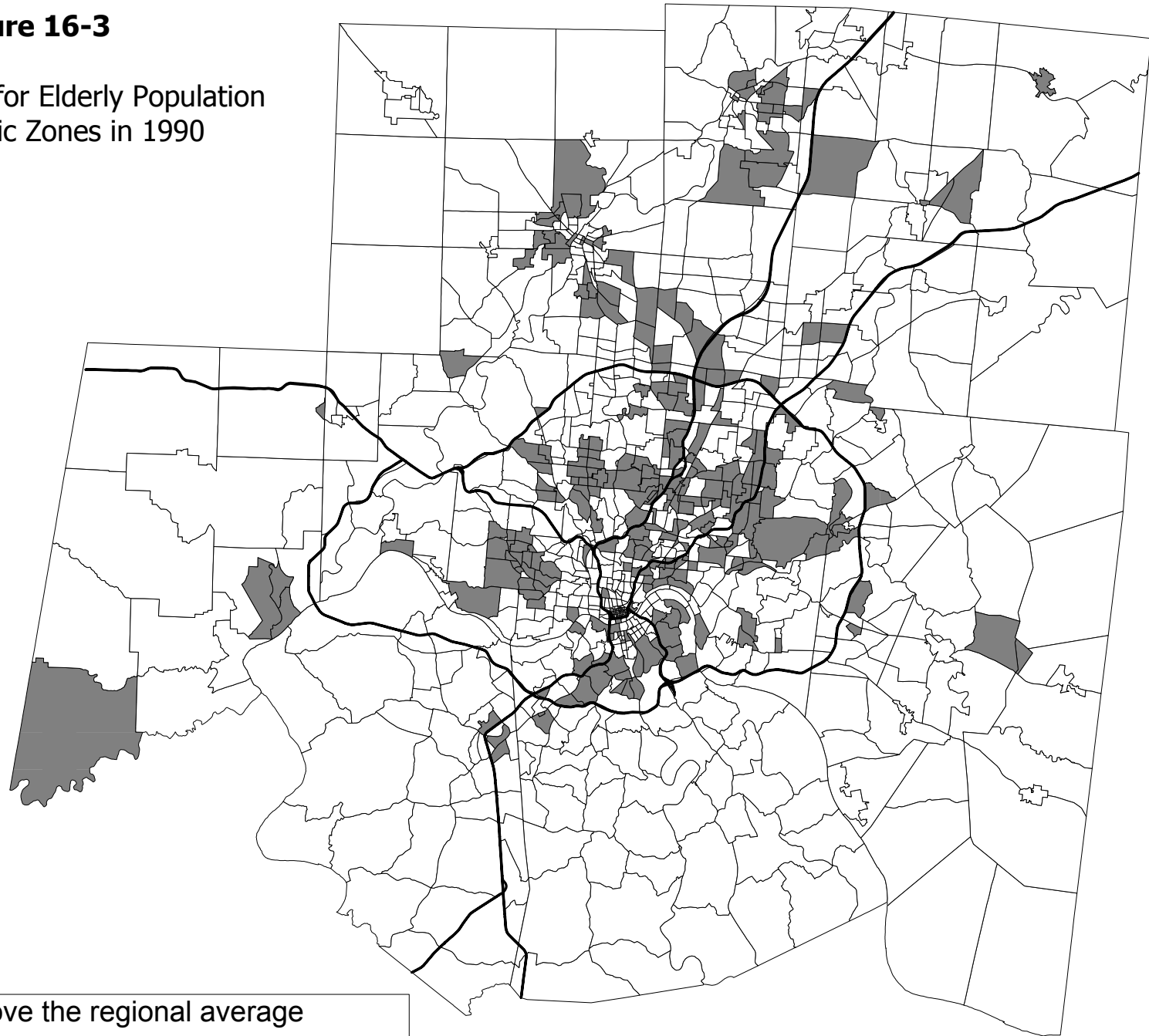
Target Area for Low Income
Population by Traffic Zones in 1990



■ 25% above the regional average

Figure 16-3

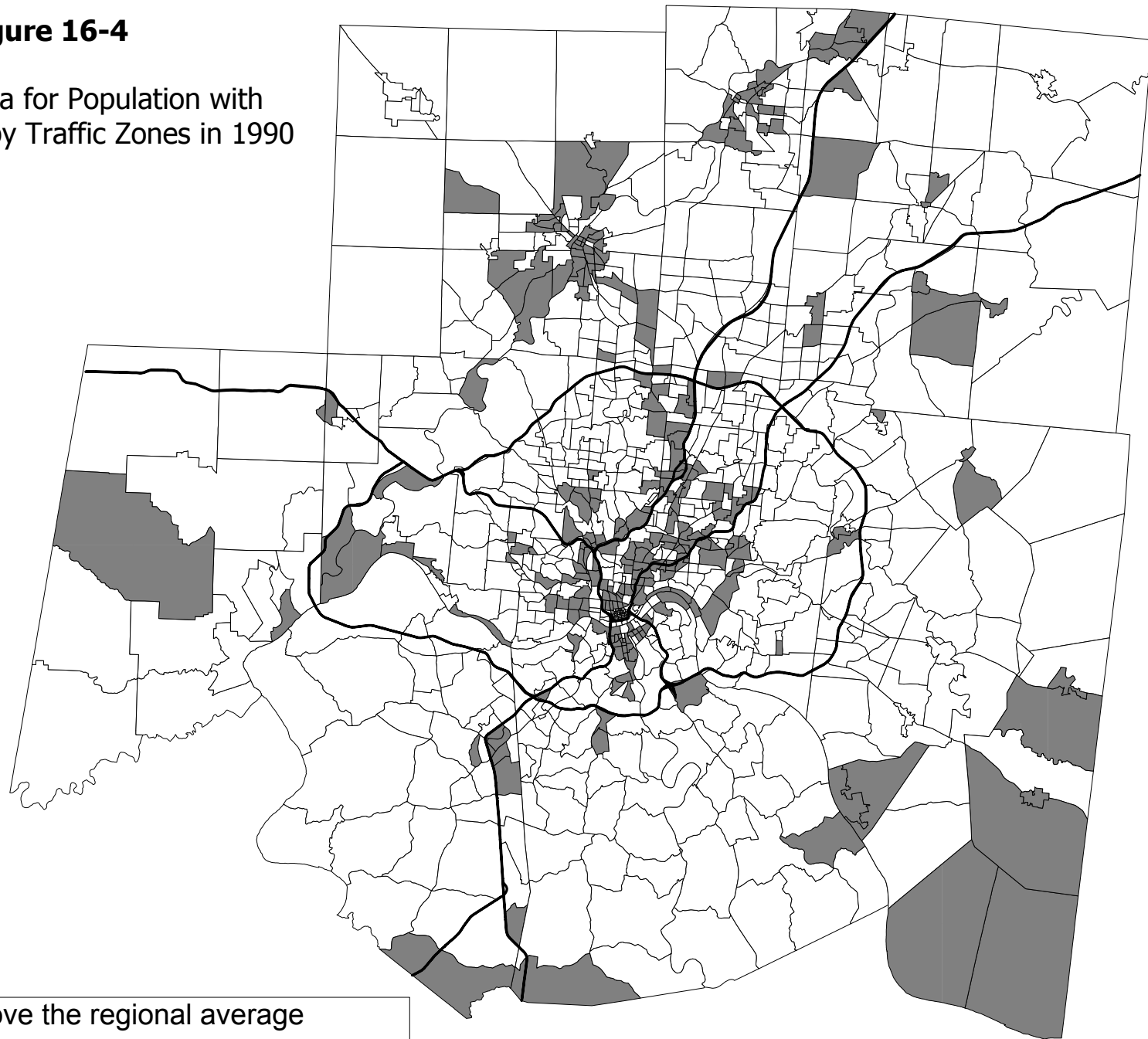
Target Area for Elderly Population
by Traffic Zones in 1990



■ 25% above the regional average

Figure 16-4

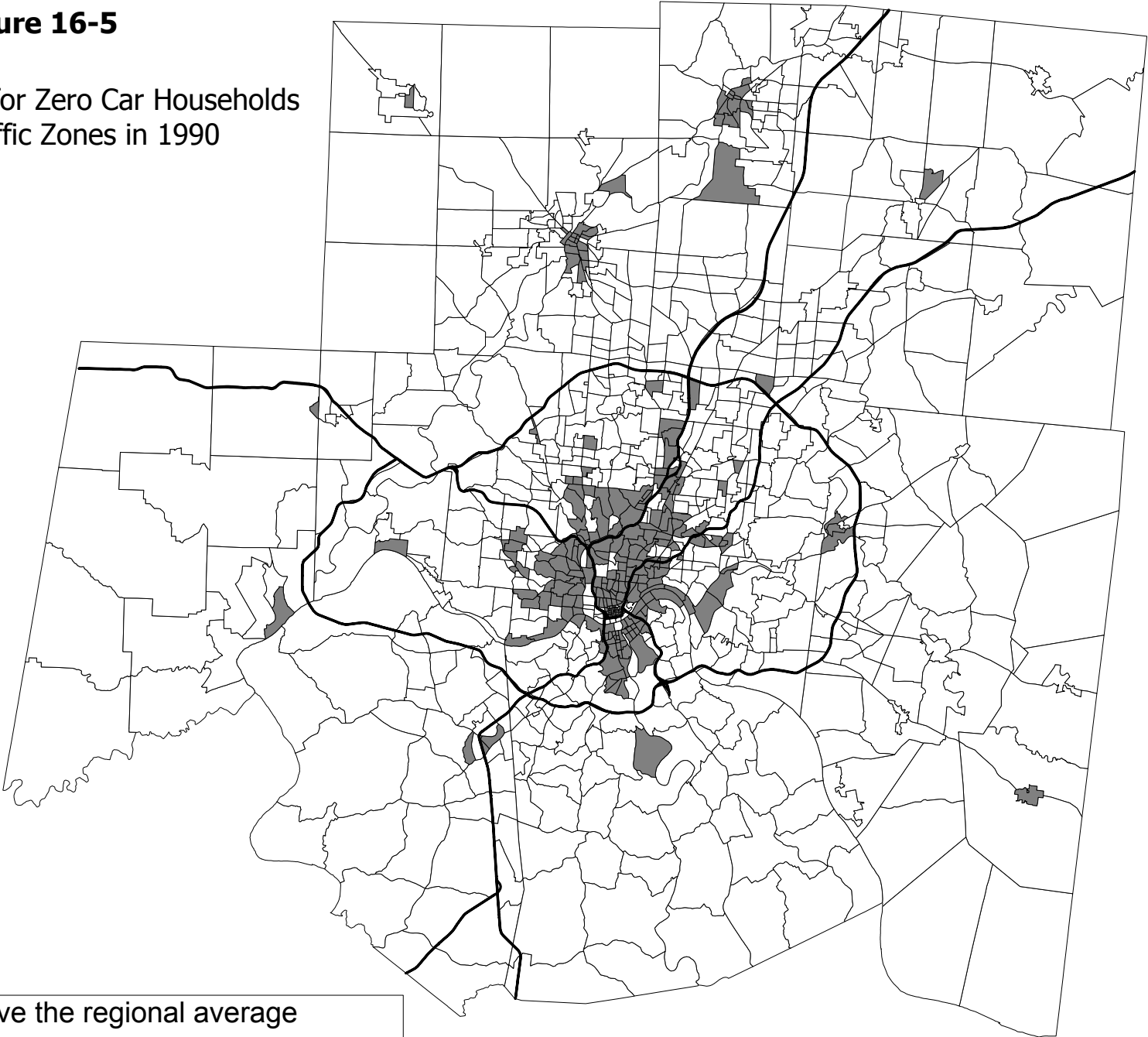
Target Area for Population with Disabilities by Traffic Zones in 1990



■ 25% above the regional average

Figure 16-5

Target Area for Zero Car Households
by Traffic Zones in 1990



■ 25% above the regional average

Analysis of the data showed some geographic correlation among the minority, low income and zero car households populations. As the maps indicate, neighborhoods in and around the central city and older suburbs show high concentrations of EJ populations.

PUBLIC INVOLVEMENT AND EJ COMMUNITIES

In order to adequately include the target populations in long range transportation planning for the OKI region, particular efforts were made to involve EJ communities in public meetings. These efforts included:

- Posting notices in media geared toward the EJ populations
- Holding meetings in locations in close proximity to the EJ populations' neighborhoods, served by public transit and that are ADA accessible
- Enlisting the support and involvement of target population community leadership
- Creating comprehensible presentation materials and manning individual displays with knowledgeable staff in an open-house setting
- Holding meetings during both the day and evening to broaden accessibility

These meetings provided a forum for the public to participate in, review and comment on the proposed regional transportation plan.

Corridor studies, a major subset of the OKI Plan, provide additional opportunities for EJ community involvement. Corridor studies permit a more detailed investigation of transportation needs and solutions as well as a vehicle for more comprehensive public involvement for all sectors of the impacted communities. OKI has conducted several corridor studies and currently is actively managing three corridor studies. Public involvement and Environmental Justice have been prominent issues in all of these studies. As more studies are completed, experience is gained on effective practices for reaching out to all segments of the population. As shown in Chapter 13, the most populated part of the region is, was, or will be studied in detail, with major components of those studies being public involvement and environmental justice. The projects that advance from the corridor studies to the regional transportation plan are the locally preferred alternatives selected by consensus of the community leaders, elected officials and public at large.

OKI has also benefited by the recently completed MetroMoves, Metro's plan for the future of transit in Greater Cincinnati. This *OKI 2030 Regional Transportation Plan* fully supports the initiative by Metro, the region's largest transit provider. MetroMoves provides the framework and is incorporated into the recommendations of this plan as stated in Chapter 11. More importantly, however, is the extent of the outreach program MetroMoves used to acquire

input from local officials, stakeholder groups, transit agencies, and the general public. Three regional forums, held to engage stakeholders, attracted over 700 participants. Metro also hosted a Virtual Forum on its web site, using a mix of on-line surveys, "paper" survey cards and a telephone hot-line to solicit input. Nearly 10,000 people have participated in the MetroMoves Virtual Forum. Metro also met regularly with a wide array of organizations and communities throughout the development of the plan. These included several agencies which serve the low income and minority populations in Hamilton County.

PROJECT EVALUATION PROCESS

In regard to transit, information gathered during the MetroMoves study process indicated the need for improvement to the existing system and the possibility of light rail to serve both EJ and non-EJ communities as the preferred enhancement. The input received from transit riders, community leaders and planners had a direct impact on the recommended alternatives. Evaluation of the alternatives was done by consensus of the planning committees with full input from the customers and the providers. These collaborative recommendations are incorporated into this long range plan.

In developing the recommended list of highway capacity projects such as widening existing lanes or building new roads for the plan, OKI utilized a project prioritization process. The process assigned numerical scores for 12 criteria. Impact on EJ communities was included as one of the criteria. Projects were evaluated on a planning level to determine whether the impacts on communities were significant and, if so, were they positive or negative.

COMMUNITY IMPACT ANALYSIS OF THE *2030 REGIONAL TRANSPORTATION PLAN*

OKI used a variety of quantitative performance measures and qualitative evaluation to assess whether components of the regional transportation plan had any adverse or disproportionate impacts on the target populations as well as to ascertain whether benefits were equitably distributed. The measurement methodology employed by OKI to evaluate the impact of transportation planning on the target populations was developed partly from OKI's travel demand forecasting model process and partly using non-modeling techniques. In certain cases different techniques were required for evaluation of highway and transit modes.

Three scenarios were prepared:

- The base year (1995)
- Baseline future representing conditions in the absence of a plan with only projects in the current *FY 2002-2005 Transportation Improvement Program* (TIP) and current transit service (2030 Baseline)
- A future plan with a financially constrained set of programs and projects (2030 Plan)

These measures compared the relative treatment of the EJ populations and non-EJ populations. These measures included:

Mobility

- Travel Time
- Percentage of vehicle miles traveled in congestion

Accessibility

- Job opportunities within 20 minutes auto travel time
- Job opportunities within 40 minutes transit travel time
- Percentage of population within 40 minutes transit travel time of a college/university

Reliability

- Dependable transit service as measured by percent of on-time arrivals

Safety

- Transit with minimal risk of accident or injury as measured by reduced accidents

Equity

- Supply of transportation infrastructure and services
- Displacement of residents and business
- Social structure
- Expenditures on highway projects
- Expenditures on transit projects

Other Regional Performance Measures

- Environmental Impacts
- Financial impacts
- System performance indicators

Mobility

Looking ahead to the year 2030, congestion is expected to increase significantly. Mobility for travelers is expected to decline even with massive investments in both new and expanded highways and improved transit. However, the scenario will be much worse if we do nothing. Proposed improvements will lessen the severity of mobility deficiencies. For example, the average travel time to work by car for the general population is expected to increase from about 24 minutes currently to 72 minutes in 2030 if we do nothing. This amounts to about a 200 percent increase. Implementation of the plan reduces the time to 59 minutes, which is a 144 percent increase (Table 16-2).

Minority target zones will also face decreased mobility but to a much lesser extent. The average travel time to work by car for minority target zones is expected to increase from about 18 minutes currently to 21 minutes in 2030 if we do nothing. This amounts to about a 18 percent increase. Implementation of the plan reduces the time to 20 minutes, which is a 13 percent increase.

The average travel time to work by car for low income target zones is expected to increase from about 18 minutes currently to 37 minutes in 2030 if we do nothing. This amounts to about a 107 percent increase. Implementation of the plan reduces the time to 30 minutes, which is a 67 percent increase.

Table 16-2
Comparative Travel Times to Work by Auto
(Average travel time in minutes)

Population Group	1995	2030 Base	2030 Plan
All Populations	24.1	72.2	58.8
Minority Target Zones	17.7	20.9	20.0
Low Income Target Zones	17.9	37.1	29.9

Auto travel time for non-work activities, which are assumed to occur primarily in the off peak time period, increases slightly for all populations; however, this increase is insignificant (Table 16-3).

Auto travel time to hospitals and universities is shorter for the EJ populations than the total population in the region. Travel times to the nearest shopping center are shorter from minority, elderly and zero car household target zones than the population as a whole and less than a minute longer for low income and disabled target zone populations under all three scenarios (Table 16-3).

Table 16-3
Comparative Non-Work Travel Times by Auto
(Off peak period in minutes)

Hospital			
Population Group	1995	2030 Base	2030 Plan
All Populations	11.8	13.3	13.2
Minority Target Zones	6.8	7.1	7.1
Low Income Target Zones	8.8	9.4	9.4
Elderly Target Zones	8.8	9.3	9.3
Disabled Target Zones	10.6	11.4	11.4
Zero Car Household Zones	6.9	7.4	7.4
University			
Population Group	1995	2030 Base	2030 Plan
All Populations	10.7	12.2	12.2
Minority Target Zones	6.2	6.5	6.5
Low Income Target Zones	6.6	7.2	7.2
Elderly Target Zones	8.3	8.8	8.8
Disabled Target Zones	8.4	9.7	9.7
Zero Car Household Zones	5.7	6.1	6.1
Shopping			
Population Group	1995	2030 Base	2030 Plan
All Populations	12.9	13.8	13.8
Minority Target Zones	9.8	9.8	9.8
Low Income Target Zones	13.6	13.9	13.8
Elderly Target Zones	10.4	11.1	11.1
Disabled Target Zones	13.5	14.5	14.5
Zero Car Household Zones	11.5	12.0	12.0

Congestion

Congestion as measured by traffic volume to roadway capacity ratios (v/c) exceeding 0.85 will increase between 1995 and 2030. In 1995, for the total population in the region 38 percent of vehicle miles traveled (VMT) during peak travel times were under congested conditions. This is expected to increase to 58 percent in 2030 without plan implementation but only to 42 percent with plan implementation. For populations residing in minority and low income target zones, the percentages of their peak period trips under congestion were higher than the total population in 1995, but these communities will benefit as well from the congestion-reducing facets of the long range plan (Table 16-4). Under the plan, peak period congestion will increase 11 percent for the region as a whole, six percent for trips originating in minority target zones and 16 percent for travelers from low income target zones.

A similar situation exists with daily trip congestion, which is a measure of the average percentage of miles traveled in congestion over the course of an entire day. While the percent of VMT under congestion will increase between 1995 and 2030 for all groups, implementation of the long range plan will likewise temper those increases for all groups.

Table 16-4
Percentage of VMT Under Congestion

Peak Period			
Population Group	1995	2030 Base	2030 Plan
All Populations	38%	58%	42%
Minority Target Zones	50%	62%	53%
Low Income Target Zones	43%	57%	50%
Daily			
Population Group	1995	2030 Base	2030 Plan
All Populations	5%	10%	8%
Minority Target Zones	7%	16%	13%
Low Income Target Zones	7%	18%	14%

Accessibility

Current Metro and TANK service provide good overall service from around their respective service areas to the Cincinnati CBD. Central city neighborhoods, served by many routes and a large number of buses running at relatively short headways, enjoy very good radial access to the CBD. Suburban locations are served primarily by commuter service comprised of more express service but fewer runs.

Table 16-5 indicates that regional population served by current transit routes will drop between 1995 and 2030 if no changes are implemented in the transit system. This is due primarily to population decline in the City of Cincinnati. Employment served will increase modestly. In order to serve more residents transit must expand into areas not currently being served. Expansion to serve more residential areas as proposed in the plan also improves accessibility to more employment centers.

Table 16-5
Population and Employment Served by Transit

	1995	2030 Base	2030 Plan
Population	639,047	597,168	641,303
Employment	518,700	531,613	563,592

The major recommendations in the MetroMoves Initiative and this plan – improved service, creation of hubs and light rail service – enhance accessibility for both EJ and non-EJ communities to all areas served by existing transit companies. Improved bus service on existing routes and new routes are recommended to improve accessibility to areas not currently served well or at all. The MetroMoves plan also includes neighborhood circulator service for improved connectivity. New transit hubs will make transit use easier, more efficient and safer. The proposed hub and link system connect a hub to any of the other hubs in the system with standard 30-minute weekday headways. New rail service would benefit the general population including the reverse commute, providing access to job opportunities in the suburban areas.

The Transit Authority of Northern Kentucky (TANK) operates another transit option which improves mobility for members of the EJ communities. TANK operates the Southbank Shuttle, a circulator route that connects the Cincinnati and Northern Kentucky riverfront business, restaurant and entertainment areas for visitors and residents alike. The success of the Southbank Shuttle has prompted possibilities of expanded service or new modes of travel.

This plan successfully improves accessibility of residents of EJ communities to other parts of region. Figures 16-6 to 16-10 following show an impressive coverage of fixed route service to minority, low income, zero car households, elderly, and disabled populations. Not shown is the additional coverage by existing and proposed demand responsive and neighborhood circulators using smaller transit vehicles such as Tank’s Day Tripper, Metro/BCRTA JobBus, Metro’s Access, Clermont Area Regional Transit (CART), Warren County Transit and the Butler County Regional Transit Authority (BCRTA).

Despite the comprehensiveness of the transit system in service to the EJ population, timely transit access to employment from the target zones is less available. Table 16-6 shows that no more than one-fourth of the region’s jobs were within a 40 minute bus ride of the target zones in 1995 compared to approximately two-fifths for non-target zones. As employment opportunities continue to move toward outlying areas over the next thirty years, the percent of jobs accessible via a 40-minute bus ride to central city EJ populations will decrease. The plan will only slightly improve this situation.

Table 16-6
Accessibility to Employment by Transit

Data Set	Percent of Region's Jobs within 40 min. of Travel by Transit (000s)		
	1995	2030 Base	2030 Plan
Minority Target Zones	20.0%	15.0%	15.8%
Non-Minority Zones	41.8%	38.6%	40.2%
Low Income Target Zones	21.3%	16.3%	17.6%
Non-Low Income Zones	42.7%	39.7%	40.9%
Disabled Target Zones	24.8%	20.0%	20.5%
Non-Disabled Zones	42.0%	39.4%	40.4%
Zero Car Household Target Zones	23.2%	16.8%	17.8%
Non-Zero Car Households Zones	41.7%	39.5%	40.3%

In contrast, accessibility to employment by auto was very high for all groups in 1995. Between 80 and 99 percent of regional employment was within a twenty minute trip by auto for those residing within and outside of target zones, as indicated in Table 16-7. However, accessibility declines for all EJ groups, particularly the minority target zones, over the planning period. The long range plan ameliorates this situation to some extent.

Table 16-7
Accessibility to Employment by Auto

Data Set	Percent of Region's Jobs within 20 min. of Travel by Auto (000s)		
	1995	2030 Base	2030 Plan
Minority Target Zones	82.2%	48.7%	53.4%
Non-Minority Zones	99.8%	99.8%	99.8%
Low Income Target Zones	99.1%	79.1%	83.1%
Non-Low Income Zones	99.8%	99.8%	99.8%
Disabled Target Zones	99.1%	81.5%	85.1%
Non-Disabled Zones	99.8%	99.0%	99.6%
Zero Car Household Target Zones	95.5%	65.1%	67.9%
Non-Zero Car Households Zones	99.8%	99.8%	99.9%

Access to higher education via transit favors those residing in target zones. Considerably higher percentages of target zone populations were within a 40 minute transit travel time of a university than those residing in non-target zones as indicated in Table 16-8. Between 18 percent and 29 percent of EJ population groups were within a 40 minute bus ride of a university whereas no more than six percent of non-EJ populations had the same level of access. In the future,

Figure 16-6

Transit Access for Minority Zones

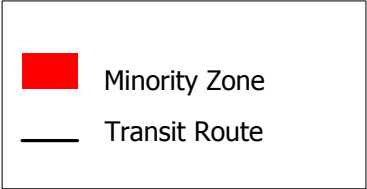
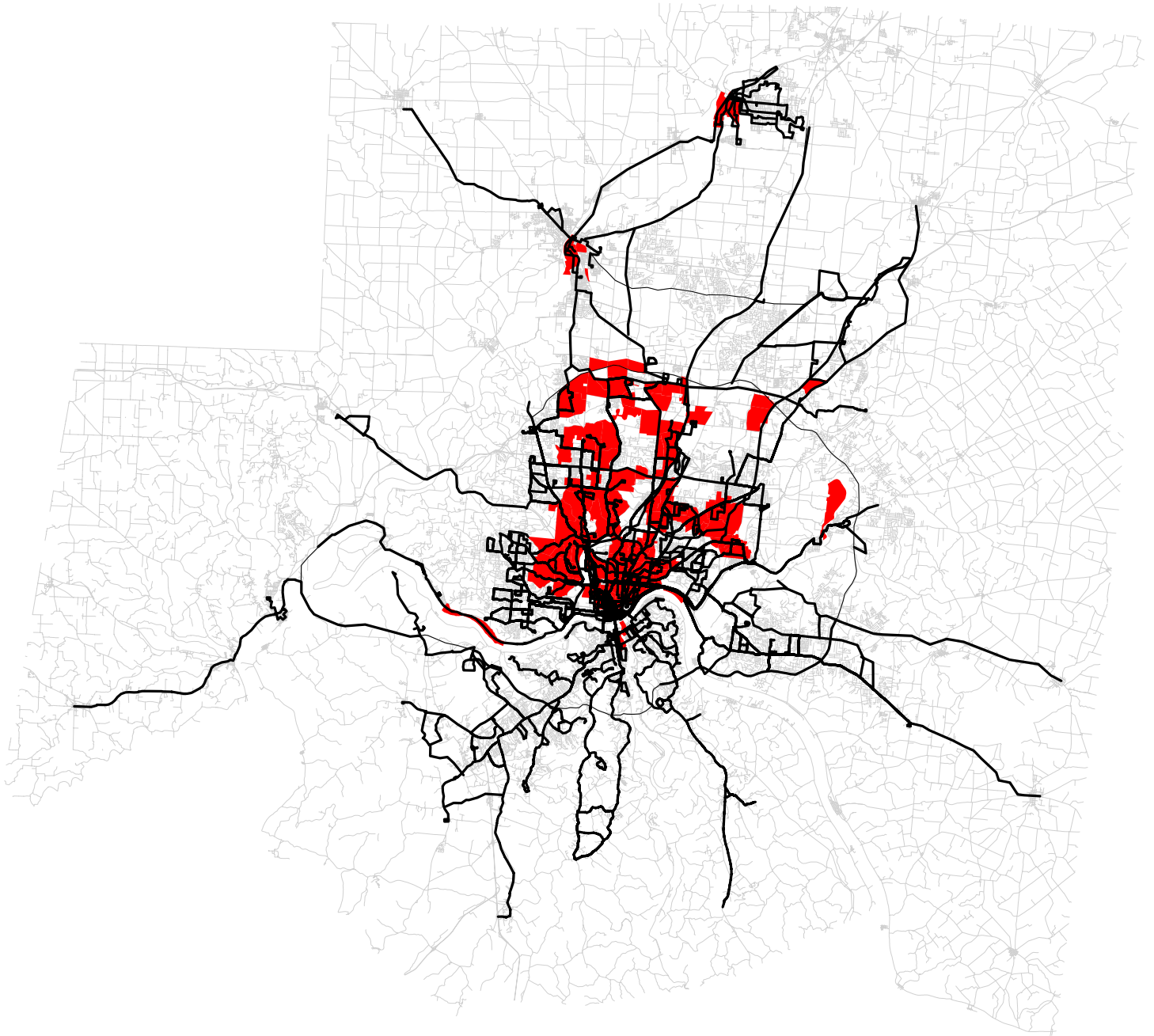


Figure 16-7

Transit Access for Low Income Zones

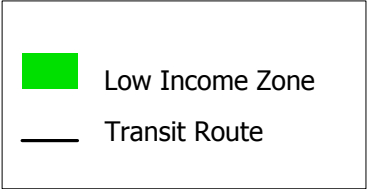
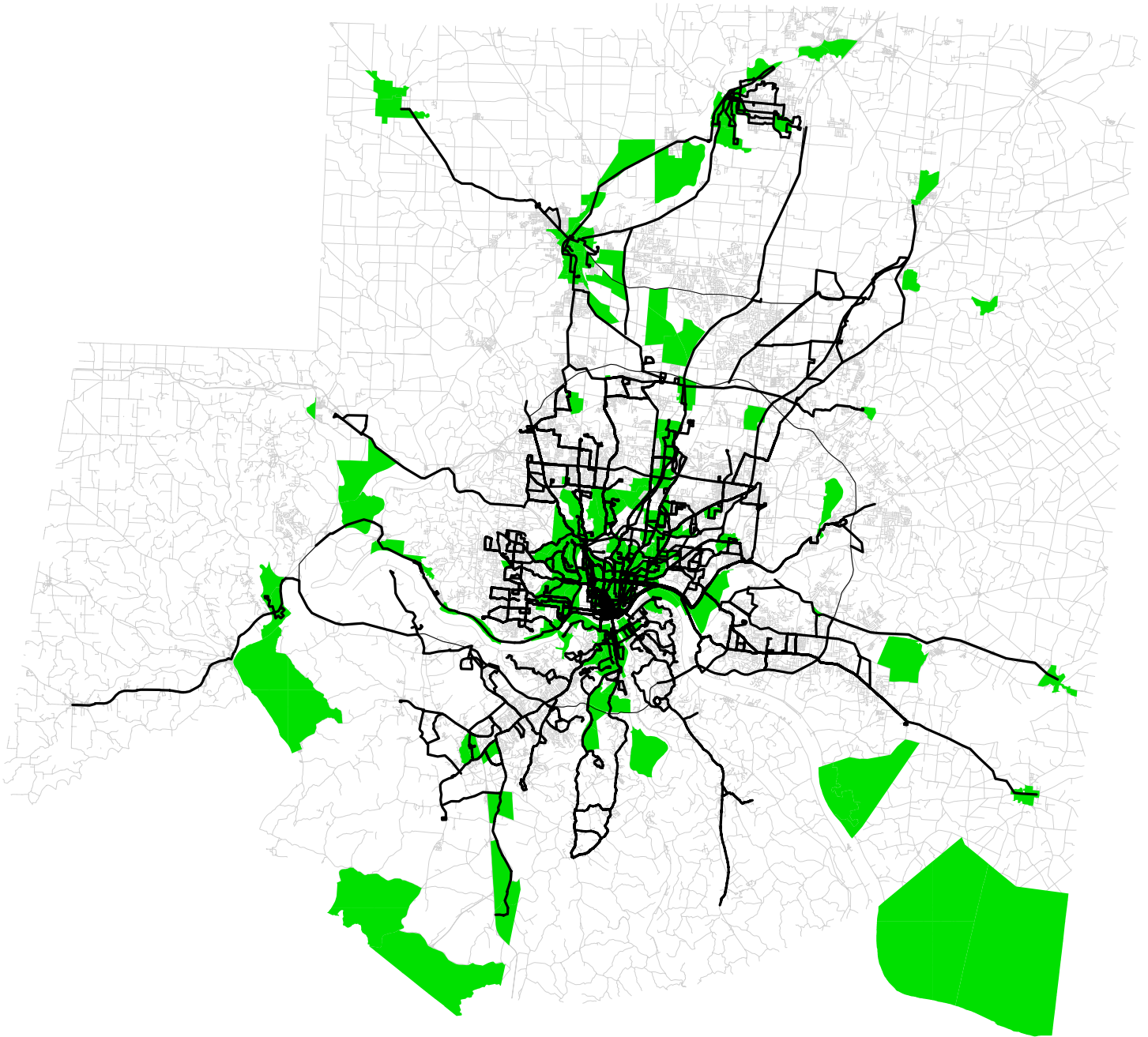


Figure 16-8

Transit Access for Elderly Zones

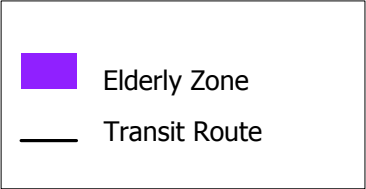


Figure 16-9

Transit Access for Disabled Zones

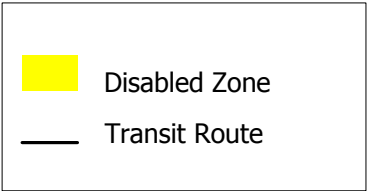
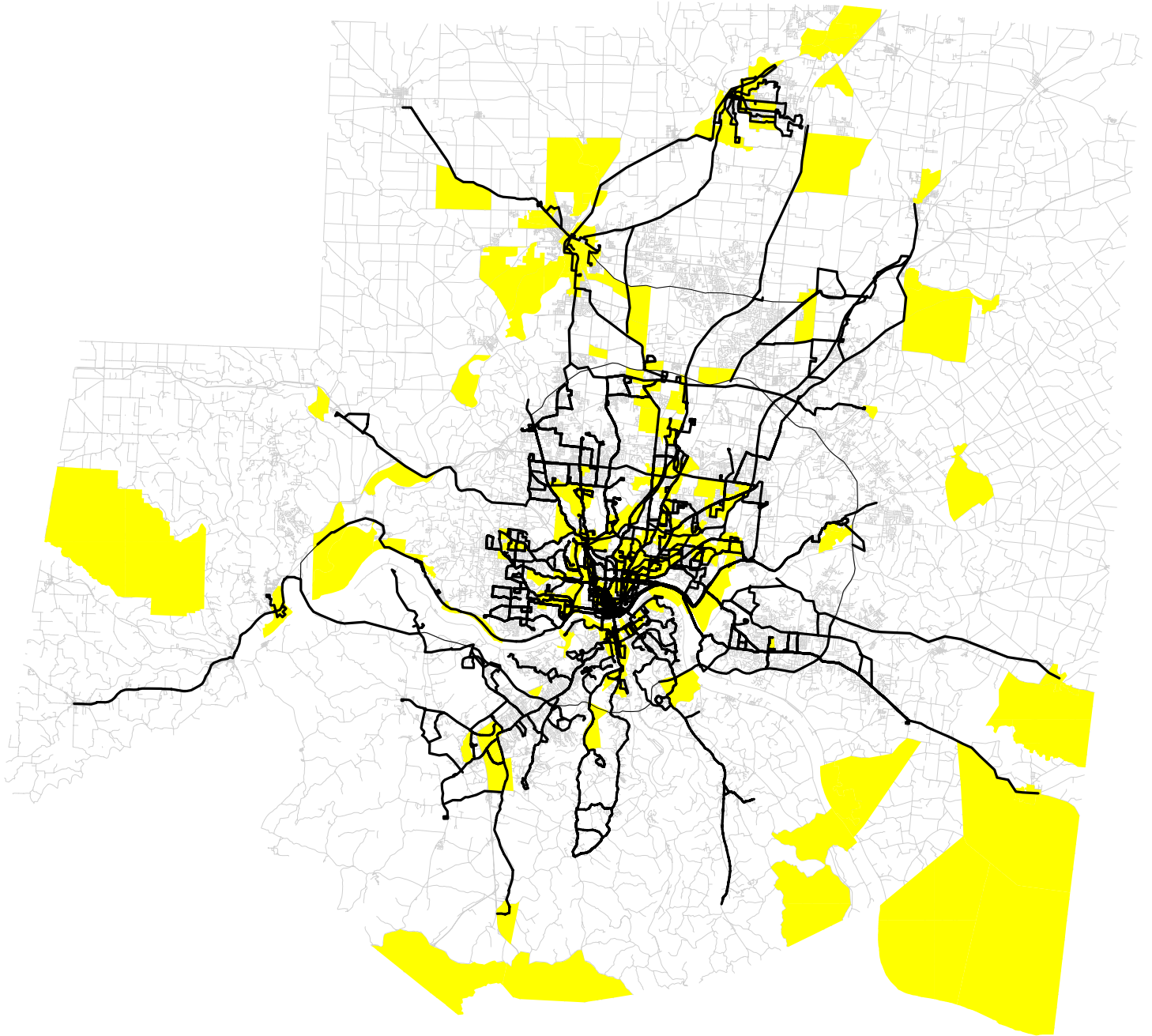
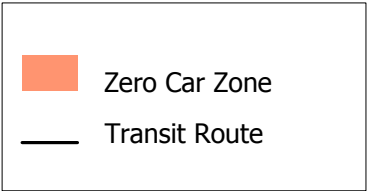


Figure 16-10

Transit Access for Zero Car Zones



even greater percentages of target zone populations will be accessible to higher education by transit.

Table 16-8
Accessibility to University by Transit

Data Set	Percent of Population within 40 min. of Travel by Transit (000s)		
	1995	2030 Base	2030 Plan
Minority Target Zones	25.7%	34.1%	35.2%
Non-Minority Zones	5.1%	2.1%	2.5%
Low Income Target Zones	23.4%	28.9%	30.2%
Non-Low Income Zones	4.5%	1.8%	2.1%
Disabled Target Zones	17.5%	19.6%	20.9%
Non-Disabled Zones	6.0%	3.2%	3.4%
Zero Car Households Target Zones	29.4%	32.8%	34.2%
Non-Zero Car Households Zones	4.0%	2.0%	2.3%

Reliability

All the region's transit operators provide very reliable service. TANK reports that on-time arrivals are above 95 percent. Metro reported a 93 percent on-time arrival rate for fiscal year 2000.

Safety

All the transit operators in the region operate very safe systems. In the year 2000 TANK reported 319 accidents for the approximately five million miles traveled by their coaches. This equates to one accident per 34,000 miles of service. Even more impressive is the fact that only 20 personal injuries were reported in this total. Similar information is not readily available for the other transit agencies in the region.

Equity

• Supply of Transportation Infrastructure and Services

Evaluation of the supply of roadway infrastructure is difficult. Urbanized areas of the region have a dense network of streets and highways (and high density development) while some of the outlying areas have roadway systems which are essentially the same as they have been for many years. There is no evidence that any one group of citizens is over-served or under-served.

Transit supply and service clearly favor the urbanized areas where density of employment and population make bus service practical. EJ communities are well served as depicted in the Accessibility section above.

- **Displacement**

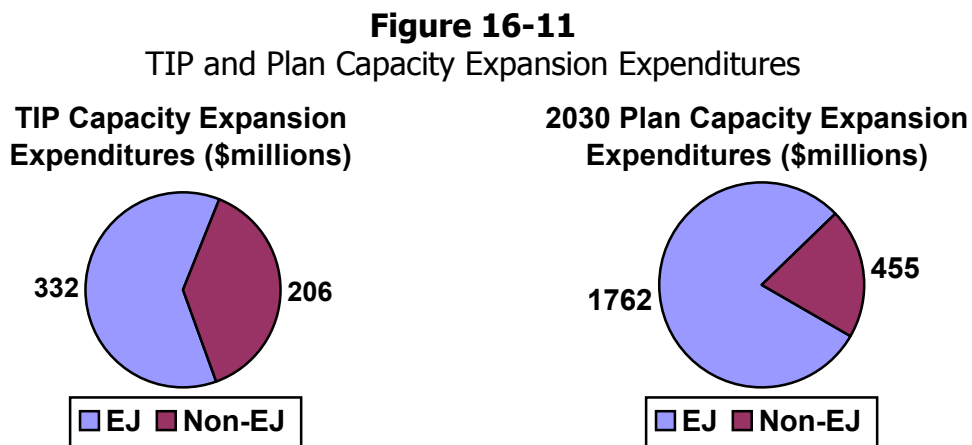
Another measure of equity may be the number of families and businesses displaced during the implementation of transportation projects. OKI supports projects that minimize the impacts on all segments of the population and encourages appropriate mitigation measures when such impacts are unavoidable.

- **Social Structure**

Care must also be taken to avoid not only displacement but also the damage to the social fabric of neighborhoods which can be caused when implementing transportation projects. Erecting physical and psychological barriers, whether intended or not can destroy the cohesiveness of communities where once neighbors could interact or walk to the corner market and children could walk to school. OKI supports projects that minimize the impacts on quality of life issues such as these. Appropriate mitigation measures should be part of the project when such impacts are unavoidable.

- **Expenditures on Highway Projects**

A third measure of equity is the dollar value of highway projects by area type. Analysis of the current Transportation Improvement Program (TIP) reveals that expenditures benefiting EJ target zones for capacity expansion type projects is about \$332 million versus \$207 million for non-EJ target zones. The proposed plan shows expenditures of \$1.762 million for projects related to EJ target zones and \$455 million for non-EJ target zones. Both the TIP and Plan scenarios show a large proportion of the dollars spent where congestion is most severe.



- **Expenditures on Transit Projects**

This plan is forward thinking in that it proposes a significant increase in the share of dollars spent on transit projects. It is a plan that benefits the entire region and the EJ populations as well. The proposed significant bus service increases with

new bus routes and better connectivity along with proposed rail service provide an equitable solution to improving the mobility to all citizens of the region.

• **Other Regional Performance Measures**

The table below provides a comparison of additional measures for comparing the existing scenario, 2030 base and the 2030 plan.

Table 16-9
Environmental, Financial and System Performance Comparisons

Measure	1995	2030 Base	2030 Plan
Environmental			
VOC emissions (tons per day)	92.0	39.1	37.7
NOx emissions (tons per day)	156.3	30.5	30.0
Fuel consumption (gal/day)	2,571,200	2,564,000	2,531,000
Financial*			
System cost per person per year	\$103	\$82	\$158
System Performance			
Daily vehicle miles of travel	40,107,000	51,621,000	50,903,000
Daily vehicle hours of travel	1,029,000	1,460,000	1,360,000
Daily Transit Ridership	151,500	140,600	174,600
Avg. Peak Highway Speed (mph)	42	36	38

* Dearborn Co. not included

SUMMARY

This *OKI 2030 Regional Transportation Plan* addresses the transportation needs of the regional population, including target EJ populations. In fact, the improvements recommended directly provide increased transit opportunities to most of the target areas.

Highway spending for both the TIP and the recommended plan is more than equitable as evidenced by the charts above. These projects provide positive impacts for all segments of the population in terms of travel-time savings, emissions reductions, congestion relief and accessibility. Care must be taken to minimize the impacts of projects to neighborhoods.

REFERENCE

¹U.S. Department of Transportation, FHWA. *Community Impact Assessment*. September 1996.