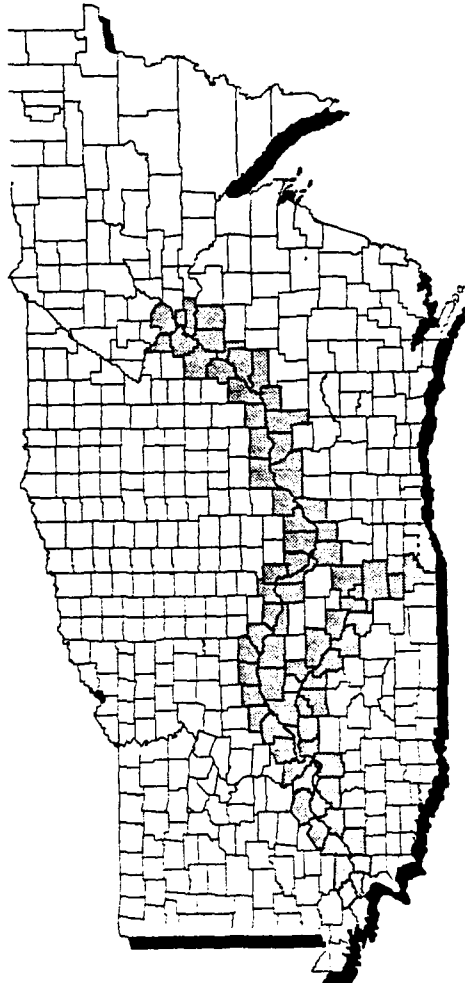


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# ECONOMIC IMPACTS OF RECREATION

## ON THE UPPER MISSISSIPPI RIVER SYSTEM

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### ECONOMIC IMPACTS REPORT

FINAL VERSION  
MARCH 1993

Prepared by:

U.S. Army Corps of Engineers  
St. Paul District

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| <p>The purpose of this report is to determine the economic impacts of recreational activity on the economies of the Upper Mississippi River region. This determination considers the results of the recreation use and expenditure components in combination, and makes use of Input-Output analysis to estimate the effects of spending on the regional economy. Geographically, the study includes the commercially navigable portions of five rivers: the Mississippi (north of Cairo, IL), the Illinois River, the St. Croix River, the Minnesota River and the Kaskaskia River. Also included are the side channels, sloughs, and lakes associated with these rivers.</p> |       |                                               |                                                                                                |                                               |                           |
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ECONOMIC IMPACTS OF RECREATION  
ON THE UMRS

Economic Impacts Report

Prepared by:

DTIC QUALITY INSPECTED 5

U.S. Army Corps of Engineers  
St. Paul District  
Planning Division

March 1993

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In 1986, Congress authorized a study to assess the economic importance of recreation in the Upper Mississippi River System. The study findings have been published in a series of reports by the U.S. Army Corps of Engineers, St. Paul District. A listing of these reports follows:

- Plan of Study for the Recreation Economics Study on the Upper Mississippi River System (September 1986)
- Recreation-Economics Data Review, Upper Mississippi River Basin (February 1988)
- Economic Impacts of Recreation on the Upper Mississippi River System: Study Sampling Plan (May 1989)
- Economic Impacts of Recreation on the Upper Mississippi River System: Recreation Use and Activities Report (March 1993)
- Economic Impacts of Recreation on the Upper Mississippi River System: Recreation Expenditure Report (March 1993)
- Economic Impacts of Recreation on the Upper Mississippi River System: Economic Impacts Report (March 1993)
- Economic Impacts of Recreation on the Upper Mississippi River System: Summary Report (June 1993)

A related document summarizes the economic input-output model applications prepared in conjunction with this study:

- MI-REC: Micro-Implan Recreation Economic Impact Estimation System Users' Manual

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## INTRODUCTION

In 1986, Congress authorized a study to assess the economic importance of recreation in the Upper Mississippi River System (UMRS) (Public Law 99-88). This study, administered by the Corps of Engineers, St. Paul District, and supervised by a multi-agency Technical Review Team (TRT), has two distinct but related components:

1. measurement of the amount and type of recreation use in the UMRS through the use of on-site interviews at public access sites in the study area and telephone interviews of households that rent marina slips or have permitted boat docks, and
2. measurement of recreation-related spending by the respondents in component one. Durable recreation goods spending will be measured through the on-site interviews and initial phone calls, while variable trip spending will be measured with a self-administered mailback questionnaire.

## PURPOSE AND REPORT FORMAT

The purpose of this report is to determine the economic impacts of recreational activity on the economies of the UMRS region. This determination considers the results of the recreation use and expenditure components in combination, and makes use of Input-Output analysis to estimate the effects of spending on the regional economy. The automated econometric model IMPLAN (IMPact analysis for PLANning), developed by the U.S. Forest Service, is used for this purpose. The report is divided into the following parts:

- Part One: Overview of economic impact analysis concepts used in this report.
- Part Two: Summary of UMRS region-wide results.
- Part Three: Summary of results for each surveyed population.



#### Part Four: Applicability of results.

##### STUDY AREA

Geographically, the study includes the commercially navigable portions of five rivers: the Mississippi (north of Cairo, Illinois), Illinois, St. Croix, Minnesota, and Kaskaskia (Appendix A). The UMRS is composed of nearly 1,300 miles of commercially navigable waters. Also included in the study area are the side channels, sloughs, and lakes associated with these rivers, as well as the land immediately adjacent to them. The study area is contained within the States of Minnesota, Wisconsin, Iowa, Illinois, and Missouri.

PART ONE: OVERVIEW OF ECONOMIC IMPACT ANALYSIS CONCEPTS  
USED IN THIS REPORT

ECONOMIC IMPACT ANALYSIS AND IMPLAN

The economic impact analysis completed for this report involves the translation of visitor spending into economic effects in terms of income and employment. This analysis has been accomplished through the use of an Input-Output (I-O) model. An I-O model is an accounting system showing economic transactions between local businesses, households, and governments, as well as transactions between public and private entities located elsewhere. An I-O model provides only a static view of economic conditions, but can be an effective device for characterizing and analyzing complex local, regional and national economies. I-O models are constructed for specific geographic regions in order to capture the specific economic sectors and linkages that exist in the region.

IMPLAN, an I-O model developed by the U.S. Forest Service, was selected for use in this study after considering a number of alternatives. IMPLAN was first developed in 1979, and the current version for micro-computer, Version 91-09 (March 1992), was used in the analyses in this report. A major consideration for selecting IMPLAN was that it provides more detailed information than most other standardized I-O models for recreation-related economic sectors. IMPLAN also allows for flexibility in defining the study area (using any combination of counties in the United States) making it useful for applications beyond the confines of this study. Additionally, IMPLAN allows flexibility in the use of local

and regional purchasing coefficients (LPC's and RPC's) that reflect the consumption and production relationships within given regions. Careful consideration of these relationships can lead to more realistic results in regional analyses. User training and support for IMPLAN is also available, which was a consideration in evaluating its usefulness in future applications.

The types of economic effects and regional analyses used in this analysis are described in the sections below.

#### ECONOMIC EFFECTS

The economic effects of recreation use on the UMRS can be viewed as the income and employment businesses derive as a direct or indirect result of spending by visitors. The total economic effect can be described as the sum of the **direct, indirect, and induced** effects resulting from recreation-related purchases in an economy. These three distinct types of effects are measured separately by IMPLAN and are reported separately in the analysis.

**Direct** effects include income and employment resulting from direct spending by visitors on goods and services required to engage in recreation activities; for instance, the retail purchase of a boat.

**Indirect** effects measure the secondary purchases, or "recirculation" of dollars among related firms, resulting from the initial purchase. Continuing the boat example, boating manufacturers will purchase materials and labor to meet the increased demand for boats resulting from increased retail sales;

shipping companies will purchase labor, trucks, gasoline and other supplies; and boat dealers will purchase labor and supplies in support of their retail sales activities.

**Induced** effects measure the additional "recirculation" of dollars caused by increased employee income generated by the direct and indirect effects of a retail purchase. These increases in employee income lead to more retail purchases in the economy, which lead to further "recirculation" of the original retail dollars expended.

#### REGIONAL ANALYSES

An economic region must be defined in order to determine the economic effects of an activity. In IMPLAN, a region can include any collection of counties in the United States.

Two basic regions have been used in this analysis: the 76 "border" counties that define the UMRS corridor (plus the city of St. Louis), and the five States that encompass the study area.

Additionally, in determining the effects of recreational use at developed sites, four sub-regions of the UMRS corridor counties are separately analyzed. These regions conform to the boundaries of the St. Paul, Rock Island, and St. Louis Districts of the Corps of Engineers on the main stem Mississippi River, plus the counties along the length of the Illinois Waterway (excluding the Chicago area). Maps of the regions are included as Appendix A. Since the Corps district boundaries do not follow county boundaries, some counties appear in two adjacent regions.

Each of the regions has a unique set of economic attributes, and each will therefore be affected differently by recreational spending. In general, the larger and more diverse an economic region is, the greater the resulting economic impact from a given activity will be. This is because more goods and services can be obtained within the region, limiting "leakages" of dollars to producers of goods and services outside the region.

In addition to geographic descriptions of the regions used in this report, population and total dollars of activity in a region are reported as indicators of a region's size. These figures appear in Table 1. The figures are taken from summaries prepared in IMPLAN, and reflect conditions in 1985, the most recent data currently available in IMPLAN. The number of economic sectors included in each region is also reported, and can be viewed as an indicator of a region's economic diversity. There are strong similarities between Regions 1 and 3, as well as between Regions 2 and 4.

For each region studied, two types of analysis will be performed: analysis of spending made locally (within 30 miles of the respective sites) by non-residents of the UMRS counties; and analysis of all spending made locally (residents and non-residents). The analyses will also distinguish between purchases of items that are consumed during the recreational trips (gas, food, lodging, bait, etc.) and purchases of durable items (boats, fishing gear, clothing, etc.).

**TABLE 1: CHARACTERISTICS OF UMRS REGIONAL ECONOMIES (1985 FIGURES)**

| REGION     | POPULATION  | SQUARE MILES | IMPLAN SECTORS* | # OF COUNTIES | OUTPUT (\$MM) | EMPLOYEE COMP (\$MM) | JOBS        |
|------------|-------------|--------------|-----------------|---------------|---------------|----------------------|-------------|
| REGION 1   | 2,249,700   | 9,940        | 410             | 18            | 87,888        | 26,360               | 1,315,664   |
| REGION 2   | 976,000     | 12,288       | 331             | 21            | 31,643        | 8,259                | 415,545     |
| REGION 3   | 2,674,700   | 11,047       | 407             | 22            | 90,756        | 25,859               | 1,277,161   |
| REGION 4   | 1,066,000   | 10,959       | 321             | 20            | 29,977        | 8,080                | 365,806     |
| ALL UMRS** | 6,893,600   | 42,343       | 464             | 77            | 238,459       | 68,113               | 3,349,099   |
| 5 STATES   | 28,421,000  | 314,529      | 504             |               | 914,438       | 280,257              | 13,114,020  |
| U.S. TOTAL | 238,699,300 | 3,539,289    | 528             |               | 7,198,847     | 2,367,477            | 109,450,200 |

\*The number of economic sectors (as defined within IMPLAN) that are present in the region.

\*\* Totals for UMRS corridor are not the sum of all regions since some counties are in more than one region.

## PART TWO: SUMMARY OF UMRS REGION-WIDE RESULTS

The summary of economic effects presented in this section is based on the total trips and expenditures measured in all surveys for this study. More detailed presentations of the trip and expenditure results are included in the respective reports prepared for this study.

### ANNUAL NUMBER OF TRIPS

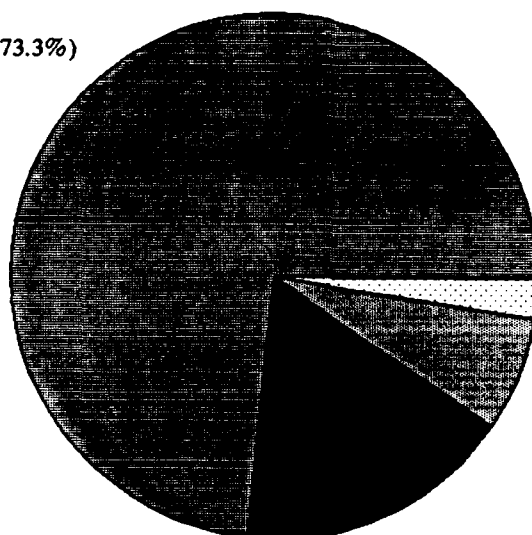
The number of annual recreational parties/trips to the UMRS sites accounted for in this study has been estimated at more than 2.3 million. These trips were made by nearly 6 million people. Three-quarters of the trips were made to developed recreation areas. Marina slips accounted for 17 percent of the trips, sightseeing/visitor center areas accounted for 7 percent of the trips, and permitted boat docks accounted for 2 percent of the trips. A breakdown of these trip estimates is provided on Figure 1.

### AVERAGE TRIP EXPENDITURES

Spending patterns differ among different types of visitors, as well as among types of areas visited. The total annual trip expenditures made in the UMRS, broken down by river access type, are shown on Figure 2. Although trips to developed areas were the most common in the UMRS, they accounted for the lowest average spending per trip (\$69). Trips to marinas had the highest spending average (\$132) followed by trips to permitted docks (\$86) and trips

# FIGURE 1: RECREATIONAL USE OF UMRS BY ACCESS TYPE (TRIPS)

DEVELOPED AREAS (73.3%)



PERMIT DOCKS (2.4%)

SIGHTSEE AREAS (7.0%)

MARINA SLIPS (17.3%)

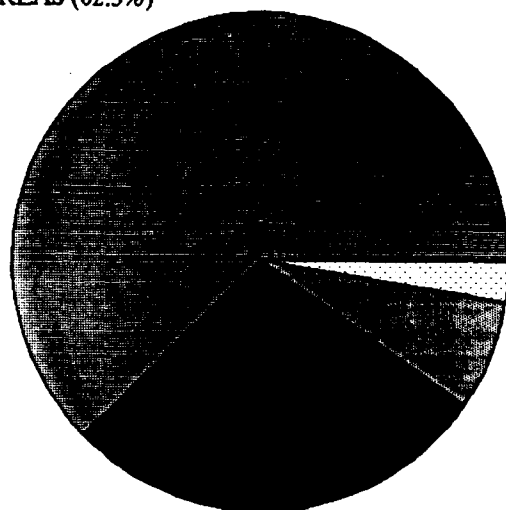
|                   | People<br>(Annual) | Proportion | Trips<br>(Annual) | Proportion | Party Size |
|-------------------|--------------------|------------|-------------------|------------|------------|
| DEVELOPED AREAS   | 3,739,724          | 62.7%      | 1,732,571         | 73.3%      | 2.2        |
| MARINA SLIPS      | 1,569,785          | 26.3%      | 408,985           | 17.3%      | 3.8        |
| SIGHTSEEING AREAS | 415,945            | 7.0%       | 166,342           | 7.0%       | 2.5        |
| PERMITTED DOCKS   | 236,332            | 4.0%       | 57,151            | 2.4%       | 4.1        |
| TOTAL             | 5,961,786          | 100.0%     | 2,365,049         | 100.0%     |            |

|                   | Visitor<br>Days<br>(Annual) | Proportion |
|-------------------|-----------------------------|------------|
| DEVELOPED AREAS   | 8,216,174                   | 67.8%      |
| MARINA SLIPS      | 2,637,239                   | 21.7%      |
| SIGHTSEEING AREAS | 913,831                     | 7.5%       |
| PERMITTED DOCKS   | 359,489                     | 3.0%       |
| TOTAL             | 12,126,733                  | 100.0%     |



**FIGURE 2: TOTAL EXPENDITURES  
ON UMRS TRIPS, BY ACCESS TYPE**

DEVELOPED AREAS (62.3%)



PERMIT DOCKS (2.6%)

SIGHTSEE AREAS (7.2%)

MARINA SLIPS (28.0%)

|                   | Trips<br>(Annual) | Spending<br>Per Trip* | Total<br>Spending*   | % Spent<br>w/i 30 miles |
|-------------------|-------------------|-----------------------|----------------------|-------------------------|
| DEVELOPED AREAS   | 1,732,571         | \$69.05               | \$119,634,028        | 69.2%                   |
| MARINA SLIPS      | 408,985           | \$131.55              | \$53,801,977         | 85.0%                   |
| SIGHTSEEING AREAS | 166,342           | \$82.95               | \$13,798,069         | 65.2%                   |
| PERMITTED DOCKS   | 57,151            | \$85.97               | \$4,913,271          | 81.3%                   |
| <b>TOTAL</b>      | <b>2,365,049</b>  | <b>\$81.24</b>        | <b>\$192,147,345</b> | <b>73.6%</b>            |

|                   | Visitor Days<br>(Annual) | Spending<br>Per<br>Visitor Day* | Total<br>Spending*   | % Spent<br>w/i 30 miles |
|-------------------|--------------------------|---------------------------------|----------------------|-------------------------|
| DEVELOPED AREAS   | 8,216,174                | \$14.56                         | \$119,634,028        | 69.2%                   |
| MARINA SLIPS      | 2,637,239                | \$20.40                         | \$53,801,977         | 85.0%                   |
| SIGHTSEEING AREAS | 913,831                  | \$15.10                         | \$13,798,069         | 65.2%                   |
| PERMITTED DOCKS   | 359,489                  | \$13.67                         | \$4,913,271          | 81.3%                   |
| <b>TOTAL</b>      | <b>12,126,733</b>        | <b>\$15.84</b>                  | <b>\$192,147,345</b> | <b>73.6%</b>            |

\* 1990 Price Levels

documented at sightseeing/visitor center areas (\$83). On average, three-fourths of the spending took place within 30 miles of the recreational site visited.

Factors that account for differences in spending among access types include trip length, party size, mix of goods purchased, and visitor segments represented. Some of these differences are highlighted in Appendix B.

#### SPENDING ON DURABLE GOODS

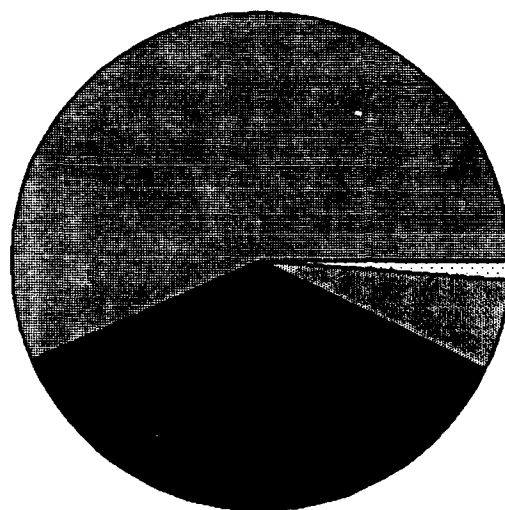
Spending on durable goods used on the trips to the UMRS was also measured in the survey, and is summarized on Figure 3. The purchases have been adjusted to a per-trip average. Durable goods spending per trip was greatest for trips to marina slips (\$135), followed by sightseeing areas (\$54), developed areas (\$50) and permitted docks (\$29). Overall spending on durable goods was largest from trips to developed areas since these areas had the greatest number of trips.

Unlike trip spending, however, durable goods spending cannot be as directly attributed to use of the UMRS. Many durable goods, such as boats, trailers, and camping equipment, can be used for trips outside the UMRS. There has been no attempt in the survey to isolate which durable goods purchases were made specifically for recreation on the UMRS, since procedures to do this are confusing to respondents and likely would have yielded unreliable results in a study of this scope. These purchases, therefore, can only be viewed as "associated with" recreation on the UMRS.

To address this allocation issue in the regional economic

# FIGURE 3: DURABLE EXPENDITURES RELATED TO UMRS TRIPS, BY ACCESS TYPE

DEVELOPED AREAS (56.6%)



PERMIT DOCKS (1.1%)

SIGHTSEE AREAS (5.9%)

MARINA SLIPS (36.4%)

|                   | Trips<br>(Annual) | Spending<br>Per Trip* | Total<br>Spending*   | % Spent<br>w/i 30 miles |
|-------------------|-------------------|-----------------------|----------------------|-------------------------|
| DEVELOPED AREAS   | 1,732,571         | \$49.69               | \$86,091,453         | 49.9%                   |
| MARINA SLIPS      | 408,985           | \$135.26              | \$55,319,311         | 34.9%                   |
| SIGHTSEEING AREAS | 166,342           | \$54.33               | \$9,037,361          | 35.8%                   |
| PERMITTED DOCKS   | 57,151            | \$29.24               | \$1,671,095          | 75.2%                   |
| <b>TOTAL</b>      | <b>2,365,049</b>  | <b>\$81.24</b>        | <b>\$152,119,220</b> | <b>43.9%</b>            |

|                   | Visitor Days<br>(Annual) | Spending<br>Per<br>Visitor Day* | Total<br>Spending*   | % Spent<br>w/i 30 miles |
|-------------------|--------------------------|---------------------------------|----------------------|-------------------------|
| DEVELOPED AREAS   | 8,216,174                | \$10.48                         | \$86,091,453         | 49.9%                   |
| MARINA SLIPS      | 2,637,239                | \$20.98                         | \$55,319,311         | 34.9%                   |
| SIGHTSEEING AREAS | 913,831                  | \$9.89                          | \$9,037,361          | 35.8%                   |
| PERMITTED DOCKS   | 359,489                  | \$4.65                          | \$1,671,095          | 75.2%                   |
| <b>TOTAL</b>      | <b>12,126,733</b>        | <b>\$12.54</b>                  | <b>\$152,119,220</b> | <b>43.9%</b>            |

\* 1990 Price Levels

analyses, the location of purchase and type of access visited were used as the distinguishing factors. Since durable goods used on trips to developed areas and sightseeing areas are highly mobile, only goods purchased in the UMRS corridor counties have been considered to be directly associated with recreation on the UMRS. This accounts for roughly half of the amount of durable goods purchases used on these visits. Durable goods purchases for trips to marinas and permitted docks are more directly tied to recreation on the UMRS. Purchases of durable goods used at these sites (nearly all purchases were made in the five-State region) have been considered directly associated with UMRS recreation, and have been included in the five-State regional analysis and national analysis presented in the next section.

Considering the results of durable goods purchases has the greatest usefulness in studying economic impacts of a large region, such as the UMRS corridor counties or the five States in the study area. Regions of this size are large enough to have some production capacity. Attempting to measure the economic impacts of durable goods purchases on individual projects or small counties has limited usefulness, however, and is generally not recommended. In small or isolated regions, the local effects of durable goods purchases are virtually zero in most circumstances. This is evident in the IMPLAN results presented by region in PART THREE.

#### ECONOMIC EFFECTS OF SPENDING IN THE UMRS REGION

The economic effects of recreation originating from all surveyed access types in the study area are summarized in Table 2.

These figures represent all spending on recreational trips within the border counties that define the study area. This spending was 73.6 percent of all trip spending (Figure 2). Note that all figures in Table 2 and subsequent tables have been deflated to 1985 price levels by IMPLAN for internal consistency in running the model. (The discount from 1990 prices to 1985 prices is approximately 5 percent.)

Table 2 contains separate listings for trip spending and durable goods spending, as well as for non-resident spending within 30 miles and total spending within 30 miles. Three separate measures are reported: total output, total income to employees, and jobs supported by the spending. Three types of economic effects are contained in the matrix: direct spending by visitors, indirect effects, and induced effects. In addition, two types of economic multipliers have been computed. Type I multipliers consider the effect of direct and indirect activity generated by a given amount of spending  $[(\text{Direct} + \text{Indirect})/\text{Direct}]$ . Type III multipliers consider the effect of total activity in relation to a given amount of spending  $[(\text{Direct} + \text{Indirect} + \text{Induced})/\text{Direct}]$ . Higher multipliers are an indication of greater economic capacity and diversity within a given region.

The results in Table 2 show that the direct trip spending in the UMRS corridor counties generated a total of \$325 million in economic activity in the region. About \$90 million of this amount was wages to employees. A total of 5,789 jobs were supported by this activity. Just over one-third of this activity was due to "new" dollars brought to the region by visitors who permanently

**TABLE 2: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
UMRS CORRIDOR: GRAND TOTAL**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total  | Multipliers |          |
|---------------|--------|----------|---------|--------|-------------|----------|
|               |        |          |         |        | Type I      | Type III |
| Output(\$MM)  | 47.34  | 20.20    | 62.32   | 129.86 | 1.43        | 2.74     |
| Income (\$MM) | 13.61  | 5.13     | 17.39   | 36.13  | 1.38        | 2.65     |
| Jobs          | 1089   | 282      | 1024    | 2395   | 1.26        | 2.20     |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total  |      |      |
|---------------|--------|----------|---------|--------|------|------|
| Output(\$MM)  | 122.44 | 51.40    | 150.89  | 324.73 | 1.42 | 2.65 |
| Income (\$MM) | 34.79  | 13.04    | 42.11   | 89.94  | 1.37 | 2.59 |
| Jobs          | 2595   | 714      | 2480    | 5789   | 1.28 | 2.23 |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 4.52   | 2.03     | 6.01    | 12.56 | 1.45 | 2.78 |
| Income (\$MM) | 1.59   | 0.54     | 1.67    | 3.80  | 1.34 | 2.39 |
| Jobs          | 108    | 30       | 99      | 237   | 1.28 | 2.19 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 27.27  | 12.18    | 37.74   | 77.19 | 1.45 | 2.83 |
| Income (\$MM) | 9.64   | 3.23     | 10.52   | 23.39 | 1.34 | 2.43 |
| Jobs          | 652    | 180      | 619     | 1451  | 1.28 | 2.23 |

live outside the UMRS area. The portions of the economic impacts that are due to the different access types are similar to the proportions of total expenditures presented on Figure 2.

Spending on durable goods in the UMRS corridor counties generated a total of \$77 million in economic activity in the region. Over \$23 million of this amount was wages to employees. A total of 1,451 jobs were supported by purchases of durable goods in the region. Only one-sixth of this activity was due to non-residents making purchases in the UMRS corridor counties.

This amount of activity accounts for only a very small portion of total economic activity in the region - less than 1 percent. The \$400 million in trip and durable goods spending compares with total economic output of \$238 billion in the UMRS corridor counties (Appendix C). Similarly, the 7,000-plus jobs that are supported by recreational purchases compare with nearly 7 million total jobs in the region.

The value of considering economic "importance" for this large a region is rather limited compared to its value in considering importance in relation to specific recreation areas or industries. Recreation expenditures play a more "important" role in specific areas within the basin, but this detail is lost at this level of aggregation. Conducting this type of analysis for a specific county, region, or project is discussed in detail in the applications manual prepared for this study.

#### ECONOMIC EFFECTS OF ALL SPENDING ON UMRS TRIPS

The previous section examined the effects of spending that

occurred in the UMRS region only. Virtually all of the remaining spending associated with UMRS recreation was made within the five States of the study area. The effects of total spending on the five-State economy, and on the national economy, are presented in Tables 3A and 3B, respectively. More than \$550 million in total output and more than 10,000 jobs in the five States in the study area were supported by UMRS recreational spending. Comparable figures for the national economy are \$1.2 billion in output and over 18,000 jobs.

Figures in these tables represent all spending made on trip related purchases. For durable goods purchases associated with marina slips and permitted docks, all spending is included; for durable goods purchases associated with developed sites and sightseeing areas, only the spending made within the UMRS counties is included. The distinction for developed sites and sightseeing areas is made to attempt to include only those purchases that were made specifically for use on UMRS recreational trips. Durable goods purchases made within the UMRS counties and used at UMRS sites were counted as wholly attributable to UMRS recreational visits for the purposes of this report.



**TABLE 3A: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
FIVE STATES (MN,WI,IA,IL,MO): GRAND TOTAL**  
(All figures are annual, reported at 1985 price levels)

| <b>TRIP SPENDING</b>  |        |          |         |        | <b>Multipliers</b> |          |
|-----------------------|--------|----------|---------|--------|--------------------|----------|
| <b>(ALL SPENDING)</b> |        |          |         |        | Type I             | Type III |
|                       | Direct | Indirect | Induced | Total  |                    |          |
| Output(\$MM)          | 155.48 | 70.59    | 219.07  | 445.14 | 1.45               | 2.86     |
| Income (\$MM)         | 50.16  | 19.11    | 65.62   | 134.89 | 1.38               | 2.69     |
| Jobs                  | 3487   | 968      | 3587    | 8042   | 1.28               | 2.31     |

**DURABLE GOODS SPENDING**  
(DEVELOPED & SIGHTSEEING AREAS: CORRIDOR SPENDING)  
(DOCK & MARINA: ALL SPENDING)

|               | Direct | Indirect | Induced | Total  |      |      |
|---------------|--------|----------|---------|--------|------|------|
| Output(\$MM)  | 40.09  | 17.86    | 58.92   | 116.87 | 1.45 | 2.92 |
| Income (\$MM) | 15.57  | 5.13     | 17.66   | 38.36  | 1.33 | 2.46 |
| Jobs          | 949    | 254      | 965     | 2168   | 1.27 | 2.28 |

**TABLE 3B: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
UNITED STATES: GRAND TOTAL**  
(All figures are annual, reported at 1985 price levels)

| <b>TRIP SPENDING</b>  |        |          |         |        | <b>Multipliers</b> |          |
|-----------------------|--------|----------|---------|--------|--------------------|----------|
| <b>(ALL SPENDING)</b> |        |          |         |        | Type I             | Type III |
|                       | Direct | Indirect | Induced | Total  |                    |          |
| Output(\$MM)          | 181.56 | 148.51   | 523.95  | 854.02 | 1.82               | 4.70     |
| Income (\$MM)         | 59.61  | 37.55    | 151.41  | 248.57 | 1.63               | 4.17     |
| Jobs                  | 3765   | 1782     | 7921    | 13468  | 1.47               | 3.58     |

**DURABLE GOODS SPENDING**  
(DEVELOPED & SIGHTSEEING AREAS: CORRIDOR SPENDING)  
(DOCK & MARINA: ALL SPENDING)

|               | Direct | Indirect | Induced | Total  |      |      |
|---------------|--------|----------|---------|--------|------|------|
| Output(\$MM)  | 69.43  | 56.61    | 197.71  | 323.75 | 1.82 | 4.66 |
| Income (\$MM) | 25.34  | 16.33    | 57.12   | 98.79  | 1.64 | 3.90 |
| Jobs          | 1378   | 721      | 2988    | 5087   | 1.52 | 3.69 |

### PART THREE: SUMMARY OF RESULTS FOR EACH SURVEYED POPULATION

Economic effects generated by spending from the specific populations surveyed are examined in this part of the report. The analyses are presented in the same manner as those in PART TWO, only for different populations and regions.

#### DEVELOPED RECREATION AREAS

Spending on trips to developed recreation areas in the UMRS accounted for \$71 million in spending in the region, and resulted in over \$188 million in total economic activity. This activity generated wages of over \$50 million, and supported approximately 3,364 jobs. Nearly 40 percent of this activity was the result of new dollars being brought to the region by non-resident visitors. The input/output statistics for the developed areas are presented in Table 4.

The largest share of economic activity took place in Region 1. Region 1 accounted for 60 percent of the total activity related to all trip spending in the corridor (resident plus non-resident local spending), and nearly 80 percent of the activity generated by import dollars (local spending by non-residents). Regional breakdowns of the economic effects of the combined trip and durable goods spending are shown on Figures 4A and 4B, respectively. The associated input/output statistics for the developed areas in each region are presented in Tables 5 through 8.

**TABLE 4: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
DEVELOPED AREAS: UMRS TOTAL**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total | Multipliers |          |
|---------------|--------|----------|---------|-------|-------------|----------|
|               |        |          |         |       | Type I      | Type III |
| Output(\$MM)  | 26.64  | 11.25    | 35.57   | 73.46 | 1.42        | 2.76     |
| Income (\$MM) | 7.78   | 2.86     | 9.93    | 20.57 | 1.37        | 2.64     |
| Jobs          | 622    | 158      | 585     | 1365  | 1.25        | 2.19     |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total  |        |          |
|---------------|--------|----------|---------|--------|--------|----------|
|               |        |          |         |        | Type I | Type III |
| Output(\$MM)  | 71.08  | 29.48    | 87.70   | 188.26 | 1.41   | 2.65     |
| Income (\$MM) | 20.40  | 7.47     | 24.48   | 52.35  | 1.37   | 2.57     |
| Jobs          | 1510   | 412      | 1442    | 3364   | 1.27   | 2.23     |

**DURABLE GOODS SPENDING**

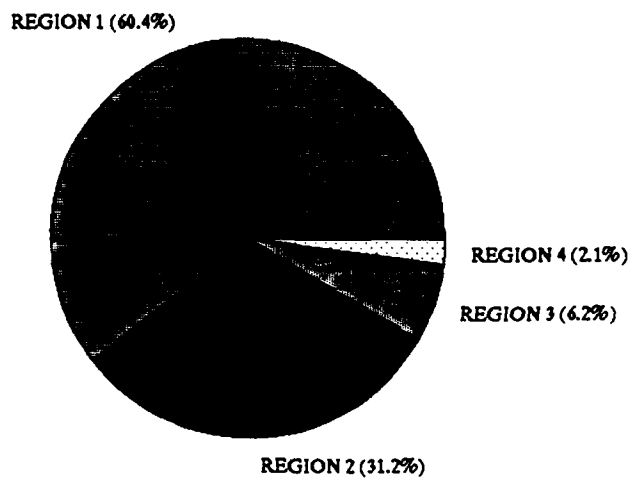
**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |        |          |
|---------------|--------|----------|---------|-------|--------|----------|
|               |        |          |         |       | Type I | Type III |
| Output(\$MM)  | 2.18   | 0.97     | 2.90    | 6.05  | 1.44   | 2.78     |
| Income (\$MM) | 0.77   | 0.26     | 0.81    | 1.84  | 1.34   | 2.39     |
| Jobs          | 51     | 14       | 48      | 113   | 1.27   | 2.22     |

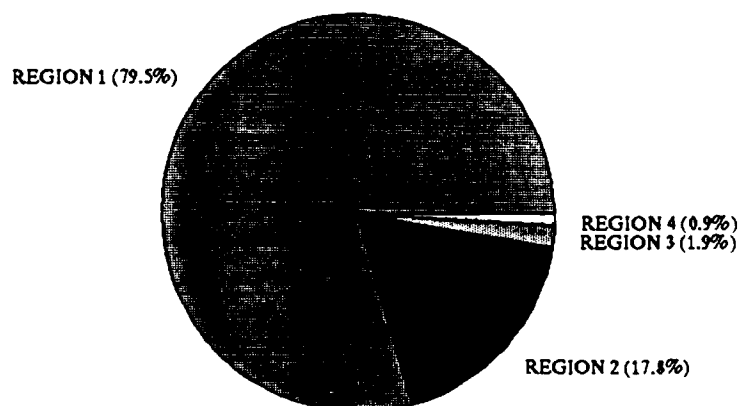
**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |        |          |
|---------------|--------|----------|---------|-------|--------|----------|
|               |        |          |         |       | Type I | Type III |
| Output(\$MM)  | 17.97  | 7.98     | 24.68   | 50.63 | 1.44   | 2.82     |
| Income (\$MM) | 6.38   | 2.12     | 6.89    | 15.39 | 1.33   | 2.41     |
| Jobs          | 423    | 118      | 406     | 947   | 1.28   | 2.24     |

**FIGURE 4A: DISTRIBUTION OF ECONOMIC  
EFFECTS: ALL LOCAL SPENDING**



**FIGURE 4B: DISTRIBUTION OF ECONOMIC  
EFFECTS: NON-RESIDENT LOCAL SPENDING**



**TABLE 5: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
DEVELOPED AREAS: REGION 1**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total | <b>Multipliers</b> |          |
|---------------|--------|----------|---------|-------|--------------------|----------|
|               |        |          |         |       | Type I             | Type III |
| Output(\$MM)  | 19.06  | 7.64     | 21.40   | 48.10 | 1.40               | 2.52     |
| Income (\$MM) | 5.90   | 2.09     | 6.11    | 14.10 | 1.35               | 2.39     |
| Jobs          | 508    | 118      | 374     | 1000  | 1.23               | 1.97     |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 36.88  | 14.59    | 39.10   | 90.57 | 1.40 | 2.46 |
| Income (\$MM) | 11.40  | 3.98     | 11.16   | 26.54 | 1.35 | 2.33 |
| Jobs          | 918    | 224      | 683     | 1825  | 1.24 | 1.99 |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 1.56   | 0.67     | 1.70    | 3.93  | 1.43 | 2.52 |
| Income (\$MM) | 0.58   | 0.18     | 0.48    | 1.24  | 1.31 | 2.14 |
| Jobs          | 40     | 10       | 30      | 80    | 1.25 | 2.00 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 8.93   | 3.78     | 9.64    | 22.35 | 1.42 | 2.50 |
| Income (\$MM) | 3.29   | 1.03     | 2.75    | 7.07  | 1.31 | 2.15 |
| Jobs          | 227    | 57       | 168     | 452   | 1.25 | 1.99 |

**TABLE 6: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
DEVELOPED AREAS: REGION 2**

(All figures are annual, reported at 1985 price levels)

| <b>TRIP SPENDING</b>                  |        |          |         |       | <b>Multipliers</b> |          |
|---------------------------------------|--------|----------|---------|-------|--------------------|----------|
| <b>A. NON-RESIDENT LOCAL SPENDING</b> |        |          |         |       | Type I             | Type III |
|                                       | Direct | Indirect | Induced | Total |                    |          |
| Output(\$MM)                          | 4.32   | 1.50     | 4.95    | 10.77 | 1.35               | 2.49     |
| Income (\$MM)                         | 1.36   | 0.36     | 1.40    | 3.12  | 1.26               | 2.29     |
| Jobs                                  | 112    | 21       | 87      | 220   | 1.19               | 1.96     |
| <b>B. ALL LOCAL SPENDING</b>          |        |          |         |       |                    |          |
|                                       | Direct | Indirect | Induced | Total |                    |          |
| Output(\$MM)                          | 18.85  | 6.56     | 20.83   | 46.24 | 1.35               | 2.45     |
| Income (\$MM)                         | 5.99   | 1.59     | 5.92    | 13.50 | 1.27               | 2.25     |
| Jobs                                  | 459    | 93       | 368     | 920   | 1.20               | 2.00     |
| <b>DURABLE GOODS SPENDING</b>         |        |          |         |       |                    |          |
| <b>A. NON-RESIDENT LOCAL SPENDING</b> |        |          |         |       |                    |          |
|                                       | Direct | Indirect | Induced | Total |                    |          |
| Output(\$MM)                          | 0.39   | 0.13     | 0.36    | 0.88  | 1.33               | 2.26     |
| Income (\$MM)                         | 0.14   | 0.03     | 0.10    | 0.27  | 1.21               | 1.93     |
| Jobs                                  | 10     | 2        | 6       | 18    | 1.20               | 1.80     |
| <b>B. ALL LOCAL SPENDING</b>          |        |          |         |       |                    |          |
|                                       | Direct | Indirect | Induced | Total |                    |          |
| Output(\$MM)                          | 4.97   | 1.71     | 5.39    | 12.07 | 1.34               | 2.43     |
| Income (\$MM)                         | 1.75   | 0.44     | 1.53    | 3.72  | 1.25               | 2.12     |
| Jobs                                  | 120    | 24       | 95      | 239   | 1.20               | 1.99     |

**TABLE 7: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
DEVELOPED AREAS: REGION 3**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total | Multipliers |          |
|---------------|--------|----------|---------|-------|-------------|----------|
|               |        |          |         |       | Type I      | Type III |
| Output(\$MM)  | 0.48   | 0.18     | 0.50    | 1.16  | 1.38        | 2.42     |
| Income (\$MM) | 0.14   | 0.04     | 0.14    | 0.32  | 1.29        | 2.29     |
| Jobs          | 11     | 3        | 8       | 22    | 1.25        | 1.96     |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 3.55   | 1.29     | 3.47    | 8.31  | 1.36 | 2.34 |
| Income (\$MM) | 1.01   | 0.33     | 0.95    | 2.29  | 1.33 | 2.27 |
| Jobs          | 69     | 19       | 56      | 144   | 1.28 | 2.09 |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 0.04   | 0.01     | 0.02    | 0.07  | 1.29 | 1.86 |
| Income (\$MM) | 0.01   | 0.00     | 0.01    | 0.02  | 1.00 | 2.00 |
| Jobs          | 1      | 0        | 0       | 1     | 1.00 | 1.00 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 1.27   | 0.53     | 1.51    | 3.31  | 1.42 | 2.61 |
| Income (\$MM) | 0.44   | 0.14     | 0.41    | 0.99  | 1.32 | 2.25 |
| Jobs          | 31     | 8        | 24      | 63    | 1.26 | 2.03 |

**TABLE 8: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
DEVELOPED AREAS: REGION 4**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

**Multipliers**  
Type I    Type III

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 0.35   | 0.07     | 0.12    | 0.54  | 1.20 | 1.54 |
| Income (\$MM) | 0.08   | 0.01     | 0.03    | 0.12  | 1.13 | 1.50 |
| Jobs          | 6      | 1        | 2       | 9     | 1.17 | 1.50 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 2.16   | 0.43     | 0.66    | 3.25  | 1.20 | 1.50 |
| Income (\$MM) | 0.47   | 0.09     | 0.18    | 0.74  | 1.19 | 1.57 |
| Jobs          | 34     | 4        | 10      | 48    | 1.12 | 1.41 |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 0.02   | 0.00     | 0.00    | 0.02  | 1.00 | 1.00 |
| Income (\$MM) | 0.01   | 0.00     | 0.00    | 0.01  | 1.30 | 1.30 |
| Jobs          | 0      | 0        | 0       | 0     | 0.00 | 0.00 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 0.46   | 0.09     | 0.17    | 0.72  | 1.20 | 1.57 |
| Income (\$MM) | 0.16   | 0.02     | 0.04    | 0.22  | 1.13 | 1.38 |
| Jobs          | 9      | 1        | 2       | 12    | 1.11 | 1.33 |



## SIGHTSEEING/VISITOR CENTER AREAS

The economic effects of recreational spending from persons who visited sightseeing/visitor center areas are presented in Table 9. These expenditures accounted for 7 percent of all measured spending that took place in the UMRS counties (Figure 2). Over 60 percent of the trip spending associated with these sites represented new dollars to the region (local spending by non-residents) which is the highest proportion for any surveyed population.

## PERMITTED DOCKS

The economic effects of recreational spending by parties making trips in the UMRS from their permitted docks are presented in Table 10. Spending for this population represented only 2.5 percent of all trip-related spending for the UMRS (Figure 2). Nearly 80 percent of the spending within the region was by local residents.

## MARINA SLIPS

The economic effects of recreational spending by parties initiating trips from marina slips are presented in Table 11. Spending by this group accounted for over one-fourth of the trip-related spending during the study (Figure 2). Nearly 40 percent of the trip-related spending represented new dollars to the UMRS region. Durable goods purchases within the region were also sizable, even though they represented only one-third of the total durable goods purchases (Figure 3).

**TABLE 9: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
SIGHTSEEING/VISITOR CENTER AREAS**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

**Multipliers**  
Type I    Type III

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 4.61   | 1.97     | 6.24    | 12.82 | 1.43 | 2.78 |
| Income (\$MM) | 1.36   | 0.50     | 1.74    | 3.60  | 1.37 | 2.65 |
| Jobs          | 111    | 28       | 102     | 241   | 1.25 | 2.17 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 7.75   | 3.25     | 10.00   | 21.00 | 1.42 | 2.71 |
| Income (\$MM) | 2.25   | 0.83     | 2.79    | 5.87  | 1.37 | 2.61 |
| Jobs          | 174    | 46       | 164     | 384   | 1.26 | 2.21 |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 0.32   | 0.14     | 0.36    | 0.82  | 1.44 | 2.56 |
| Income (\$MM) | 0.11   | 0.04     | 0.10    | 0.25  | 1.36 | 2.27 |
| Jobs          | 7      | 2        | 6       | 15    | 1.29 | 2.14 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 1.25   | 0.55     | 1.67    | 3.47  | 1.44 | 2.78 |
| Income (\$MM) | 0.44   | 0.15     | 0.46    | 1.05  | 1.34 | 2.39 |
| Jobs          | 30     | 8        | 27      | 65    | 1.27 | 2.17 |

**TABLE 10: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
PERMITTED DOCKS**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total | <b>Multipliers</b> |          |
|---------------|--------|----------|---------|-------|--------------------|----------|
|               |        |          |         |       | Type I             | Type III |
| Output(\$MM)  | 0.80   | 0.34     | 0.87    | 2.01  | 1.43               | 2.51     |
| Income (\$MM) | 0.22   | 0.08     | 0.24    | 0.54  | 1.36               | 2.45     |
| Jobs          | 16     | 5        | 14      | 35    | 1.31               | 2.19     |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |        |          |
|---------------|--------|----------|---------|-------|--------|----------|
|               |        |          |         |       | Type I | Type III |
| Output(\$MM)  | 3.27   | 1.41     | 3.84    | 8.52  | 1.43   | 2.61     |
| Income (\$MM) | 0.92   | 0.35     | 1.07    | 2.34  | 1.38   | 2.54     |
| Jobs          | 66     | 19       | 63      | 148   | 1.29   | 2.24     |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |        |          |
|---------------|--------|----------|---------|-------|--------|----------|
|               |        |          |         |       | Type I | Type III |
| Output(\$MM)  | 0.11   | 0.05     | 0.09    | 0.25  | 1.45   | 2.27     |
| Income (\$MM) | 0.04   | 0.01     | 0.02    | 0.07  | 1.25   | 1.75     |
| Jobs          | 3      | 1        | 1       | 5     | 1.33   | 1.67     |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |        |          |
|---------------|--------|----------|---------|-------|--------|----------|
|               |        |          |         |       | Type I | Type III |
| Output(\$MM)  | 0.61   | 0.27     | 0.77    | 1.65  | 1.44   | 2.70     |
| Income (\$MM) | 0.21   | 0.07     | 0.21    | 0.49  | 1.33   | 2.33     |
| Jobs          | 15     | 4        | 12      | 31    | 1.27   | 2.07     |

**TABLE 11: ECONOMIC EFFECTS OF RECREATIONAL SPENDING  
MARINA SLIPS**

(All figures are annual, reported at 1985 price levels)

**TRIP SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

**Multipliers**  
Type I    Type II

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 15.29  | 6.64     | 19.64   | 41.57 | 1.43 | 2.72 |
| Income (\$MM) | 4.25   | 1.69     | 5.48    | 11.42 | 1.40 | 2.69 |
| Jobs          | 340    | 91       | 323     | 754   | 1.27 | 2.22 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total  |      |      |
|---------------|--------|----------|---------|--------|------|------|
| Output(\$MM)  | 40.34  | 17.26    | 49.35   | 106.95 | 1.43 | 2.65 |
| Income (\$MM) | 11.22  | 4.39     | 13.77   | 29.38  | 1.39 | 2.62 |
| Jobs          | 845    | 237      | 811     | 1893   | 1.28 | 2.24 |

**DURABLE GOODS SPENDING**

**A. NON-RESIDENT LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 1.91   | 0.87     | 2.66    | 5.44  | 1.46 | 2.85 |
| Income (\$MM) | 0.67   | 0.23     | 0.74    | 1.64  | 1.34 | 2.45 |
| Jobs          | 47     | 13       | 44      | 104   | 1.28 | 2.21 |

**B. ALL LOCAL SPENDING**

|               | Direct | Indirect | Induced | Total |      |      |
|---------------|--------|----------|---------|-------|------|------|
| Output(\$MM)  | 7.44   | 3.38     | 10.62   | 21.44 | 1.45 | 2.88 |
| Income (\$MM) | 2.61   | 0.89     | 2.96    | 6.46  | 1.34 | 2.48 |
| Jobs          | 184    | 50       | 174     | 408   | 1.27 | 2.22 |

## PART FOUR: APPLICABILITY OF RESULTS

### APPLICATIONS

The methods developed to estimate economic impacts for the various areas and scenarios presented in this report are applicable to similar studies of various scope in the UMRS. Techniques for employing these methods with new or existing data are covered separately in an application manual titled: "Micro-Implan Recreation Economic Impact Estimation System User's Manual."

### LIMITATIONS

There are several limitations to the analyses presented in this document that are worthy of note. As reported in the RECREATION USE document, the use and activity levels in this report represent only one annual period of use, and have been drawn from surveys taken over a 2-year period. The data's representativeness across many years cannot be determined within the data itself. Additionally, the concept of recreation use has been limited to recreation visits to developed areas, sightseeing/visitor center areas, permitted docks, and marina slips.

Within the specific realm of the input-output analysis, the large and unusually shaped study area presents problems when considering it as a functional economy. The UMRS corridor contains two large metropolitan areas (St. Louis and the Twin Cities) as well as several mid-size economies (Quad Cities, Peoria). IMPLAN assumes economic activity will first take place inside this corridor (length-wise) rather than in surrounding areas that may actually be involved in the activity, too. The corridor's

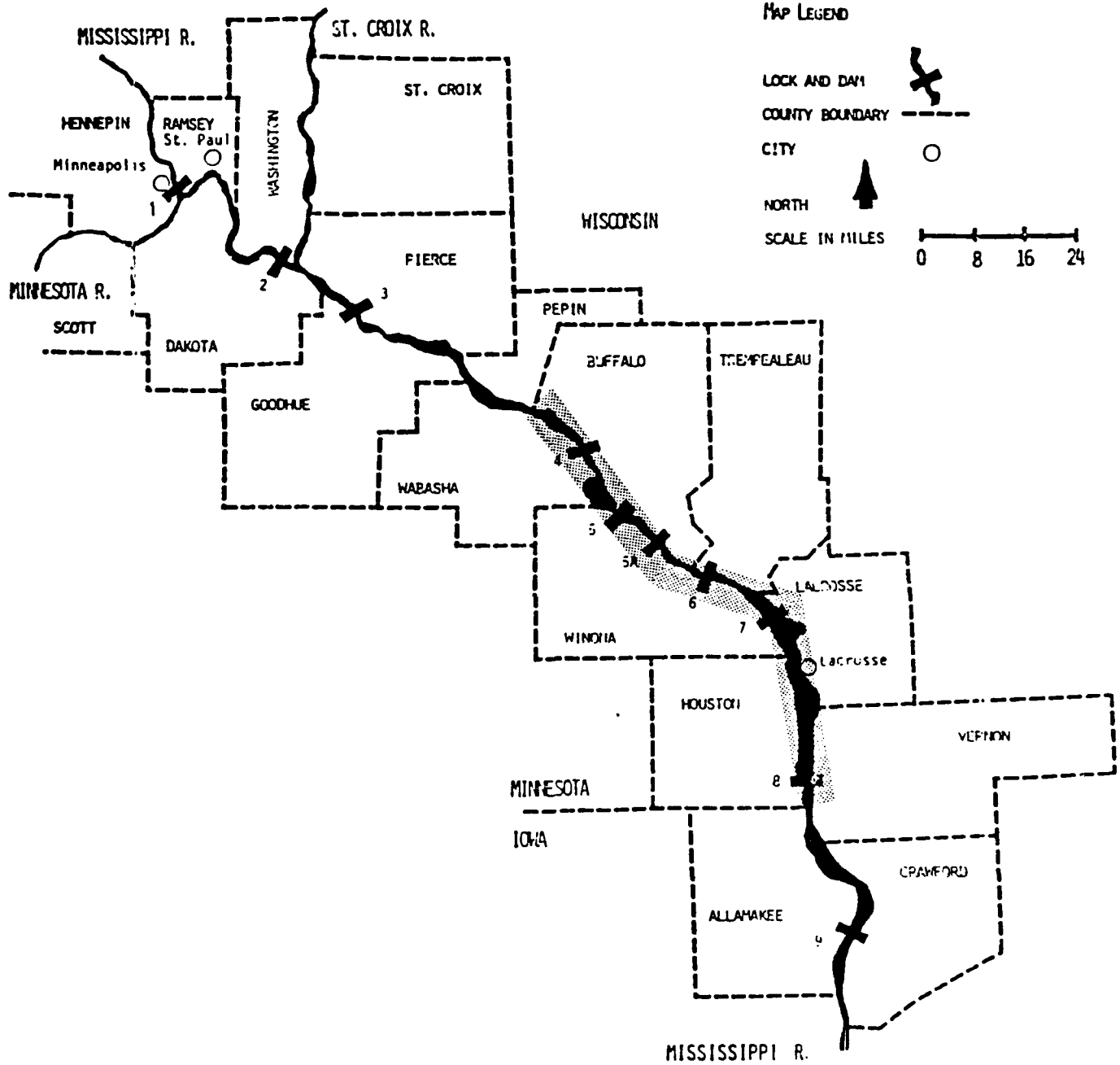
proximity to the Chicago area, for example, may not be well represented in the model. Including Chicago in the model has other complications, however, since it would likely overstate the level of activity in the region. Presenting the impact on the five States and the Nation has been done in part to account for these unusual circumstances.

The shape of the study area caused similar difficulty in describing spending inside and outside the region. Trip spending was defined as within or outside 30 miles of the site rather than in the UMRS corridor for two reasons: to avoid confusion in respondents, who were already burdened with regional definition in describing purchases; and to maintain consistency in the survey instrument, since future applications would typically use the 30-mile designation for determining local impacts. The result of this imprecision in measurement is that some trip-related spending by visitors that took place along the corridor more than 30 miles from the site has been misreported as outside the study area. (St. Louis residents who visited a Hannibal river site, for example, may have purchased gas along the way, but more than 30 miles from the Hannibal site.) This measurement problem would have underreported the percentage of trip-spending made in the UMRS counties, but would not affect total spending reported (as in the five-State model, Table 3). This problem did not occur for durable goods spending, because the county of purchase was documented in the survey.

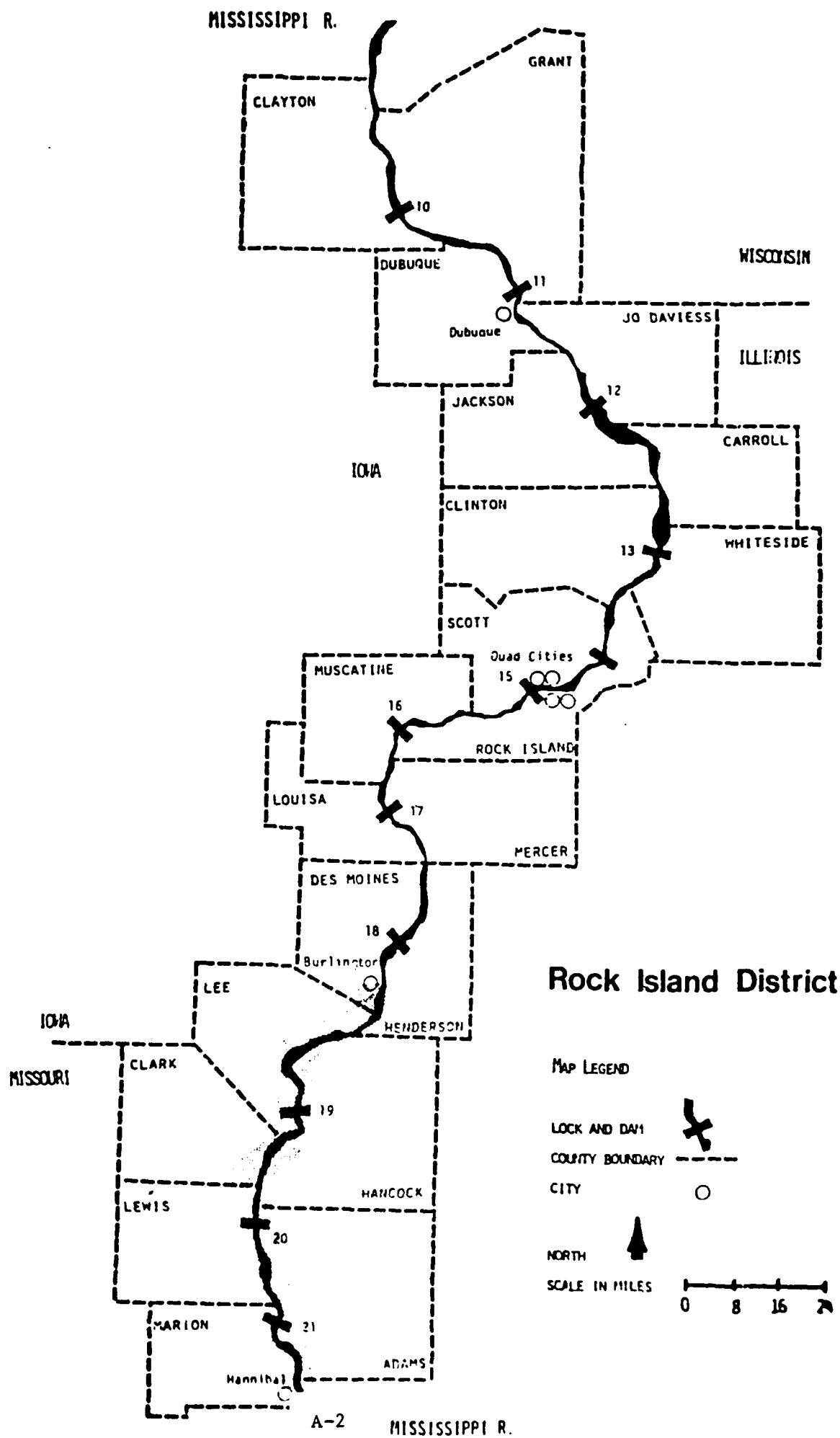
APPENDIX A

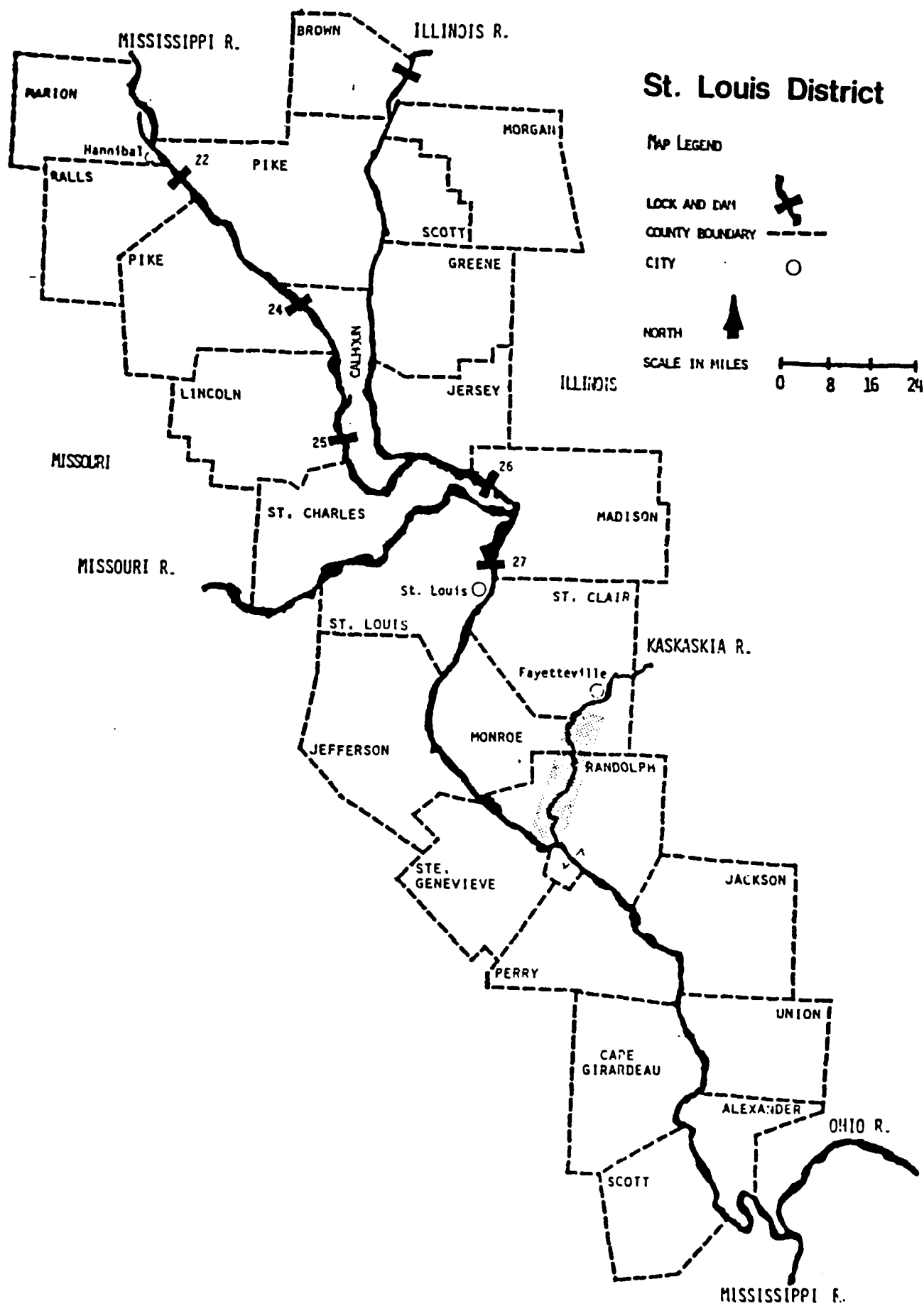
STUDY AREA MAPS

# St. Paul District



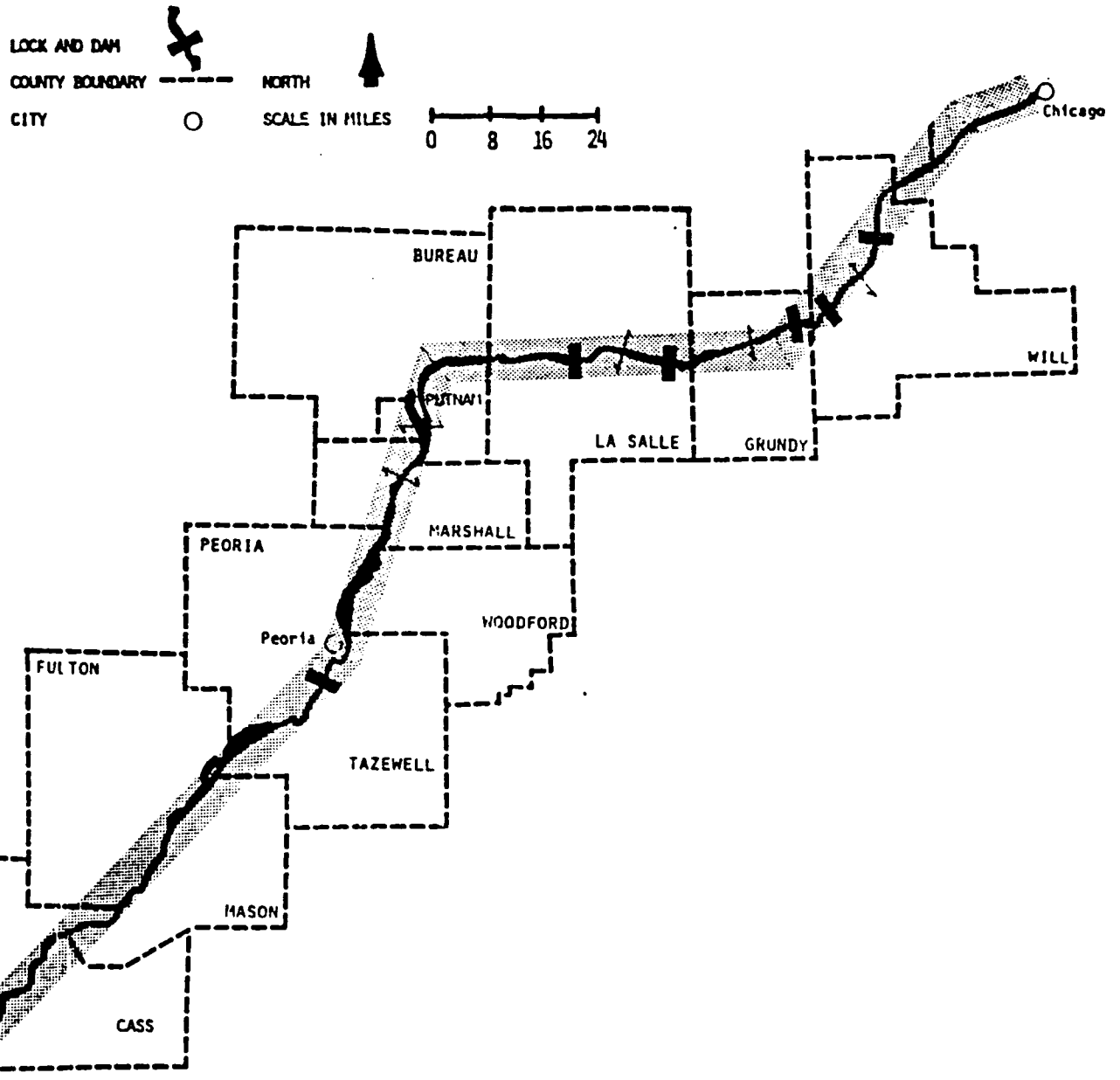






# Illinois River and Waterway

## Map Legend



APPENDIX B

RECREATION EXPENDITURE GRAPHS

## APPENDIX B

Several different comparisons of recreation expenditures are presented in this appendix. They have been derived by combining the recreation use and expenditure results prepared for this study.

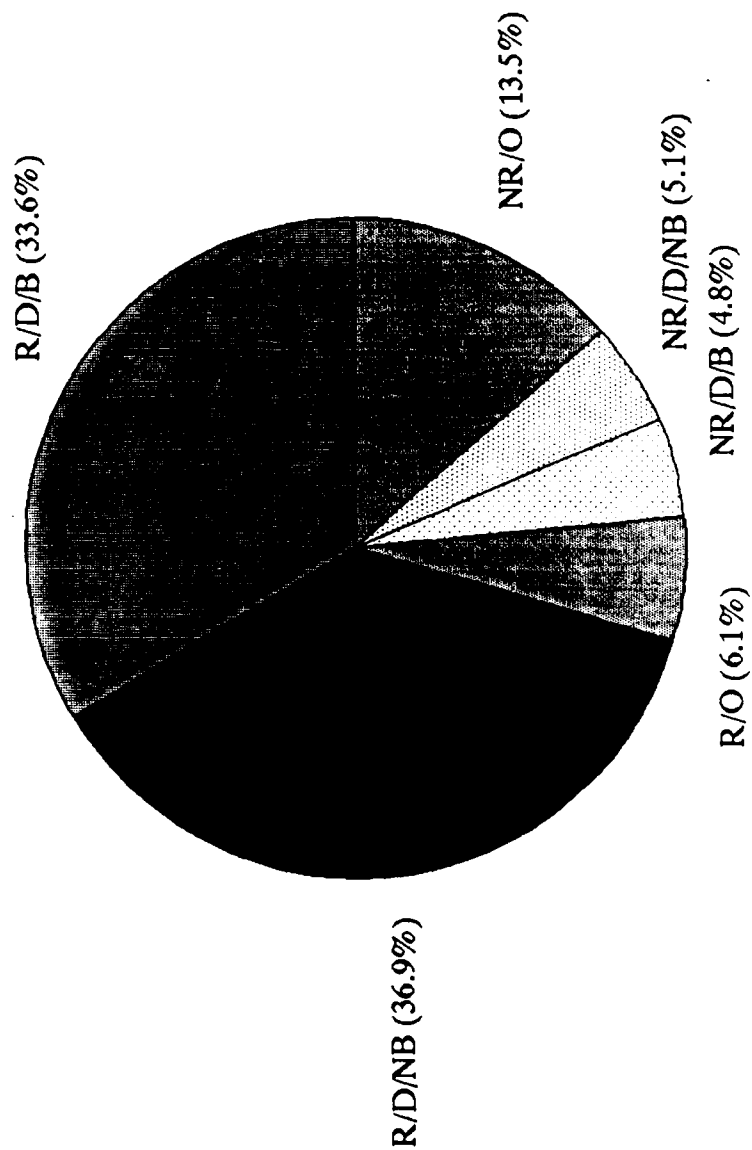
Figure B-1 displays the total segment shares for trips to developed sites (R=resident, D=Day user, B=Boater, NR=non-resident, O=overnight, NB=non-boater). Resident day users were by far the most common visitors, with non-boaters slightly outnumbering boaters.

Total average spending for each of the segments is displayed on Figure B-2. Spending is presented for the amount spent within 30 miles of the site as well as for total spending on the trip. Overnight visitors spend the most per trip, with residents spending slightly more per trip than non-residents. Visitors who do not boat spend the least on average.

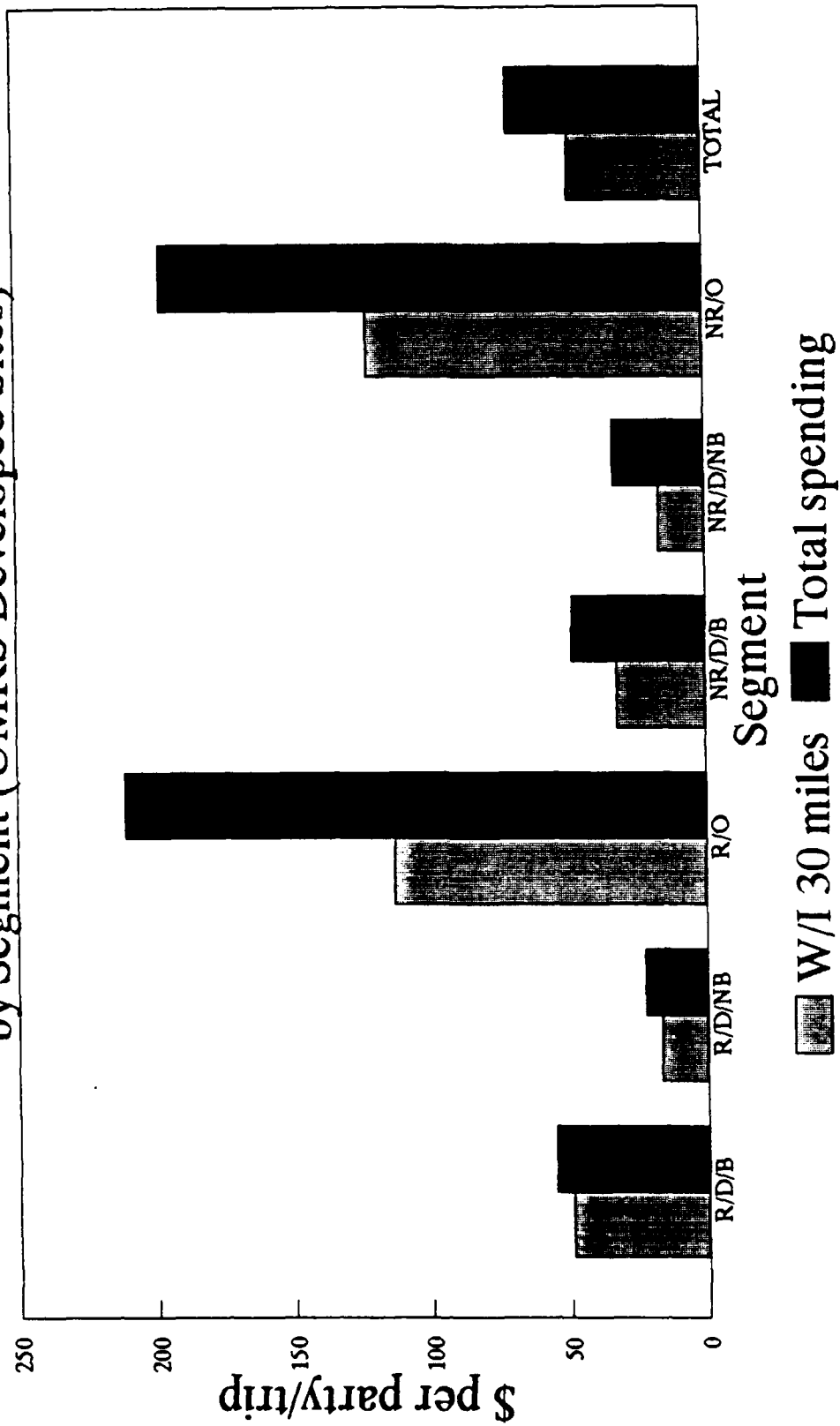
Figure B-3 incorporates the average segment spending from Figure B-2 and the relative total number of trips within each segment to tally total spending by segment. Non-resident overnight visitors account for the largest amount of revenue, followed closely by residents in all three categories (R/D/B, R/O, and R/D/NB).

Figure B-4 highlights the types of goods and services that are purchased, on average, per trip. Food, automotive, boat, and lodging expenses are the highest. Total expenditures, by spending category, are displayed on Figure B-5.

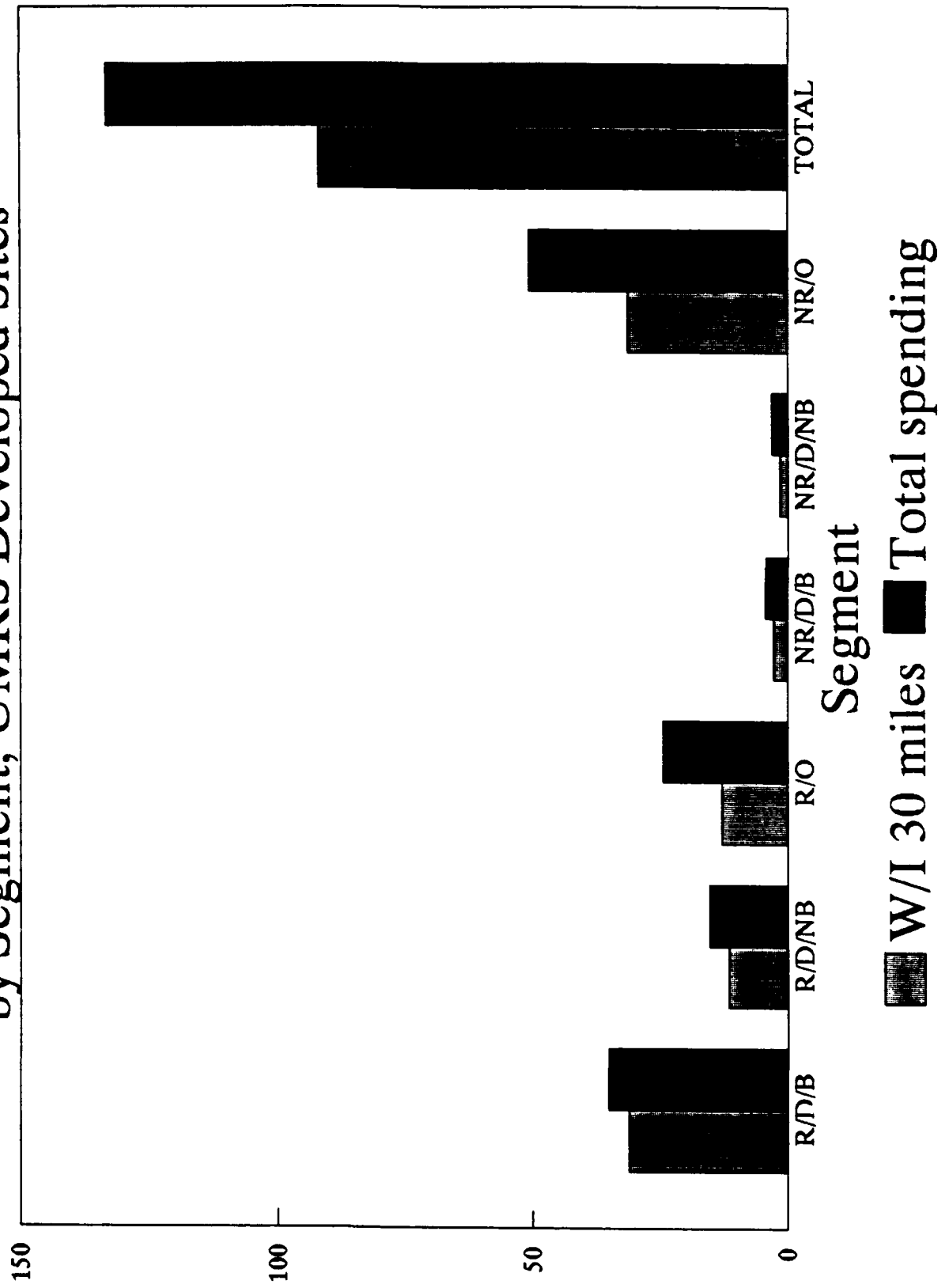
FIGURE B-1: Expenditure Segment Shares  
UMRS Developed Sites



**FIGURE B-2: Average Spending Per Party/Trip**  
by Segment (UMRS Developed Sites)

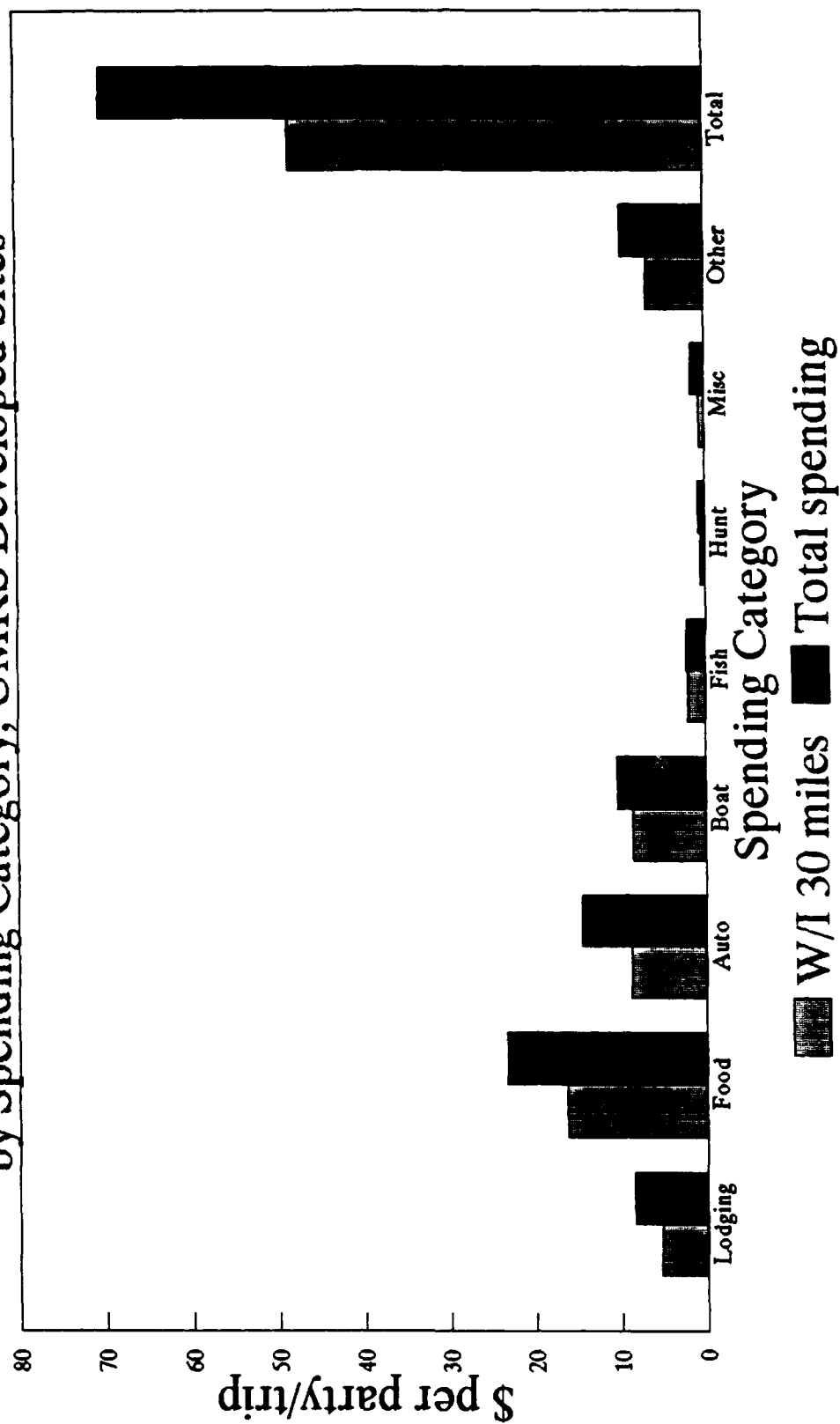


**FIGURE B-3: Total Trip Spending (\$MM)**  
by Segment, UMRS Developed Sites

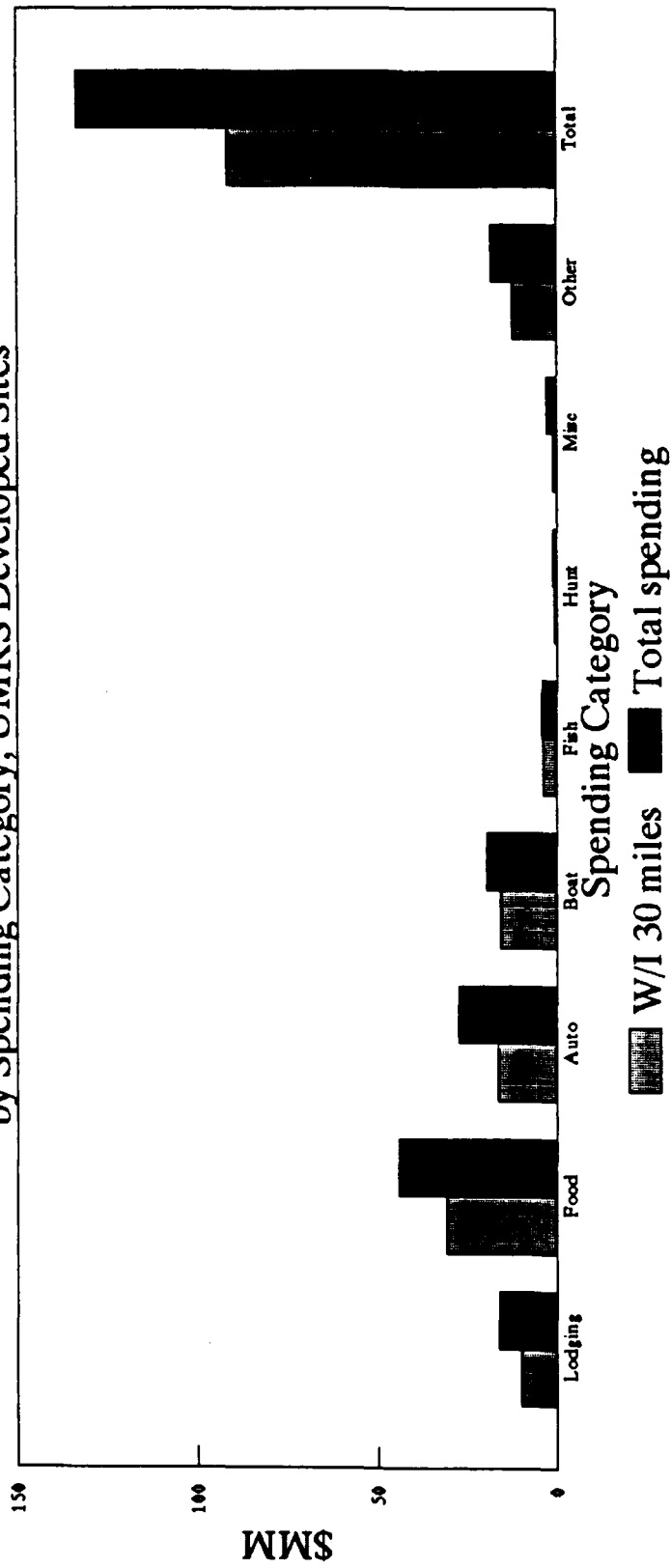




**FIGURE B-4: Average Spending Per Party/Trip**  
by Spending Category, UMRS Developed Sites



**FIGURE B-5: Total Trip Spending (\$MM)**  
by Spending Category, UMRs Developed Sites



APPENDIX C

IMPLAN REPORT EXAMPLES

| Industry                      | Base Year<br>Final Demand<br>(MM\$) | Base Year<br>TIO<br>(MM\$) | Employee Camp<br>Income<br>(MM\$) | Property<br>Income<br>(MM\$) | Total POW<br>Income<br>(MM\$) | Total Value<br>Added<br>(MM\$) | Employment<br>Number<br>of Jobs |
|-------------------------------|-------------------------------------|----------------------------|-----------------------------------|------------------------------|-------------------------------|--------------------------------|---------------------------------|
| 1 Agriculture, Forestry & F   | 5745.1070                           | 9192.3870                  | 423.6645                          | 2466.5290                    | 2890.1930                     | 3058.0260                      | 105273.00                       |
| 29 Mining                     | 611.1632                            | 858.0852                   | 238.6630                          | 157.1844                     | 395.8474                      | 449.6764                       | 8944.00                         |
| 66 Construction               | 10508.2300                          | 12289.4500                 | 3333.9080                         | 2026.8550                    | 5360.7630                     | 5459.9290                      | 161128.00                       |
| 76 Manufacturing              | 64485.5900                          | 82718.5300                 | 18571.3800                        | 8951.6900                    | 27523.0700                    | 29152.2800                     | 623992.00                       |
| 320 HAND AND EDGE TOOLS, N.E. | 41.1496                             | 50.4155                    | 16.5440                           | 13.6452                      | 30.1892                       | 30.5455                        | 693.00                          |
| 322 HARDWARE, N.E.C.          | 181.8900                            | 238.2675                   | 82.4210                           | 36.8152                      | 119.2362                      | 120.8050                       | 3468.00                         |
| 331 INTERNAL COMBUSTION ENGIN | 389.5744                            | 766.2263                   | 196.9330                          | 147.9634                     | 344.8964                      | 355.2148                       | 5246.00                         |
| 389 RADIO AND TV RECEIVING SE | 34.1147                             | 39.1407                    | 8.6350                            | - .2539                      | 8.3811                        | 8.5851                         | 329.00                          |
| 408 SHIP BUILDING AND REPAIRI | 7.7604                              | 7.9029                     | 2.8890                            | .7665                        | 3.6555                        | 3.7038                         | 190.00                          |
| 409 BOAT BUILDING AND REPAIRI | 37.8095                             | 37.8636                    | 9.4700                            | 5.8629                       | 15.3329                       | 15.4061                        | 500.00                          |
| 411 MOTORCYCLES, BICYCLES, AN | .7066                               | .7291                      | .1010                             | .0850                        | .1860                         | .1871                          | 10.00                           |
| 412 TRAVEL TRAILERS AND CAMPE | 8.7756                              | 8.9212                     | 1.7500                            | .4877                        | 2.2377                        | 2.2926                         | 110.00                          |
| 415 TRANSPORTATION EQUIPMENT, | 19.2786                             | 19.7169                    | 4.4500                            | 1.1363                       | 5.5863                        | 5.6765                         | 205.00                          |
| 422 WATCHES, CLOCKS, AND PART | 3.2736                              | 3.4266                     | .9810                             | .2543                        | 1.2353                        | 1.2807                         | 42.00                           |
| 425 PHOTOGRAPHIC EQUIPMENT AN | 103.8646                            | 191.0510                   | 44.8130                           | 29.5789                      | 74.3919                       | 76.2288                        | 1613.00                         |
| 433 SPORTING AND ATHLETIC GOO | 52.2807                             | 52.8094                    | 14.1600                           | 7.1522                       | 21.3122                       | 23.0049                        | 815.00                          |
| 446 Transportation, Comm. & U | 9854.8630                           | 21373.4600                 | 5481.0480                         | 5564.1710                    | 11045.2200                    | 12338.1500                     | 186790.00                       |
| 452 TRANSPORTATION SERVICES   | 118.1623                            | 200.4030                   | 78.0630                           | 43.5453                      | 121.6083                      | 125.7245                       | 3803.00                         |
| 460 RECREATIONAL RELATED WHOL | 72.5972                             | 105.7356                   | 50.4400                           | 12.6809                      | 63.1209                       | 74.3344                        | 1864.00                         |
| 461 OTHER WHOLESALE TRADE     | 6238.1440                           | 11758.1100                 | 5223.5510                         | 1983.7000                    | 7207.2510                     | 8436.1070                      | 192697.00                       |
| 462 RECREATIONAL RELATED RETA | 312.4122                            | 323.2022                   | 116.3250                          | 56.0296                      | 172.3546                      | 197.3734                       | 9711.00                         |
| 463 OTHER RETAIL TRADE        | 11672.9600                          | 12848.6500                 | 5107.5360                         | 1958.4550                    | 7065.9910                     | 8096.1440                      | 328888.00                       |
| 464 Finance, Insurance & Real | 18764.1000                          | 29149.4200                 | 4663.5530                         | 13379.3200                   | 18042.8700                    | 20758.3300                     | 260677.00                       |
| 471 HOTELS AND LODGING PLACES | 525.3561                            | 909.9985                   | 339.8200                          | 160.5724                     | 500.3923                      | 552.9729                       | 28655.00                        |
| 472 LAUNDRY, CLEANING AND SHO | 447.3882                            | 572.0170                   | 170.7250                          | 199.6274                     | 370.3524                      | 375.7402                       | 23980.00                        |
| 473 SERVICES                  | 16400.5700                          | 25647.9700                 | 11093.9300                        | 5492.0620                    | 16585.9900                    | 16760.1500                     | 702573.00                       |
| 491 EATING AND DRINKING PLACE | 5091.1830                           | 6457.7620                  | 1450.3900                         | 653.3104                     | 2103.7010                     | 3234.8300                      | 180340.00                       |
| 492 AUTO SERVICES             | 1391.7270                           | 2422.1200                  | 457.2580                          | 638.3241                     | 1095.5820                     | 1152.2140                      | 36821.00                        |
| 495 OTHER AMUSE               | 837.0620                            | 1197.2690                  | 385.9620                          | 133.6355                     | 519.5975                      | 587.5980                       | 33053.00                        |
| 502 AMUSEMENT AND RECREATION  | 188.6385                            | 189.2412                   | 63.3250                           | 35.0410                      | 98.3660                       | 107.9081                       | 8545.00                         |
| 516 Govt. Enterprise & Specia | 17532.1900                          | 18828.6000                 | 10479.8200                        | 6975.8480                    | 17455.6600                    | 17455.6600                     | 438144.00                       |
| Total                         | 171677.9000                         | 238458.9000                | 68112.5200                        | 51132.0800                   | 119244.6000                   | 129016.1000                    | 3349099.00                      |
| Population =                  | 6893600.                            |                            |                                   |                              |                               |                                |                                 |

STATES \$MM 1985  
Base Year Information

Impact Report #90  
1/28/93

| Industry                      | Base Year<br>Final Demand<br>(MM\$) | Base Year<br>TIO<br>(MM\$) | Employee Comp<br>Income<br>(MM\$) | Property<br>Income<br>(MM\$) | Total PoW<br>Income<br>(MM\$) | Total Value<br>Added<br>(MM\$) | Employment<br>Number<br>of Jobs |
|-------------------------------|-------------------------------------|----------------------------|-----------------------------------|------------------------------|-------------------------------|--------------------------------|---------------------------------|
| 1 Agriculture, Forestry & F   | 25138.3400                          | 50333.1600                 | 2178.0180                         | 13194.0900                   | 15372.1100                    | 16235.4700                     | 590430.00                       |
| 28 Mining                     | 4922.0890                           | 7184.3210                  | 1720.6550                         | 1424.6860                    | 3145.3410                     | 3649.6740                      | 63103.00                        |
| 66 Construction               | 38367.4300                          | 45660.0600                 | 13314.6500                        | 6766.5770                    | 20081.2300                    | 20405.2800                     | 589417.00                       |
| 76 Manufacturing              | 230155.7000                         | 293405.9000                | 71950.3000                        | 28155.7300                   | 100106.0000                   | 104028.7000                    | 2387966.00                      |
| 320 HAND AND EDGE TOOLS, N.E. | 571.6809                            | 647.7974                   | 238.7725                          | 154.6682                     | 393.4407                      | 398.4922                       | 8321.00                         |
| 322 HARDWARE, N.E.C.          | 852.6593                            | 1044.9580                  | 381.1802                          | 154.7604                     | 535.9406                      | 542.4266                       | 14098.00                        |
| 331 INTERNAL COMBUSTION ENGIN | 2525.9990                           | 4014.9660                  | 1120.4700                         | 665.4491                     | 1785.9190                     | 1819.1620                      | 29969.00                        |
| 389 RADIO AND TV RECEIVING SE | 627.5486                            | 705.7911                   | 157.5521                          | -15.4548                     | 142.0973                      | 145.2397                       | 6947.00                         |
| 408 SHIP BUILDING AND REPAIRI | 194.5415                            | 196.8493                   | 93.2847                           | 16.8872                      | 110.1718                      | 110.9298                       | 3065.00                         |
| 409 BOAT BUILDING AND REPAIRI | 317.7609                            | 318.1664                   | 84.3536                           | 43.3279                      | 127.6815                      | 128.1155                       | 4349.00                         |
| 411 MOTORCYCLES, BICYCLES, AN | 48.8914                             | 49.9897                    | 9.3830                            | 3.1424                       | 12.5254                       | 12.5943                        | 711.00                          |
| 412 TRAVEL TRAILERS AND CAMPE | 165.6459                            | 167.0811                   | 39.0927                           | 4.6004                       | 43.6930                       | 44.8986                        | 1824.00                         |
| 414 MOTOR HOMES               | 252.4921                            | 253.8037                   | 37.4374                           | 16.7995                      | 54.2368                       | 54.7321                        | 948.00                          |
| 415 TRANSPORTATION EQUIPMENT, | 158.8138                            | 161.6904                   | 38.9829                           | 7.9321                       | 46.9150                       | 47.5632                        | 1574.00                         |
| 422 WATCHES, CLOCKS, AND PART | 140.7615                            | 146.3302                   | 43.2549                           | 8.7274                       | 51.9823                       | 53.8099                        | 1899.00                         |
| 425 PHOTOGRAPHIC EQUIPMENT AN | 721.8562                            | 1197.9840                  | 314.0288                          | 155.8854                     | 469.9142                      | 482.5862                       | 9837.00                         |
| 423 SPORTING AND ATHLETIC GOO | 543.9968                            | 550.6002                   | 165.8176                          | 61.2267                      | 227.0443                      | 243.0696                       | 8066.00                         |
| 446 Transportation, Comm. & U | 32572.9100                          | 75311.3900                 | 21187.8700                        | 18478.5400                   | 39666.4100                    | 44300.0100                     | 693570.00                       |
| 452 TRANSPORTATION SERVICES   | 569.1405                            | 891.2656                   | 371.6970                          | 186.5431                     | 558.2401                      | 580.4811                       | 14794.00                        |
| 460 RECREATIONAL RELATED WHOL | 519.7167                            | 669.3789                   | 318.1748                          | 87.6127                      | 405.7875                      | 475.1177                       | 11406.00                        |
| 461 OTHER WHOLESALE TRADE     | 24576.3200                          | 46196.9200                 | 21964.7200                        | 6289.1720                    | 28253.8900                    | 33165.4300                     | 755308.00                       |
| 462 RECREATIONAL RELATED RETA | 1094.6960                           | 1131.5070                  | 456.7529                          | 147.7306                     | 604.4835                      | 692.5970                       | 33731.00                        |
| 463 OTHER RETAIL TRADE        | 45903.8500                          | 50344.5900                 | 21007.2300                        | 6674.0910                    | 27681.3200                    | 31703.6900                     | 1291499.00                      |
| 464 Finance, Insurance & Real | 69066.0600                          | 110807.4000                | 20176.1300                        | 45653.2500                   | 65829.3800                    | 79279.0200                     | 996497.00                       |
| 471 SERVICES                  | 88320.2500                          | 131198.6000                | 54010.9800                        | 23162.6900                   | 77173.6700                    | 82304.8800                     | 3550023.00                      |
| 492 AUTO SERVICES             | 4910.0150                           | 8714.4030                  | 1723.4970                         | 2206.9220                    | 3930.4180                     | 4133.6460                      | 130594.00                       |
| 495 OTHER AMUSE               | 2714.8990                           | 3983.8230                  | 1338.8900                         | 370.1221                     | 1709.0120                     | 1875.2210                      | 110640.00                       |
| 516 Govt. Enterprise & Specia | 73682.5900                          | 79149.5500                 | 45813.4600                        | 27578.6500                   | 73392.1200                    | 73392.1200                     | 1803438.00                      |
| Total                         | 649636.6000                         | 914438.3000                | 280256.7000                       | 181654.4000                  | 461910.9000                   | 500304.9000                    | 13114020.00                     |
| Population =                  | 28421800.                           |                            |                                   |                              |                               |                                |                                 |

NATION \$MM 1985  
Base Year Information

| Industry                      | Base Year<br>Final Demand<br>(MM\$) | Base Year<br>TIO<br>(MM\$) | Employee Comp<br>Income<br>(MM\$) | Property<br>Income<br>(MM\$) | Total POW<br>Income<br>(MM\$) | Total Value<br>Added<br>(MM\$) | Employment<br>Number<br>of Jobs |
|-------------------------------|-------------------------------------|----------------------------|-----------------------------------|------------------------------|-------------------------------|--------------------------------|---------------------------------|
| 1 Agriculture, Forestry & F   | 53203.9000                          | 196595.9000                | 19334.2000                        | 54883.8500                   | 74218.0500                    | 77544.8500                     | 3860394.00                      |
| 28 Mining                     | 14414.6800                          | 176620.0000                | 34856.0800                        | 68989.1600                   | 103845.2000                   | 123546.0000                    | 1180824.00                      |
| 66 Construction               | 416704.8000                         | 491749.0000                | 123841.7000                       | 92523.6300                   | 216365.3000                   | 223673.0000                    | 6006310.00                      |
| 76 Manufacturing              | 1043583.0000                        | 2190434.0000               | 533850.6000                       | 194648.2000                  | 728499.2000                   | 776734.2000                    | 18514520.00                     |
| 320 HAND AND EDGE TOOLS, N.E. | 1261.2000                           | 2831.3610                  | 993.8455                          | 681.5643                     | 1675.4100                     | 1709.8750                      | 39461.00                        |
| 322 HARDWARE, N.E.C.          | 1224.8670                           | 6823.8880                  | 2483.8900                         | 1054.2870                    | 3538.1770                     | 3611.8420                      | 85935.00                        |
| 331 INTERNAL COMBUSTION ENGIN | 4872.2160                           | 11398.1200                 | 2996.9090                         | 2010.2780                    | 5007.1870                     | 5233.8310                      | 80994.00                        |
| 389 RADIO AND TV RECEIVING SE | 5415.7320                           | 6189.8430                  | 1520.6180                         | -148.4353                    | 1372.1820                     | 1375.2660                      | 50165.00                        |
| 408 SHIP BUILDING AND REPAIRI | 8590.1910                           | 9707.0210                  | 4411.4600                         | 838.2972                     | 5249.7580                     | 5525.7690                      | 146190.00                       |
| 409 BOAT BUILDING AND REPAIRI | 3997.3180                           | 4064.6590                  | 1086.8280                         | 562.3205                     | 1649.1480                     | 1679.5040                      | 50850.00                        |
| 411 MOTORCYCLES, BICYCLES, AN | 1286.1120                           | 1469.8570                  | 312.4107                          | 107.9395                     | 420.3502                      | 433.4894                       | 14095.00                        |
| 412 TRAVEL TRAILERS AND CAMPE | 1988.1290                           | 2088.2240                  | 465.2699                          | 55.4346                      | 520.7045                      | 567.6944                       | 22006.00                        |
| 414 MOTOR HOMES               | 1850.9610                           | 1928.8070                  | 248.9750                          | 104.8551                     | 353.8302                      | 367.6016                       | 12523.00                        |
| 415 TRANSPORTATION EQUIPMENT, | 1083.0250                           | 1427.7460                  | 322.4403                          | 65.1103                      | 387.5505                      | 420.1740                       | 13883.00                        |
| 422 WATCHES, CLOCKS, AND PART | 1107.1510                           | 1157.4290                  | 343.4559                          | 68.4133                      | 411.8692                      | 421.8953                       | 15463.00                        |
| 425 PHOTOGRAPHIC EQUIPMENT AN | 11614.9200                          | 17016.7400                 | 4730.2730                         | 2324.6900                    | 7054.9640                     | 7186.8130                      | 119656.00                       |
| 433 SPORTING AND ATHLETIC GOO | 3077.1180                           | 3362.8130                  | 1009.8570                         | 368.5049                     | 1378.3620                     | 1434.6920                      | 55947.00                        |
| 446 Transportation, Comm. & U | 251053.9000                         | 616768.8000                | 164346.6000                       | 144574.6000                  | 308921.3000                   | 347969.5000                    | 5455128.00                      |
| 452 TRANSPORTATION SERVICES   | 4427.1690                           | 7495.2340                  | 3308.2900                         | 1248.0800                    | 4556.3690                     | 4772.5160                      | 135250.00                       |
| 460 RECREATIONAL RELATED WHOL | 3182.5940                           | 4244.2480                  | 2162.2810                         | 472.6204                     | 2634.9020                     | 2975.1230                      | 75576.00                        |
| 461 OTHER WHOLESALE TRADE     | 166834.7000                         | 320954.5000                | 163321.0000                       | 35768.2000                   | 199089.3000                   | 224817.2000                    | 5737134.00                      |
| 462 RECREATIONAL RELATED RETA | 9890.7730                           | 10255.8900                 | 4662.9080                         | 1054.1910                    | 5717.0980                     | 6229.8200                      | 313665.00                       |
| 463 OTHER RETAIL TRADE        | 349112.0000                         | 389988.3000                | 181519.3000                       | 39649.9100                   | 221169.2000                   | 240665.9000                    | 10726280.00                     |
| 464 Finance, Insurance & Real | 587884.3000                         | 943306.9000                | 165636.2000                       | 383728.7000                  | 549364.9000                   | 679770.0000                    | 8443804.00                      |
| 471 HOTELS AND LODGING PLACES | 29258.8800                          | 47189.5900                 | 20240.0300                        | 7279.7010                    | 27519.7300                    | 29942.5900                     | 1297433.00                      |
| 472 LAUNDRY, CLEANING AND SHO | 11066.1500                          | 14940.0400                 | 6127.5470                         | 2974.8960                    | 9102.4430                     | 9335.2820                      | 747552.00                       |
| 473 SERVICES                  | 508518.3000                         | 845408.3000                | 391080.9000                       | 169458.5000                  | 560539.3000                   | 568810.1000                    | 21273650.00                     |
| 491 EATING AND DRINKING PLACE | 131470.1000                         | 172185.0000                | 50365.1100                        | 12675.4800                   | 63040.5900                    | 83715.0000                     | 5325674.00                      |
| 492 AUTO SERVICES             | 53023.5700                          | 93466.0100                 | 14635.3200                        | 29142.3900                   | 43777.7200                    | 48601.9900                     | 1118801.00                      |
| 495 OTHER AMUSE               | 23994.9500                          | 41563.5400                 | 15257.3300                        | 3434.1930                    | 18691.5200                    | 19870.9000                     | 927269.00                       |
| 502 AMUSEMENT AND RECREATION  | 9112.5730                           | 9164.4550                  | 3809.0280                         | 1363.2100                    | 5172.2380                     | 5545.1000                      | 343829.00                       |
| 516 Govt. Enterprise & Specia | 504113.2000                         | 557051.0000                | 448196.1000                       | 46935.9100                   | 495132.0000                   | 495132.0000                    | 17259890.00                     |
| Total                         | 4218219.0000                        | 7198847.0000               | 2367477.0000                      | 1298899.0000                 | 3666376.0000                  | 3999620.0000                   | 109450200.00                    |
| Population =                  | 238699300.                          |                            |                                   |                              |                               |                                |                                 |

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