Statewide Transportation Analysis & Research

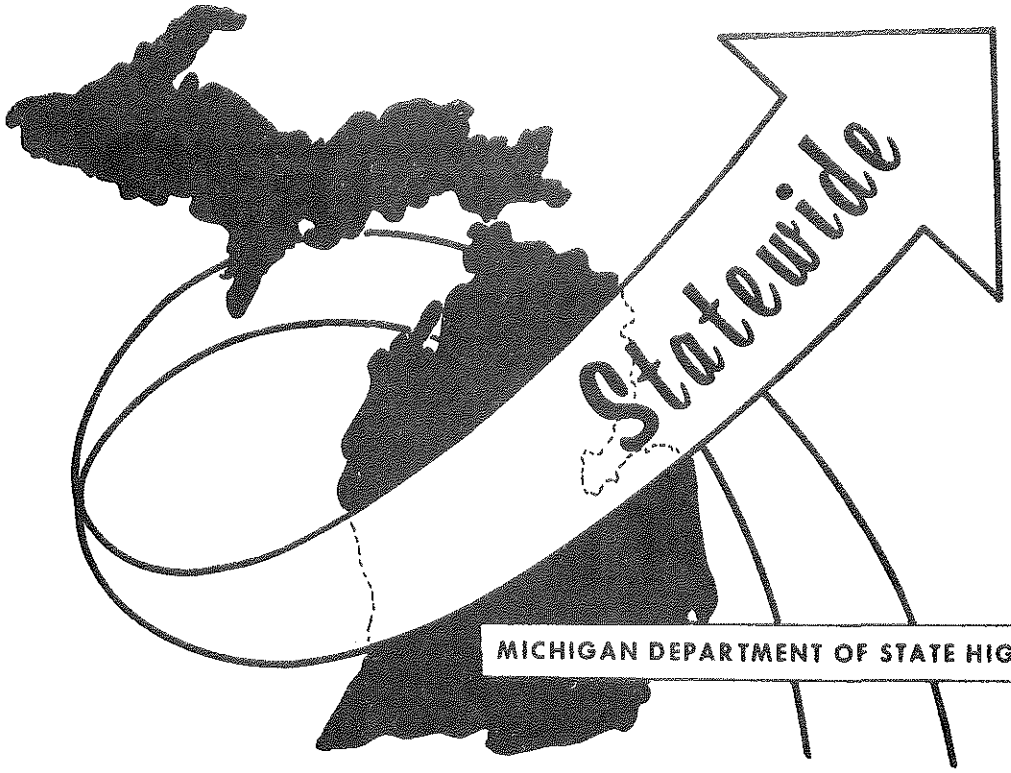
MICHIGAN'S
STATEWIDE TRANSPORTATION MODEL

DATA CONVERSION PROCESS FOR
DEPARTMENT OF TREASURY

TAX RATE AND ASSESSED VALUATION
INFORMATION

Vol. IX-C

AUGUST 23, 1973



MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

MICHIGAN'S STATEWIDE TRANSPORTATION MODEL

DATA CONVERSION PROCESS FOR DEPARTMENT OF TREASURY

TAX RATE AND ASSESSED VALUATION INFORMATION

Vol. IX-C

AUGUST 23, 1973

With the Participation of:
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS

STATE HIGHWAYS BUILDING – POST OFFICE DRAWER K – LANSING, MICHIGAN 48904

JOHN P. WOODFORD, STATE HIGHWAY DIRECTOR

August 23, 1973

Mr. Sam F. Cryderman
Engineer of Transportation Planning
Transportation Planning Division

Dear Mr. Cryderman:

As a documentation of cooperative efforts between state agencies, we are pleased to present a summary report on the application of the Statewide Transportation Model and Selected External Data.

The Michigan Department of Treasury was kind enough to supply us with a copy of a master data tape containing tax rate and assessed valuation information. This tape was then reformated through custom computer programs and fed through the Statewide Model's Graphic Display Battery. The results of that effort and the techniques involved are presented in this report for review.

In a landmark effort, this is an initial attempt at documenting multi-departmental applications of the Statewide Transportation Model. The technical workload and computer programs were handled by Mr. Lawrence J. Swick of the Statewide Studies Unit under the supervision of Richard E. Esch. Any comments you may have would be appreciated.

Sincerely,

Keith E. Bushnell

Keith E. Bushnell
Engineer of Transportation
Survey and Analysis Section

MICHIGAN
THE GREAT LAKE STATE

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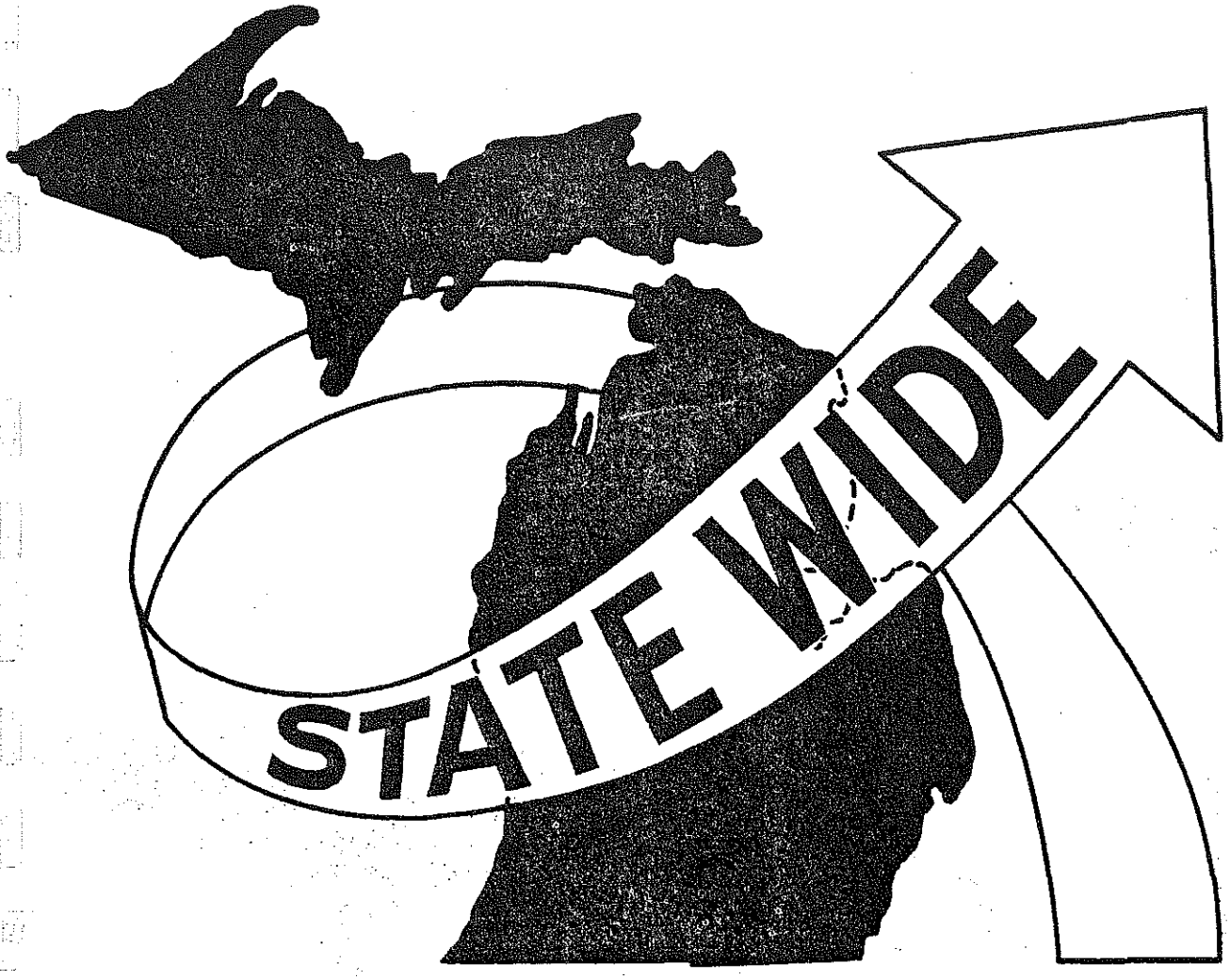
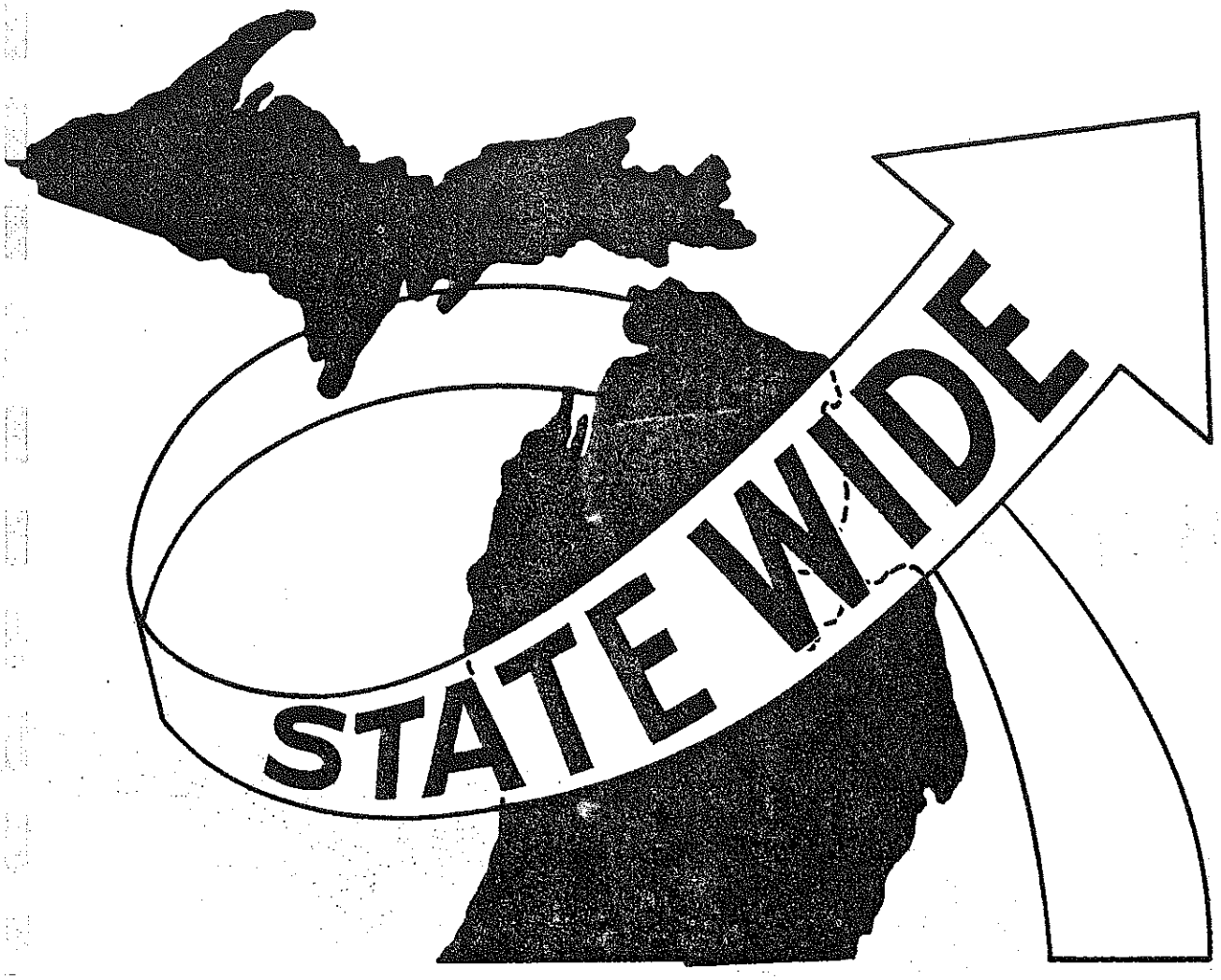
PREFACE



PREFACE

Cooperation among state agencies for the mutual benefit of the public and the agencies involved provides a worthy goal for state government. An example of this type of cooperation is outlined and illustrated in this report with the hope that future efforts can provide a similar degree of success. The Michigan Department of State Highway's Statewide Traffic Forecasting Model was used as the catalist for the effort and the Michigan Department of Treasury provided the base input data. The results of this interaction can be seen in the following pages.

INTRODUCTION



INTRODUCTION

The Michigan Department of State Highways is in the process of gathering data for the development of a statewide transportation modeling system. The components of this system appear in Figure 1 and details about the system may be obtained by review of a report entitled, "A Statewide Transportation Modeling System Effectively Meets the Transportation Challenge of the 70's", June 1973.

All input and output related to this system is based on the analysis zones in Figure 2. There are three basic information files necessary to the operation of this system and they have been identified in Figure 1 as A, B and C. The treasury information, after conversion to the 547 zone system, will reside in the socio-economic file.

The most important element of this whole document is the fact that once information has been converted to this system, any and all users have the ability to use all components of the modeling system without additional development cost. In this particular situation the treasury data could be passed through the "graphic display battery" and finally using the "statistical analysis battery" related to any of the other socio-economic information.

This report is a documentation of the actual conversion process required to place the treasury data in the socio-economic file. The multi-department application of the "statistical analysis battery" and the "graphic display battery" will also be demonstrated.

STATEWIDE MODELING SYSTEM COMPONENTS

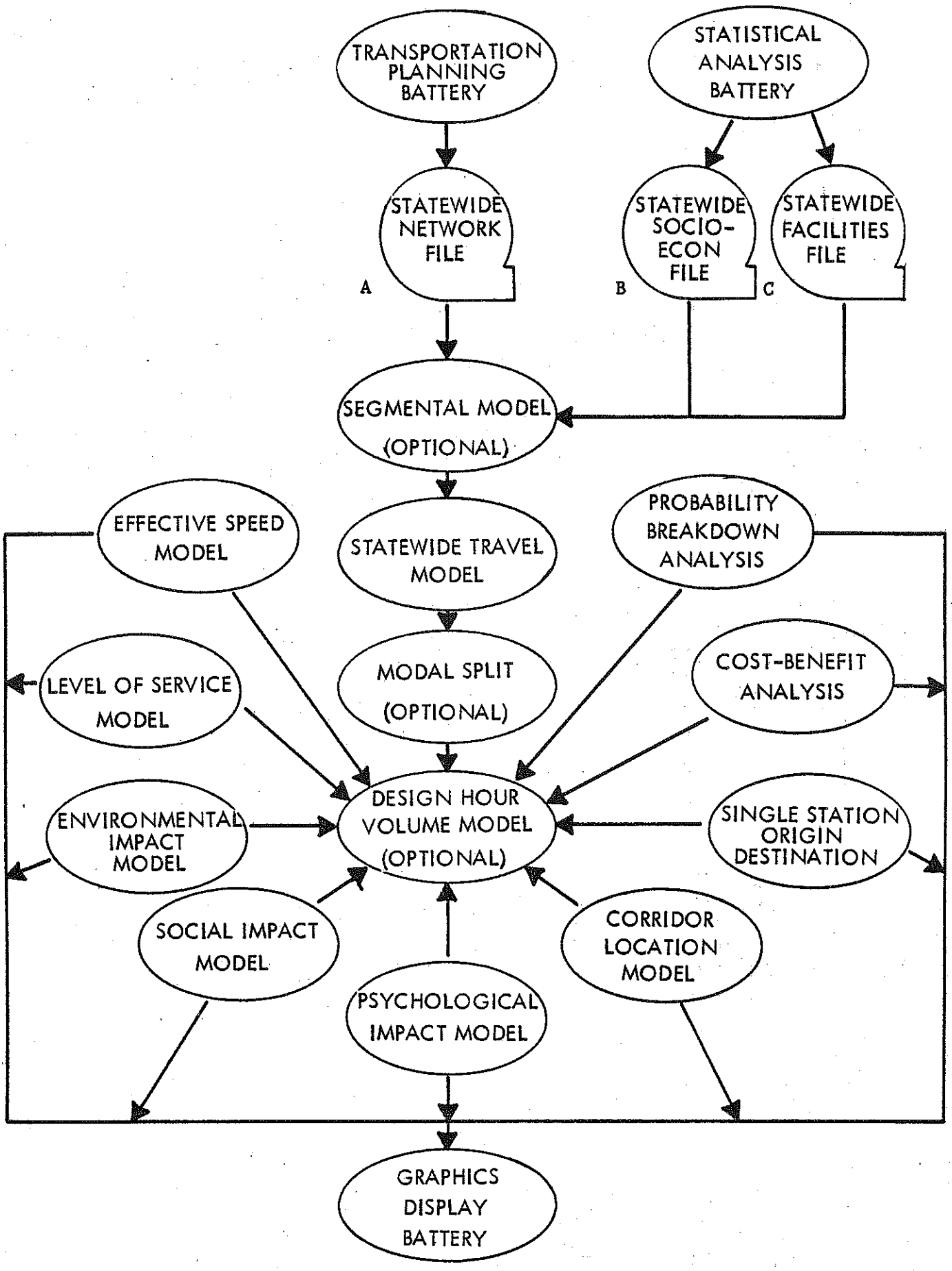


Figure 1

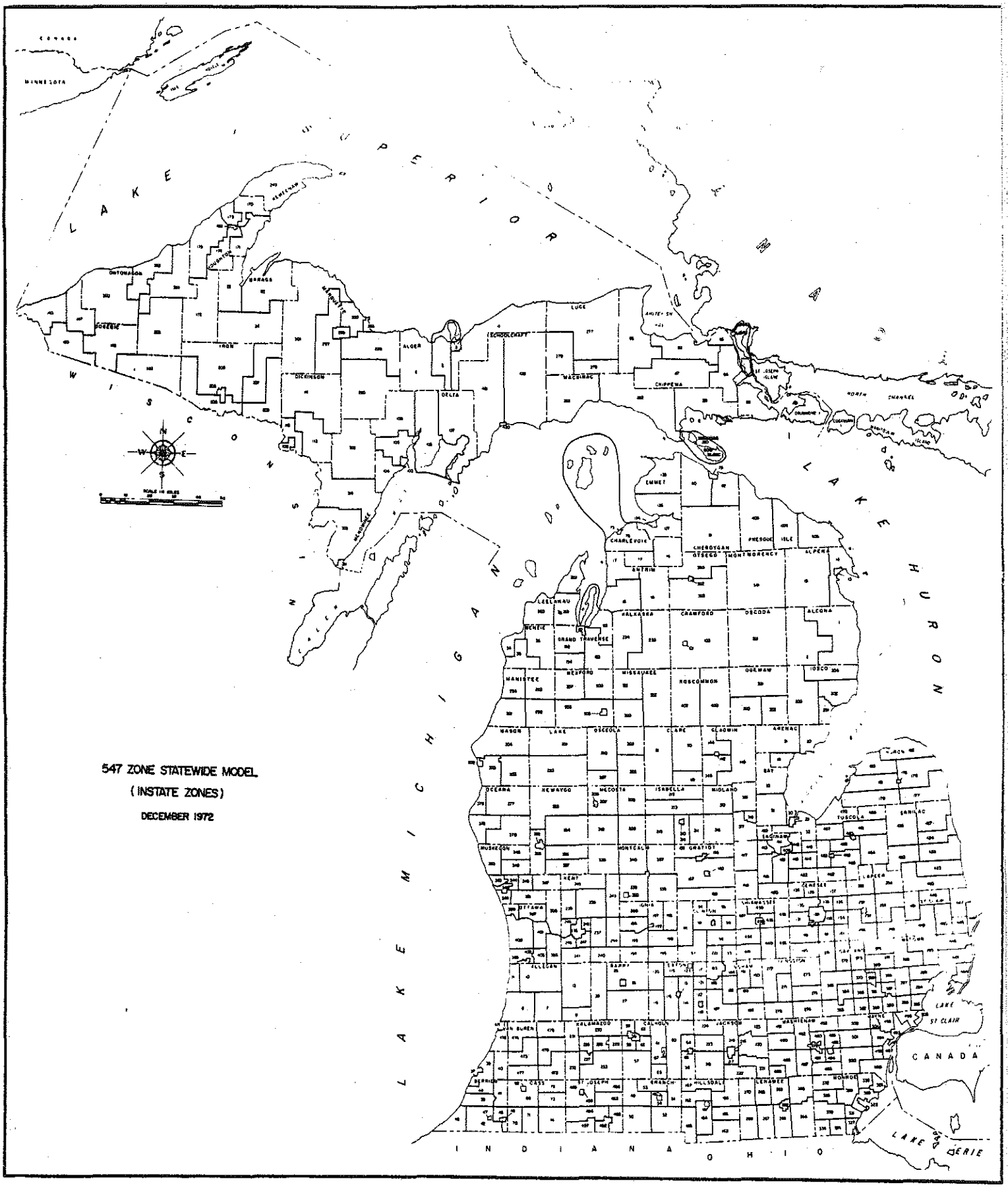
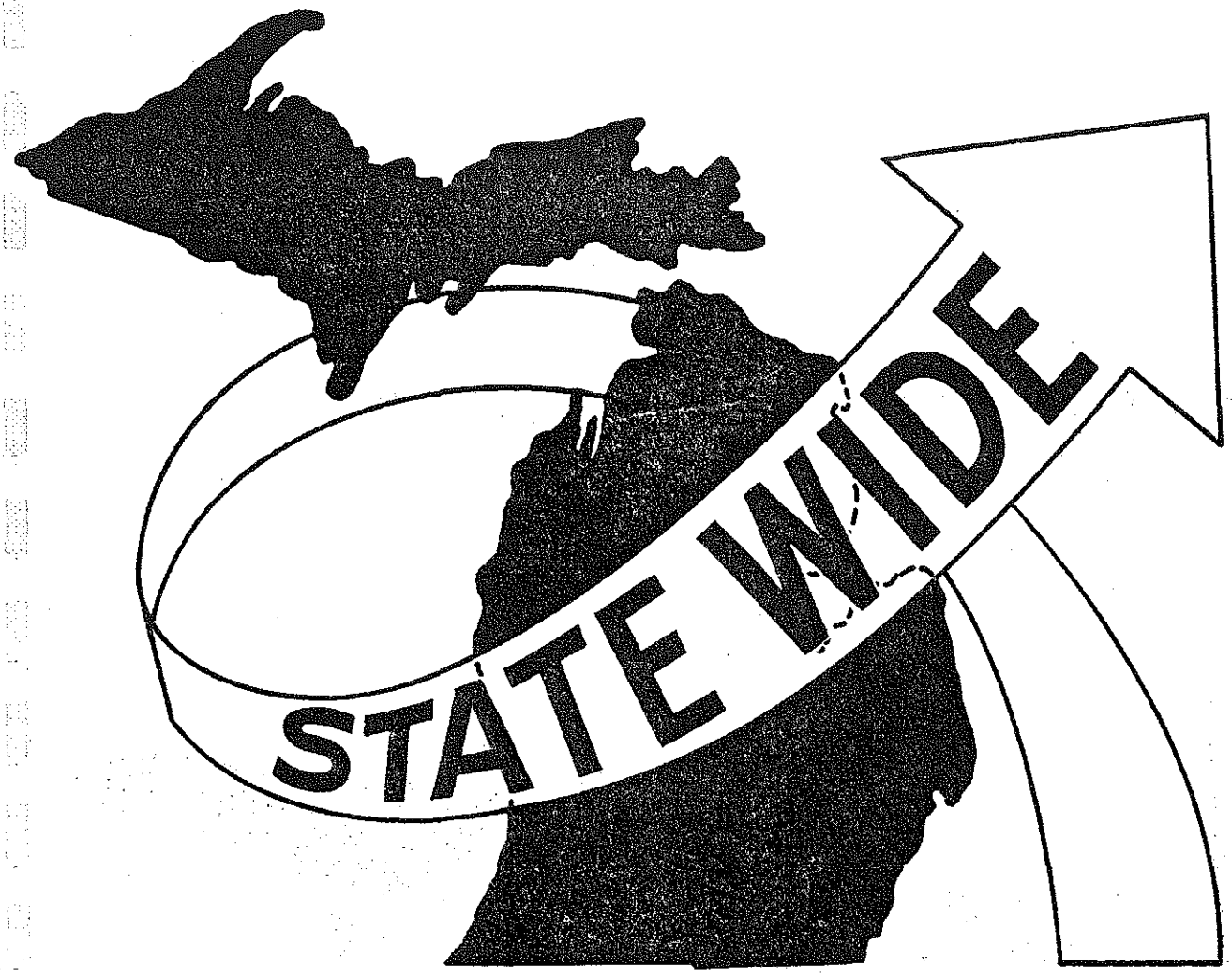

547 ZONE STATEWIDE MODEL
(INSTATE ZONES)
DECEMBER 1972
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ST CLAIR
LAKE ERIE
CANADA
WISCONSIN
INDIANA
OHIO

FIGURE 2

DATA CONVERSION PROCESS



DATA CONVERSION PROCESS

A copy of a master data tape was obtained from the Department of Treasury.

(QOIPUL) A computer program was then written which pulled the desired data from the tape and placed it in a format which could be used as input to a data matching program . . .

(QEMPM) This program matched the input data townships with an existing statewide model place file that contained township and zone data and added zone numbers (Figure 2) to the individual treasury records. Records which could not be matched by this process were corrected through the use of a remote terminal on an individual record by record basis. This amounted to approximately 25 percent of the initial treasury records.

(QREVNU) After all records contained an individual model zone number, they were summarized by like zone numbers for input to the socio-economic information file. The tax rates were averaged and the assessed valuation was added together.

(QSYM1) The zonal treasury data output, in disk form, was then fed into this program which transferred the data to a specific disk output format.

(Q17154) This program merely transferred the disk format to card format.

This now completes the actual data conversion process. The converted Treasury information can be graphically displayed using previously mentioned components of the statewide transportation modeling system (Figure 1). Figure 3 is the plot of the 1971 assessed valuation by zone for all zones in the state. Figure 4 is a zonal plot of the tax rate information.

The same treasury information may be related to other socio-economic information and a statistical evaluation completed similar to the analysis presented in Figure 5.

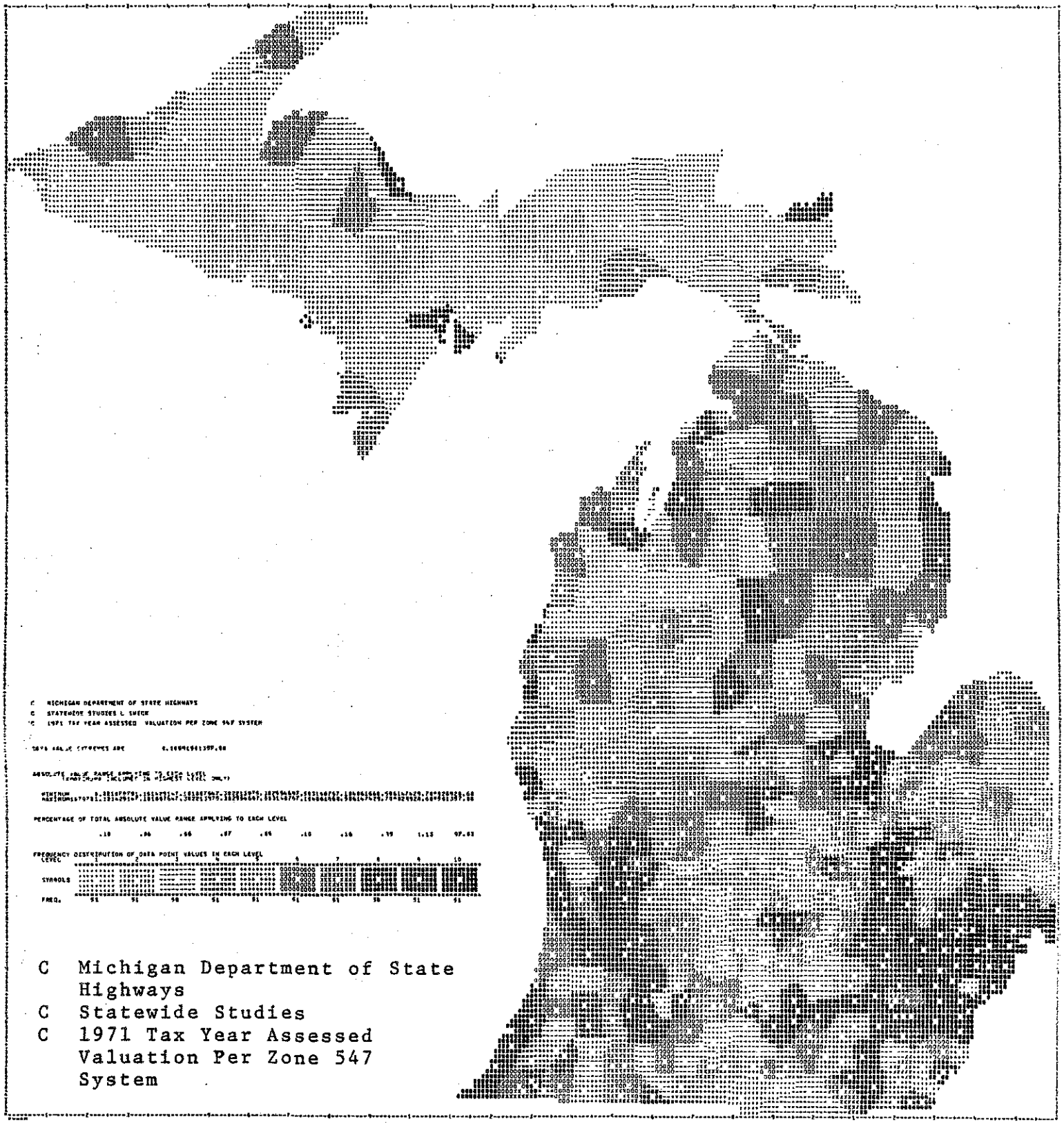

C MICHIGAN DEPARTMENT OF STATE HIGHWAYS
C STATEWIDE STUDIES L SHICK
C 1971 TAX YEAR ASSESSED VALUATION PER ZONE 547 SYSTEM
PERCENTAGE OF TOTAL ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL
.10 .06 .06 .07 .05 .10 .16 .19 1.13 97.03
FREQUENCY DISTRIBUTION OF DATA POINT VALUES IN EACH LEVEL
LEVEL 1 2 3 4 5 6 7 8 9 10
SYMBOLS
FREQ. 56 56 56 56 56 56 56 56 56 56
C Michigan Department of State Highways
C Statewide Studies
C 1971 Tax Year Assessed Valuation Per Zone 547 System

FIGURE 3

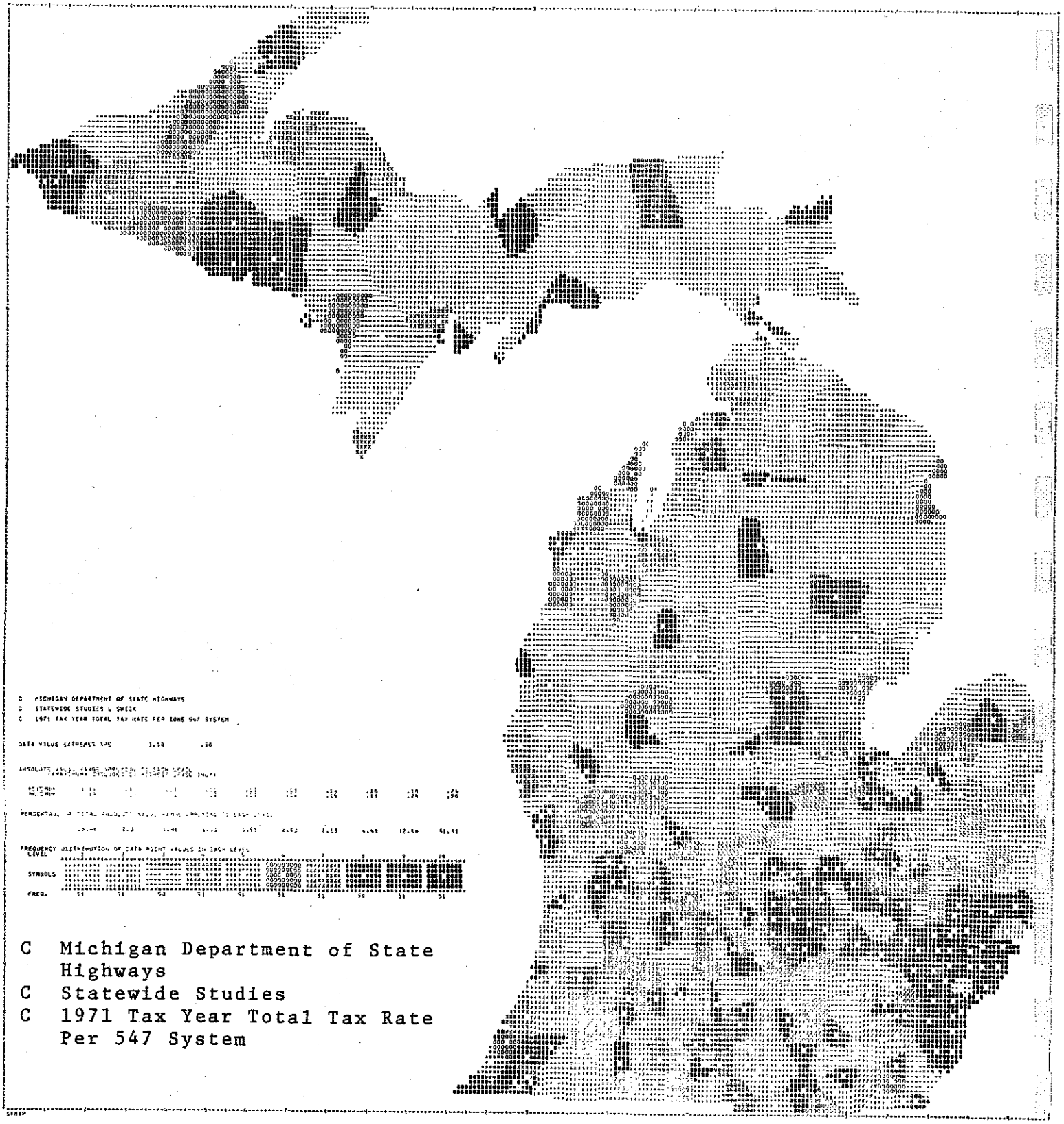

C MICHIGAN DEPARTMENT OF STATE HIGHWAYS
C STATEWIDE STUDIES L SMICK
C 1971 TAX YEAR TOTAL TAX RATE PER ZONE 547 SYSTEM
C Michigan Department of State Highways
C Statewide Studies
C 1971 Tax Year Total Tax Rate Per 547 System

FIGURE 4

HISTOGRAM OF VARIABLE PPOVER

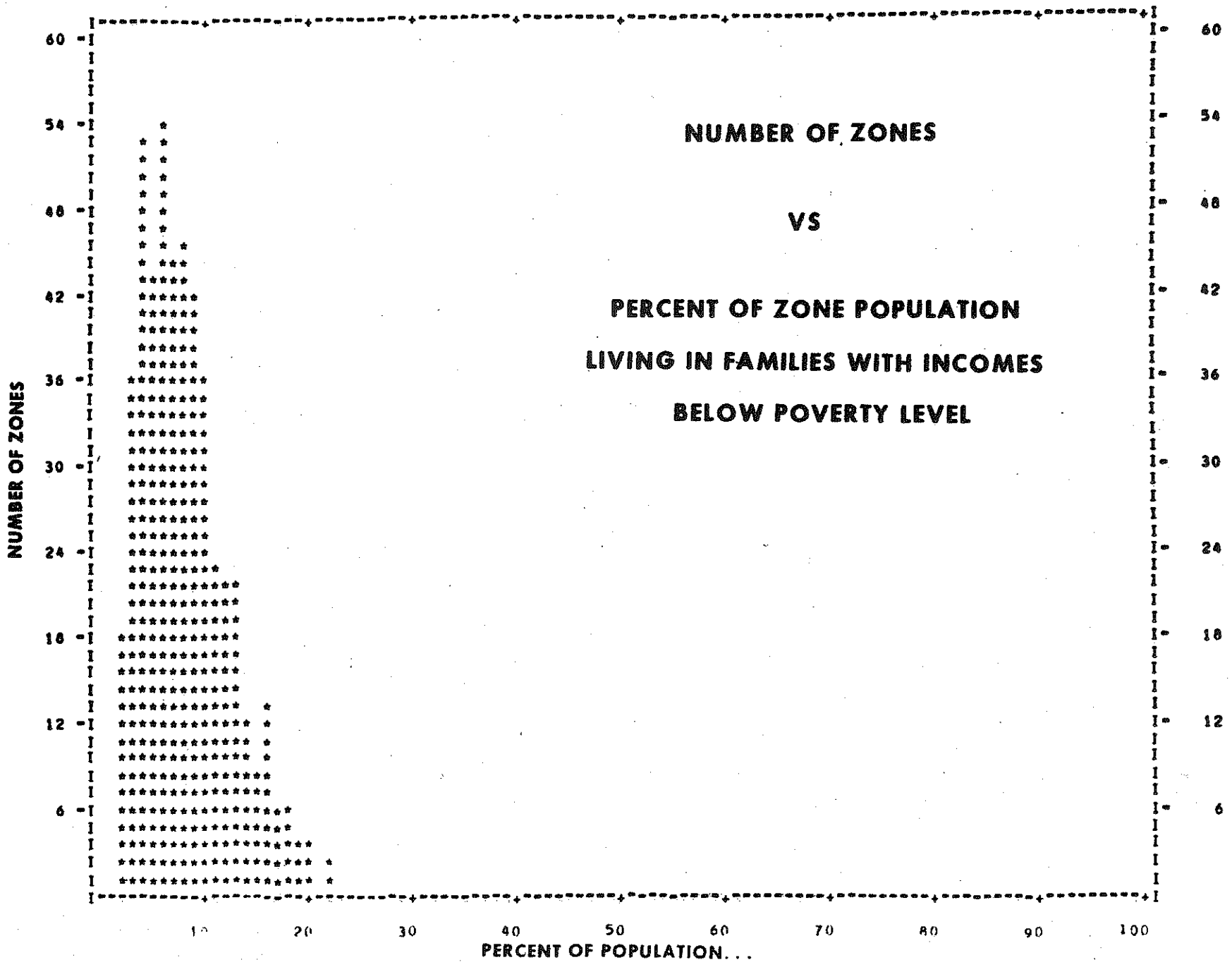
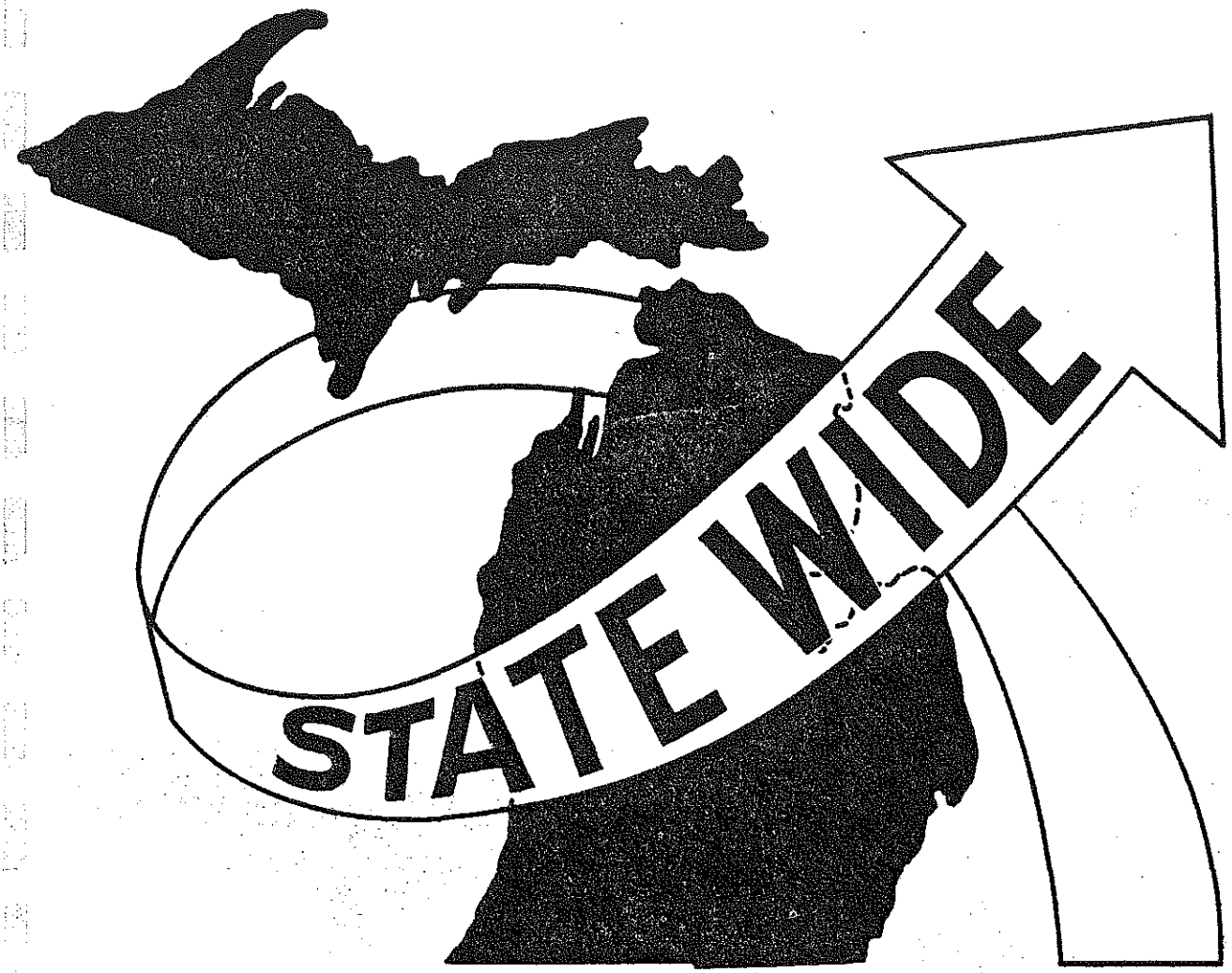


FIGURE 5

CONCLUSION



CONCLUSION

The presentation of data in graphics form provides a benefit to users which is self evident. The Michigan Department of State Highway's Statewide Transportation Model System hopefully provides a new avenue towards multi-department cooperation. Future cooperation between Michigan's Departmental Agencies should be promoted with the hope that the citizens of Michigan can benefit by their efforts. It is felt that the effort displayed through this example can provide a means to that end.