REGIONAL TRANSPORTATION SYSTEMS STUDY

REGION

3

Plan Report 1982

Prepared by
MICHIGAN DEPARTMENT OF TRANSPORTATION

Bureau of
TRANSPORTATION PLANNING

MICHIGAN DEPARTMENT

OF

TRANSPORTATION

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THIS REPORT REPRESENTS THE FINDINGS AND/OR PROFESSIONAL OPINIONS OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION STAFF AND DOES NOT REPRESENT AN OFFICIAL OPINION OF THE MICHIGAN STATE TRANSPORTATION COMMISSION.

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Summary

The Region 3 Regional Transportation Systems Study was initiated to fulfill the Department's responsibility to plan an adequate transportation system within the Region. The geographic area considered in this transportation study coincides with the five county jurisdiction of the Southcentral Michigan Planning Council (SMPC). It involves Barry, Branch, Calhoun, Kalamazoo, and St. Joseph Counties in southcentral Michigan.

By having studied current and future transportation deficiencies, this study recommends: 1) sub-area, 2) corridor, and 3) project studies for specific improvements in all modes of transportation operating in the Region.

A multi-disciplinary "study team" conducted this study. Representatives from Multi-Regional Planning, Aviation, Highways, Public Transportation, Railroads, and Non-Motorized Transportation were involved, plus environmentalists and social-economists. The SMPC has a member of its staff on the study team.

Goals and objectives of both the State and Region will be used to set the parameters within which solutions will be developed to resolve issues and problems.

Numerous factors influence the Region's future transportation system needs. Economic conditions, governmental influence, incentive programs, available leisure time, and desirable life styles all play an important part, but two factors were selected as key indicators in developing descriptions of various growth "futures:" (1) The availability

of engery and, (2) The density and location of population. Three possible levels of future energy supplies were identified as "restricted," conserved," and "abundant." Three possible future population growth options were identified as "low," "medium," and "high." Combining these factors yielded nine possible "futures." Each future is used to predict nine potential travel conditions in the year 2000. By reviewing each of the travel demands by mode, and the related population and energy impacts in the nine futures, future problems are determined.

Population in the Region is projected to increase 8.3 percent between 1980 and 2000. Energy for transportation, on the other hand, is expected to become more expensive in future years, and current conditions reinforce this expectation.

The Plan Report describes in detail how transportation networks, population, and energy interact. Analysis of future deficiencies and a study of the issues acquired through public input, provided the basis for recommendations.

Following is a brief overview of the transportation modes in the Region. Recommendations to solve the problems identified in each mode are included.

Aviation

Three types of airports serve Region 3; Air Carrier, Transport, and Utility. An Air Carrier airport offers regularly scheduled airline service. Transport airports are general aviation facilities with runways in excess of 5,000 feet. Utility Airports are general aviation facilities with runways from 2,000 to 5,000 feet.

W.K. Kellogg Regional Airport in Battle Creek and Kalamazoo Municipal Airport in Kalamazoo are Air Carrier airports. There are five general aviation airports in Region 3: one is a Transport airport located at Sturgis and the other four are Utility airports located at Three Rivers, Coldwater, Albion, and Hastings.

W.K. Kellogg is served by Air Wisconsin with 15 daily non-stop flights to three cities: Elkhart, Indiana, Chicago, and Detroit. Kalamazoo Municipal Airport is served by Republic Airlines to six cities daily. These non-stop flights are to Benton Harbor, Chicago, Detroit, Grand Rapids, Lansing, and South Bend, Indiana. Both Air Carrier Airports also serve many smaller general aviation type aircraft and have excellent all weather radio navigational facilities, plus instrument approach systems.

Recommendations

The Michigan Airport Systems Plan (MASP) recommended continued maintenance and improvements at Kalamazoo Muncipal and W.K. Kellogg Airports. Scheduled air service should be provided at Kirsch Municipal Airport in Sturgis when sufficient demand warrants. Airports at Coldwater, Hastings, Marshall, and Three Rivers should be upgraded, and Utility Airports should be established near Albion, Colon, and Union City.

Highways

Region 3 has over 580 miles of state trunkline. Reconstruction and rehabilitation of existing highways is the prime concern of the Department of Transportation. However, where monitoring of the highway system clearly indicates a need, and where a detailed planning process defines that need, relocation of existing highways or addition of new highways may be undertaken. US-131 provides a major north-south route along the western part of the Region. I-69 provides the major north-south route along the eastern portion of the region. I-94 and US-12 provide east-west movements across the region, and an additional 12 "M" trunklines serve the region.

All highways were carefully analyzed using the Sufficiency Rating System. Every section of trunkline was "rated" in: capacity, safety, surface condition, and base condition. Congestion levels, based on the capacity of a section of road related to the volume of traffic it carries, were also considered.

Projected traffic volumes, based on future energy availability and population growth, were used to identify future problem areas. This information, together with highway transportation issues acquired through public input, has enabled the Department to compile a list of deficient highway segments and recommen dations for solutions to these problem areas.

Recommendations

Corridor studies should be initiated for: US-131 from Schoolcraft south to the Indiana border; M-66 north of Sturgis; M-43 west of Gull Lake;

and US-12 around Coldwater. A project study of I-69BL in Marshall is needed. Sub-area studies should be conducted in Richland to determine the future locations of M-43 and M-89 and in Three Rivers to examine the need for a relocation of US-131BR, M-60, and M-89.

Non-Motorized

The primary network for non-motorized transportation (biking, walking, etc.) is the existing street system. Many urban and rural streets have adequate widths and low traffic volumes, and are considered safe for these activities without further improvements. However, in other areas higher motor vehicle speeds and volumes pose problems for non-motorized activities. Therefore, the concept of additional road width will form a base for the bicycle facility planning process.

The State non-motorized law requires that at least one percent of the Michigan Trunkline Funds received by each road agency be used for non-motorized facilities. This should increase the number of special facilities built to accommodate non-motorized travel throughout Region 3. Construction of a new non-motorized facility is recommended for areas that demonstrate a need. These would be areas where a new link is needed to supplement a non-motorized system or a local plan.

Recommendation

It is recommended that non-motorized projects be constructed in conjunction with highway projects or independently as funds are available.

In 1975, planning of the Kal-Haven Trail was initiated by MDOT in cooperation with the Michigan Department of Natural Resources (DNR). Difficulty in acquiring the right-of-way of the abandoned railroad

between Kalamazoo and South Haven originally delayed the project. Recent budgeting constraints; transportation legislation; and Attorney General's opinion which stated that Michigan Transportation Funds reserved for construction of non-motorized facilities may only be expended on facilities that are physically connected or are in proximity to state trunkline, have caused the DNR to withdraw from the project and have placed limitations on the extent to which MDOT may participate. Therefore, planning activities on this project will be limited unless new funding sources are discovered.

Public Transportation

Several public transportation systems serve Region 3. Marshall has a demand-response (Dial-A-Ride) system, and ridership has been increasing at nearly six percent per year during the past five years. Battle Creek and Kalamazoo have fixed route transit service with 21 and 74 vehicles respectively.

The intercity bus system, offering service to all communities over 5,000 population and most over 2,000, is provided by Greyhound Lines, Indian Trails, Indiana Motor Bus, and North Star Lines. Ridership has shown an increase in the past two years after a decline in the early and mid-seventies. Selected intercity bus services in Region 3 are subsidized by the State.

Intercity bus and rail passenger facilities have been developed in the Region. Both Kalamazoo and Battle Creek have a multi-modal passenger terminal in operation.

Intercity rail passenger service is available through terminals in Kalamazoo and Battle Creek. Both terminals serve the Port Huron-Chicago and the Detroit-Chicago trains. Rail passenger service has shown an increase over both routes.

Recommendations

There is a need to add or improve demand/resonse transit service in the rural portions of the Region. The transit systems in Battle Creek and Kalamazoo need expanding, and intercity bus service needs to be increased along the east-west corridor in the southern part of the Region. Rail passenger service should be expanded between Detroit and Chicago to better serve Battle Creek and Kalamazoo, and trackage east of Kalamazoo should be upgraded. Intercity bus and local public transportation services should share the use of intercity rail passenger terminals, and these multi-modal terminals should be considered in additional communities throughout the Region where these transportation services are available.

Rail Freight

Competing transportation modes have caused a steady decline in rail transportation and many carriers have gone bankrupt. These bankruptcies represent a possible loss of 2,000 miles of trackage in Michigan's lower peninsula.

Passage of the State Transportation Preservation Act of 1975 represents the State's initial commitment to maintain a statewide rail network through subsidy and other planning features. Additional funds are provided by the Federal Rail Reorganization (3R Act) and the Rail Revitalization and Regulatory Act (4R Act).

One segment is currently subsidized in the Region. The segment runs from Grand Rapids to Caledonia and is operated by The Kent, Barry, and Eaton Connecting Railway, Inc. (KB&E). This segment is in addition to the Grand Trunk Western, Conrail, and Amtrak service in the Region.

Recommendations

The need to continue and promote rail operations in the Region has been addressed by this study, and issues relating to rail transportation are receiving study. The KB&E Connecting Railway should continue to be monitored and changes instituted as required.

Future Planning Activities

Comments received at the Public Hearings have been reviewed, and consideration has been given to all pertinent issues. A post-decision meeting will be held at the Southcentral Michigan Planning Council to present the final study recommendations as described in this report.

The economy of the Region 3 area is dependent upon an efficient transportation system. Continuous monitoring of this system and a three year update cycle for this study will ensure that timely attention is given to new problem areas or specific local issues.

REGIONAL PRIORITIES

The Southcentral Michigan Planning Council conducted a survey by mail to assist them in setting priorities for the recommendations of the Regional Transportation Systems Study. Thirty-five percent (98) of the 280 surveys mailed were returned. The responses were ranked by a Computer Ranking Methodology. The total priority rank for all recommendations and for recommendations within each mode are listed below. Additional recommendations subsequent to the survey are also listed but not included in the priority ranking.

Finally, comments by the Region are included for each mode.

This priority listing will be used by the Department of Transportation as a guide in determining study priorities.

ISSUE NUMBER	TOTAL RANK PRIORITY	MODAL RANK PRIORITY	Aviation
1	22	3	Establish scheduled air service at Kirsch Municipal Airport, City of Sturgis, when there is sufficient demand.
2	23	4	Establish a "General Utility" airport for the City of Albion by either purchasing and expanding an existing airport or developing a new site.
3	1	1	Continue maintenance and improvements at Kalamazoo Municipal Airport and Battle Creek's W.K. Kellogg Regional Airport.
4	13	2	Upgrade the airports at Coldwater, Hastings, Marshall and Three Rivers to "Basic Transport."
5	24	5	Establish "General Utility" airports in Colon and Union City.

			Highways
6	2	1	US-131: Improvements and/or relocations along the corridor from Schoolcraft to the Indiana border to be considered as part of a corridor study for US-131.
7	20	8	A corridor study of the relocation of M-66 in the City of Sturgis.
8	11	5	A sub-area study in the Richland area for M-43/M-89 relocation.
9	10	4	A study of the possible relocation of M-43 to bypass the Gull Lake area
10	16	6	When traffic volumes increase on US-12 in the City of Coldwater to a level where Level of Service D cannot be maintained, a corridor study should determine the location for a US-12 bypass of Coldwater.
11	5	2	Improve US-12 from Coldwater to Quincy (proposed letting date of November 1985).
12	17	7	A project study of I-69 in Marshall to relieve capacity problems
13	9	3	A study to determine if US-131BR in Three Rivers could be relocated or if it should be abandoned as requested by the Three Rivers City Commission.
(This recommendation added after priority determination)			A sub-area study of Three Rivers to determine if a relocation of M-60 and/or M-89 is justified.
			Non-Motorized
14	19	1	Projects should be constructed in conjunction with highway projects or independently as funds are available.
			Public Transportation
15	15	5	There is a need for new or improved demand-response transit service for certain individuals in the rural portions of each of the five counties in Region 3.

16	18	6	The transit systems in Battle Creek and Kalamazoo warrant expansion.
17	21	7	Intercity bus service should be increased along the east-west corridor in the southern part of the region.
18	8	4	Joint intercity bus/local public transportation terminals should be considered for communities that have or warrant demand-response service.
19	6	3	Rail passenger service should be expanded by 3 additional trains daily between Detroit and Chicago serving Battle Creek and Kalamazoo.
20	3	1	Rail passenger trackage east of Kalamazoo should be upgraded.
21	4	2	Intercity rail passenger terminals should be jointly used by intercity bus and local public transportation services
			Rail Freight
22	7	1	A detailed investigation will be made if Conrail puts the "Airline" Jackson-Elkhart rail line up for abandonment.
23	12	7	If Conrail abandons the Jackson-Three Rivers line, an investigation will be made for providing rail service to Mendon by rebuilding the 0.7 mile gap between Nottawa and Wasepi and thus establishing service between Sturgis and Mendon.
24	14	3	Continue to monitor the operations of the Kent, Barry, and Eaton Connecting Railway and institute changes as required.

REGIONAL COMMENTS

AVIATION

The aviation recommendations, with the exception of maintenance and improvements at Kalamazoo Municipal Airport and Kellogg Regional Airport received low priority in the survey conducted by the Southcentral Michigan Planning Council (SMPC). The SMPC concurs with the survey results.

HIGHWAYS

The recommendation of the highway survey results varied from very high priority to low priority. The SMPC supports the Michigan Department of Transportation's general recommendations regarding the highway section of the Regional Transportation Systems Study. The SMPC priority preferences are the US-131 studies, US-12 studies and the M-43/M-89 studies.

NON-MOTORIZED

The recommendation from MDOT on the non-motorized section of RSS doesn't appear to be a recommendation in which a priority status can be identified in any quantifiable terms. Survey results indicate an overall low priority for non-motorized projects. SMPC cannot endorse, reproach, or prioritize non-motorized projects wihtout knowing what they are.

PUBLIC TRANSPORTATION

The survey results concerning public transportation recommendations indicates a high priority for rail passenger transportation and medium to low priority for other forms of public transportation. The SMPC

supports rail passenger transportation and encourages coordination and/or consolidation of public transportation systems, where possible, in order to improve service levels and decrease expenditures.

RAIL FREIGHT

The recommendations concerning rail freight issues of the RSS received medium priority status from the survey results. The SMPC concurs with the survey results, subject to modification in issue status.

SUMMARY OF RECOMMENDATIONS

The following is a summary of the recommendations by mode which have evolved from the Regional Study.

Aviation:
- Establish scheduled air service at Kirsch Municipal Airport, City of Sturgis, when there is sufficient aviation demand.
- Establish a "General Utility" airport for the City of Albion, by either purchasing and expanding an existing airport or developing a new site.
- Continue maintenance and improvements at Kalamazoo Municipal Airport and Battle Creek's W.K. Kellogg Regional Airport.
- Upgrade the airports at Coldwater and Hastings to "Basic Transport".
- Establish "General Utility" airports near Colon and Union City.

Highways:
- US-131: Improvements and/or relocations along the corridor from Schoolcraft to the Indiana border to be considered as part of a corridor study for US-131.
- A corridor study to consider the relocation of M-66 in the City of Sturgis.
- A sub-area study should be conducted in the Richland area for M-43/M-89 relocation.
- A study of the possible relocation of M-43 to bypass Gull Lake.
- A sub-area study of Three Rivers to determine if a relocation of M-60 and/or M-89 is justified.
- When traffic volumes increase on US-12 in the City of Coldwater to a level where level of Service D cannot be maintained, a corridor study should determine the location for a US-12 bypass of Coldwater.
- Improve US-12 from Coldwater to Quincy (propsoed letting date of November 1985).
- A project study of I-69BL in Marshall to relieve capacity problems.
- A study to determine if US-131BR in Three Rivers could be relocated or if it should be abandoned as requested by the Three Rivers City Commission..

Non- Motorized:

- Projects should be constructed in conjunction with highway projects or independently as funds are available.

Public Transportation:

- There is a need for new or improved demand response type transit service for special individuals in the rural portions of each of the five counties in Region 3.
- The transit service in Battle Creek and Kalamazoo should be expanded.
- Intercity bus service should be increased along the east-west corridor in the southern part of the region.
- Joint intercity bus/local public transportation terminals should be considered for communities that have or warrant demand response type service.
- Rail passenger service should be expanded by three additional trains daily between Detroit and Chicago serving Battle Creek and Kalamazoo.
- Rail passenger trackage east of Kalamazoo should be upgraded.
- Intercity rail passenger terminals should be jointly used by intercity bus and local public transportation services.

Rail Freight:

- Continue to monitor the operations of the Kent, Barry and Eaton Connecting Railway and institute changes as required.

1. INTRODUCTION

The Constitution and Statutes of the State of Michigan make the Michigan Transportation Commission responsible for planning, building, and maintaining a state transportation system. To fulfill these responsibilities, the Michigan Department of Transportation has developed a planning process to guide the state and its governmental units in analyzing the adequacy of existing transportation systems and in preparing plans for future systems and facilities.

Traditionally, the planning process has been divided into two phases: Systems Planning and Project Planning (see Exhibit 1). Systems Planning consists of analyzing transportation system needs and developing proposed networks designed to satisfy these needs. The process begins by analyzing the existing systems and facilities and their relationship to goals and objectives of the governmental units of the state and extends through establishment of a set of priorities for the improvement of the system by capital investment projects. System Planning studies provide a general overview of how all modes of transportation interact in a given area. They address the physical and functional components of the transportation system and consider the probable general impacts to its users and nonusers. A detailed Environmental Impact Statement (E.I.S.) is not required at this stage due to the general nature of the study and the broad scope of issues. The contents of this report represent a system planning study as it relates to Region 3.

TRANSPORTATION PLANNING

SYSTEMS PLANNING

Determines Need & Priorities for General Project Location

STATEWIDE SYSTEMS PLANNING

Deals with State & National Transportation Needs – Results in Broad Policy Determination

STATE MODAL PLANS

1. Aviation
2. Public Transportation
3. Highways
4. Railroads
5. Waterways
6. Non-Motorized Transportation

REGIONAL SYSTEMS PLANNING *

Relates Statewide Planning to all Regions to Insure Consideration of Local Goals

REGIONAL TRANSPORTATION STUDIES

1. Northeast Michigan Region
2. Northwest Michigan Region
3. East Central Michigan Region
4. etc.
5. etc.

PROJECT PLANNING

Deals with Specific Locations and Types of Facility Designs

CORRIDOR LOCATION STUDIES

Required When Facility must be Relocated or Major Problems Anticipated. Determines General Corridor Location

DESIGN STUDIES

Evaluates Specific Locations and Facility Types Within the General Corridor

* THE CONCERN OF THIS STUDY

EXHIBIT 1

PROJECT PLANNING is the process of analyzing the proposed construction or improvementments of specific transportation facilities to a point where all but one of the practical alternatives are eliminated. Because project planning deals with specific facility location and design, an E.I.S. may be required, depending on the extent of improvements and the intensity of impacts.

Study Area

The geographic area considered in this transportation study coincides with the five county jurisdiction of the Southcentral Michigan Planning Council (SMPC) (Exhibit 2). The SMPC has been designated by Governor William A. Milliken as the regional planning agency for this area. In so doing, the Governor has requested all state agencies to cooperate with the regional agency when planning various programs and to develop those programs to be consistent with regional goals and objectives. The Region 3 Transportation Study represents the Department of Transportation's obligation to meeting this objective.

Purpose of Study

The Regional Transportation Study was initiated in 1978. The purpose of the study is to identify current and future deficiencies. This study will recommend sub-area, corridor and project studies that will result in recommendations for improving various transportation modes operating in the Region.

STATE PLANNING AND DEVELOPMENT REGIONS

LEGEND:

1. Southeast Michigan Council of Governments
2. Region II Planning Commission
3. South Central Michigan Planning & Development Council of Region III
4. Southwestern Michigan Regional Planning Commission
5. G–L–S Regional Planning Commission
6. Tri-County Regional Planning Commission
7. East Central Michigan Planning & Development Regional Commission
8. West Michigan Regional Planning Commission
9. Northeast Michigan Council of Governments
10. Northwest Michigan Regional Planning & Development Commission
11. Eastern Upper Peninsula Regional Planning & Development Commission
12. Central Upper Peninsula Planning & Development Regional Commission
13. Western Upper Peninsula Regional Planning Commission
14. West Michigan Shoreline Regional Development Commission

MICHIGAN DEPARTMENT OF TRANSPORTATION

Regional Planning Commissions, as established under Public Act 281, Public Acts of 1945, as amended, exist in multi-jurisdictional areas throughout Michigan. The state regions are funded by money from local, state and federal sources and work in the program areas of land use, environmental protection, transportation, housing, economic development, water resources, law enforcement, waste management, recreation, manpower and other programs.

EXHIBIT 2

Planning Methodology

This study is being conducted by a multidisciplinary planning team called a "study team". A multidisciplinary team is made up of people who have diverse educational backgrounds. The reason for using a multidisplinary team is to bring together people with varying perspectives, who can provide a wide variety of ideas that can be applied to problem identification and solution. Membership of this study team includes engineers, planners, social scientists, economists, and environmentalists. In addition, the study team also has members representing SMPC and the Federal Highway Administration.

A key element of this study is to encourage early public involvement in planning for major transportation facilities. To accomplish this a 3-step meeting process has been established consisting of: 1) Pre-Study Public Meetings, 2) Public Hearings and, 3) Post-Decision Meeting. These meetings give the public an opportunity to become involved in the planning process and to review and comment on transportation proposals affecting their area. The contents of this report were reviewed and revised following the six Information Exchange meetings and two Public Hearings held at six locations in Region 3 in June of 1981.

2. SOCIAL AND ECONOMIC INVENTORY

Population Characteristics

According to the 1980 census, Region 3 contained 493,942 people, 5.4 percent of the state's population. Kalamazoo County's population (212,066) accounted for 43% of the total regional population. Calhoun County had the second largest population (140,922) which was 28% of the total regional population. St. Joseph County (55,917), Barry County (44,932), and Branch County (40,105) accounted for the remaining 29% of the total regional population.

POPULATION

Area	1970 Census	1980 Census	Change 1970 - 1980 Number	Change 1970 - 1980 %
Barry County	38,166	44,932	6,766	17.7
Branch County	37,906	40,105	2,199	5.8
Calhoun County	141,963	140,922	-1,041	-0.1
Kalamazoo	201,550	212,066	10,516	5.2
St. Joseph	47,392	55,917	8,525	18.0
Region	466,977	493,942	26,965	5.8
State	8,881,826	9,228,128	346,302	3.9

SOURCE: U.S. Census of Population 1970, 1980 (Preliminary Report).

Population Projections

The projections shown above were prepared by the Michigan Department of Management and Budget. The projections indicate that all counties in the region are expected to increase in population except for Calhoun County which is expected to decrease by 6.3 percent. By the year 2000, the region is expected to increase by approximately 41,058 people or 8.3% over 1980 levels.

POPULATION PROJECTIONS 1990 - 2000

Area	1980 Census	1990	2000	Percent Change 1980 - 2000
Barry Co.	44,932	50,200	55,600	23.7
Banch Co.	40,105	43,300	44,700	11.5
Calhoun Co.	140,922	139,000	132,100	- 6.3
Kalamazoo Co.	212,066	219,400	232,100	9.4
St. Joseph Co.	55,917	62,300	70,100	25.4
Region	493,942	514,200	535,000	8.3
State	9,228,128	10,046,000	10,505,000	13.8

SOURCE: Department of Management and Budget. Population Projections for Michigan to the Year 2000. 1978.

Age Factors

The age distribution of the region's population is similar, in all age groups, to that of the state. However, this might be slightly misleading as individual counties vary. Kalamazoo County, for example, has a higher percentage of people in the 20-44 age bracket but lower percentage of persons 65 years of age and older. On the other hand, Barry County has a lower percentage in the 20-44 age group and a higher population percentage 65 years of age and older.

According to the 1970 census 9% of the regions residents were 65 years of age or older. By the year 2000, this percent is expected to increase. Persons in this group have different travel needs than persons in younger age brackets with more trips to doctors or hospitals.

Health Care and Educational Facilities

On a regional level two of the more important socio-economic considerations for providing efficient transportation are access to health care facilities and educational institutions. Region 3 contains 14 hospitals. Seven of the hospitals are located in Calhoun Co., three in Kalamazoo Co.; St. Joseph Co. has two and Barry Co. and Branch Co. each have one. In addition, other health services within the region include 30 nursing care units and seven homes for the aged. There are a number of educational opportunities available to residents of the region. Kalamazoo College, Kalamazoo Valley Community College, Western Michigan University, and Nazareth College are located in Kalamazoo Co. Albion and Kellogg Community College are located in Calhoun Co., and Glen Oaks Community College is in St. Joseph Co.

Transportation - Disadvantaged

Seventy-six (76) percent of the population of Kalamazoo County and sixty (60) percent of the population of Calhoun County live in urban areas. The populations of Barry, Branch and St. Joseph Counties live in predominately rural areas. Persons living in rural areas are generally required to travel to more densely populated areas of the region to shop, work, or to take advantage of health care and educational facilities, cultural activities and other services. This places a special burden on portions of the population which, because of handicap,

poverty, or old age, find it difficult to make necessary trips without burden or hardship. When the expense of an automobile is too great, when public transportation is not available, or when physical limitations preclude the use of an automobile, access to facilities and services may be very difficult. The objective is to provide basic service to the disadvantaged; however, it must be determined at what cost.

The percentage of transportation disadvantaged varies from 19 percent in Kalamazoo County to 25 percent in Branch and Calhoun Counties to 26 percent in Barry and St. Joseph Counties. The regional percentage of 22.7 is barely higher than the state percentage of 22.5.

Land Use

Agriculture/open space is the predominant land use in the region. The amount of acreage devoted to this land use ranges from 72% in Kalamazoo County, 75% in Barry County, approximately 77.5% in Calhoun and St. Joseph Counties, to 82% in Branch County. As expected, the number of jobs generated in the agriculture sector are few in relationship to the total amount of agriculture acreage in the region. Approximately 5% of the labor force in Branch, St. Joseph, and Barry Counties are employed in this sector. Kalamazoo County (1.8%) and Calhoun County (2.0%) are more in line with the State's percentage (1.8%) employed in this sector.

The issue of land use and whether controls should be developed to preserve certain land areas and uses has been a major concern throughout Michigan. Transportation service and accessibility has a significant impact upon land and it's use. Alternate transportation systems, modes, facility locations, and designs have differing influences on land use.

Economic Base

To have a strong regional economy, an efficient transportation system should be developed which promotes the movement of materials, goods, and people, while avoiding unnecessary disruption of social and economic activity.

Three employment sectors employ 81 percent of the work force of the region. The largest is manufacturing followed by services then trades.

Commuting Patterns

An important socio-economic consideration in terms of providing efficient transportation is the trip to work. Hence, an examination of commuting patterns shows the relationship between place of work and residence. Kalamazoo County has the highest percentage (95%) of its work force living and working in the county with approximately 2% of it's labor force commuting to Calhoun County. Calhoun County has 93% of its employed residents commuting to work within the county with three percent commuting to Kalamazoo County. Approximately 85% of Branch and St. Joseph County's labor force live and work in their respective counties. The remaining employed residents of Branch County commute primarily to Calhoun and St. Joseph Counties. Approximately 10% of St. Joseph County's labor force commutes to Indiana. Barry County exports the largest percentage of its work force, 40%; a large proportion of these people commute primarily to Calhoun and Kalamazoo County.

3. NATURAL ENVIRONMENT

Land Use

Of the total area (1,857,280 acres) in Region 3, 65% is in agriculture, 22% is forested, and 2.3% is inland water.

Climate

Frequent, and often rapid, climatic change characterizes the climate of the Region. The extreme western portion of the SMPC area, particularly around Kalamazoo, displays the major anomaly of the climate: it lies within the Lake Michigan "Snow Belt" and thus experiences excessive snowfall due to the moisture picked up as the air masses pass over Lake Michigan.

Geology

More than 90% of the area's petroleum and natural gas production is from the Albion-Pulaski-Scipio formation. However, some crude petroleum is also extracted from Barry County, which overlies the Niagaran reef and other prospective porosity traps. Further, technological advances could broaden these areas and/or open new areas within the Region.

Two significant topographic patterns dominate the Region and are the primary influence upon varying drainage patterns:

1. Numerous hills and valleys with relief up to 100 feet occur in Barry County (except northeast), northeast Kalamazoo County, and northwest Calhoun County. Surface drainage features a large number of small, fast flowing streams which often display intermittent flow in summer.

2. Rolling or gently sloping terrain portrays the rest of the Region. Surface drainage is characterized by larger, less rapid streams with wide floodplains and low marshy areas in headwater reaches. Groundwater contributions produce streams with greater flow stability.

Flooding and sedimentation are present in varying degrees in each of three major drainage basins:

1. Thornapple River Basin

   Relatively high water flow rates result in a self-cleaning effect with respect to sediment. Sediment is carried downstream and settles out behind dams, where reduced depths of ponding may be a problem. Flooding may be a problem in the urban areas of Hastings, Nashville and, to a lesser extent, Middleville.

2. Kalamazoo River Basin

   Effects of sedimentation are similar to those above. Although flooding is not an extensive problem in the basin, it does occur in wetlands, open space, and low lying agricultural land. Potential urban flooding areas resulting from urban development or pressure from urban development in, or adjacent to, identified floodplains are Albion, Marshall, Homer, Augusta, Galesburg, Comstock Center, Kalamazoo and Portage.

3. St. Joseph River Basin

   Sediment is a moderate problem. Since flow velocities are slower than in the above basins, sediment settles-out over greater portions of the watercourses; a larger number of lakes and wide

shallow watercourses aggravate the situation. Flooding is more widespread than in the above basins. Urban flood drainage is a problem in Three Rivers, Union City, Coldwater, Centerville, and Nottawa. Flooding also occurs around lakes in Branch County.

Environmentally important rivers in the Region include those being studied for inclusion in the State Natural Rivers Program. The Kalamazoo River and the Thornapple River are presently under study, while the St. Joseph River is proposed for study for possible inclusion in this program.

Natural Vegetation

The Region comes within the northern limits of the central hardwoods biowe. Most of the original oak-hickory and beech-maple forests have been cleared for agricultural activities. The remaining forests are on land generally not suited for agriculture, such as upland deciduous woodlots on steep sloping lands, and hardwood swamps in areas too wet to be farmed. These were often used for grazing and a source of firewood. Many, however, were never clear cut. Elements of the original forest cover are commonly mixed with young trees over virgin soil in the remaining woodlots.

Wildlife and Fisheries

Kirtland's Water Snake is the only endangered wildlife species in the Region. Species that are threatened in the Region include two amphibians, one reptile, six birds, and four mammals. Another forty-seven wildlife species may be considered rare or scarce. These assignments are based on current abundance, evidence of recent decline, habitats, and life histories.

Eight State Game areas and a State Fisheries Research Station are located in the Region.

The numerous inland lakes provide excellent fishing, which is utilized primarily by local residents. Waterfowl hunting is a common activity on many lakes and the numerous wetlands and river bottoms.

Small game hunting is popular on private farmland as well as in the State Game Areas. Region 3 is located within a narrow band of counties which provide consistent bobwhite quail populations. The southern counties of the region have been called the "cottontail rabbit capital of Michigan", with high population of these animals in most years. Whitetail deer populations are moderate and growing, although there is evidence the carrying capacity has been reached in some areas. Conflicts between motor vehicles and deer are a serious problem.

Environmental Impact Statements

Federal and State legislation require detailed environmental impact studies be prepared for all transportation projects. Because of the site-specific nature of highways and airports, meaningful assessment of the relationship between a transportation improvement and a Region's natural and human environment can only be conducted at the project planning level, rather than the systems planning, stage. Project alignments are generally chosen from a number of alternatives after serious comparison of the relative advantages of each alternate.

Among the important components of the environment which are given in-depth analysis at the project stage are wetlands, water quality,

agriculture, aesthetics, vegetation, wildlife, noise impacts, and air quality. Another federal rule prohibits construction of any transportation project through a local, state, or regional park or recreation area unless no other possible alternative exists. The State Game Areas, community parks, and public access sites to lakes and streams fall into this category of protection.

The Department's process for conducting environmental studies encourages citizen input at key points. Local input has been extremely useful in the identification of impacts, and analysis of alternatives.

4. TRANSPORTATION GOALS AND OBJECTIVES

What are the values in the Region? How should issues and problems be resolved? What overall parameters should the planners and engineers use in the study to develop alternative solutions? The goals and objectives provide the direction for addressing these questions.

State Transportation Goals and Objectives already exist which will affect this region and the study. The Southcentral Michigan Planning Council has developed preliminary Goals and Objectives for Region 3. These are listed following the State Transportation Goals.

STATE TRANSPORTATION GOALS

Statement of Purpose: To ensure a level of mobility for Michigan citizens, visitors, and commerce that is reasonable in terms of the social, economic, and environmental values of the state.

Aviation Goals

1. Provide a reasonable level of aviation services to all Michigan citizens, visitors, and commerce.

2. Reduce the number and severity of accidents and promote the personal safety of air travelers.

3. Maximize economic benefits through aviation program investments.

4. Minimize environmental impacts in the planning, development, and operation of airport facilities.

Highway Goals

1. Develop a highway transportation system which will provide accessibility to existing and anticipated patterns of development throughout the state and effectively serve existing and projected travel demands.

2. Develop a functional statewide highway transportation system which will provide for appropriate types and levels of highway service commensurate with the needs of the various areas and activities in the state.

3. Alleviate traffic congestion and reduce travel time.

4. Provide for increased travel safety.

5. Provide a system which is both economical and efficient, satisfying all other objectives at the lowest possible cost.

6. Coordinate highway planning with land use planning for the development and preservation of resources.

7. Develop a system which is compatible with the aesthetic qualities of the landscape.

8. Develop a system which is integrated with other modes of transportation. Attention should be given to existing and planned terminal locations and their expected levels of activity.

Non Motorized Goals

1. Make bicycling safer through the provision of bicycle facilities and improvements to appropriate street and roads.

2. Promote the use of bicycle transportation for utilitarian purposes by improving bicycle accessibility and mobility.

3. Encourage the use of bicycle transportation for recreational purposes by developing long-distance touring routes and routes of shorter duration to and through aesthetically pleasing areas.

4. Provide recreational horseback riding opportunities in cooperation with other state and local agencies.

Public Transoration Goals

1. Provide a reasonable level of public transportation service for all Michigan citizens.

2. Maximize economic benefits through public transportation investments.

3. Maximize positive environmental impacts achievable through the provision of public transportation services.

Railroad Goals

1. Provide and maintain an adequate, efficient railroad network within Michigan and maintain links to the regional and national networks.

2. Promote present and future financial viability, stability, and efficiency within the Michigan railroad system.

3. Minimize adverse social and economic impacts of changes in railroad service

4. Promote and maintain safe railroad freight operations consistent with public need and carrier capability.

Regional Transortation Goals

The regional transportation goal and subgoals will guide the evaluation of issues raised in response to the Regional Transportation System Study. They will also guide future transportation activities of the Southcentral Michigan Planning Council.

Goal Statement:

The overall goal of the Southcentral Michigan Planning Council with regard to transportation systems is to - encourage the development of a regionwide transportation system which represents the achievement of - these sub-goals:

a. A balance of transportation modes to meet the needs of the residents of Region 3.

b. Adequate transportation system linkages to insure convenient intraregional and interregional movements.

c. A level of service which minimizes unnecessary delay.

d. A coordination of subregional transportation systems.

e. A transportation system which is consistent with regional policies and plans.

f. A transportation system which minimizes accidents.

g. A transportation system which minimizes adverse impacts on the natural and man-made environments.

h. An energy efficient transportation system.

i. A transportation system which maximizes social and economic benefits for the residents of Region 3.

j. A transportation system which maximizes accessibility to the system itself.

5. ALTERNATIVE FUTURES

A major objective of this study is to ensure that an adequate regional transportation system is developed to meet current and future needs of the region. To accomplish this objective, the study team has recognized two principal factors that will significantly affect the character of future transportation systems. They are:

1. Availability of fuel.

2. Changes in population densities and settlement patterns.

Energy Availability

The availability of energy, either in the form of synthetic substitutes or in the discovery of new resources, will define the costs and much of the character of future transportation services. Today, fuel supplies are adequate to meet current travel demands. However, these supplies were severely limited during the 1973-74 Mideast oil embargo.

The embargo had a significant impact on the transportation system. Service stations were closed on weekends in some areas of the country and many motorists waited in long lines to fill their gasoline tanks. Some commuters discovered that car pools provide a substantial economic savings in making their daily work trip and others shifted to local transit services. In some cases, the number of work trips were reduced due to employers experimenting with 4-day work weeks.

Another impact of the embargo was felt by the commercial airline industry. The fuel shortages caused many flight schedules to be reduced and advance reservations were required to ensure a seat on a fully loaded flight.

Although the oil embargo lasted only a few months, some of it's effects are still with us. For example, most everyone has now become more energy conscious. The Environmental Protection Agency (EPA) has required that the automobile fleet must average 27.5 miles per gallon by 1985. Also, gasoline mileage has become a consideration in the selection of a new or used automobile.

The possibility of reduced fuel supplies can have major effects on future transportation actions. Should we continue expanding the highway system? Should we be considering more transit options? Are we going to need additional airports or will the existing facilities be adequate? Should the railroads be permitted to abandon their unprofitable service? It is because of these kinds of questions that the study team has identified the "energy" issue as a central concern of future planning efforts.

GROWTH AND DEVELOPMENT

Changes in settlement patterns will also significantly define the character of the demand for future transportation services. These population shifts, including declining urban densities, suburbanization, and rural migration, are often accompanied by changes in lifestyle. As communities begin to grow and develop, various social and economic activities require an increase in many public services. In order to accommodate this growth, some local communities are faced with the prospect of extending water, sewer, gas, and electric power lines. In addition, some transportation systems will have to be expanded or improved to accommodate increased travel demand.

While some communities are experiencing "growing pains," others are struggling economically due to a lack of growth. These latter areas are sometimes characterized by a high unemployment rate, low tax base, and low income. Thus, in order to improve these conditions, government assistance programs are often implemented to stimulate private investment. These programs provide the dollars for such facilities as industrial parks, airport improvements, education, and convention centers, plus low interest loans for various housing and industrial projects.

From an economic standpoint, a growing community establishes a favorable business climate that can attract private investments. Socially, these investments can be beneficial by providing increased personal income and employment. In addition, a broader tax base can be used to support better educational and cultural facilities.

However, from an environmental standpoint, a growing community can sometimes cause significant increases in air and water pollution levels. Land use changes can occur that will detrimentally affect environmentally sensitive areas such as parks, forests, lakes, and primary agricultural lands.

After many decades of development, some communities are starting to fashion new master plans calling for a ceiling on future growth, and prescribe precise definition of settlement patterns. In view of the potential for future energy shortages, these growth management policies may not only be a desirable option, they may also become a mandatory planning action. Therefore, the future of transportation development will also depend on the rate of growth that is permitted to occur.

FUTURE TRANSPORTATION DEVELOPMENT STRATEGY

Numerous factors, other than energy availability and population change, will also influence the region's future transportation system needs. Economic conditions, governmental influence, incentive programs, available leisure time, and desirable life-styles will all play an important part. Though considered in developing descriptions of the various futures, energy and populations were the key indicators.

The study team has developed a planning strategy based upon these two key indicators. It considered the possible occurrence of several future conditions based upon variations of energy supply and population growth. The alternative energy supply futures are identified as "Restricted", "Conserved," and "Abundant". The population growth futures are described as "Low", "Medium", and "High". Combinations of these factors yield nine possible situations, or futures, which are conceptually illustrated in Exhibit 3. It is assumed that each one of these nine futures closely represents a potential travel condition in the year 2000.

ALTERNATIVE FUTURE PROJECTIONS

	2000 POPULATION LOW GROWTH	2000 POPULATION MEDIUM GROWTH	2000 POPULATION HIGH GROWTH
RESTRICTED FUTURE ENERGY SUPPLY	1	2	*PUBLIC TRANSIT WOULD BE MOST SUCCESSFUL IN THIS FUTURE* 3 *RAIL AND WATERBORNE TRANSPORTATION BECOME MORE COMPETITIVE IN THIS FUTURE*
CONSERVED FUTURE ENERGY SUPPLY	4	5	6
ABUNDANT FUTURE ENERGY SUPPLY	*THIS FUTURE MOST CLOSELY RESEMBLES CONDITIONS IN 1978* 7	8	*HIGHWAY IMPROVEMENTS WOULD BE NEEDED MOST IN THIS FUTURE* 9

EXHIBIT 3

The nine futures were used to summarize the affects on various transportation modes by their related population and energy impacts. The futures are numbered one through nine. Any deficiency which is significantly represented in all nine can be considered as a safe investment for expenditure when programming highway funds. Problems which only occur in "three", "six", and "nine" require high population growth to become a safe investment. Problems occuring only in "seven", "eight", and "nine" are safe investments only if we do not expect energy supplies to become more restricted.

By reviewing each of the travel demands by mode, and the related population and energy impacts using this matrix, the task of determining future problems is simplified.

Following is a brief explanation of the variations in the energy and growth futures.

Growth Futures

A key indicator of the region's growth potential is often expressed in its forecasted population levels. From 1970 to 1980, the region's population has increased 5.8 percent, from 466,977 to 493,942 persons.

Transportation facility development is directly related to the expected mobility requirements of current and future population levels. Forecasts used in this study were prepared by the Michigan Department of Management and Budget. The study team has established three possible growth levels:

LOW GROWTH - This future assumes that the region's year 2000 population will be approximately the same as the 1980 population of 494,000 persons.

MEDIUM GROWTH - This future assumes that the region's year 2000 population will reach approximately 514,000 (1990 forecast) persons, a 4 percent increase since 1980.

HIGH GROWTH - This future assumes that the region's year 2000 population will reach approximately 535,000 (2000 forecast) persons, an 8 percent increase since 1980.

Energy Futures

The study team found that defining three energy futures was a more difficult task. While fuel availability was considered the determining factor, both the fuel cost per gallon and cost per vehicle mile of travel will also certainly affect its future use. The three possible energy futures are described as follows:

RESTRICTED ENERGY - This future assumes that energy for transportation purposes is in very critical supply. Gasoline rationing would be in effect. Strong government programs would be implemented to ensure proper utilization of the various modal transportation systems. Public transit development would be very extensive.

CONSERVED ENERGY - This future assumes that energy shortages are a long-term reality. Fuel conservation is stressed but still based on voluntary efforts. The price of fuel has risen significantly so that it begins to make a real impact on everyday driving habits. The automobile is still the dominant mode of transportation but certain trip purposes, like work trips, are shifting to car pools or public transit.

ABUNDANT ENERGY - This future assumes that there is no energy crisis. Adequate fuels are available for transportation either through the discovery of new resources or through the development of synthetic fuels. The automobile remains the dominant mode of transportation. This future is most typical of recent past and present conditions reflecting today's relatively affluent suburban lifestyle.

ANALYSIS TECHNIQUES

The Regional Study Team evaluated what would happen if each of the energy futures generated different diversion patterns by mode. The impact population had on trip volumes was also analyzed.

The team established the modal split percentages for each energy future based on the evaluation of various modal splits reported in the National Transportation Study (NTS) and the travel patterns of people traveling in the Northeastern United States urban corridors.

Exhibit 4 summarizes the mode split percentages and the travel reductions made under three energy futures. The travel was diverted from the highway mode based on trip length and trip purpose. The calculations used in this process are very repetitive and time consuming, therefore, the computer process shown in Exhibit 5 was used.

FUTURE TRANSPORTATION ASSIGNMENTS

Nine regional transportation assignments were developed by the study team and are based on the previously described energy and growth futures. In addition, these assigmments were derived from the premise that:

1. The availability of future "energy supplies" determines the type of transportation mode to be developed, and

2. The amount and location of future "growth" determines the extent of transportation system development.

The following five sections detail regional aviation; highway, non-motorized, public transportation; and rail freight facilities. Each section will discuss the existing facilities, deficiencies existing and present, special issues, and recommendations for improvement.

ESTIMATED MODE SPLIT BY TRIP LENGTH, TRIP PURPOSE AND ENERGY FUTURE

MODE SPLIT PERCENTAGES

ABUNDANT ENERGY SUPPLY

TRIP* PURPOSE	TRAVEL REDUCTION	MODE	TRIP LENGTH (MIN) 5/ 0-30	31-60	61-90	91-121	121-300	300+
WORK	0%	Auto	99.9	99.6	98.6	97.0	94.6	88.8
		Bus	0.1	0.2	0.6	1.0	2.0	2.0
		Rail	0.0	0.2	0.8	2.0	2.0	2.0
		Air	0.0	0.0	0.0	0.0	1.4	7.2
VACATION	0%	Auto	99.9	99.6	98.6	97.0	96.2	90.1
		Bus	0.1	0.2	0.6	1.0	2.0	2.0
		Rail	0.0	0.2	0.8	2.0	1.0	1.5
		Air	0.0	0.0	0.0	0.0	0.8	6.4
OTHER	0%	Auto	99.9	99.6	98.6	97.0	94.7	88.7
		Bus	0.1	0.2	0.6	1.0	2.0	2.0
		Rail	0.0	0.2	0.8	2.0	2.5	2.5
		Air	0.0	0.0	0.0	0.0	0.8	6.8

CONSERVED ENERGY SUPPLY

TRIP PURPOSE	TRAVEL REDUCTION	MODE	TRIP LENGTH (MIN) 0-30	31-60	61-90	91-120	121-300	300+
WORK	0%	Auto	93 1/	93 2/	97	94	91	84
		Bus	5	2	1	2	4	4
		Rail	0	0	2	4	4	4
		Air	0	0	0	0	1	8
VACATION	-5%	Auto	100	99	97	96	93	87
		Bus	0	1	1	2	4	4
		Rail	0	0	2	2	2	2
		Air	0	0	0	0	1	7
OTHER	-5%	Auto	95	99	97	93	90	84
		Bus	5	1	1	3	4	4
		Rail	0	0	2	4	5	5
		Air	0	0	0	0	1	7

RESTRICTED ENERGY SUPPLY

TRIP PURPOSE	TRAVEL REDUCTION	MODE	TRIP LENGTH (MIN) 0-30	31-60	61-90	91-120	121-300	300+
WORK	0%	Auto	85 3/	84 4/	97	93	87	81
		Bus	10	5	1	3	5	5
		Rail	0	1	2	4	7	7
		Air	0	0	0	0	1	7
VACATION	-20%	Auto	100	98	97	94	90	84
		Bus	0	1	1	3	4	4
		Rail	0	1	2	3	5	6
		Air	0	0	0	0	1	6
OTHER	-20%	Auto	90	95	97	91	85	78
		Bus	10	4	1	4	6	6
		Rail	0	1	2	5	8	10
		Air	0	0	0	0	1	6

* Work Trips Include: Work, Shopping, Personal Business
Vacation Trips Include: Vacation
Other Trips Include: Social, Recreation, and all others

1/ Reflects 2% Car Pools for 0-30 min "Work" Trips
2/ Reflects 5% Car Pools for 31-60 min "Work" Trips
3/ Reflects 5% Car Pools for 0-30 min "Work" Trips
4/ Reflects 10% Car Pools for 31-60 min "Work" Trips
5/ Based on Approximate Auto Driving Time (Minutes)

EXHIBIT 4

MULTI-MODAL TRAFFIC ASSIGNMENT PROCESS

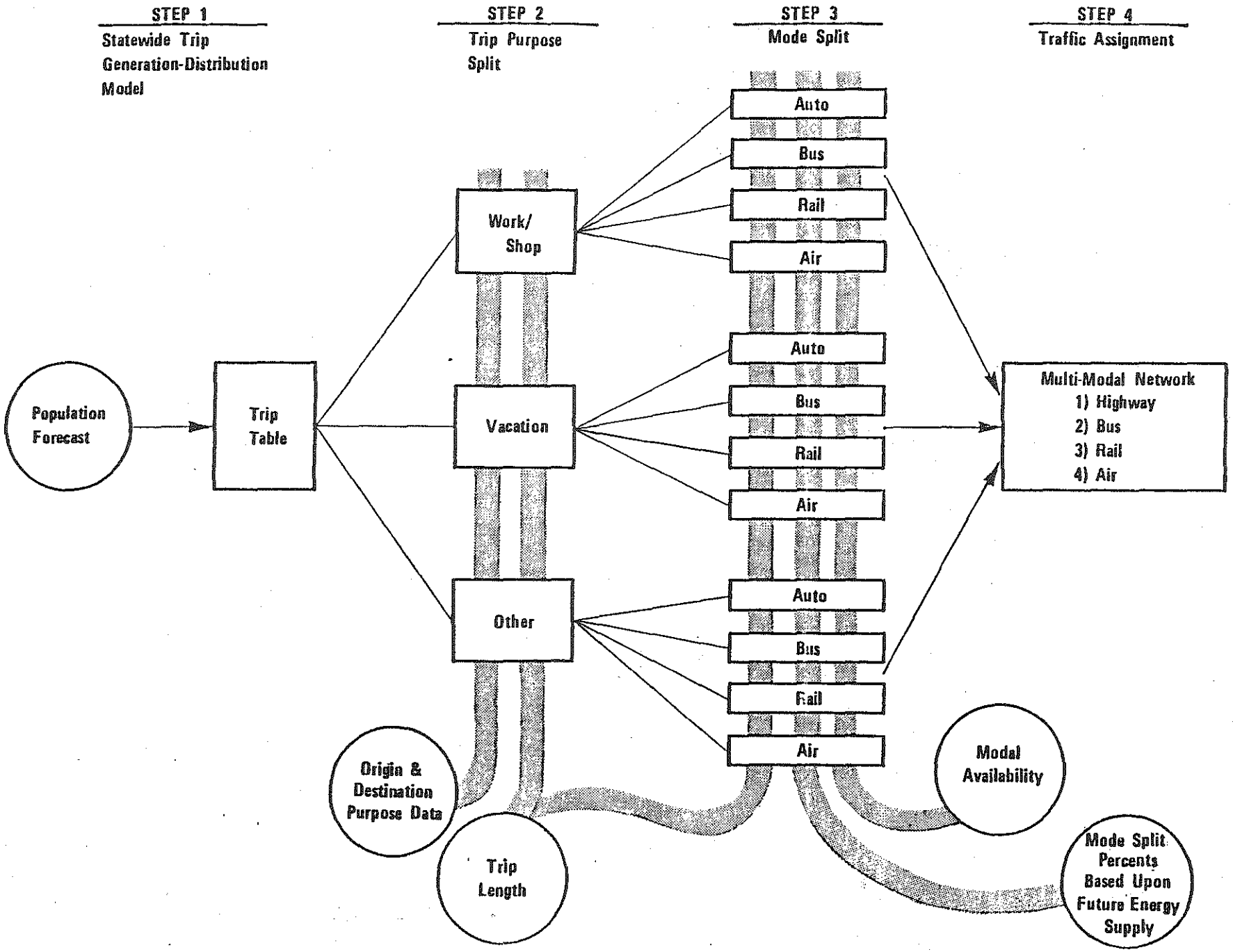


EXHIBIT 5

6. AVIATION

The Department's role in air transportation is to help insure an orderly and timely development of the State's aviation system. The State of Michigan, however, does not own airports; private interests or local/county governments own and operate airports. The State provides recommendations for action based on a logical, systematic process. To facilitate this recommendation process, the Department of Transportation, in 1974, adopted a Michigan Airport System Plan (MASP). The Department is currently considering a complete update of this Plan with a service portion to be added.

A major purpose of the Plan is to show various communities their projected level of aviation demand for future time periods. This helps them to assess potential community and environmental impacts associated with airport development. These considerations are then addressed in more detail as individual airport master plans are prepared or updated.

An Air Carrier Airport is one which offers regularly scheduled airline service. The remaining airports are classified into two general categories based upon runway length. Utility Airports are general aviation airports with runways of 2000' to 5000'. Transport Airports are also general aviation airports, but with runways in excess of 5000'.

Air Carrier System

There are currently two air carrier airports in Region 3: W. K. Kellogg Regional Airport in Battle Creek and Kalamazoo Municipal Airport in Kalamazoo.

W. K. Kellogg Regional Airport in Battle Creek is served by Air Wisconsin, a certificated carrier. By utilizing small aircraft, it is able to furnish Battle Creek with 15 daily non-stop flights to 3 cities with 347 available seats (see Exhibit 6). Air Wisconsin's fleet consists primarily of Swearingen Metroliners which seat 19 passengers. Recently these have been complemented by the addition of DeHavilland Dash 7's, which seat 50 passengers. Air Wisconsin connects Battle Creek with Detroit and Chicago from which connections can be made to anywhere in the air transportation network.

Passenger counts at W.K. Kellogg decreased after the loss of service from Republic Airlines (then North Central), but have started to rise again in recent years. This, in part, is due to the regularity of service provided by Air Wisconsin and the public's growing acceptance of the smaller aircraft (see Exhibit 7).

NON-STOP SCHEDULED AIR SERVICE TO BATTLE CREEK AND KALAMAZOO JANUARY, 1981

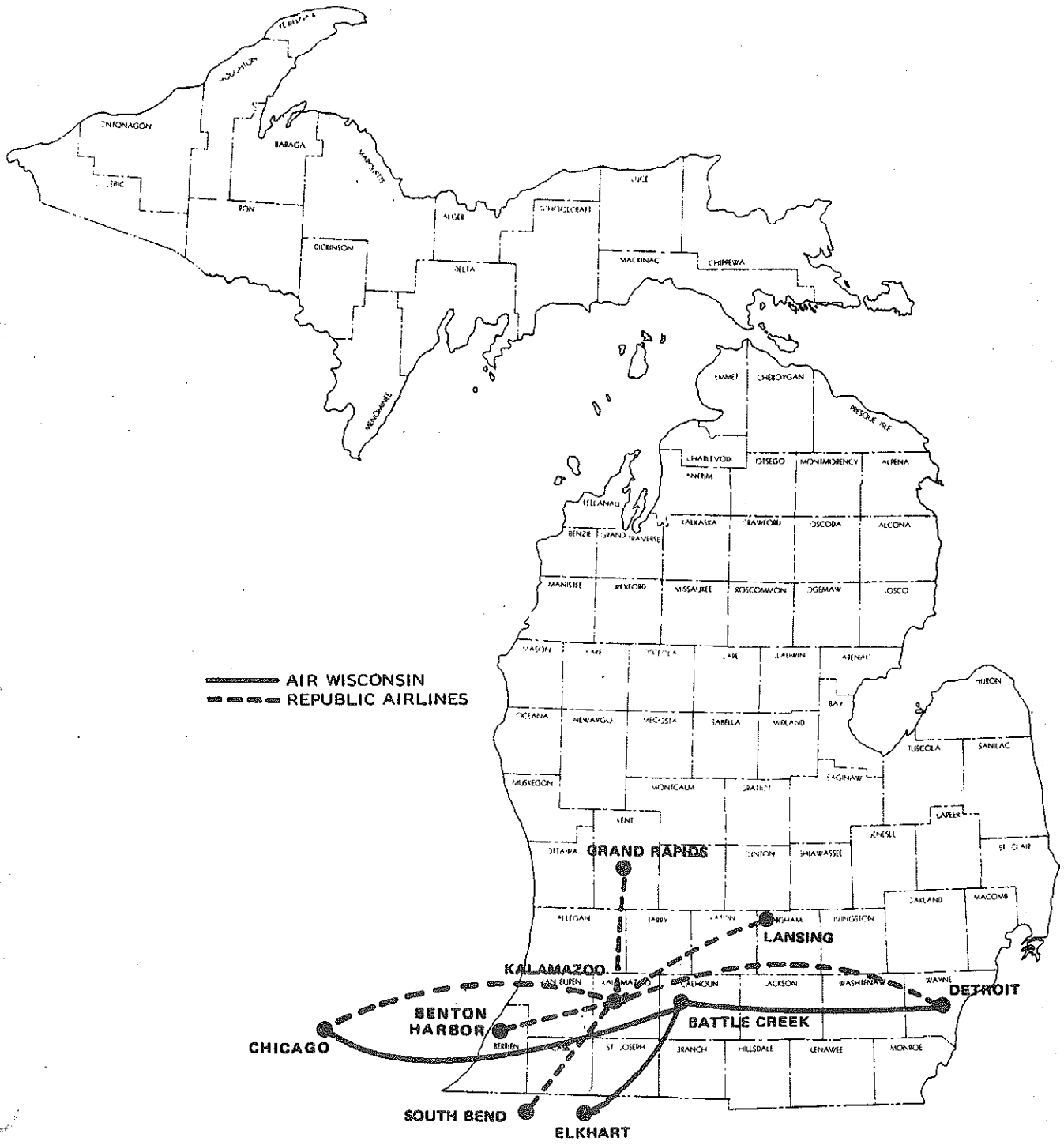


EXHIBIT 6

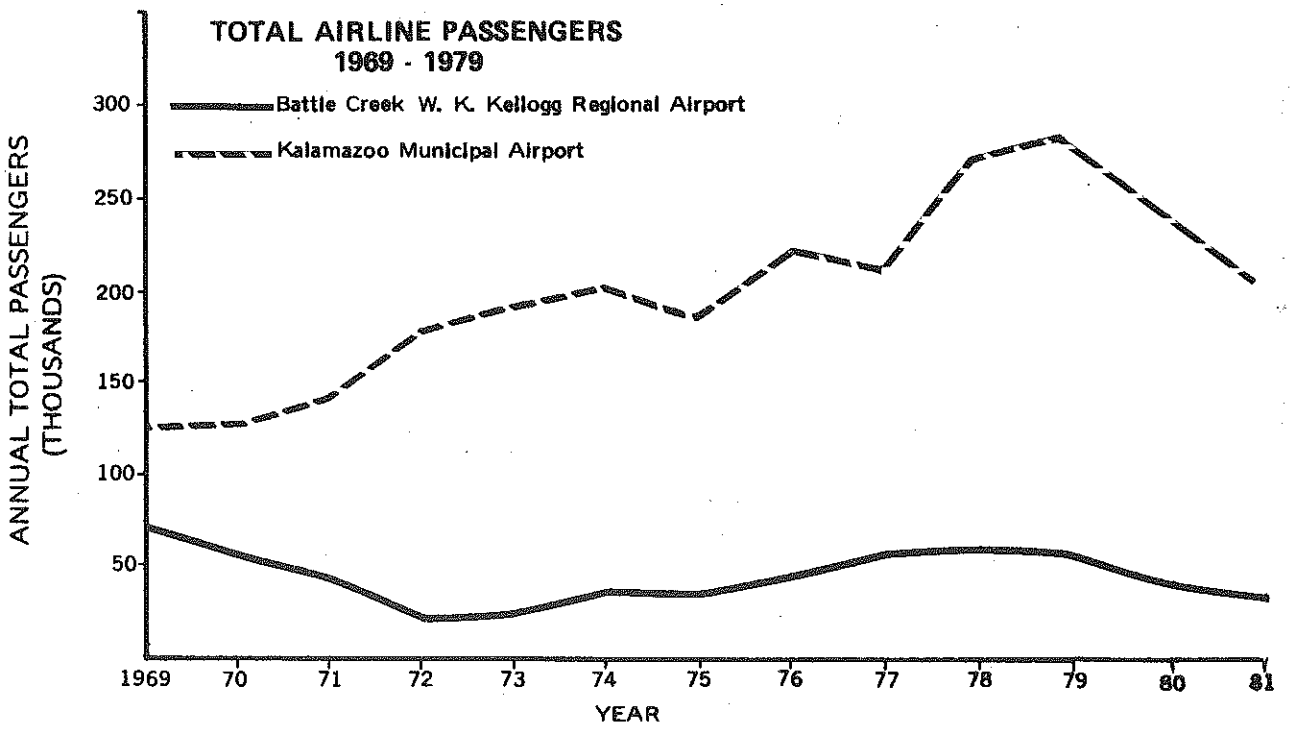


EXHIBIT 7

The facilities at W.K. Kellogg are excellent and conducive to expanded service. The primary runway is 7000' with crosswind runways of 4825', 4000', and 3670'. The airport is capable of servicing the smaller jet airliners such as the 737 and DC-9.

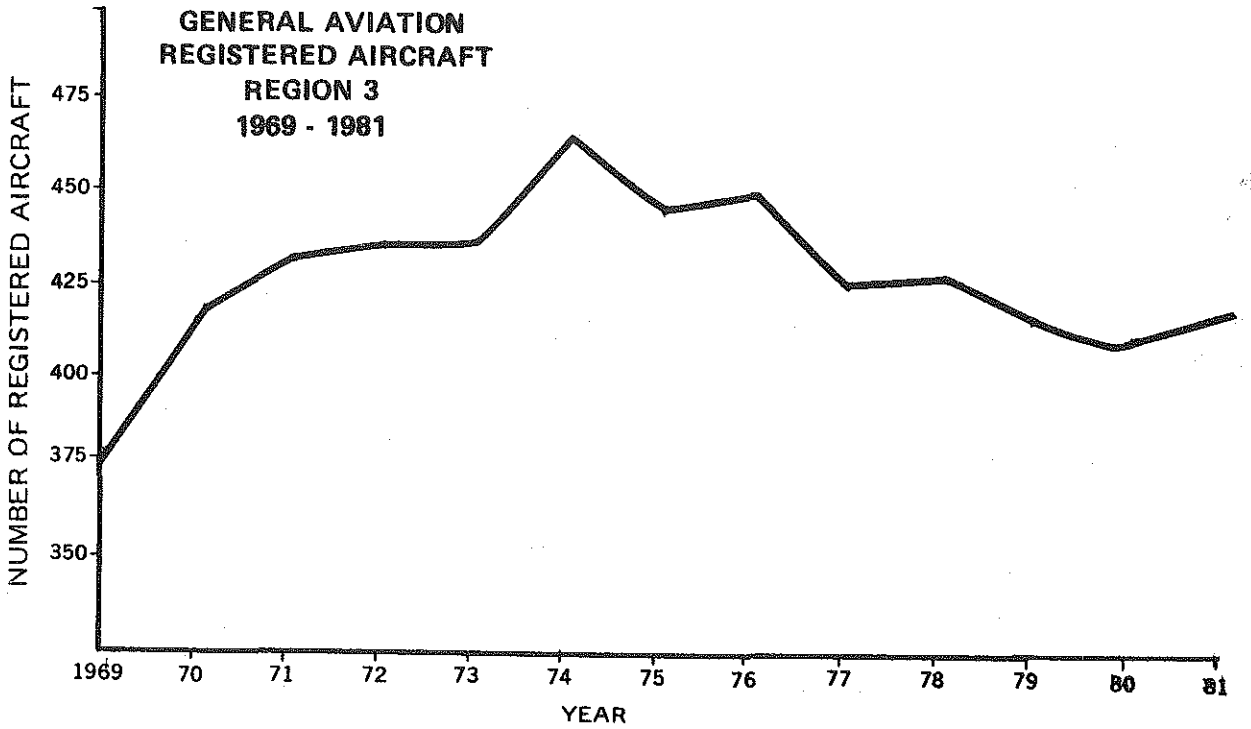
The three crosswind runways help serve the many smaller general aviation type aircraft, including business jets and single and twin engined propeller craft. The instrument approach system and radio/navigational facilities are excellent and allow operations by both commercial and general aviation aircraft in inclement weather.

The other air carrier airport in Region 3 is Kalamazoo Municipal. Service is provided by Republic Airlines using DC-9 jet and Convair 580 turbo-prop aircraft. As of January 1981, Republic offered daily arrivals from 6 cities non-stop with 779 available seats (see Exhibit 6). These cities are Benton Harbor, Chicago, Detroit, Grand Rapids, Lansing, and South Bend. Both Chicago and Detroit are designated as "large hubs" by the U.S. Department of Transportation and serve as "gateways" to the international air transportation system. Passenger counts have continued to rise over the past decade, doubling the rate of increase of both the state and nation-wide counts (see Exhibit 7).

Kalamazoo Municipal Airport has facilities for handling both commercial and general aviation aircraft. The primary runway is 6500' with crosswind runways of 3925' and 3354'. These enable the airport to handle the smaller jet airliners and also general aviation aircraft such as business jets and twin engined propeller craft. The instrument approach system and radio/navigational facilities are excellent, and all-weather operations are possible.

General Aviation System

General aviation airports provide a basic level of air service for local communities. These airports offer communities and businesses access to the vast market area provided by the entire air transportation system. In Region 3, these airports are accommodating approximately 417 locally registered aircraft (see Exhibit 8). Typical primary runway lengths vary from 3000' at Hastings Municipal, to the 5700' runway of Kirsch Municipal at Sturgis. Business jets and air cargo aircraft are able to use the airports with the longer runways, encouraging local economic development.



SOURCE: MDOT, BTP, Aviation Planning Section

EXHIBIT 8

Benefits of the Aviation System

Airport improvement projects produce a wide range of benefits for a broad spectrum of Michigan residents and visitors. The benefits that will accrue from airport improvements are summarized as follows:

Users:
- Reduced travel time and costs for air travelers and shippers;
- expanded recreational opportunities due to increased accessibility of recreational areas and wider opportunities for pleasure flying.

Airlines and Airport Authorities: - Improved safety and convenience of aircraft operations.

Communities:
- Enhanced business and industrial growth in areas served by both air carrier and general aviation airports;
- increased employment opportunities and tax base from business and industrial growth; and
- improved emergency access to communities for medical supply and evacuation.

MASP RECOMMENDATIONS

The Michigan Airport System Plan recommends improvements to the seven existing airports (2 air carrier and 5 general aviation) and recommends the development of three new general aviation utility airports in Region 3.

Exhibits 9 and 10 show the recommended airport system for Region 3 as contained in the MASP.

In general, the basic measures used to determine the needs of airports were:

1. To provide aviation capacity sufficient to accomodate forecasted levels of aviation activity in a given geographical area; and,

2. To provide a reasonable geographic distribution of airports throughout the state.

Master Plan Studies have begun for both air carrier airports (Battle Creek and Kalamazoo) which will include forecasts of future activity, needed facilities, and methods of financing.

Funding Sources

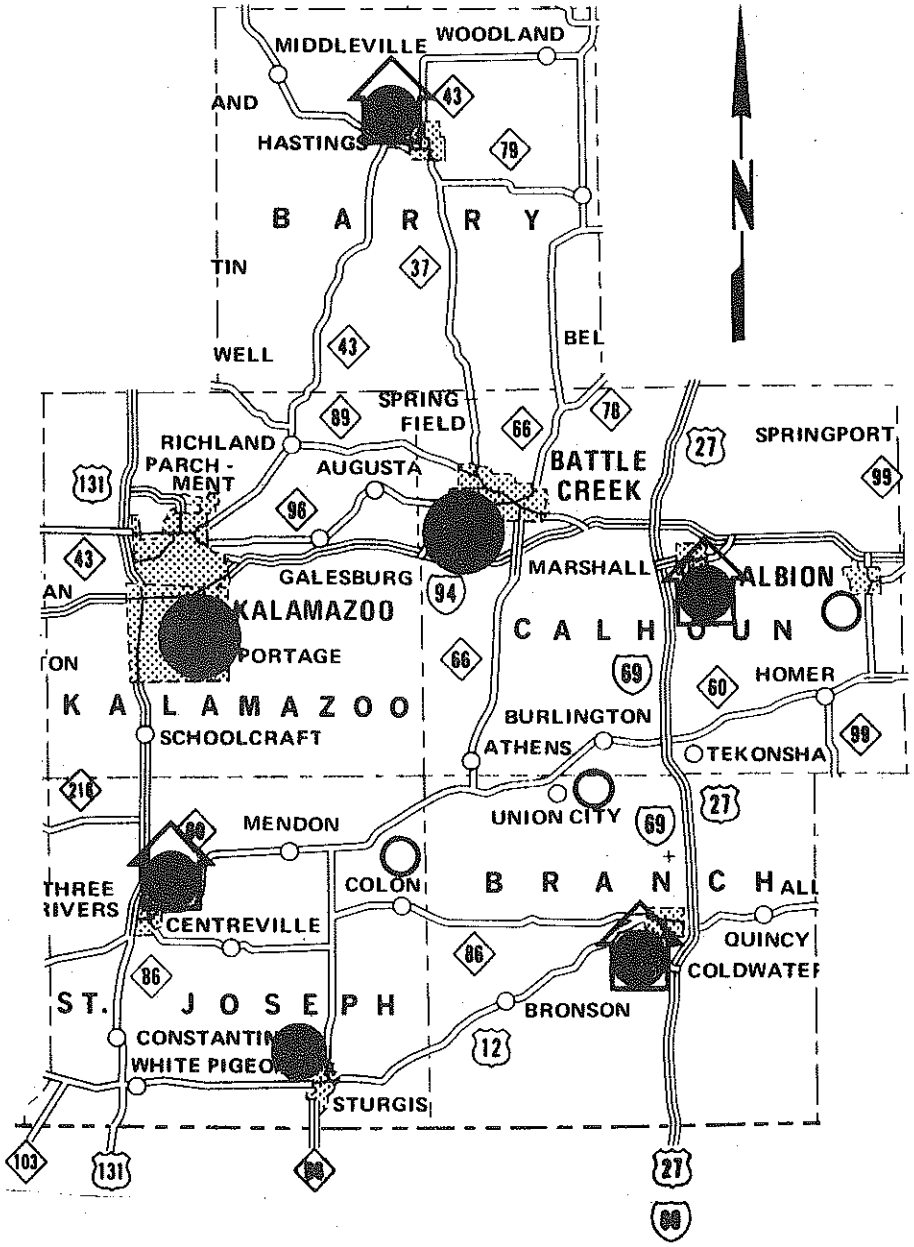
Although the MASP is a product of local, state, and federal planning efforts, it is the decision of the local community or airport authority to initiate airport development projects. After these projects have been finalized, various financial arrangements are pursued. The present financial sources include:

- Federal funds, through the Airport Development Aid Program (ADAP) and FAA Facility and Equipment Funds.

- State funds, through Michigan Aeronautics Commission revenues from a tax imposed upon the sale of aviation fuel.

REGION 3

EXISTING AND RECOMMENDED AIRPORTS BY TYPE
MICHIGAN AIRPORT SYSTEM PLAN



New Airport Recommended (General Area)

Existing Transport Airport

Existing Utility Airport Recommended for Upgrading to Transport Airport

Existing Air Carrier Airport

EXHIBIT 9

AIRPORT CLASSIFICATION

REGION 3

Associated City	Name	Present Classification	Recommended Classification
Battle Creek	W.K. Kellogg Regional Airport	Air Carrier	Air Carrier*
Coldwater	Branch County Memorial	Utility	Transport
Hastings	Municipal	Utility	Transport
Kalamazoo	Municipal	Air Carrier	Air Carrier*
Marshall	Brooks Field	Utility	Transport*
Sturgis	Kirsch Municipal	Transport	Transport
Three Rivers	Dr. Haines	Utility	Transport
St. Joseph Co. East	New	--	Utility
Branch Co. North	New	--	Utility
Calhoun Co. Southeast	New	--	Utility

* NOTE: Master Plan Studies in progress.

SOURCE: 1) Michigan Airport System Plan (MASP
2) National Airport System Plan (NASP)
3) Michigan Airport Directory

EXHIBIT 10

- Local funds, available primarily through long-term borrowing.

Region Transportation Systems Study List for Aviation

The following issues and needs for aviation were assembled from a series of public meetings with citizens and officials from the five-county Region 3 area. Following this list are responses by the Michigan Department of Transportation relating to each issue.

The perceived need of increased air service at the Region's airports.

1. The need for scheduled air service at Kirsh Municipal Airport, City of Sturgis.

The perceived need of upgrading the Region's airports.

2. The need to upgrade the Albion or Marshall airports to a Transport designation. The City of Marshall's Brooks Field is favored by the Calhoun County Planning Commission Transportation Subcommittee.

3. The need to improve the Kalamazoo Municipal Airport.
4. The need to improve the W.K. Kellogg Regional Airport.
5. The need to upgrade the airports at Coldwater and Hastings.

The perceived need to expand air service by building new airports in the Region.

6. The need for an airport in Union City.
7. The need for an airport in the Village of Colon.

1. "The need for scheduled air service at Kirsch Municipal of Sturgis."

   The need for scheduled air service at Sturgis has been idenfified by State Transportation Officials and steps have been taken to attain it. Kirsh Municipal was classified as a Basic Transport Airport in the Michigan Airport System Plan (MASP). The primary runway has recently been extended to 5700'. This runway length permits the servicing of the vast majority of the business jets and most of the turboprop craft currently being used by commuter carriers.

   Kirsh Municipal has also been designated as one of three airports in the state to receive a modern Microwave Landing System (MLS). This instrument approach system will allow bad weather operations and increase the safety of aviation at Sturgis. Even with these improvements, attaining scheduled air service is primarily based on having enough local aviation demand (paying passengers) to warrant it depending on the type of service, aircraft and facilities available. Preliminary talks have been held between state and local officials, and representatives of different commuter carriers, to discuss scheduled air service.

2. "The need to upgrade the Albion and Marshall airports to a Transportation designation. The City of Marshall's Brooks Field is favored by the Calhoun County Planning Commission Transportation Subcommittee."

The MASP designates Brooks Field in Marshall as a member of the airport system and recommends its' improvement to a Transport category. To this end, an Airport Layout Plan Study update is currently in progress to determine the most efficient method of achievement and is anticipated to be completed by 1982.

The City of Albion does not own an airport, although the MASP recommends a Utility Airport be located there. A local site selection study will be conducted sometime in the future to determine if an existing airport (possibly Midway) should be purchased and expanded, or if a new location should be developed.

Public ownership (local government) is required for an airport to receive funding assistance from state and federal aviation trust funds. Until public ownership of an airport (or airport site) is attained, it would be premature to recommend development beyond the General Utility category.

3. & 4. "The need to improve Kalamazoo Municipal Airport and Battle Creek's W.K. Kellogg Regional Airport."

The MASP recommends continued maintenance and improvement of the facilities at both of these Air Carrier airports. Currently, both are in the process of updating their individual Airport Master Plan Studies and should be completed in 1982. These studies will provide forecasts of future aviation

recommended facility improvements, and financing methods. They will help insure the timely and efficient development and improvement of of both airports.

5. "The need to upgrade the airports at Coldwater and Hastings."

The MASP recommends both of these airports be upgraded to Transport classification. Coldwater will become a Transport Airport when its primary runway becomes 4700' long. Hastings is programmed to extend its primary runway to 3900', an integral step towards Transport classification.

6 & 7. "The need for airports near Union City and the Village of Colon.

Utility Airports were recommended in the MASP in the general areas of these two communities. Local site selection studies will be conducted in the future to determine if an existing airport is suitable for public purchase and expansion or if a new site should be developed. Public ownership is required for eligibility for state and federal financial assistance.

7. HIGHWAYS

DEPARTMENT'S FUNCTION

The Michigan Department of Transportation's function is to provide a reasonable level of mobility for people and goods through the provision of adequate transportation services. A significant part of these services is the state trunkline network.

The Constitution and Statutes of the State of Michigan charge the Department with the responsibility for planning, designing and maintaining highway facilities. Construction, although supervised by the Department, is carried out by private contractors. This system of highways, now totals 9,468 miles (15,243 kilometers), including 224 miles (361 Kilometers) of unsigned highways. Region 3 has 584 miles (940 Kilometers) of trunkline.

THE PURPOSE OF HIGHWAYS

Public roads have two basic functions:

1. Provide access to property.
2. Accommodate the movement of through traffic.

Local roads serve the first function and freeways provide the latter. Between these two extremes are a substantial number of highways, roads, and streets that serve a dual function.

A highway whose primary function is to accommodate long-distance traffic will often be designed with a limited number of access opportunities and with safety features commensurate with higher speeds. Local residential streets, on the other hand, are designed with numerous access points for adjacent properties and discourage high speed and through traffic.

HIGHWAY CLASSIFICATION

In order to properly plan and develop a state highway network, the Department has established a functional classification system.

Under this system, the state's highways are grouped into four classifications by functions: interstate, other statewide, regional, and local.

One of the aids to highway classification is a system of ranking cities or places which these highways connect. The socio-economic data evaluated for all places produces an ascending scale of classes representing marked differences in importance as attractors of traffic.

In addition to the identification of population centers, there are other factors considered, such as areas of major trip attraction or generation, travel desires, trip length, and traffic volumes which together define a hierarchy of facilities which reflects their importance in handling of statewide, regional and local traffic.

DEPARTMENT'S APPROACH

On November 16 1977, Michigan's State Highway Commission approved a revised approach to highway development. The significance of this revision is to shift emphasis from new highway route development to management of existing highways through reconstruction and rehabilitation.

This does not mean, however, that expansion or relocation of existing highways will not be pursued. Where monitoring of the highway clearly indicates a need, and where a detailed planning process defines that need, relocations of existing highways or addition of new highways may be undertaken.

HIGHWAY DEFICIENCIES

It is imperative that problem areas be carefully defined and analyzed to determine the degree of improvement necessary. Many miles of the State's system are considered deficient for various reasons. Some of these deficient sections can be remedied with minimal improvements involving only the existing roadway. But a few areas exist where the problems go beyond the remedial benefits of minor reconstruction and will require additional laneage. Whether these new lanes should be added to the existing facility or built on a new location is the concern of more detailed, project level, studies. The first step, and the concern of the Regional study, is to identify the major problem areas and the magnitude of the problem.

The Department uses a suffiency rating system to identify highway deficiencies. These ratings evaluate individual segments of the highway network. This information indicates which sections will require attention within a given time period and their relative urgency.

The sufficiency rating (evaluation score) is comprised of four categories: surface, base, safety and capacity. Each section of highway is evaluated in terms of these categories and given a score, or rating, based upon its adequacy, or sufficiency. If a highway segment is rated below a predetermined level, it is considered critically deficient in that category. A segment of roadway can be rated critically deficient in one or more of the four categories.

The surface rating represents the adequacy of the surface and shoulders or curbs. This category is perhaps the most noticeable to the motorists because of its visibility. The year of construction or improvement, width and surface type, along with the condition and estimated surface life are included in this category.

The base rating represents the adequacy of everything under the surface to support the surface. It considers the average base and soil conditions, taking into account the average drainage conditions.

The safety rating calls attention to excessive or extra-ordinary conditions creating potential hazards. Existence of fixed objects (trees, utility poles, sign posts, abutments) in proximity to the pavement edge constitutes such a condition. Accident frequency, type, and severity are also considered in this evaluation.

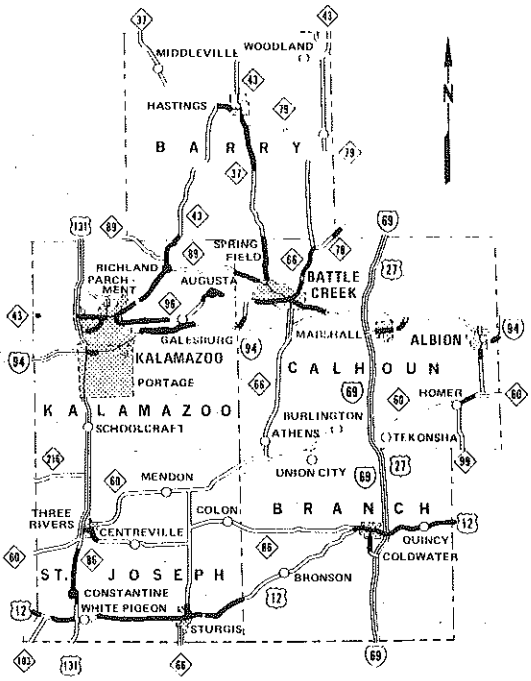
The capacity rating represents the ability of a section of roadway to carry existing volumes of traffic. Several factors used to determine this rating include: practical hourly capacity, sight restriction, lane width, amount of commercial traffic, and peak hour volumes.

Deficiencies in capacity, base, surface, and safety are shown in Exhibit 11. These sufficiency evaluations are based upon existing conditions. This exhibit will help to identify where problems exist; where minor improvements are needed; and where more extensive improvements may be required to eliminate critical deficiencies.

One of the most important items in the analysis of a transportation system is the definition of a standard to measure the ability of the system to accommodate travel demands. The "Level of Service" of a highway is the most commonly used measure of congestion. Level of Service is a qualitative measure of operating conditions that may occur on a given roadway when it is accommodating various traffic volumes. Some of the factors affecting levels of service include: speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. The level of service of a section of roadway is normally expressed in six ranges from A through F. The photographs of traffic on Exhibit 12 exemplify the different levels of service on any given roadway.

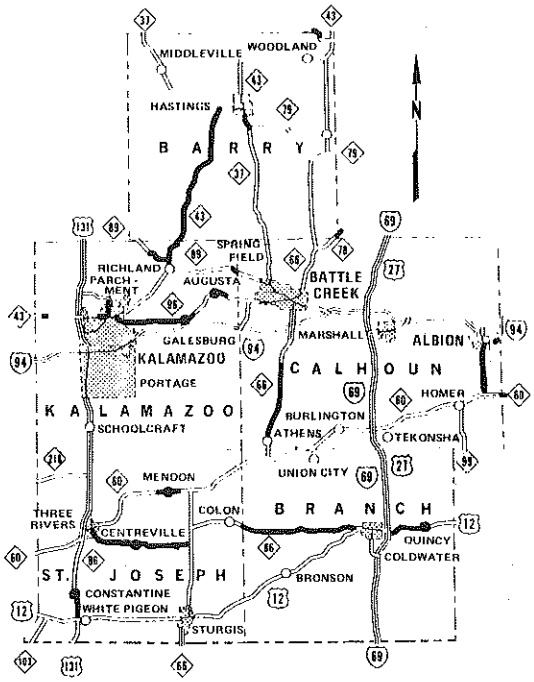
The level of service plots on the following pages reflect the various levels of congestion that are expected during the design hour volume period for each highway in Region 3. The number of bands indicates the average congestion level for each link with 3 Bands indicating Level of Service C. Exhibits 13 and 14 show 1976 and 2000 Level of Service, respectively, without modal diversion.

1978 SUFFICIENCY RATING FOR CAPACITY



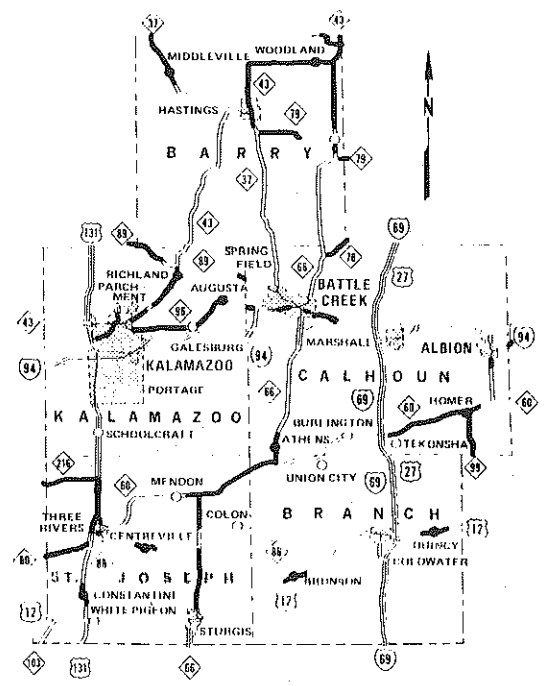
CRITICAL CAPACITY

1978 SUFFICIENCY RATING FOR BASE



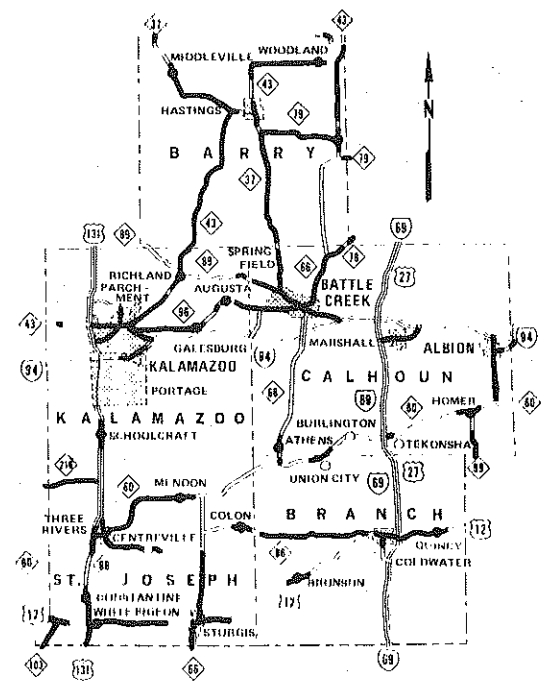
CRITICAL BASE

1978 SUFFICIENCY RATING FOR SURFACE



CRITICAL SURFACE

1978 SUFFICIENCY RATING FOR SAFETY



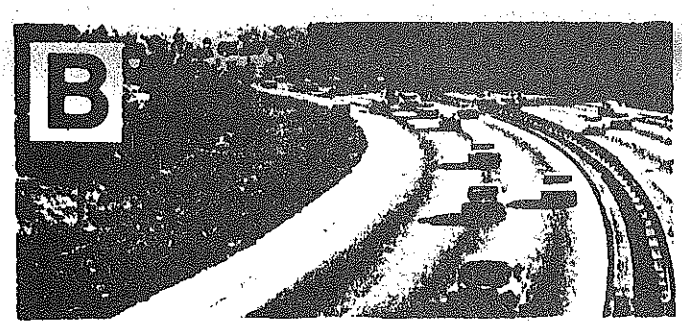
CRITICAL SAFETY

EXHIBIT 11

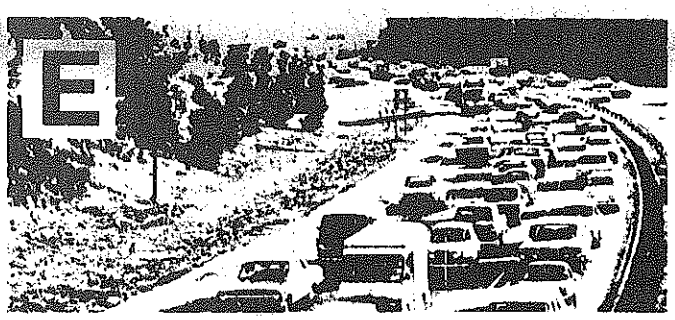
LEVELS OF SERVICE

NO RESTRICTION ON OPERATING SPEED

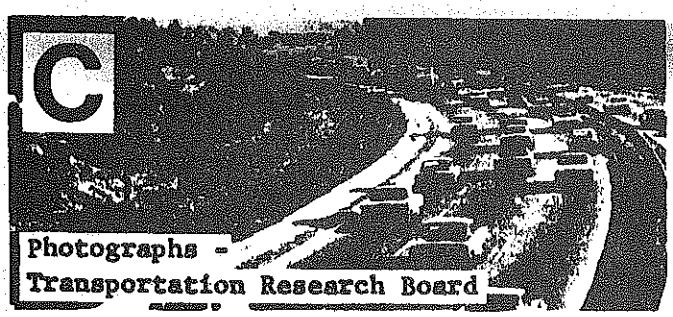
APPROACHING UNSTABLE FLOW – LITTLE FREEDOM TO MANEUVER



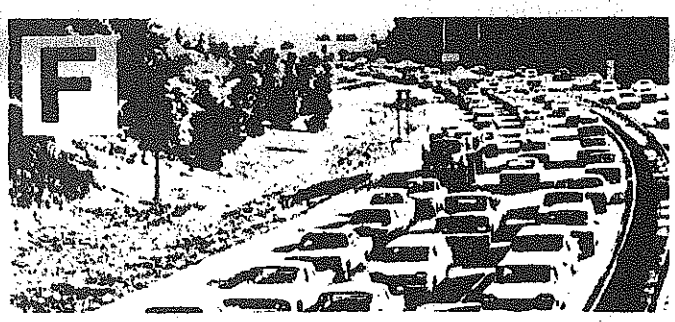
STABLE FLOW – FEW SPEED RESTRICTIONS



UNSTABLE FLOW – LOWER SPEED – SOME STOPS



STABLE FLOW – HIGHER VOLUMES – RESTRICTED SPEED and LANE CHANGING



FORCED FLOW OPERATION AT LOW SPEEDS – MANY STOPS

EXHIBIT 12

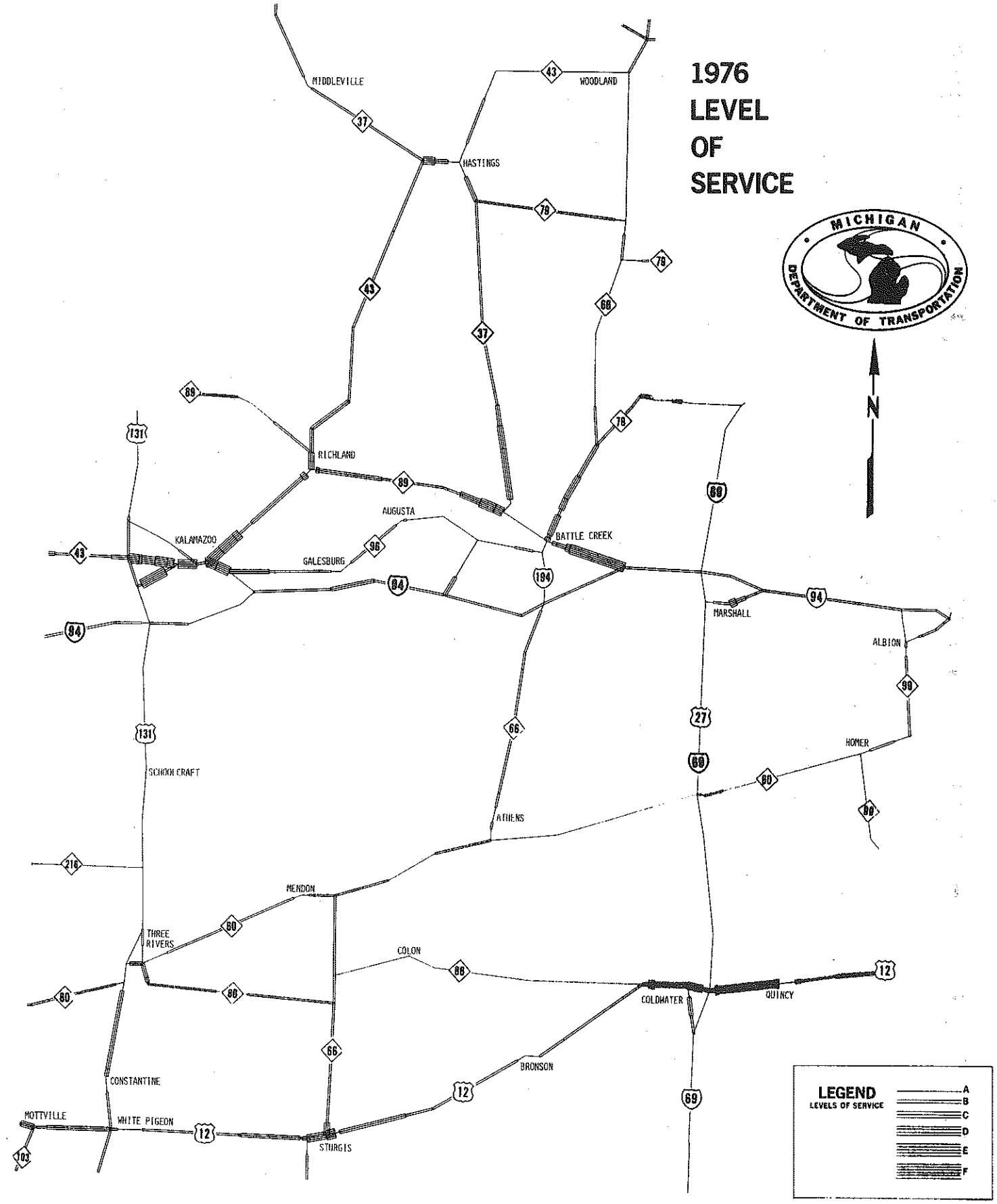

1976
LEVEL
OF
SERVICE
MICHIGAN
DEPARTMENT OF TRANSPORTATION
N
MIDDLEVILLE
WOODLAND
HASTINGS
RICHLAND
AUGUSTA
KALAMAZOO
GALESGURG
BATTLE CREEK
MARSHALL
ALBION
HOMER
SCHOOLCRAFT
ATHENS
MENDON
THREE RIVERS
COLON
COLDWATER
QUINCY
CONSTANTINE
BRONSON
MOTTVILLE
WHITE PIGEON
STURGIS
LEGEND
LEVELS OF SERVICE
A
B
C
D
E
F

EXHIBIT 13

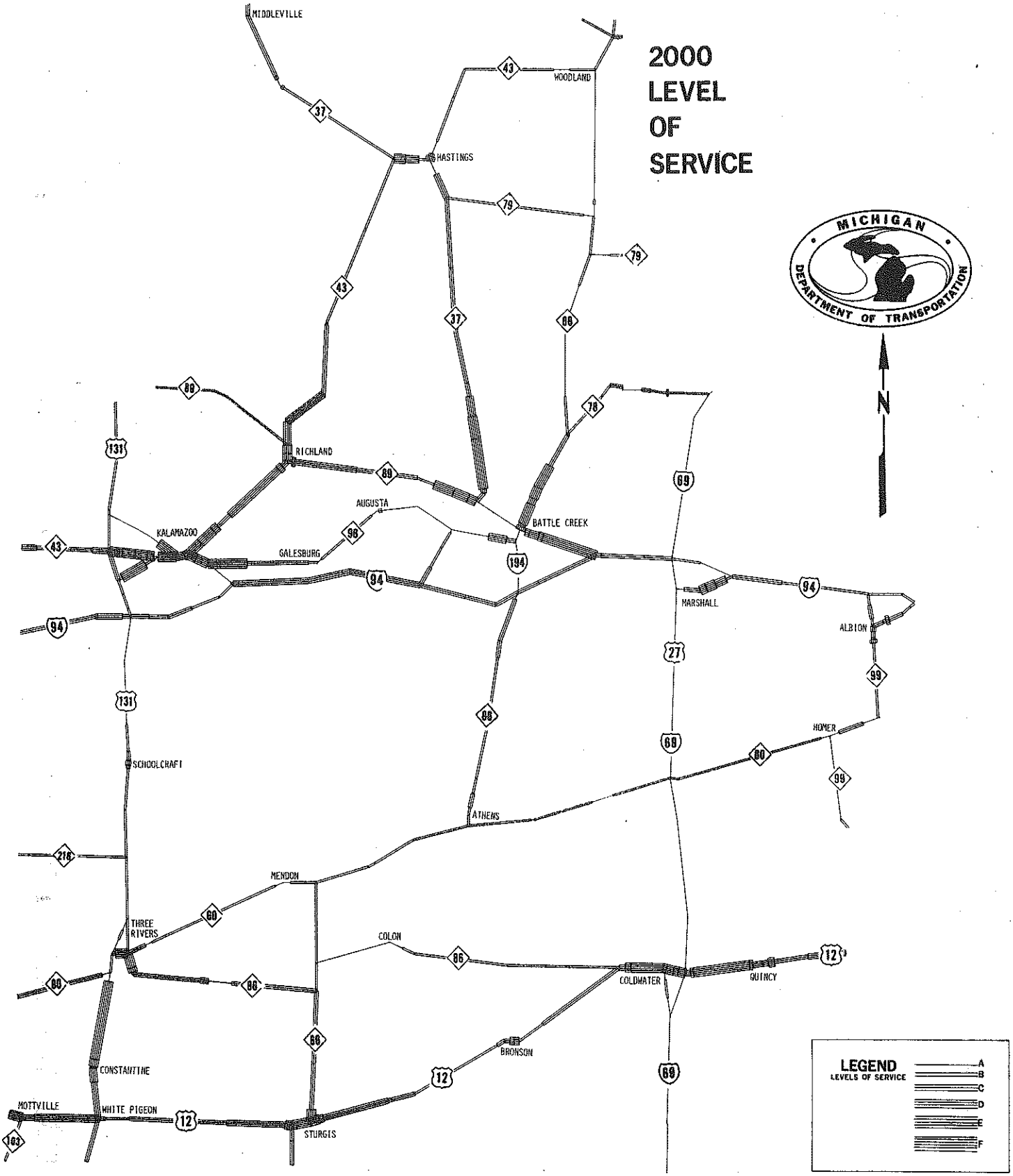
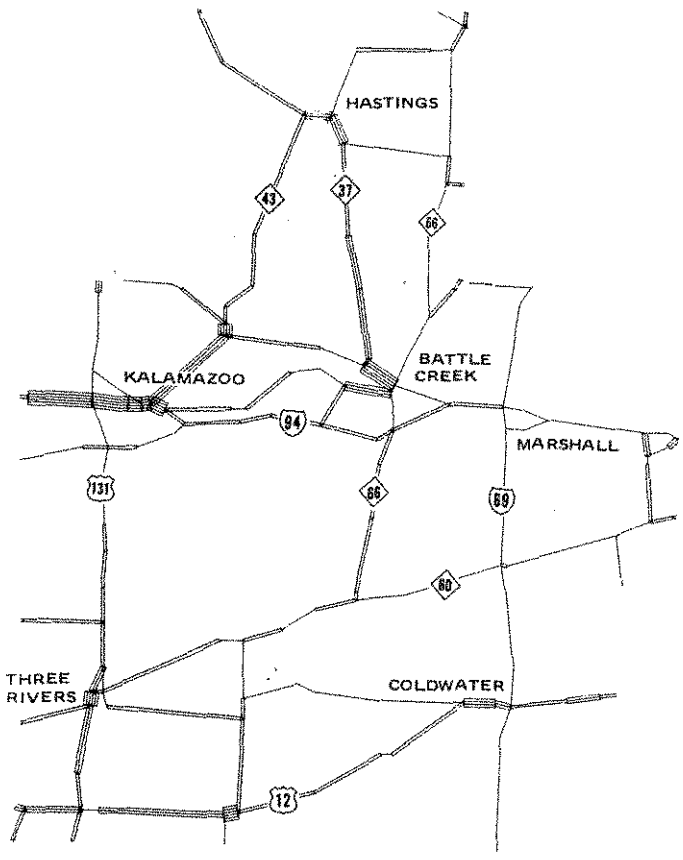
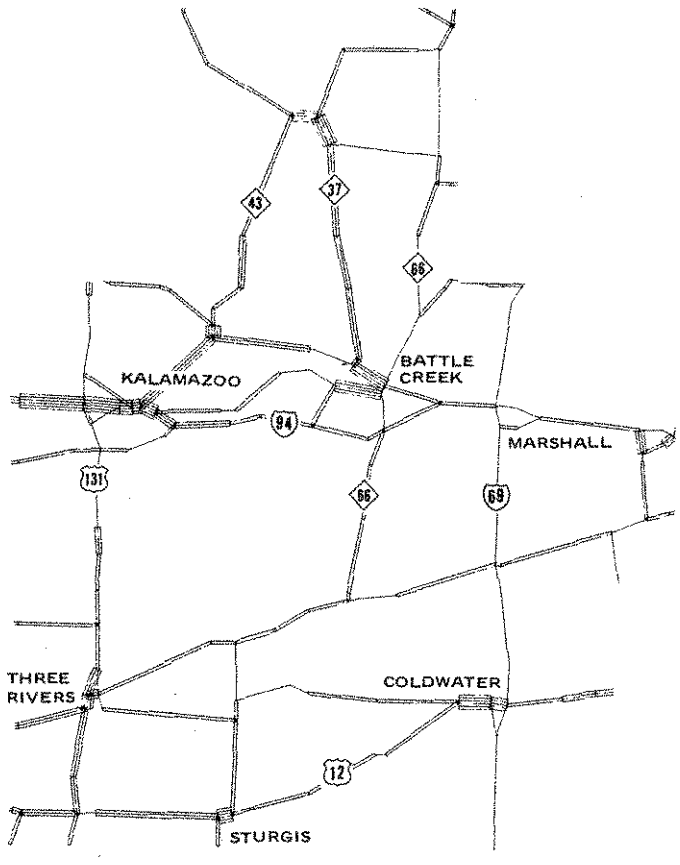

2000
LEVEL
OF
SERVICE
MICHIGAN
DEPARTMENT OF TRANSPORTATION
N
MIDDLEVILLE
WOODLAND
HASTINGS
RICHLAND
AUGUSTA
KALAMAZOO
GALESBURG
BATTLE CREEK
MARSHALL
ALBION
HOMER
SCHOOLCRAFT
ATHENS
MENDON
THREE RIVERS
COLON
COLDWATER
QUINCY
CONSTANTINE
BRONSON
MOTTVILLE
WHITE PIGEON
STURGIS
LEGEND
LEVELS OF SERVICE
A
B
C
D
E
F

EXHIBIT 14

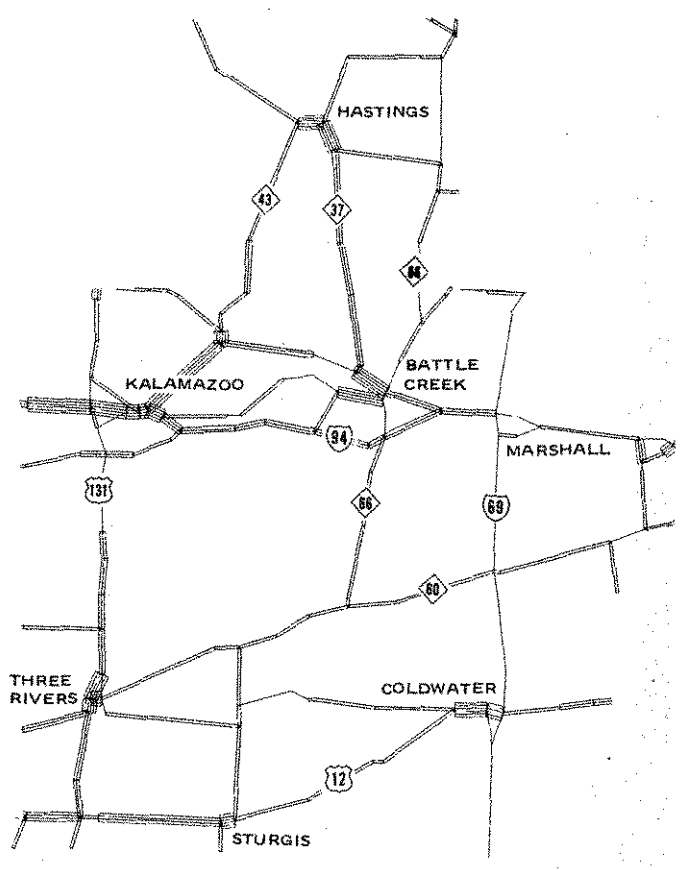
LEVEL OF SERVICE
9 Futures With Modal Diversion



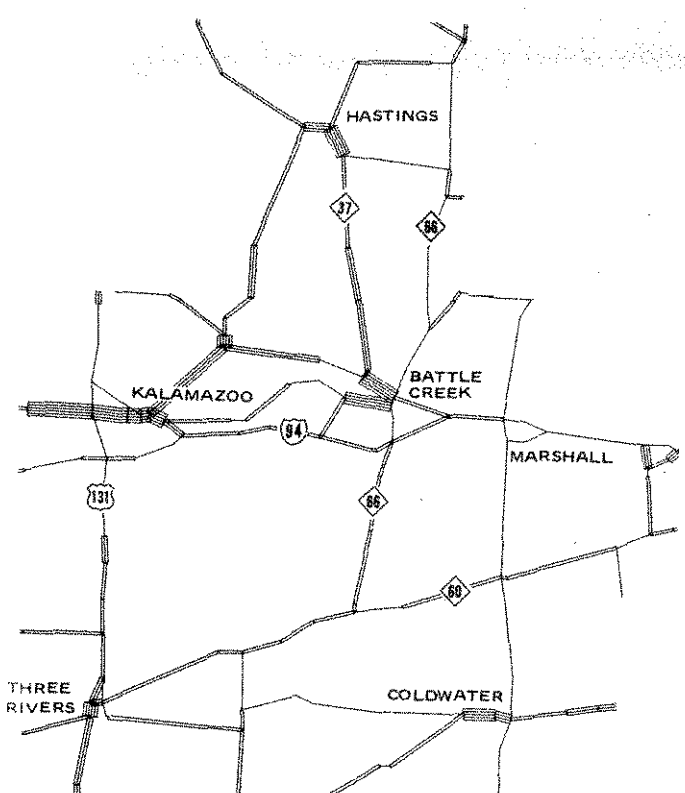
1980 LOW POPULATION /RESTRICTED ENERGY FUTURE



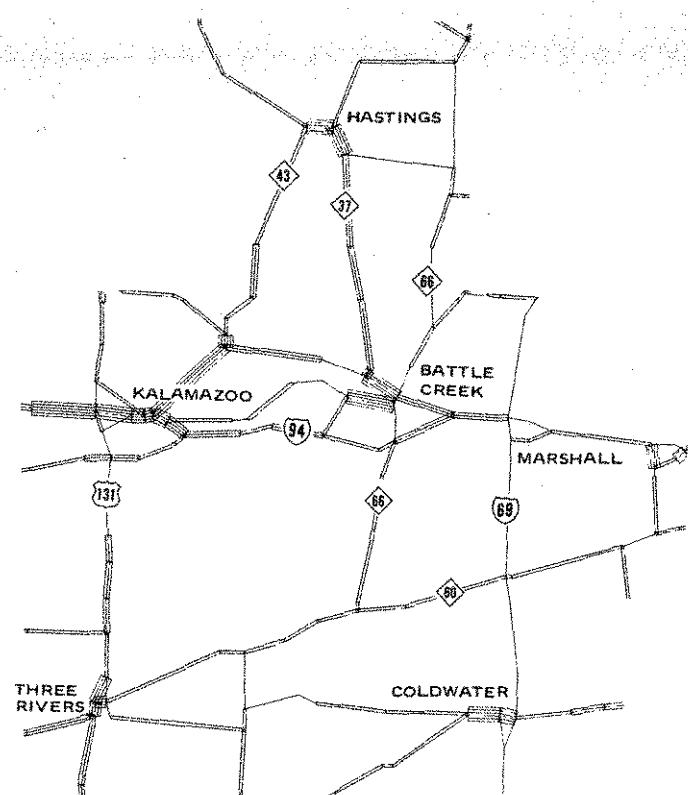
1990 MEDIUM POPULATION/RESTRICTED ENERGY FUTURE



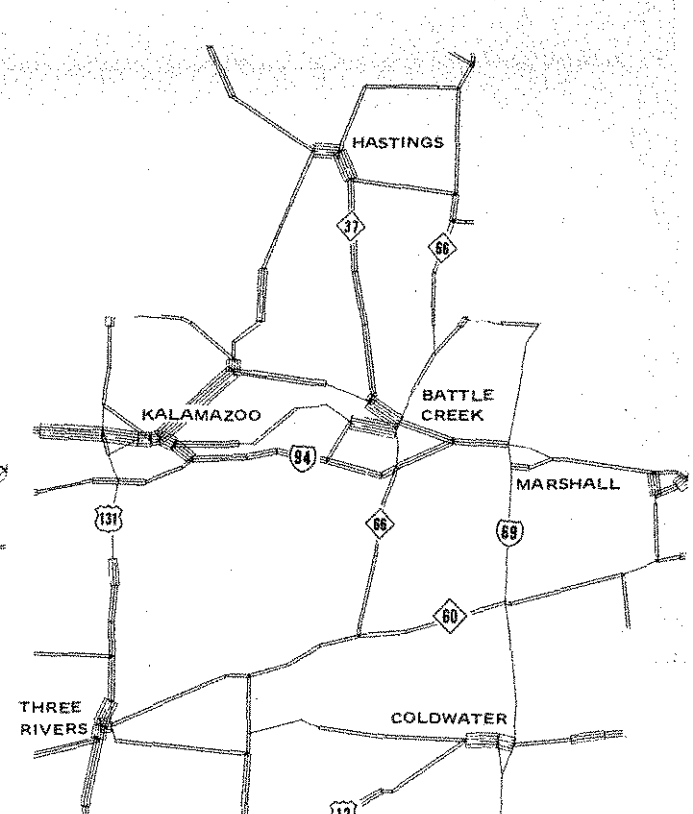
2000 HIGH POPULATION/RESTRICTED ENERGY FUTURE



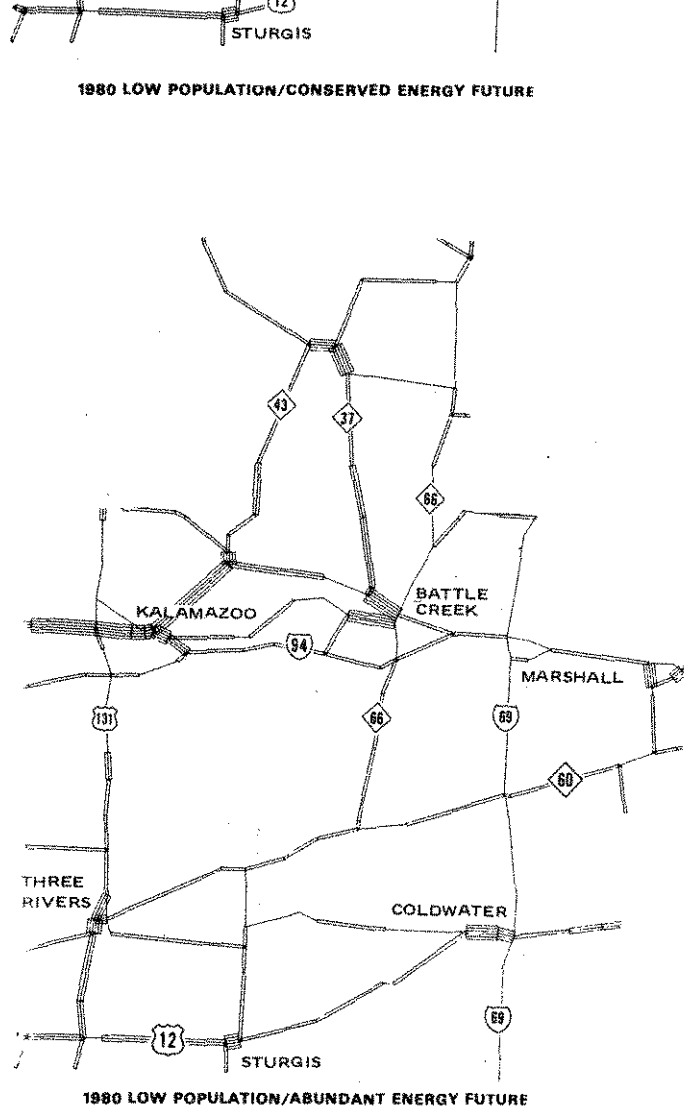
1980 LOW POPULATION/CONSERVED ENERGY FUTURE



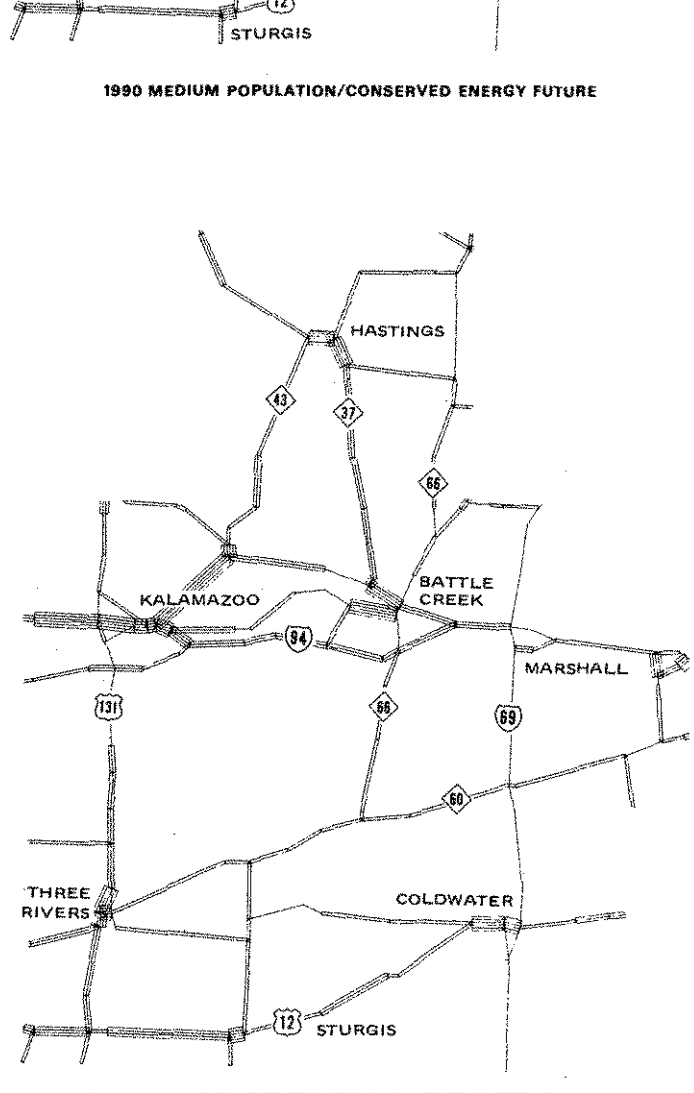
1990 MEDIUM POPULATION/CONSERVED ENERGY FUTURE



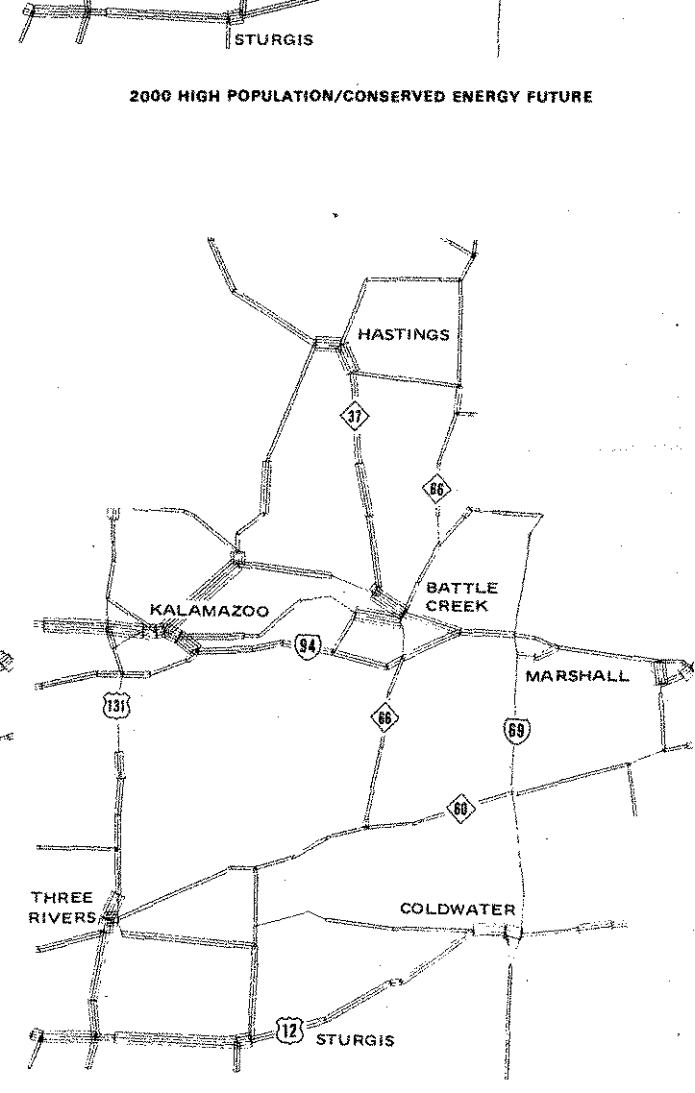
2000 HIGH POPULATION/CONSERVED ENERGY FUTURE



1980 LOW POPULATION/ABUNDANT ENERGY FUTURE



1990 MEDIUM POPULATION/ABUNDANT ENERGY FUTURE



2000 HIGH POPULATION/ABUNDANT ENERGY FUTURE

LEGEND
LEVELS OF SERVICE

A
B
C
D
E
F

EXHIBIT 15

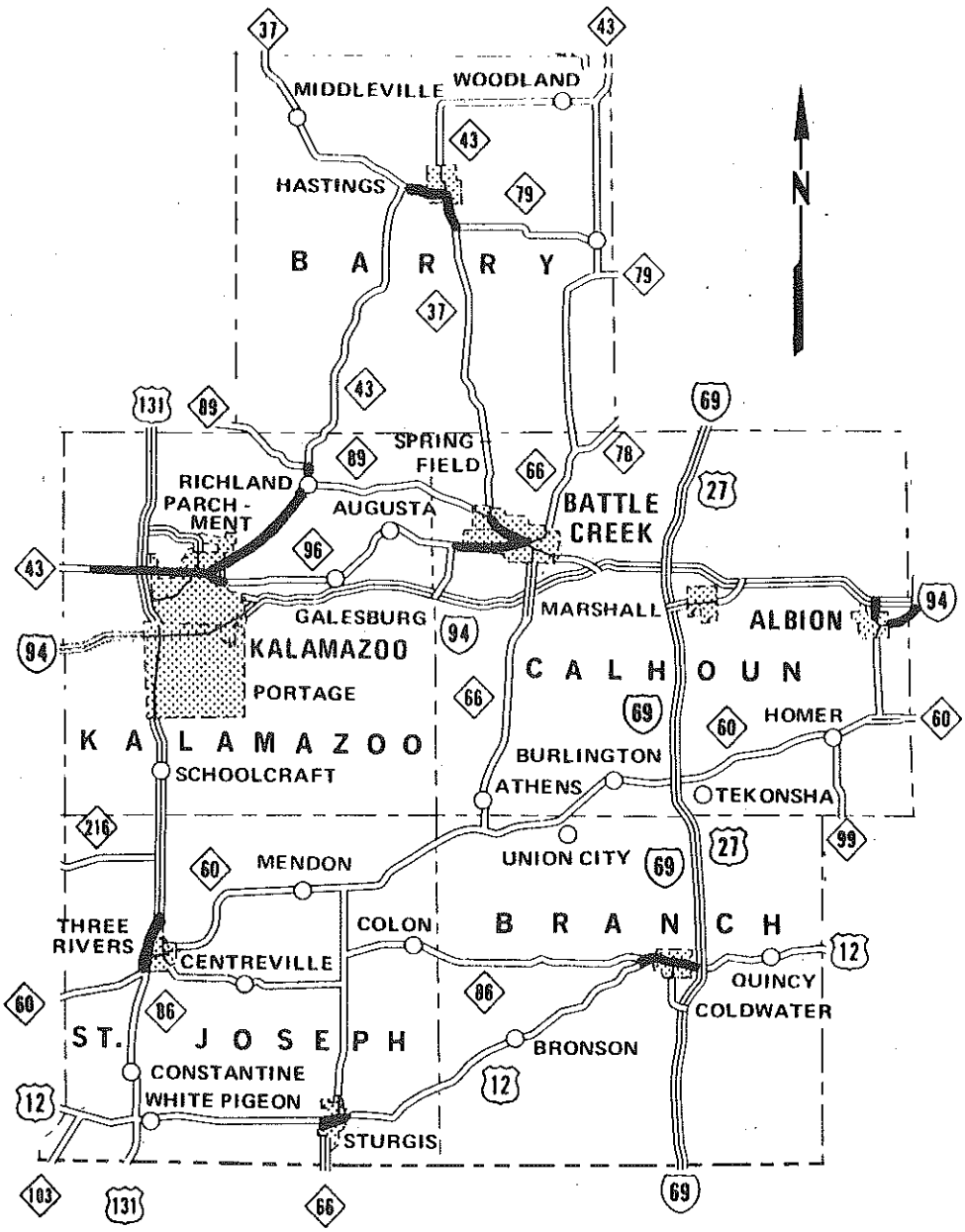
The nine Futures are based on weighted averages and therefore may not depict each problem area exactly, but will give a good indication of where Level of Service problems exist or can be expected to arise. Exhibit 15 shows these nine futures with modal diversion; Exhibit 16 shows areas below Level of Service "C" on all futures.

The 1977 accident rates within the region are shown on Exhibit 17. The average accident rate per 10^8 Vehicle Miles for 1973-1977 for different types of roadways in different areas in MDOT's District 7 are shown below.

Roadway Type	Urban	Rural	Total
2-Lane	896.4	331.9	614.1
4-Lane	1204.6	882.5	1043.5
5-Lane (Center L-Turn)	821.9	464.4	643.1

The areas operating all or part at less than Level of Service "C" based on existing conditions are:

Hastings (M-43, M-37)
Richland (M-43)
Quincy (US-12)
Coldwater (US-12)
Marshall (BL-94)
Sturgis (US-12)
Mottville (US-12)
Three Rivers (US-131)

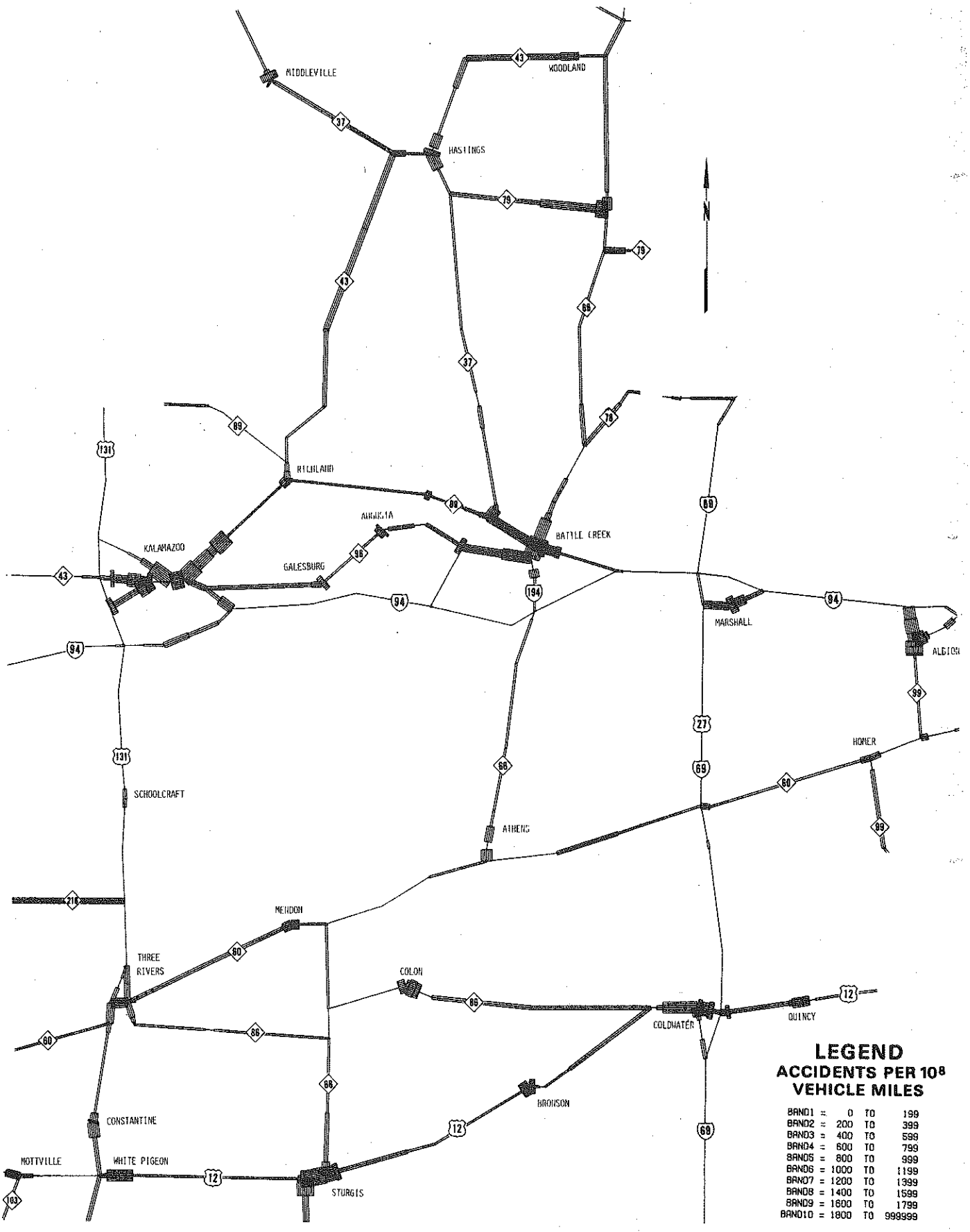


BELOW LEVEL OF SERVICE "C"

EXISTING AND ALL FUTURES

EXHIBIT 16

1977 ACCIDENT RATE
FROM SUFFICIENCY NETWORK



LEGEND
ACCIDENTS PER 10^8 VEHICLE MILES

BAND1 =	0	TO	199
BAND2 =	200	TO	399
BAND3 =	400	TO	599
BAND4 =	600	TO	799
BAND5 =	800	TO	999
BAND6 =	1000	TO	1199
BAND7 =	1200	TO	1399
BAND8 =	1400	TO	1599
BAND9 =	1600	TO	1799
BAND10 =	1800	TO	999999

EXHIBIT 17

In addition, areas operating all or part at less than Level of Service "C" in future projections include those previously listed plus:

Albion (BL-94) (M-66)

Bronson (US-12)

White Pigeon (US-12)

Constantine (US-131)

Schoolcraft (US-131)

REGIONAL TRANSPORTATION SYSTEMS STUDY ISSUE LIST FOR HIGHWAYS

The following list of regional transportation issues relating to highways were assembled from a series of public meetings with citizens and officials from the five-county Region 3 area. Following this list are responses by the Michigan Department of Transportation relating to each issue.

A. The perceived need to improve access to industrial parks in the region.

1. The need for an interchange at I-94 and 27 Mile Road, to serve the City of Albion's industrial park.

2. The need for an interchange at I-69 and either Division Road or Oliver Drive, to serve the City of Marshall's industrial park.

B. The perceived need to improve state highways in the Region's municipal centers to improve mobility of the Region's residents.

3. The need to relocate US-131 west of its present location to bypass the City of Three Rivers.

4. The need to relocate US-131 west of its present location to bypass the Village of Schoolcraft and connect to the Three Rivers bypass.

5. The need to improve US-131 to an expressway along its entire length.

6. The need to relocate M-66 north in the City of Sturgis to improve the intersection of M-66 and US-12.

7. The need to relocate M-43 to bypass the Village of Richland.

8. The need to relocate M-43 to bypass the Gull Lake area by using existing county roads (Milo Road and Lockshore Road).

9. The need to improve M-43 between the cities of Hastings and Kalamazoo to tie into the Richland bypass.

10. The need to relocate M-60 near Heimbach Road to bypass north of the City of Three Rivers to connect to US-131.

11. The need to relocate US-12 to bypass the City of Coldwater.

12. The need to widen US-12 from I-69 to Sprague Road.

13. The need to improve US-12 from the Village of Quincy to the City of Coldwater.

14. The need to continue M-86 directly west to M-60 creating a direct east-west corridor through St. Joseph County, bypassing the City of Three Rivers.

C. The perceived need to create new corridors to connect major centers in the Region.

15. The need for a north-south corridor from Hastings; to be located between the existing M-43 and M-37, south to M-89.

16. The need for a north-south corridor from the City of Coldwater to M-66, to the City of Battle Creek.

D. The perceived need to increase carpooling in the Region.

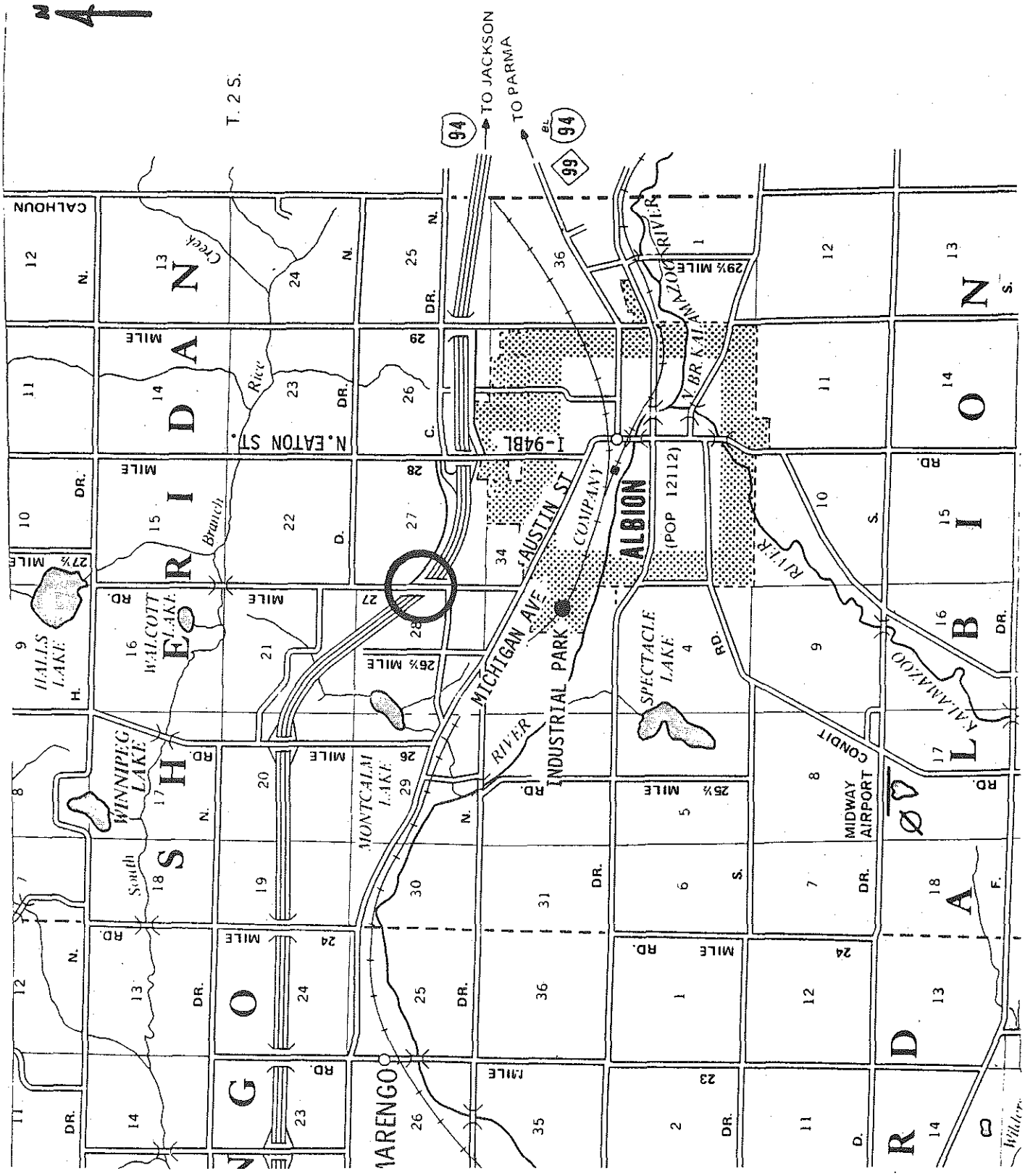
17. The need for more carpool lots along the various state highways and expressways.

E. Additional Issues.

18. The need to relocate or turn back US-131BR in Three Rivers.

RESPONSE TO HIGHWAY ISSUES

1. <u>The perceived need for an interchange at I-94 and 27 Mile Road, to serve the industrial park in the City of Albion</u> (See Exhibit 18).



INTERCHANGE PERCEIVED TO BE NEEDED AT I-94 AND 27 MILE ROAD TO SERVE THE INDUSTRIAL PARK IN THE CITY OF ALBION

EXHIBIT 18

Access to Albion's industrial park from I-94 is presently via I-94BL (28 Mile Road/N. Eaton Street) and Austin Street/Michigan Avenue on the east, or 26 Mile Road and Michigan Avenue on the west. The spacing between these two interchanges is approximately two and one half miles. The addition of a third interchange within this two and one half mile span is contrary to rural spacing standards for interstate highways. This standard is five to eight miles between interchanges, with exceptions in areas of extreme demand or special traffic pattern requirements. Because of ramp conflicts, the addition of an interchange at 27 Mile Road could require the closing of one of the other interchanges at 26 or 28 Mile Road.

Present Level of Service is acceptable (Level of Service C or better) for I-94BL (28 Mile Road/N. Eaton Street) for the section south to Michigan Avenue.

Commercial traffic on I-94BL is 12-13 percent of Average Daily Traffic (ADT 9,000 - 10,000), and capacity of this 44' wide section of roadway is sufficient. Most of 27 Mile Road from I-94 to Michigan Avenue was widened in 1975. Improvements have also been made to Michigan/Austin, when the section between Arthur and Eaton was widened from two to four lanes in 1979, making most of Michigan/Austin four lanes between the industrial park and Eaton Street.

According to the Albion Police Department traffic data, seventy percent of the truck traffic leaving and entering the industrial park does so along Austin to 28 Mile Road to I-94. Twenty-five percent take 27 Mile north to C Drive to I-94, and five per cent take Michigan to 26 Mile Road to I-94.

Traffic counts taken by the city in 1979 average about 6,000 - 7,000 vehicles in a 24-hour period along Austin between the industrial park area and I-94BL. Truck traffic counted in 1977 (February) indicate about 30-35 trucks in each hour period, 3-4 P.M. and 4-5 P.M.

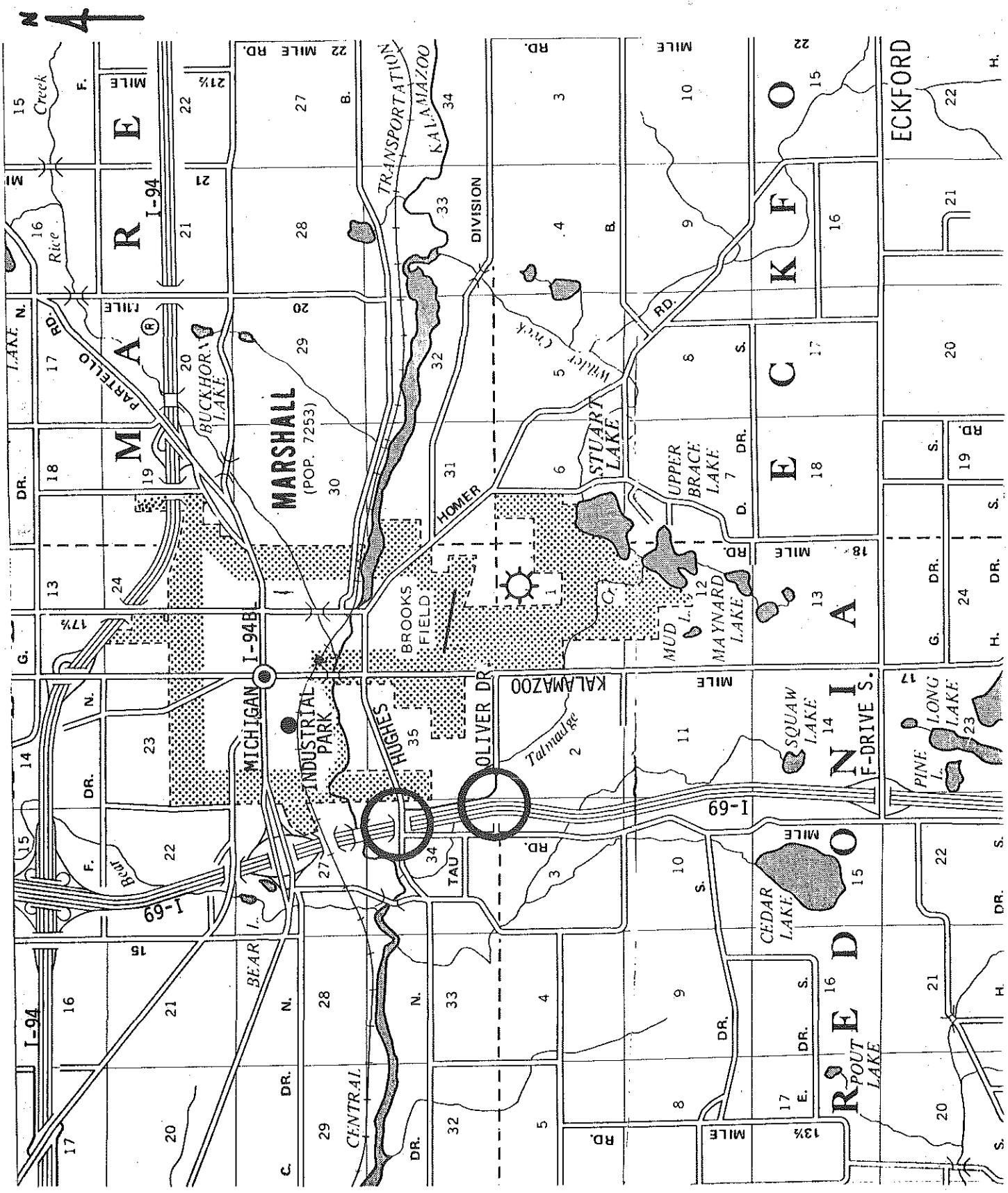
Since commercial traffic now generated by the industrial park has the option of using alternative routes of sufficient capacity to get to I-94 and I-69, it is not recommended that a study for an additional interchange be initiated. Continued monitoring of growth and changing traffic patterns will indicate if any modifications will be necessary.

2. The perceived need for an interchange at I-69 and Division Road, to serve the industrial park in the City of Marshall (See Exhibit 19)

Marshall's industrial park is presently accessed from I-69 via an interchange four miles to the south at F Drive South, and from the north via an interchange at Michigan Avenue (I-94BL).

Level of Service for I-94BL (Michigan Avenue) from I-69 east to Kalamazoo is acceptable under present traffic volumes. Average daily traffic ranges from 5,500-15,000 vehicles along this leg with about six percent commercial vehicles. Pavement width increases from 24 feet for each direction of the divided roadway at I-69 to 60 feet non-divided at Kalamazoo Street.

According to local officials, Kalamazoo Street has sufficient capacity for existing traffic. No major problems are being caused by the 60-80 daily commercial truck trips to and from Industrial Drive and the Oliver Road area. Concern was expressed by the local police over trucks



INTERCHANGE PERCEIVED TO BE NEEDED AT I-69 AND EITHER DIVISION ROAD OR OLIVER DRIVE, TO SERVE THE INDUSTRIAL PARK IN THE CITY OF MARSHALL

EXHIBIT 19

having to cross the railroad tracks on Kalamazoo, but no accidents have occurred at the crossing to this date. Because of this, and the low commercial vehicle volumes, there does not appear to be justification for consideration of an additional interchange at this time.

3. The perceived need to relocate US-131 west of its present location to bypass the City of Three Rivers.

4. The perceived need to relocate US-131 west of its present location to bypass the Village of Schoolcraft.

5. The perceived need to improve US-131 an expressway along its entire length.

Act 327 is an amendment to Act 51, 1951, which was approved on January 3, 1973. It increased the state gasoline tax by 1.5 cents, to be used to improve and upgrade certain trunklines throughout the state. US-131 from Schoolcraft to the Indiana border was identified in this Act for possible upgrading and is also identified in the State Trunkline Plan for improvement. Improvements and/or relocations along the corridor should be studied as part of a corridor study for US-131.

6. The perceived need to relocate M-66, north of US-12 in the City of Sturgis to align with M-66 south of US-12, eliminating the dual US-12/M-66 section and two turning movements for M-66 traffic.

Present and future traffic data indicate Level of Service below C with critical capacity and safety ratings on the dual M-66/US-12 section

of roadway. This relocation proposal is included in the Sturgis Master Plan. A corridor study is recommended for consideration of the M-66 relocation.

7. The need to relocate M-43 to bypass the Village of Richland.

8. The need to improve M-43 to bypass the Gull Lake area, using existing county roads (Milo and Lockshore Roads).

9. The need to improve M-43 between the cities of Hastings and Kalamazoo.

Traffic in the Richland area is expected to increase substantially in the next 20 years, and current Level of Service on M-43 through Richland is approaching an unacceptable (below Level of Service C) level with todays traffic volumes. Portions of M-43 in the Richland area are rated critical in capacity, safety, and surface. The long range highway plan adopted by the Kalamazoo Area Transportation Study recommended that M-43 between Kalamazoo and Richland be improved.

In 1977 the MDOT conducted a "Color Card Survey" on M-43 in the Village of Richland. Information was collected relating to directions of travel, specific routes, amount of through traffic, and total traffic passing into and out of the Richland area. The final report, published in August 1977 recommended that a bypass of Richland should be considered by the Michigan Department of Transportation Task Group that was studying M-43 between Richland and Kalamazoo.

The Task Group met several times with residents of Richland to discuss possible relocations of M-89 and M-43. From these discussions it became apparent that a sub-area study would be necessary to determine the corridor for a relocation of M-89 and M-43. Therefore, the study of M-43 between Richland and Kalamazoo was broken into separate studies. The portion from 26th Street to Riverview in Kalamazoo has continued under the direction of the Bureau of Highways. Recommendations are for additional laneage (5 lanes) for this section, with a proposed letting date of 12-16-85. The portion from Richland to 26th Street has been delayed until the completion of the Regional System Study. It is recommended that a sub-area study be conducted in the Richland area to determine the future location of these trunklines.

M-43 near Gull Lake presently has acceptable (C) Level of Service ratings but year 2000 projections indicate unacceptable service levels (E). Presently safety and base ratings are critical but accident rates are fairly low--only 200-400 per 10^8 vehicle miles. From south of the Gull Lake area to Richland the capacity is critical. It is recommended that a study for the possible relocation of M-43 to bypass the Gull Lake area be be conducted in conjunction with the Richland M-43/M-89 sub-area study. No study is recommended for the section of M-43 north of Gull Lake to Hastings.

10. The perceived need to relocate M-60 near Heimback Road to bypass the City of Three Rivers to the north and connect with US-131.

No capacity deficiencies exist on M-60 into Three Rivers. Safety ratings for M-60 from Mendon to Three Rivers are critical and accident rates are slightly above average for similar roadways because of sight distance problems and sharpness of curves near Fisher Lake and Schweitzer Road. A sub-area study of the Three Rivers area is recommended to determine if a M-60 relocation study is justified.

11. The perceived need to relocate US-12 to bypass the City of Coldwater.

12. The need to widen US-12 from I-69 to Sprague Road.

The report "US-12, Traffic and Bypass Analysis, Coldwater" was prepared in April 1977. This report analyzed the US-12 traffic in Coldwater and the effect a bypass would have on that traffic. The need and impact of a proposal to widen a section of US-12 was also analyzed. It was concluded that a bypass would not be feasible until the existing route was at capacity. The report predicted that the four lane sections of roadway would reach and exceed its capacity during the average daily peak hour sometime between 1980 and 1985, and the five lane sections would reach and exceed their capacity during the average daily peak hour sometime between 1985 and 1990. The recomendation of the report was that traffic on US-12 be monitored by MDOT to determine if the traffic

volumes developed as projected. If the volumes on US-12 continued to increase, then a corridor study for a bypass should be initiated in the 1980-85 period by MDOT.

Traffic counts taken between 1976 and 1978 show volumes continuing to increase but from 1978 to 1981 there was a slight decrease. Therefore it is recommended that traffic volumes continue to be monitored and if volumes begin to increase as was forecasted, then a corridor study be undertaken to determine the location for a US-12 bypass of Coldwater.

Widening of US-12 from I-69 to Sprague Road was recommended in the US-12 Traffic and Bypass Analysis Report but was rejected by the Coldwater City Council primarily because of the impact on the historical district bounding the roadway. Therefore, until the city reverses its position regarding the widening of US-12, there is little that can be done to improve its capacity except in the downtown area where parking could be removed.

13. <u>The need to improve US-12 from Coldwater to Quincy</u>.

Several reports for this section of highway have been prepared by MDOT. Transportation Analysis Report #335, February 1975 supplemented March 1979, and Project Justification - US-12, April 1979, have been published. The 1978 Sufficiency Ratings on this section of US-12 illustrates the poor condition of the highway. It is listed as being critically deficient in capacity, base, and safety, and a projected increase in traffic is expected to increase the deficiency of the roadway.

The condition of US-12 warrants reconstruction as it will remain a major east-west route through the region. Additional laneage and curve correction has been recommended for this section, with a proposed letting date of November 1985.

14. The perceived need to continue M-86 directly west to M-60 creating a direct east-west corridor through St. Joseph County, bypassing the City of Three Rivers.

Existing and future traffic estimates do not show Level of Service problems on M-86 east of Three Rivers except for a critical capacity rating within the city limits. Safety and base ratings are critical from Three Rivers to Centreville. East-west through traffic in this part of St. Joseph County can use M-60 through Three Rivers and US-12 south of Three Rivers. A sub-area study of the Three Rivers area is recommended to determine if there is a need for a bypass of Three Rivers by M-86 (See Issue 10).

15. The perceived need for a north-south corridor from Hastings to be located between existing M-43 and M-37, connecting with M-89 to the south.

This route was proposed in the State Trunkline Plan in 1977 but was removed because of a re-evaluation of the project. The Level of Service is "C" or higher on M-43 and M-37, and does not justify a third, parallel route.

16. The perceived need for a north-south corridor from the City of Coldwater to M-66 to the City of Battle Creek.

I-69 and I-94 provide for this movement in a fairly direct and efficient manner on a freeway. It would be difficult to justify a route on new right-of-way so close to an acceptable existing route that presents little diversion.

17. The perceived need to increase carpooling in the region by way of more carpool lots along various state highways and expressways.

The locations for carpool lots are continually being considered and developed. No specific criteria is established for determining where carpool lots should be located other than a need that is apparent and unmet. Continuous trunkline monitoring, by identifying where cars are parked on shoulders, calls from local agencies, and input from communities and individuals help the Department keep abreast of areas with possible unsatisfied needs for carpool lots (see Exhibit 20).

18. The need to relocate or turnback US-131BR in Three Rivers.

The Three Rivers City Commission has adopted a resolution calling for the abandonment of US-131BR through the City of Three Rivers. However, discussions with a representative from Three Rivers indicate that what the City really wants is to have the portion of US-131BR that goes through the central business district relocated so that additional

CARPOOL LOTS

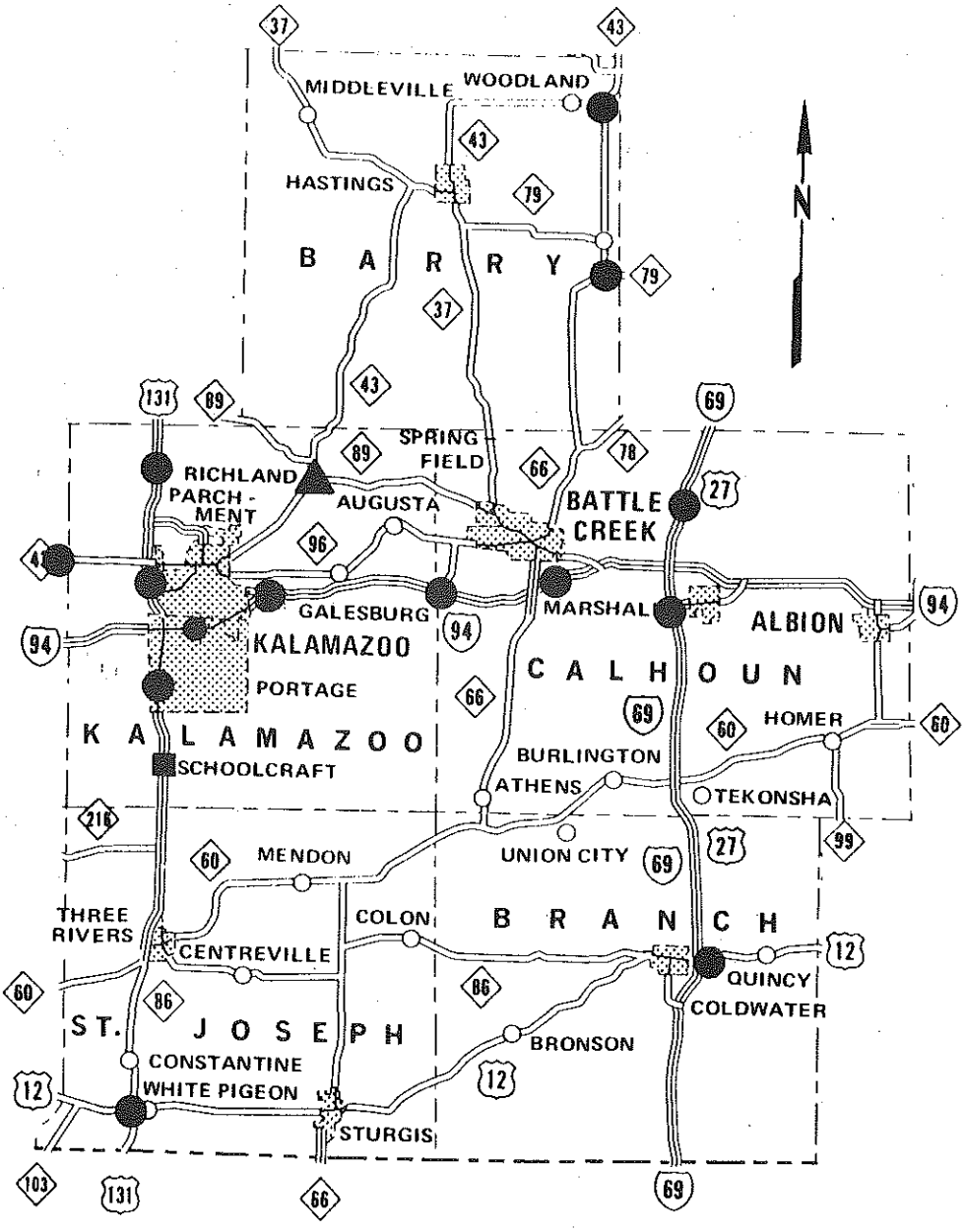


EXHIBIT 20

parking could be provided. Therefore it is recommended that a study be conducted to determine if US-131BR could be relocated or abandoned as requested by the City Commission.

EVALUATION OF AREAS OF PRESENT OR FUTURE DEFICIENCIES IN LEVEL OF SERVICE

This section addresses problem areas within the Region that have been identified through Department monitoring of trunkline traffic. These areas are indicated deficient in Level of Service or critical in one or more of the Sufficiency Classes (safety, surface, base, and capacity). Exhibit 21 shows each area; its present and future Level of Service and Sufficiency. Accident Rates are also included. Following are evaluations of each area. The areas addressed in the "issues" section that are noted in the exhibit charts will not be addressed again in this section.

Hastings: M-43/M-37 between the east junction of M-43/M-37 in the CBD and the west junction of M-43/M-37, and M-37 from north of the east junction of M-43/ M-37 south to M-79. The worst Level of Service for this area within Hastings is D, based on present traffic. The major portion is at Levels A to C. Future traffic will decrease the Level of Service on portions of this trunkline to as low as F, depending on the extent of modal diversion. Safety is critical for the entire roadway, with surface, base, and capacity showing critical deficiencies over various portions of the system.

DEFICIENT SECTIONS OF STATE TRUNKLINE

AREA	SECTION	RANGE FOR LEVEL OF SERVICE WITHOUT MODAL DIVERSION		RANGE FOR LEVEL OF SERVICE WITH MODAL DIVERSION - ENERGY FUTURES		1978 ACCIDENT RATE RANGE PER 10^8 VEHICLE MILES	1978 SUFFICIENCY RATINGS NOTING ALL OR PART OF SECTION AS CRITICAL			
		EXISTING TRAFFIC	2000 TRAFFIC	LOW POPULATION RESTR. ENERGY	HIGH POPULATION ABUND. ENERGY		SAFETY	BASE	SURFACE	CAPACITY
Hastings	M-43/M-37 dual between east and west junctions of M-43 and M-37	A-D	B-F	D	F	200-800	X			X
Hastings	M-43 0.1 mile north of eastern junction of M-43 and M-37	A	D-F	A	A	1800+	X		X	
Hastings	M-37 from M-79 northerly to junction with M-43 in Hastings	A-C	A-D	E	F	200-1400	X	X	X	X
Marshall	I-94 Business Loop	A-E	A-F	A	D	400-1800+	X			X
Albion	I-94 Business Loop	A-C	B-F	A-C	C-E	0-1600	X	X	X	X
Albion	M-99 North of BL94	A	B-C	C	E	1200-1600	X			X
Albion	M-99 South of BL94	A-C	B-E	A-B	A-B	1800+	X	X	X	X
*Schoolcraft	US-131 through Village	A	B-D	B	D	400-600	X			
Bronson	US-12 through Village	A-B	C-D	A	C	1600-1800	X		X	
Mottville	US-12 through Village	D	D-F	C	E	800-1000	X			X
White Pigeon	US-12 from east of Village westerly to east of Mottville	A-C	E	A-C	C-E	0-700 (worse East)	X			X
*Constantine	US-131 through Village to south of Three Rivers	A-C	D-F	B-C	D	1200-1400	X	X	X	X
*Sturgis	US-12 through Village	C-F	D-F	C-F	E-F	1800+	X			X
*Quincy	US-12 through Village	A-C	C-F	B-C	B-D	1000-1200	X	X	X	X
* Coldwater	US-12 through City and east and west of City	C-F	D-F	C-D	F	1200-1800+	X			X
*Richland	M-43 through City south to Kalamazoo city limits	B-E	C-F	E-F	F	200-1200	X		X	X
*Three Rivers	US-131 through the City of Three Rivers and north and south of City	A-C	A-F	C-F	F	0-1000	X		X	

* Included in "Issues" section.

EXHIBIT 21

Monitoring of traffic will determine if a problem develops of significant magnitude to initiate a study. Safety and surface improvements may be required to improve traffic flow along M-43/M-37 in downtown Hastings, and south to M-79.

Marshall: I-69BL through Marshall is at Levels of Service ranging from A to E, and future projections indicate a critical Level of Service for the entire Business Loop. Capacity and safety ratings are critical at this time.

A project study along I-69BL in Marshall should be initiated to determine the magnitude of any possible solutions to the capacity and safety deficiencies.

Albion: BL-94 and M-99 north and south of BL-94 are at an acceptable Level of Service, though some sections are critical in safety, base, surface, and capacity. Future projections indicate deficient Levels of Service over portions of these roadways. Continued monitoring of traffic along BL-94 and M-99 is recommended.

Bronson: US-12 through the Village of Bronson is at Level of Service A with safety and surface ratings critical. Future traffic projections indicate the Level of Service reaching C-D. No serious capacity deficiencies exist. No study is recommended at this time.

Mottville: US-12 through the Village of Mottville is at Level of Service D with future conditions projected to degrade. A replacement for the bridge over the St. Joseph River is programmed and should increase the Level of Service at that point on US-12. No additional study is recommended at this time.

White Pigeon: US-12 from east of Mottville to east of White Pigeon is critical in safety and capacity ratings on portions of the section. Level of Service is in a range of A-C at this time, with a future Level of Service expected to reach C-E, depending on modal diversion. Traffic will continue to be monitored to determine if future traffic developes as projected.

8. NON-MOTORIZED TRANSPORTATION

The bicycle provides an inexpensive, energy-efficient mode of transportation. Use of the bicycle as a supplement or an alternative to the motorized modes of travel provides a means of transportation and recreation for those too young to drive and for those who enjoy riding and desire the inherent benefits of riding a bike.

Existing road systems serve the cyclist as well as the motorist. Improvements can be made to better accommodate the mix of motorized and non-motorized vehicles and increase the safety of the cyclist. Improvements can take a variety of forms including: separate bicycle paths, bicycle lanes, paved shoulders, sidewalks designated for bicycle use, special bridges or bridge widenings, sewer grate replacement, and special signing and striping. In addition to those improvements, riding opportunities of a more recreational nature can be provided by using abandoned railroad lines and utility corridors for the development of multi-use recreational trails incorporating bicycling, horseback riding, and hiking.

The state transportation law requires that each road agency receiving Michigan Transportation Funds spend at least one percent of these funds each year for non-motorized facilities. The law also requires that each administering road agency prepare a 5 year program for the expenditure of available funds. Local input from bicyclists and other interested citizens is important to the development of these programs.

A number of issues should be addressed when considering the development of a local program including: the type of facilities that should be constructed; what use (commuter or recreational) should receive the most emphasis; whether a local plan should be developed; how private citizens can be involved in the planning process; what physical problems and constraints face bicycle travelers; and how information exchanges can be effectively coordinated between different levels of government.

At this point in the study process it is too early to discuss specific programs or project locations. However, the concept of additional road width will form a base for the bicycle facility planning process. In addition, existing facilities, anticipated non-motorized demands, and the impact of the availability of energy and changes in population growth will be addressed.

The primary network for bicycle transportation is the existing streets. Streets with low traffic volumes and adequate lane widths are considered safe for bicycling without any special improvements. Many urban and suburban residential streets fall in this category.

In rural areas, the higher speeds of motor vehicles pose problems for the bicyclists. Some rural roads are suitable for bicycling because of low traffic volumes. Of the 584 miles of state trunkline in the region, over 220 have traffic volumes low enough to permit safe riding on paved shoulders. In addition, many miles of county roads also have low volumes. Long distance bicycling trips in rural areas should be planned in advance and roads selected which have low traffic volumes or paved shoulders, and which have a minimum number of hills and curves.

Some special improvements have already been made in Region 3 to accommodate bicycle travel. The types of improvements include: special lanes, paved shoulders, signed routes, and sidewalk routes.

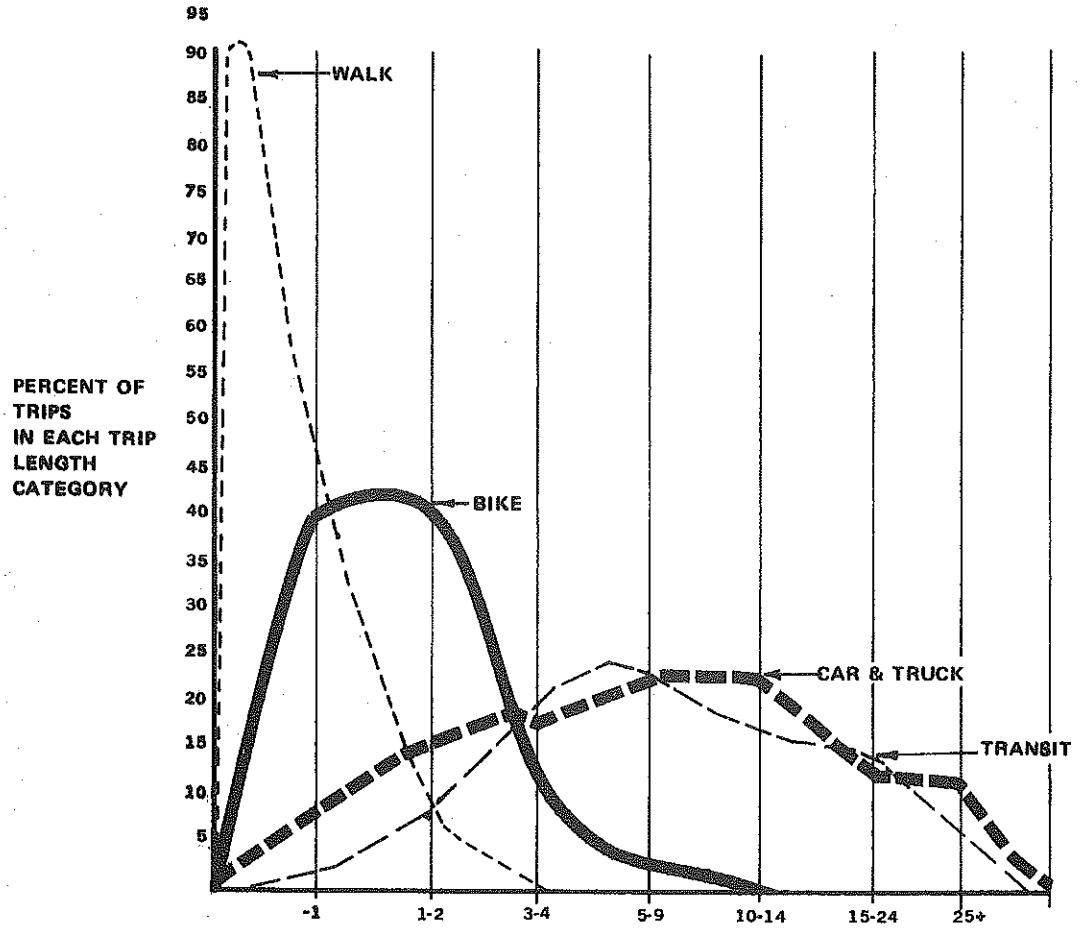
The Effects of Population Growth and Energy Availability

It is difficult to assess the effects of population and energy on the non-motorized transportation mode. Little data is available on current bicycle usage or the actual number of bicycles, since they do not have to be registered.

Nationally, bicycle sales peaked in 1972-73 and, following a slight decline in 1974-75 have remained relatively constant. Bicycle manufacturers predict a steady growth in the industry with sales almost doubling by the end of the study period. Thus, it seems reasonable to assume that a moderate increase in bicycle use will occur as the population increases.

A restricted energy supply could also result in an increase in bicycle use for transportation. The bicycle is an inexpensive, fuel efficient means of travel and thus would be more likely to be used if gasoline were very expensive or not readily available. Survey data indicate most bicycle trips in the U.S., excluding intermodal travel, are under five miles in length (Exhibit 22). Many urban trips could be made by bicycle. In rural areas the potential for substitution of bicycle trips for automobile trips is much less since most rural trips are longer and not easily made by bicycle.

U.S. TRIP LENGTH DISTRIBUTIONS FOR WALKING, BICYCLE, CAR/TRUCK, AND TRANSIT WORK TRIPS



	MEAN TRIP LENGTH	MEAN TRAVEL TIME
Bicycle	1.4 mile	12.1 minutes
Walk	.1 mile	8.7 minutes
Transit	9.1 mile	39.5 minutes
Car/Truck	9.0 mile	19.1 minutes
All Modes	8.5 mile	19.9 minutes

Source of Data: Bureau of the Census, The Journey to Work in the United States; 1975. Current Population Reports, P-23, No. 99 (Washington, D.C.: U.S. Dept. of Commerce), July 1979.

EXHIBIT 22

It is reasonable to predict that during the study period there will be moderate increases in bicycle usage, particularly in urban areas. This trend will be accentuated by any significant population increase or reduction of fuel availability. The new state non-motorized program should lead to an increase in the number of special facilities built to accommodate bicycle travel. The location and types of facilities constructed must be based on solid planning and engineering principles and should be influenced by those segments of the public interested in bicycle transportation and also in the overall regional transportation system.

It is recommended that non-motorized facilities be constructed in areas that demonstrate a need. These would be areas where a link is needed to supplement a non-motorized network or a local plan. It is recommended that non-motorized projects be constructed in conjunction with highway projects or independently as funds are available.

REGIONAL TRANSPORTATION SYSTEMS STUDY ISSUE LIST FOR NON-MOTORIZED TRANSPORTATION

During the public meetings with citizens and officials from the five-county Region 3 area there were several concerns presented regarding non-motorized transportation. They ranged from the need for driver and bicyclist education on the rights and responsibilities of both the driver and the bicyclist concerning bicycling, to storage problems with bicycles. However, most of these concerns do not fall within the scope of the regional system study. The one issue that was presented at the public meetings was the perceived need to utilize abandoned railways for recreational uses in the Region. Support was expressed for the Kal-Haven Trail and other potential family-recreation travel facilities in rural areas.

In 1975, planning of the Kal-Haven Trail was initiated by the Michigan Department of Transportation in cooperation with the Michigan Department of Natural Resources. Plans were aimed at creating an asphalt trail 38 miles long and eight feet wide for hikers, bikers and equestrians. Difficulty in acquiring the right-of-way of the abandoned railroad between Kalamazoo and South Haven originally delayed the project. More recently two additional factors have created a question as to whether the project will be completed. First, recent budgeting constraints have caused the DNR to withdraw from the project completely and have placed limitations on the extent to which MDOT may participate. In addition, the most recent Transportation legislation (Proposition M) states that Michigan Transportation Funds reserved for construction of non-motorized facilities may only be expended on facilities that are physically connected or are in proximity to state trunkline. Therefore, planning activities on this project will be limited unless new funding sources are discovered.

9. PUBLIC TRANSPORTATION

Public transportation in Michigan and the United States has emerged from nearly three decades of declining use and service . The zenith of transit ridership and vehicle miles occurred in 1945, the end of World War II. Since that time annual ridership declined from 23.3 billion to 6.6 billion in 1972. (see Exhibit 23) This decrease has been attributed mainly to the increased use of the automobile and changing land development patterns. As transit ridership decreased, the corresponding loss in revenues forced many private and public transit operators to either reduce service or cease transit operations entirely. The number of annual vehicle miles operated decreased in a manner similar to ridership from a 1945 high of 3.3 billion to the 1972 low of 1.8 billion.

The recovery of public transportation starting in the mid-seventies was evidenced by increased ridership resulting from higher levels of service and modern well-equipped buses. Since 1972, annual ridership nationwide has increased by 1.6 billion to 8.2 billion, a level approaching that of 1965 and one-third of the 1945 figure. The level of service has also improved since 1972 by some 300 million annual vehicle miles. In Michigan, since 1972, transit ridership has increased by nearly 5 percent from approximately 92 million to over 96 million. During this same period, the number of public transit systems increased fivefold from 12 to 58.

Several factors influenced this rejuvenation. These include, (1) federal and state financial assistance to transit systems, (2) more favorable public attitudes regarding services which transit could provide, and (3) the higher price and reduced availability of automobile

TRANSIT RIDERSHIP AND SERVICE IN THE UNITED STATES
1940 - 1980

EXHIBIT 23

fuel. Landmark transit legislation leading to this recovery were the National Mass Transportation Assistance Act of 1974 which authorized federal operating assistance funds to transit systems for the first time and Michigan Act 327, Public Acts of 1972, which earmarked a portion of the State's gas and weight tax revenues to help meet transit system capital and operating costs.

Michigan's future public transportation outlook has been predicated on the results of the Michigan's Transportation Needs Study conducted in 1976-77. The needs determination process included: (1) stratifying Michigan into five planning area types; (2) determining service standards for each planning area type; and, (3) applying these standards to Michigan's future population to obtain public transportation needs.

PLANNING AREA TYPES

The need for transit service varies from area to area. Transit service appropriate for a rural area or a community of 5,000 persons is significantly different from that needed in an area like Kalamazoo. There are five geographically distinct planning area types used for state public transportation planning. These consist of rural, small urban, urban, small metropolitan, and metropolitan. Each of these is characterized by a unique population range, population density, and blend of transit services (see Exhibit 24). The Detroit urbanized area represents the only metropolitan community in the state. The small metropolitan category consists of the Ann Arbor, Battle Creek, Bay City, Flint, Grand Rapids, Jackson, Kalamazoo, Lansing, Muskegon, and Saginaw urbanized areas. There are 191 urban and small urban communities and 83 rural areas consisting of the rural portion of each of Michigan's counties.

PLANNING AREA TYPES AND DEFINITION COMPONENTS

Area Type	Population Range	Population Per Square Mile	Transit Service Characteristics
Metropolitan	Over 1 million	Over 6,000	Bus rapid transit (and possibly rail rapid transit); high level of fixed-route service and commuter service (commuter bus and rail); supplemental service such as demand-responsive and downtown circulation.
Small Metropolitan	50,000 to 1 million	3,000 to 6,000	Moderate to high level of fixed-route service and commuter service (generally commuter bus only); supplemental service such as demand-responsive and downtown circulation may exist.
Urban	5,000 to 50,000	1,500 to 3,000	Low to moderate level of fixed-route service; high level of demand-responsive service.
Small Urban	2,000 to 5,000	100 to 1,500	No fixed-route service; moderate level of demand-responsive service (sometimes provided for portions of the day only).
Rural	Communities under 2,000 and all un-incorporated	Less than 100	Low level of fixed-route service and commuter service; low to moderate level of demand-responsive service.

EXHIBIT 24

Rural

Approximately 2.9 million persons will reside in rural areas by 1990. A significant number will be elderly, poor or handicapped. Many of these individuals have no access to other modes and require public transportation service for essential life support trip purposes; specifically access to shopping, health care, and human service programs. Selected other services may be desirable where a clear benefit can be determined. Because of the low population densities and long travel distances, the provision of public transportation service in these areas is both expensive and energy inefficient. As such, a relatively low level of service should be provided. Service will usually be characterized by advanced reservation, demand-response, or route deviation service. Fixed route service may be provided interconnecting cities and villages within a county. Public transportation in rural areas should be oriented to fulfilling social needs and should not be expected to have significant impact on land use, population distribution, traffic congestion, air pollution, or energy conservation.

Small Urban/Urban

There will be 191 Michigan communities containing 1.3 million persons, in the small urban and urban categories by the end of this decade. The higher densities and shorter travel distances in these communities make public transportation service somewhat more energy efficient and cost effective than in rural areas. A moderate to high level of demand-response service should be provided. A moderate level of fixed-route service may be appropriate in the larger communities. This service

will be oriented to serving a broader range of trip purposes than in rural areas. The general population will be served although a large percentage of the passengers will be comprised of the non-driving public. This service, like rural service, is primarily oriented to fulfilling social needs and will not have any significant impact on land use, population distribution, traffic congestion, air pollution, or energy conservation.

Small Metropolitan

The 10 small metropolitan areas in Michigan will include 2.1 million persons by 1990. All of these areas are presently served by public transportation accommodating a wide variety of trip purposes and needs for both the mobility-limited and the general population. Public transportation in these areas can be cost effective and energy efficient. This service should be predominantly fixed-route and typically provide headways of 30 minutes or better. With improved land use planning and development controls, such transportation also has the potential to contribute to the solution of traffic congestion problems in selected corridors.

Metropolitan

Detroit is the only metropolitan area in Michigan. The relatively high population densities and high corridor volumes allow for the provision of cost and energy efficient public transportation service. Service in southeast Michigan is the most cost effective in the state when measured on a cost per passenger basis. However, even with the large passenger volumes, there is a need for local, state and federal

assistance. A high level of fixed-route bus and rail service should be provided. Supplemental features such as express bus, demand-response service and downtown distribution service should also be provided. Public transportation development in southeast Michigan can be expected to have significant impact on economic development and employment opportunity. It can help shape land use and relieve traffic congestion in selected corridors. It can be an integral part of any plan to reduce air and noise pollution and energy consumption.

LOCAL PUBLIC TRANSPORTATION

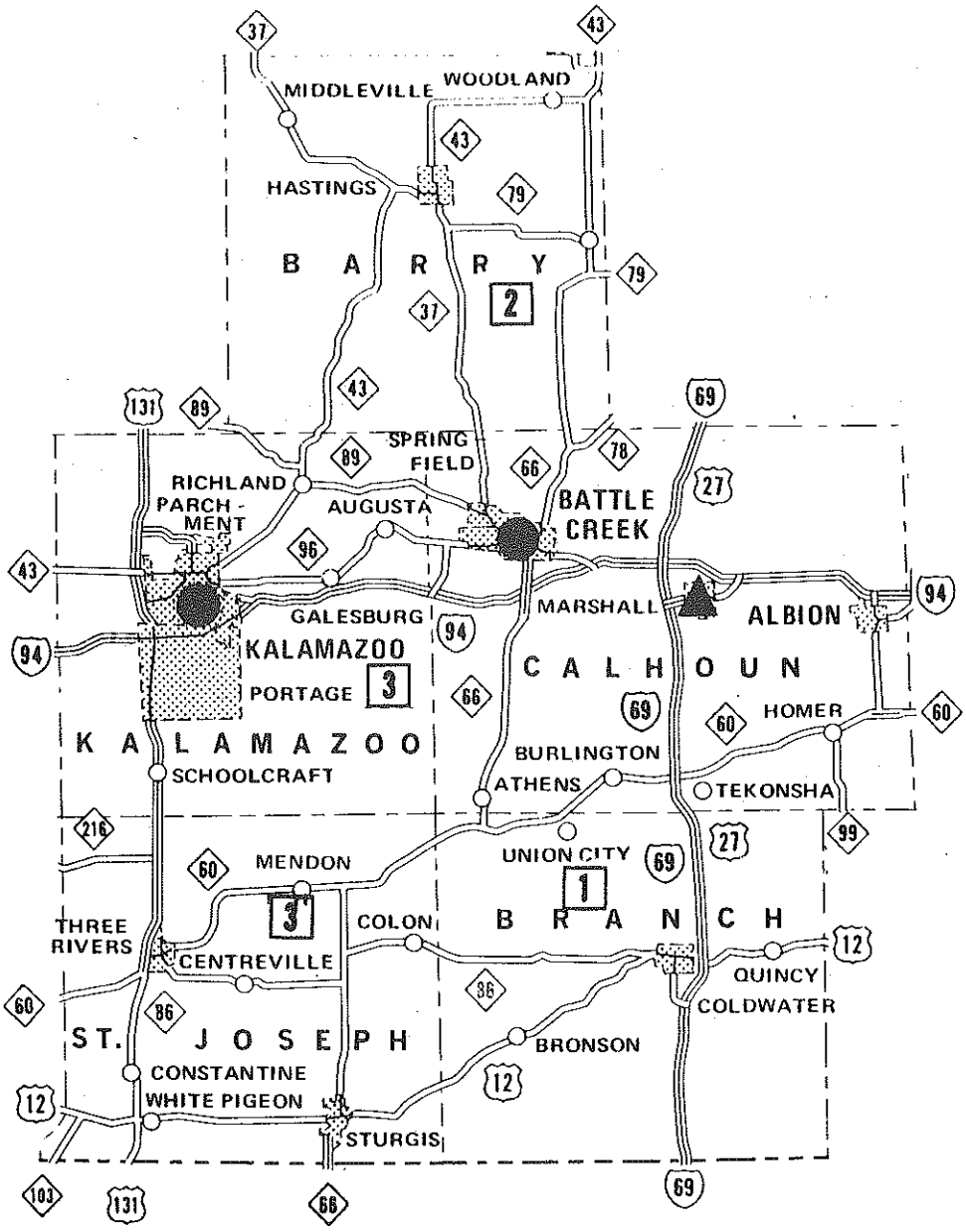
Local public transportation consists of general or special transit service available to the public at the local governmental unit level.

Existing Services

There are three local public transportation agencies providing service in Region 3 (Exhibit 25). One is demand-response service in Marshall, classified as an urban planning area type. The size, level of service, and use of this service have increased during the past 5 years (see Exhibit 26). The Marshall transit service attained its highest vehicle productivity in 1980, 8.6 passengers transported for each vehicle hour operated.

The other two provide fixed-route transit service in small metropolitan planning areas. One is Battle Creek Transit with a fleet of 21 vehicles providing service to the cities of Battle Creek and Springfield and the townships of Battle Creek, Bedford, Emmett, and Pennfield.

LOCAL PUBLIC TRANSPORTATION
DECEMBER 1980



NOTE: NUMBER WITHIN SQUARE SYMBOL INDICATES THE NUMBER OF VEHICLES IN THE TRANSIT FLEET.

- ● COMMUNITY FIXED-ROUTE
- ▲ COMMUNITY DEMAND-RESPONSE
- □ SPECIALIZED (State Supported)

EXHIBIT 25

SELECTED CHARACTERISTICS OF REGION 3 PUBLIC TRANSPORTATION SERVICE 1976-80

Area	Year	Vehicle	Annual Vehicle Hours[1/]	Annual Passengers	Passenger/ Vehicle Hour
Battle Creek	1980	21	42,260	1,314,033	31.1
	1979	20	39,000	1,211,812	31.1
	1978	20	33,426	1,139,998	34.1
	1977	28	33,520	1,008,764	30.1
	1976	17	31,388	1,029,889	32.8
1976-80% chg.		23.5%	34.6%	27.6%	
Kalamazoo	1980	74	128,412	3,411,095	26.6
	1979	69	124,604	3,003,340	24.1
	1978	69	103,984	2,406,488	23.1
	1977	44	101,250	2,029,291	20.0
	1976	53	95,708	1,869,316	19.5
1976-80% chg.		39.6%	34.2%	82.5%	
Marshall	1980	5	5,799	49,656	8.6
	1979	5	5,164	42,300	8.2
	1978	3	5,572	46,928	8.4
	1977	3	5,537	43,610	7.9
	1976	3	5,587	40,434	7.2
1976-80% chg.		66.7%	3.8%	22.8%	

NOTE: [1/] The 1976 vehicle hours were estimated using the 1977 ratio of vehicle hours to vehicle miles for the service being estimated.

SOURCE: Michigan Department of Transportation, Mass Transportation Planning Section.

EXHIBIT 26

This service carried 1.3 million passengers during 1980. Productivity has been somewhat over 30 passengers per vehicle hour in each of the past 5 years. Demand-response service supplements the fixed-route service providing transportation to seniors and handicappers.

The largest transit service in Region 3 is the 74 vehicle system operated by Kalamazoo Metro Transit. This is the fourth largest system in Michigan and it carries over 3.4 million passengers annually. Service is provided to the communities of Kalamazoo, Portage, Parchment, and the townships of Comstock, Kalamazoo, and Oshtemo. Fleet size and level of service are increasing at the rate of 8-10 percent annually and ridership has been increasing by 15-20 percent per year.

In addition to these three publicly-owned transit services, Department of Transportation assisted specialized transportation is provided in four of the five counties in Region 3. These are Barry County (2 vehicles), Branch County (1 vehicle), Kalamazoo County (3 vehicles), and St. Joseph County (3 vehicles). Such services are generally provided by human service agencies to their own clientele which are usually the elderly and/or handicappers.

Policies

Individual public transportation operating agencies may serve a variety of planning area types. A regional transportation authority, for example, may serve both rural and urban areas. The Department is strongly encouraging areawide operating agencies because of the

efficiencies and economics involved. This is a departure from earlier approaches which allowed individual cities to establish transit systems. New services are being considered for State funding only when part of a countywide or multi-county system.

In addition, policies to encourage the coordination and consolidation of public transportation and human service transportation are being promulgated. Both the Department of Transportation and other state and local agencies have agreed to the concept of a reduced number of transportation providers. Whenever possible, the provider should be the local public transportation agency.

Service Improvements

A countywide public transportation system is warranted in each Region 3 county. The Michigan Transportation Needs Study identified this and other needs for Barry, Branch, Calhoun, Kalamazoo, and St. Joseph counties, and communities located in these counties. It is desirable, to the extent possible, that all public transportation services in a given county be provided by a single agency and operator.

Improvements needed during the 1980's regarding local public transportation systems in Region 3 were determined by applying service standards and objectives (see Exhibit 27) to future populations. The key standard is daily vehicle hours per 1000 population which was developed for each planning area type, as were the other service standards, by observing existing service levels in Michigan communities. The level of service and fleet size needed for each county in Region 3 to meet these standards are presented in Exhibit 28.

LOCAL PUBLIC TRANSPORTATION SERVICE STANDARDS

SERVICE STANDARDS	RURAL	SMALL URBAN	URBAN	SMALL METROPLITAN	METROPOLITAN
Daily Vehicle Hours Per 1,000 Population	3/2.5 (1.8)	3.0 (2.9)	3.5 (2.9)	4.0 (2.0)	4.0 (2.3)
Average Response Time	24 Hours	25 Minutes	20 Minutes	10[2]	10[2]
Daily Service Hours	10	12	15	16[2]	16[2]
Passengers Per Vehicle Hour	5.0	8.0	8.0	30.0	35.0
Percent of Population within 1/4 Mile	100	100	100	80	80
Percent of Elderly and Handicapped Served	100	100	100	100	100
Maximum Cost per Passengert/	$3.00	$2.00	$2.00	$1.00	$ .75
Minimum Passenger Miles Per Gallon	10	10	10	25	40

NOTES: [1] In 1977 dollars

[2] Major Corridor Service

[3] Daily vehicles hours per 1,000 population for 1979 presented in parentheses.

SOURCE: Michigan Transportation Needs Study, January 1980 and Michigan Department of Transportation Mass Transportation Planning Section.

EXHIBIT 27

LOCAL PUBLIC TRANSPORTATION NEEDS IN REGION 3, 1990

County		Population	Daily Vehicle Hours	Number of Vehicles	Daily Ridership	Passengers/ Vehicle Hour
Barry	1990	50,200	143	18	995	7.0
1/	Existing	44.932	---	---	---	---
Branch	1990	43,300	136	18	854	6.3
	Existing	40,105	---	---	---	---
Calhoun	1990	139,000	487	62	9911	20.4
	Existing	140,922	167	26	4737	28.3
Battle Creek	1990	92,000	368	45	8930	29.3
Area	Existing	91,869	147	21	4563	31.1
Remainder	1990	47,000	182	17	981	7.8
	Existing	49,053	20	5	174	8.6
Kalamazoo	1990	219,400	680	86	21,366	31.4
	Existing	212,066	446	74	11,844	26.6
Kalamazoo	1990	167,000	668	74	20,569	34.1
Area	Existing	162,578	446	74	11,844	26.6
Remainder	1990	52,400	77	12	797	10.4
	Existing	49,488	0	0	0	--
St. Joseph	1990	62,300	172	22	1272	7.4
	Existing	55,917	---	---	---	7.4

NOTE: 1/ Existing values for publicly-owned transit systems operating in any of the 5 counties. Some service is being provided to special groups by human service agencies and others.

SOURCE: Michigan Department of Transportation, Mass Transportation Planning Section.

EXHIBIT 28

There is a need for new or improved demand-response service for certain individuals in the rural portions of the five counties in Region 3 and the smaller communities located therein. This assumes that the standards of 2.5, 3.0, and 3.5 daily vehicle hours per 1000 population are acceptable for rural, small urban, and urban planning areas respectively. These service standards reflect a low level of service in rural and small urban areas, and a higher level in small metropolitan areas. Some of this service is already provided by human service agencies to their own clientele.

Regarding the small metropolitan area, Battle Creek service should be substantially increased and Kalamazoo service increased to a lesser degree. This assumes that a level of service of approximately 4.0 daily vehicle hours per 1000 population is acceptable. Five-year Transit Development Plans (TDP) are complete for both Battle Creek and Kalamazoo. These plans outline the type and level of service that each transit agency should provide during the next five years.

Improvements to these small metropolitan, smaller community, and rural systems are contingent on the availability of Federal, State, and local funds and the support of the local governmental units being served.

INTERCITY BUS

Intercity bus service connects major urban areas with the remainder of the state and nation. The intercity bus is designed for intermediate and longer distance travel and can comfortably seat 47 people. In addition to passenger service, these buses offer package shipment service. Although intercity bus companies are privately-owned, their

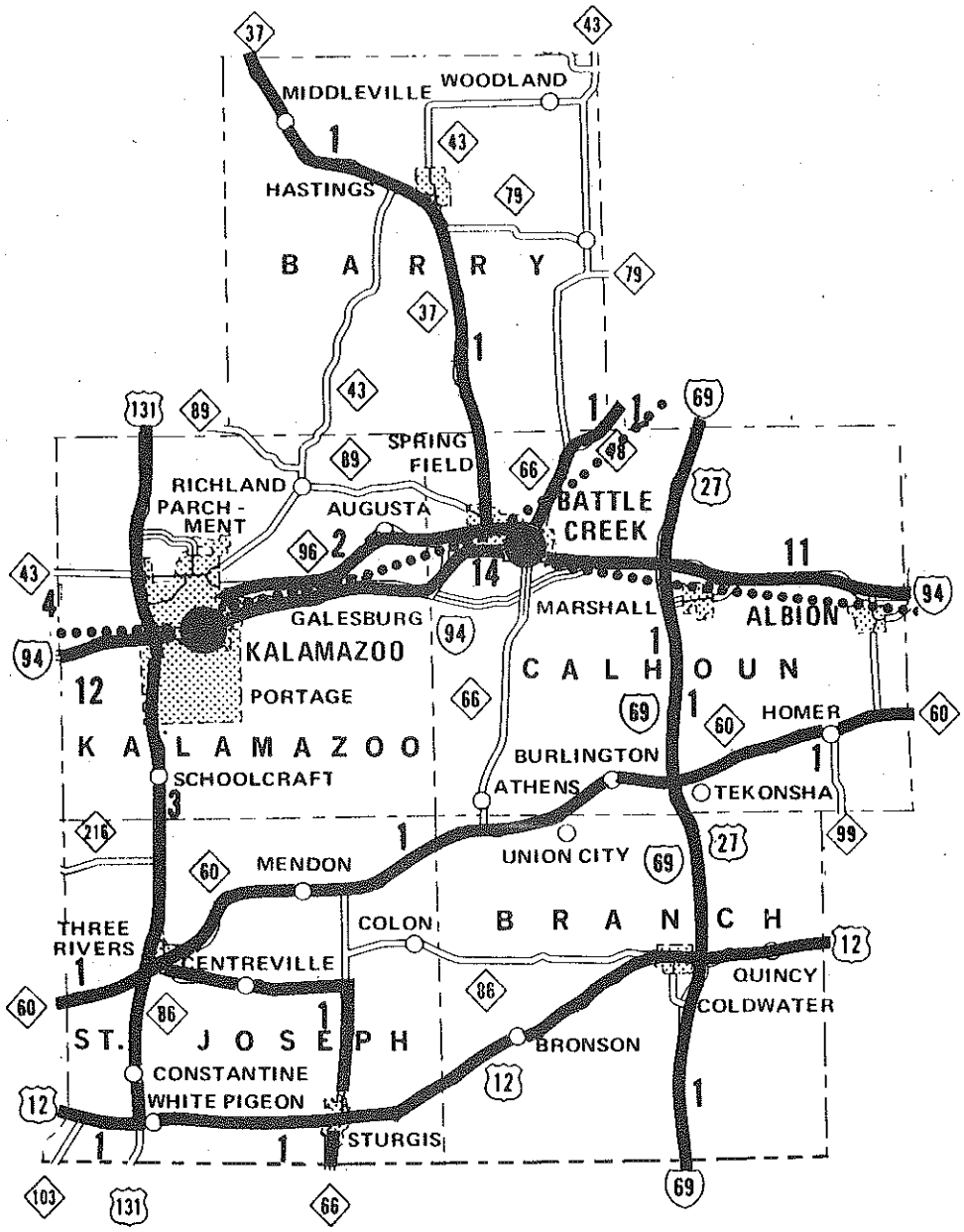
operations are regulated by the Michigan Public Service Commission. They are required to operate over specified highways and abide by published time schedules. Should intercity bus service deregulation become a reality, the carriers would have more flexibility in determing markets, routes, and services.

Existing Services

Intercity bus transportation in Region 3 provides service to all communities over 5000 population and most over 2000. The number of daily round trips varies from a high of sixteen between Battle Creek and Kalamazoo (and points east and west) to one between Sturgis and Battle Creek (see Exhibit 29). This service is provided by four carriers: Greyhound Lines, Indian Trails, Indiana Motor Bus, and North Star Lines. The use of intercity bus service declined in the early and mid-seventies but has increased in 1978 and 1979 both nationally and in Michigan. Selected intercity bus services are being subsidized by the State in Region 3.

Multimodal passenger terminals have been, or are being, developed in several Michigan communities. These include terminals used jointly by intercity bus and local public transportation, or intercity bus and intercity rail passenger service. Multimodal terminals operate in Kalamazoo and Battle Creek. Both are facilities to be used jointly by intercity bus and intercity rail passengers.

INTERCITY PUBLIC TRANSPORTATION
1980



NOTE: THE NUMBER BESIDE THE INTERCITY ROUTE IS THE NUMBER OF DAILY ROUND TRIPS.

INTERCITY BUS ROUTES

INTERCITY RAIL ROUTES

INTERCITY BUS/RAIL TERMINAL

EXHIBIT 29

Service Improvements

Based on the Michigan Transportation Needs Study, several improvements to the present intercity bus service are needed. These improvements are described in relation to the service standards determined in the Needs Study.

1. Service should be provided to all communities of 2000 or more population. At this time, all such communities in Region 3 have intercity bus service.

2. Service should be provided to all counties in Region 3. All five counties comprising Region 3 are served to some degree with intercity bus service.

3. Service frequency should be consistent with the intercity bus service corridor classifications established in the Michigan Transportation Needs Study. Some increase in service is warranted along the east-west routes in the southern part of the region.

4. Coordination of intercity and local public transportation schedules and terminal facilities. Schedules are being coordinated but joint intercity bus/local public transportation terminals should be considered for communities that have or warrant demand response type service.

5. Coordinate intercity bus with rail passenger service.

   a. Provide service to rail passengers from areas not served by a railroad. This is being accomplished from Muskegon and Grand Rapids to the Kalamazoo rail passenger station.

   b. Provide local service along rail corridors to communities not served by rail and supplement rail service during low demand periods. This is being done in the I-94 corridor.

INTERCITY RAIL PASSENGER

Intercity rail passenger service contributes to mobility within travel corridors connecting the major urban and metropolitan areas of the state and nation. The National Railroad Passenger Corporation, better known as Amtrak, was created in May 1971 to save and revitalize the nation's rail passenger network. Amtrak rail passenger service in Michigan consists of three daily round trips between Detroit and Chicago, one daily round trip between Port Huron and Chicago, one daily round trip between Jackson, Ann Arbor and Detroit, and one daily round trip between Detroit and Toledo. A total of 16 Michigan communities have direct rail passenger service.

Existing Service

Intercity rail passenger service in Region 3 is through the Battle Creek and Kalamazoo rail passenger stations. Both communities have stations for the Port Huron-Chicago and the Detroit-Chicago train. Use of rail passenger service has increased over the years on both the Port Huron-Chicago and Detroit-Chicago routes.

Service Improvements

The Michigan Transportation Needs Study suggested several improvements for rail passenger service in Michigan. Several of these are located in or affect Region 3. These improvements are noted under the rail passenger standards developed as part of the Needs Study needs determination process.

1. Rail passenger service should be provided to all metropolitan areas in Michigan with a higher level of service being provided to those over 200,000. Region 3 has good rail passenger service with 8 departures daily from Battle Creek and Kalamazoo to points east and west. However, further service increases are warranted according to the Michigan Transportation Needs Study. Battle Creek and Kalamazoo should be served by 3 additional round trips daily between Detroit and Chicago and 2 additional trains to Flint and points beyond.

2. All rail passenger trackage between metropolitan areas should accommodate speeds of 79 mph, except in unusual circumstances. Trackage east of Kalamazoo needs to be upgraded to achieve this standard.

3. Intercity rail passenger terminals should be jointly used by inter-city bus and local public transportation services. No new terminals need to be developed for joint use by the intercity bus lines and intercity rail passenger service.

RIDESHARING

Ridesharing may be defined as any vehicle containing two or more persons; it includes carpools and vanpools. Ridesharing programs are usually associated with the work trip. They are increasing in importance as a means of providing energy efficient, cost effective transportation service. Carpools and vanpools begin at the origin of the trip with no "deadheading" which is often characteristic of transit service. Automobiles and vans are relatively inexpensive to operate compared to other forms of public transportation due to lower labor,

maintenance, and fuel costs. Similarly they are relatively energy efficient due to the lower fuel consumption rates. Finally, there is a vast fleet of automobiles in place which can be called upon on short notice to move people in an energy-constrained situation.

The Department of Transportation has established a statewide program to promote ridesharing. This program includes a statewide vanpool program entitled MichiVan as well as the establishment of local ridesharing offices throughout the state. The MichiVan Program is designed to provide vans to groups of nine or more people anywhere in Michigan. Local ridesharing offices offer a variety of vanpool and carpool-related services.

- Promotion and Marketing. Assist employers and employees, conduct workshops, provide resource materials, and conduct media campaigns.

- Ridesharing Match Programs. Develop and implement appropriate manual and computer matching systems to assist in the formation of carpools, vanpools, and buspools.

- Statewide Vanpool Program. Coordinate the statewide third party vanpool program which includes assuming responsibility for the organization of vanpools.

- Coordination Coordinate ridesharing programs with other related programs including public transportation and carpool parking lot programs.

REGIONAL TRANSPORTATION SYSTEMS STUDY ISSUE LIST FOR PUBLIC TRANSPORTATION

The following list of regional transportation issues relating to public transportation were assembled from a series of public meetings with citizens and officials from the five-county Region 3 area. Following this list are responses by the Michigan Department of Transportation relating to each issue.

The perceived need for public transportation in the rural areas in the Region.

1. The need for county level transportation services in Calhoun County.
2. The need for inter/intra city, rural service for the elderly and handicapped in St. Joseph County.
3. The need for public transportation in Barry County.
4. The need to coordinate the Small Vehicle County Incentive Program into the existing Kalamazoo Metro Transit service. The need for public transportation in the non-urbanized areas of Kalamazoo County.
5. The need for public transportation in Branch County.

The perceived need to improve rail passenger service to the Region.

6. The need to increase the number of trains operating between Detroit and Chicago, going through the cities of Battle Creek and Kalamazoo.

7. The need to increase the number of trains on the Battle Creek-Lansing-Flint-Port Huron service.

8. The need to continue track upgrading programs.

9. The need to improve and promote intermodal connections in Kalamazoo and Battle Creek between passenger trains and intercity and local bus service.

The perceived need to institute new rail passenger services in the Region.

10. The need to institute new rail passenger service from Kalamazoo to Grand Rapids connecting with Detroit/Chicago corridor trains.

11. The need to institute new rail passenger service connecting Chicago-Kalamazoo-Battle Creek-Detroit-New York-Boston.

RESPONSE TO PUBLIC TRANSPORTATION ISSUES

1. The need for county level transportation services in Calhoun County.

   Battle Creek Transit provides service to the cities of Battle Creek and Springfield and townships of Battle Creek, Belford, Emmett and Pennfield. The city of Marshall has a demand-response type system. The Transportation Needs Study recommends that public transportation service be provided in the remainder of the county.

2. The need for inter/intra city, rural bus service for the elderly and handicapped in St. Joseph County.

St. Joseph County has intercity bus service available at Three Rivers, Mendon, Centreville, Constantine, White Pigeon, and Sturgis. Special intercity bus service for the handicapped does not exist and it is unlikely to be available in the near future because it would be necessary to change the type of vehicle used, and the cost to do so would be too great for a private carrier. The Needs Study suggests that 22 vehicles will be needed by 1990 to meet basis transportation needs in St. Joseph County.

3. The need for public transportation in Barry County.

The Needs Study suggests that 18 vehicles will be needed by 1990 to meet basic transportation needs in Barry County. In February 1982 a five vehicle system began and provides demand-response service to the county.

4. The need to coordinate the Small Vehicle County Incentive Program into the existing Kalamazoo Metro Transit service. The need for public transportation in the non-urbanized areas of Kalamazoo County.

A COTRAN program has recently been established by Kalamazoo County which will not only coordinate the Small Vehicle County Incentive Program with Metro Transit but also with other human service agencies that provide transportation services.

5. The need for public transportation in Branch County.

   Based on the level of service standards, by 1990 18 vehicles will be needed to serve Branch County.

6. The need to increase the number of trains operating between Detroit and Chicago, going through the cities of Battle Creek and Kalamazoo.

   This is one of the highest population corridors in the nation and has a comparatively high ridership level. There is a national and state commitment to a high level of service in this corridor. It is recommended in the Michigan Transportation Needs Study that 3 additional trains (round trip) be provided between Detroit and Chicago. All would serve Battle Creek and Kalamazoo.

7. The need to increase the number of trains on the Battle Creek-Lansing-Flint-Port Huron service.

   The Michigan Transportation Needs Study suggests that three daily round trips be provided between Battle Creek, Lansing and Flint. One round trip would extend to Bay City, one to Port Huron and one to Detroit. All three round trips would provide connections with the Detroit-Chicago service at Battle Creek and Kalamazoo.

8. The need to continue track upgrading programs.

   This need is recognized and track upgrading is occuring.

9. The need to improve and promote intermodal connections in Kalamazoo and Battle Creek, between passenger trains and intercity and local transit bus systems.

   A multimodal passenger terminal is in operation in Kalamazoo which is used jointly by intercity bus, local public transportation, and intercity rail passenger service. A multimodal terminal is also operating in Battle Creek.

10. The need to institute new rail passenger service from Kalamazoo to Grand Rapids, connecting with Detroit/Chicago corridor trains.

    The state legislature has allocated funds for rail passenger service between Grand Rapids and Chicago via Kalamazoo. No start-up date has been programmed at this time.

11. The need to institute new rail passenger service Chicago-Kalamazoo-Battle Creek-Detroit-New York-Boston.

    Amtrak recently instituted a New York and Boston. The service is provided by a direct connection at Toledo.

10. RAIL FREIGHT

The 1970 bankruptcy of the Penn Central Railroad caused widespread concern about the financial condition of the Nation's railroads. The Ann Arbor Railroad also declared bankruptcy in 1973. Together, these bankrupt companies represented a possible loss of 2,000 miles (3,387 kilometers) of trackage that served a large number of community and industrial interests in Michigan's lower peninsula.

Although these bankruptcies were perceived as a sudden occurrence by the general public, those persons working close to the railroad industry knew that rail service had been declining for many years. A major reason for this decline was the development of competing transportation modes.

At the beginning of this century, the railroads offered the principal means of intercity freight and passenger travel. Then, during the early 1920's and 30's, the automobile and airline industries began their development. After World War II, these new industries greatly expanded their services and caused the competitive position of the railroad to deteriorate. Revenue passenger miles declined from nearly 66% to 39%. Although railroads continue to be the largest carrier of freight in terms of ton miles, the industry can no longer compete with the level of service offered by the trucking industry in transporting commodities over short and medium distances.

During the time in which many carriers were going bankrupt, or requesting permission from the Interstate Commerce Commission (ICC) to abandon certain track operations, Region 3 was more fortunate than many. The region was served exclusively by the bankrupt Penn Central Railroad, with the exception of the Grand Trunk Western Railroad main line through Battle Creek. However, much of Penn Central trackage continues to be operated by Conrail and designated operators subsidized by the State of Michigan.

In recognizing the potential social-economic impacts associated with rail abandonments, the federal and state governments have enacted legislation to provide financial assistance for certain rail operations. At the federal level, the Regional Rail Reorganization (3R) Act of 1973 provided comprehensive legislation for preserving and improving rail service. A major item in this legislation was the plan for reorganization of seven Midwest/Northeast bankrupt railroad lines into a new Consolidated Railroad Corportation (Conrail). However, the resulting Conrail system did not include all of the 2,000 miles of Penn Central and Ann Arbor trackage located in Michigan. Responding to this critical situation, the Michigan legislature enacted the State Transportation Preservation Act of 1975 with these main features:

1. Identified the State Highway Commission (now the State Transportation Commmission) as being repsonsible for State Railroad Plans and Programs.

2. Permitted the State to subsidize rail service continuation.

3. Permitted the State to acquire abandoned rights-of-way for recreational or future transportation purposes.

4. Permitted the State to contract with a person, firm or corporation to provide rail or ferry service deemed to be in the best interest of the State.

The Michigan Act was the State's initial commitment to maintain an adequate statewide rail network. The legislation also represents the first time that the Michigan Department of Transportation has become actively involved in the operations of the railroad business.

In 1976, the federal government amended its earlier legislation by passing the Rail Revitalization and Regulatory Act (4R Act). This legislation provided federal dollars to those states like Michigan that were attempting to bear the financial burden of supporting light-density rail lines abandoned by solvent carriers and also extended the provisions of the 3R Act. Although these federal operating funds were extended through 1981, for the current subsidized lines, Michigan now provides 100% of the operating subsidy required. The Department prepares an annual update of the Michigan Railroad Plan in order to assess its rail subsidy program.

In Region 3, these actions have enabled the State to maintain the rail operations of three segments of trackage. The first segment which was operated by Conrail, extended from Mendon to Wasepi Junction a distance of 4.55 miles. The second segment was from Sturgis to Nottawa a distance of 8.1 miles and was also operated by Conrail. The last segment ran from 44th St. in Grand Rapids to Vermontville, a distance of 42.01 miles and was operated by the Kent, Barry, Eaton Connecting Railway, Inc. Since June 1, 1982, only the segment from 44th Street to Caladonia, a distance of nine miles, continues to be operated. The KB&E continues to be the operator on that segment, while the two Conrail operated segments have had service terminated.

RAIL CHARACTERISTICS[1/]

LINE	LINE SEGMENT	MILES	SERVICE	DOMINANT COMMODITY*
GTW - South Bend Br.	Battle Creek - Indiana Line	65	8 Thru Frt./Day 1 Local Frt./Day	26,37,01,20,28
GTW - Flint Sub.	Battle Creek - Durand	77	8 Thru Frt./Day 1 Local Frt./Day 1 Pass./Day	26,37,00,20,28
GTW - Kalamazoo Sub.	Pavilion - Kalamazoo	11	1 Local Frt./Day	26,37
CR - Main	Jackson - Battle Creek	45	3 Pass./Day 3 Frt./Day	20,40,26
CR - Main	Battle Creek - Kalamazoo	25	4 Pass./Day 3 Frt./Day	20,26,37
AMTRAK - Main	Kalamazoo - Dowagiac	34	4 Pass./Day 3 Local Frt./Wk. Conrail	20
CR - Elkhart Br.	Jackson - Three Rivers Jct.	9	1 Local Frt./Wk.	24,28
CR - Elkhart Br.	Three River Jct. - White Pigeon Jct.	10	6 Thru Frt./Day	26,28
CR - Elkhart Br.	White Pigeon Jct. - Indiana Line	3	6 Thru Frt./Day 5 Local Frt./Wk.	None
CR - Kalamazoo Br.	Three Rivers - Kalamazoo	30	4 Thru Frt./Day 1 Local Frt./Day	26,33
CR - GR&I Branch	Indiana Line - Sturgis	3	1 Local Frt./Wk.	40
CR - GR&I Branch	Vicksburg - Kalamazoo	13	1 Local Frt./Day	11,25,26,28
CR - Quincy Branch	White Pigeon Jct. - Quincy	43	5 Local Frt./Wk.	11,20,24
CR - GR&I Branch	Kalamazoo - Comstock Park	54	2 Thru Frt./Day 1 Local Frt./Day	20,33,37,40
KB&E - Main	Vermontville - Grand Rapids	9	1 Local Frt./Wk.	01,24,28

Dominant Commodity*

01 Farm Products
11 Coal
20 Food & Kindred Products
24 Lumber & Wood Products, except Furniture
25 Furniture & Fixtures
26 Pulp, Paper & Allied Products
28 Chemicals & Allied Products
33 Primary Metal Products
37 Transportation Equipment
40 Waste & Scrap Materials

1/ Complete line data. Some portions of the line segments lie outside the region.

EXHIBIT 30

REGIONAL TRANSPORTATION SYSTEMS STUDY ISSUE LIST FOR RAILROADS

The following list of regional transportation issues relating to railroad were assembled from a series of public meetings with citizens and officials from the five-county Region 3 area. Following this list are responses by the Michigan Department of Transportation relating to each issue.

The perceived need to continue and promote rail operations in the Region.

1. The need to continue and improve the Nottawa-Sturgis Line serving the Nottawa Grain Elevator; must consider the lack of available freight cars.

2. The need to replace 1.5 miles of track from Nottowa to the Village of Mendon.

3. The need for the continuation of trackage from Mendon to the Richland-Doster Tee.

4. The need to continue the "Airline"-Jackson-Elkhart rail line.

5. The need to continue and improve the Richland-Doster Tee; due to the Federal designation of the Voyce's Grain Elevator.

6. The need to continue and promote the Kent, Barry and Eaton Railway.

7. The need to divert train movements from Conrail's existing route through the City of Portage.

RESPONSE TO RAILROAD ISSUES

1. The need to continue and improve the Nottawa-Sturgis Line serving the Nottawa Grain Elevator; must consider the lack of available freight cars.

2. The need to replace 1.5 mile of track from the City of Sturgis to the Village of Mendon.

Items 1 and 2 deal with the Sturgis to Mendon Corridor. This portion of the former Penn Central's Grand Rapids and Indiana Branch provided rail service over 12.6 miles of track in St. Joseph County. Two segments were served; the first extends 8.1 miles from the Sturgis north to Nottawa. The northern terminus at Nottawa was the only station on this segment and was served by Conrail under a subsidy provided by the State of Michigan. The second segment extended 4.5 miles from Wasepi Junction on Conrail's Elkhart Branch north to Mendon. The Elkhart Branch had been used primarily as a bridge route between Jackson and Three Rivers;

however, Conrail now routes bridge traffic over its main line via Kalamazoo. Mendon was the only station served on this subsidized trackage. Conrail has provided service to Mendon under a subsidy contract with the State since the inception of the subsidy program in 1976.

Traffic originating or terminating at stations in the Sturgis to Mendon corridor between 4/1/76 and 3/31/80 is shown in Exhibit 31. Since 1978, traffic has decreased by over 50 percent. Much of the decline at Mendon was due to the uncertainty of rail service which resulted in the diversion of inbound fertilizer from rail to truck. At Nottawa, the problem resulted from an inadequate supply of empty hopper cars for outbound grain shipments.

Revenues and costs for the four year subsidy period are shown in Exhibits 32 and 33. The operating deficiency incurred on the Sturgis to Nottawa segment for the last subsidy year was due principally to program and emergency maintenance. Service was provided only when needed. The total subsidy on this segment was also impacted by the lease charges which increased by approximately 50 percent between 1979 and 1980.

On the Wasepi Junction to Mendon segment, program and emergency maintenance accounted for almost half of the operating subsidy in the last subsidy year.

A gap of 1.5 miles existed in the Sturgis - Mendon Corridor between Nottawa and Conrail's Elkhart Branch, thus physically separating the two subsidized segments. Conrail abandoned the Elkhart Branch, in 1982. The Department of Transportation conducted a review of the

STURGIS TO MENDON CORRIDOR - ORIGINATING
AND TERMINATING TRAFFIC (4/1/76 TO 3/31/80)

	CARLOADS			
STATION	4/1/76-3/31/77	4/1/77-3/31/78	4/1/78-3/31/79	4/1/79-3/31/80
Nottawa	20	33	58	25
Mendon	106	106	68	40
TOTAL	126	139	126	65

SOURCE: Michigan Department of Transportation
Bureau of Urban and Public Transportation

EXHIBIT 31

STURGIS TO NOTTAWA FINANCIAL DATA
OPERATOR: CONRAIL

	Actual 4/1/76-3/31/77	Actual 4/1/77-3/31/78	Actual 4/1/78-3/31/79	Actual 4/1/79-3/31/80
Revenues	$41,423	$48,896	$56,204	$42,334
Costs	$51,390	$43,340	$51,196	$49,882
Subsidy	$ 9,967	$(6,556)	$(5,008)	$ 7,548
Lease	$17,820	$17,820	$14,936	$21,924
Taxes	$ 5,270	$ 5,653	$ 6,402	$ 6,645
TOTAL	$33,057	$16,917	$16,330	$36,117

SOURCE: Michigan Department of Transportation
Bureau of Urban and Public Transportation

EXHIBIT 32

WASEPI JUNCTION TO MENDON FINANCIAL DATA
OPERATOR: CONRAIL

	Actual 4/1/76-3/31/77	Actual 4/1/77-3/31/78	Actual 4/1/78-3/31/79	Actual 4/1/79-3/31/80
Revenues	$48,946	$54,502	$34,037	$28,042
Costs	$79,255	$69,062	$38,513	$40,103
Subsidy	$30,309	$14,560	$ 4,476	$12,061
Lease	--	$11,138	$10,904	$16,008
Taxes	--	$ 3,545	$ 4,051	$ 4,235
TOTAL	$30,309	$29,243	$19,431	$32,304

SOURCE: Michigan Department of Transportation
Bureau of Urban and Public Transportation

EXHIBIT 33

two subsidized lines and the connecting Conrail line from Mendon to Three Rivers. It was concluded that the cost of subsidizing the Conrail Mendon-Three Rivers line or reconstructing the 1.5 mile of track between Nottawa and Mendon could not be justified. A public hearing was held on February 9, 1982, and the Transportation Commission approved the discontinuation of subsidized operations on May 31, 1982 on the Sturgis to Nottawa line and the Mendon to Wasepi line.

3. The need for the continuation of trackage from Mendon to the Richland-Doster Tee.

The 8.9 miles of trackage from north of Mendon to Vicksburg has been physically removed. The Mendon to Wasepi trackage has been returned to its owners, the Penn Central Corp., for disposal. The trackage from Vicksburg for 1.1 mile south to Simpson Lee Paper Company has been transferred to the Grand Trunk Western Railroad from Conrail. The trackage from Vicksburg through the city of Kalamazoo to Parchment and connecting to the former Richland-Doster-Tee is owned and operated by Conrail and is not subject to abandonment at this time.

4. The need to continue the "Airline"-Jackson-Elkhart rail line.

This issue deals with the 69.1 mile Jackson - Three Rivers Junction line also known as the Elkhart Branch. This line has been designated since 1977 as Category 2 (green) on Conrail's ICC System Diagram, indicating that the carrier is studying the line for possible future abandonment. Conrail has met several times with local shippers and state planning officials from MDOT to discuss the line's future.

Since being designated as a line under study for abandonment in 1977, all Jackson - Elkhart overhead traffic has been diverted to the Kalamazoo Branch/Main Line routing via Kalamazoo and Battle Creek. Local switching is provided as necessary between Jackson and Union City, and trains are operated on occasion between Three Rivers Jct. and Wasepi Jct. for access to the Wasepi - Mendon state-subsidized freight line.

A limited shippers survey as conducted by the Railroad Planning Section in early 1980 indicating a decline in traffic at Tekonsha, Homer, and Colon with most commodities formerly handled by rail now being received by truck. The four shippers contacted stated that the impacts of a rail abandonment would have very little effect on them. The grain elevator operator at Concord, apparently the last significant rail user on the Branch, has reported continual car supply problem as well as a lack of service. Conrail placed the line up for abandonment and the Department of Transportation conducted a review of the "Airline" and concluded that subsidized operations could not be justified. Public hearings were held on February 8 and 11, 1982, and the Transportation Commission approved the position that no subsidy would be provided on the line. On May 15, 1982, the Wasepi to Jackson segment was abandoned. The Wasepi to Three Rivers segment will be abandoned by Conrail by July 1982.

5. The need to continue and improve the Richland-Doster Tee; due to the Federal designation of the Voyce's Grain Elevator as a Commodity Credit Warehouse.

The perceived need on the Richland Tee has been resolved. This trackage was comprised of 15.4 miles of the Penn Central's Chicago, Kalamazoo and

Saginaw Branch north of Parchment. Conrail provided subsidized freight service on the line from April 1, 1976 to December 31, 1977. During that 21 month period, only 37 carloads were handled. The lack of usage caused a termination of the line's operating subsidy contract with Conrail. Following this termination, the right-of-way and track structure became available for disposal by its owner, Penn Central.

Subsequent to the termination and at the request of the Michigan DOT, the line was kept intact while a local request to reinstate service for grain movements was evaluated. The Department received notification from the potential shippers that they no longer required rail service from Richland. The line has since been released back to the Penn Central and all the track structure has been removed.

6. The need to continue and promote the Kent, Barry and Eaton Railway.

This line, extending from Grand Rapids to Vermontville, a distance of 41.9 miles, is the first minority owned/ operated railroad. They took over operations on July 15, 1979 after consolidation of operations by Conrail, the previous operators, left trackage available for bid by other state subsidized railroads.

Carloadings for a full year of KB&E operation totaled 359, as compared with 343 carload in the corresponding 12 months of the previous year. Carloadings over the 4 subsidy years on the Vermontville to Grand Rapids line are listed in Exhibit 34.

VERMONTVILLE TO GRAND RAPIDS
ORIGINATING AND TERMINATING TRAFFIC (4/1/76 TO 3/31/80)

	CARLOADS			
STATION	4/1/76-3/31/77	4/1/77-3/31/78	4/1/78-3/31/79	4/1/79-3/31/80
Vermontville	54	48	84	84
Nashville	20	5	6	4
Hastings	91	84	80	79
Middleville	0	0	0	0
Caledonia	62	70	69	124
Dutton	60	63	93	113
TOTAL	287	270	332	404

SOURCE: Michigan Department of Transportation
Bureau of Urban and Public Transportation

EXHIBIT 34

Revenues and cost for the four year subsidy period starting in April 1976 are shown in Exhibit 35. The large increase in subsidy as projected in the contract for subsidy year 78-80 is due to higher costs incurred by the start up and operation of the new shortline. The State will continue to monitor the operations of the new operator and institute changes as required.

On February 2, 1982, the Department held a public hearing in Hastings to gain public input into the recommendation to discontinue subsidized operations between Caledonia and Vermontville. The Transportation Commission approved the discontuance of service between Caledonia and Vermontville. Service will be provided on the Grand Rapids-Caledonia segment while the Department contacts the shippers on the line to develop financial commitments and reanalyze the line based on these commitments.

7. The Railroad Planning Section does not perceive a need to divert train movement from Conrail's existing route through the City of Portage, which parallels Shafer Road and Westnedge Avenue.

Approximately twelve freight trains traverse this line daily, not an excessive number of movements, particularly since most are through trains moving at 30 miles per hour. Conrail, in 1976, made a reasonable systems planning decision that only one Indiana-Kalamazoo, rail route would be required for the efficient transport of interstate goods, and has gradually abandoned its redundant north-south route via Wasepi and Vicksburg.

VERMONTVILLE TO GRAND RAPIDS FINANCIAL DATA
OPERATOR [1]/: KENT, BARRY, AND EATON CONNECTING RAILWAY COMPANY (KB&E)

	Actual 4/1/76-3/31/77	Actual 4/1/77-3/31/78	Actual 4/1/78-3/31/79	Actual 4/1/79-3/31/80
Revenues	$ 173,786	$ 191,943	$ 260,018	$ 138,145
Costs	257,961	280,686	358,440	627,614
Subsidy	$ 84,175	$ 88,743	$ 98,422	$ 489,469[2]/
Lease	$ 103,950	$ 103,950	$ 149,880	$ 220,044
Taxes	30,777	32,989	37,404	58,679
TOTAL	$ 218,902	$ 225,682	$ 285,706	$ 748,192
Accelerated Maintenance/ Rehabilitation Unaudited	--	--	$ 492,068	--

1/ Conrail operated 4/1/76 to 7/14/79; KB&E operated 7/15/79 to 3/31/80

2/ Includes $25,645 Program and Emergency Maintenance Funds - Conrail

SOURCE: Michigan Department of Transportation
Bureau of Urban and Public Transportation

EXHIBIT 35

11. FUTURE PLANNING ACTIVITIES

An objective of the Region 3 Transportation Study was to identify deficiencies and recommend necessary changes to the region's various transportation systems. That objective has been achieved at this time, but additional planning steps are required. These remaining planning steps are illustrated in the accompanying diagram (Exhibit 36) and discussed below.

EVALUATION AND MODIFICATION

After the public hearings were conducted, the study team evaluated the public comments received. Upon completion of this review, necessary process modifications were made to ensure that proper considerations were given to all pertinent issues before making recommendations.

RECOMMENDATIONS

A post-decision meeting will be held in the region to present the final recommendations derived from the Regional Transportation Study. This meeting provides an opportunity to view and understand exactly what has been recommended. It also illustrates the logical sequence of the planning process, making key decisions only after extensive studies have been completed. Because of the general nature of the Regional Study, these recommendations are geared toward intensifying planning activities in areas having identified transportation problems.

As illustrated in the following diagram, recommendations can be made to initiate a Sub-Area Study, Corridor, or begin detailed Project Planning. This decision was dictated by the degree of complexity of the problems identified in the Regional Study. These two planning phases are further explained in the following sections.

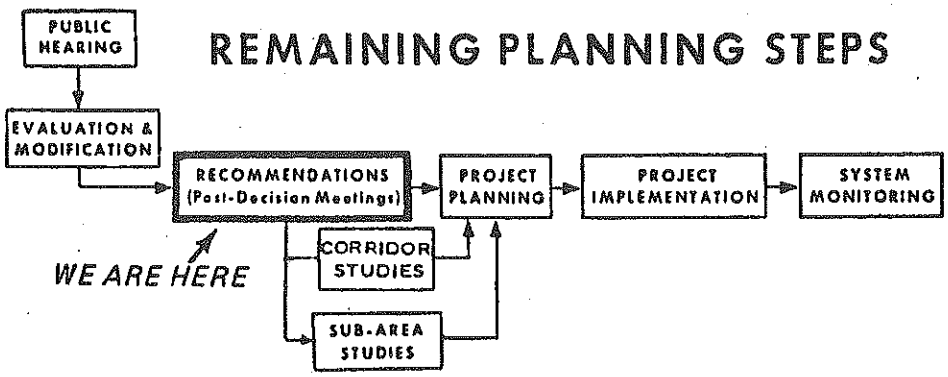

REMAINING PLANNING STEPS
PUBLIC HEARING
EVALUATION & MODIFICATION
RECOMMENDATIONS (Post-Decision Meetings)
PROJECT PLANNING
PROJECT IMPLEMENTATION
SYSTEM MONITORING
WE ARE HERE
CORRIDOR STUDIES
SUB-AREA STUDIES

EXHIBIT 36

SUB-AREA STUDIES

One recommendation of the Regional Study was to begin planning concentrated efforts in one or more geographic areas of the region. These Sub-Area Studies are necessary when an area contains several potential modal projects that could influence one another. In these instances, a sub-area analysis will be performed to test alternative solutions and identify specific parts of each modal network which will require project initiation.

Sub-Area Studies interrelate with regional studies but usually emphasize the special transportation needs of a particular community. Therefore, a stronger community involvement is reflected in the multi-modal transportation plans developed for the area.

These studies also include a refinement of various social, economic, and environmental impacts associated with various transportation alternatives and lay the groundwork for subsequent project planning steps.

CORDIDOR PLANNING

Where a transportation system must be relocated or major problems are anticipated prior to development at project planning, a corridor study is intiated. The corridor study area has specific beginning and ending points, but varies in width to include the total area of all possible alternative routes. Alternatives within the corridor are studied and the recommendations include the best, or combination of the best alternatives.

PROJECT PLANNING

As shown in the diagram, project planning can be recommended from either the Sub-Area Study, Corridor Study, or directly from the Regional Study. The latter situation occurs when project needs are identified which would not likely involve another mode or another facility of the same mode.

Project planning consists of performing detailed studies on a specific part of a transportation system. Realistic alternatives for solving an identified problem are analyzed, with the most appropriate alternative being recommended for implementation.

Highway projects represent the most complex form of project planning, especially where new locations are being considered. As a result, additional highway corridor, alignment, and design studies are required as a logical sequence in the project planning stage.

Project planning efforts for other transportation modes are usually not as involved since they have fewer alternatives to consider. At the present time, several modal projects in the region are being planned. The Regional Study will lend support to these projects since they conform with identified transportation problem areas.