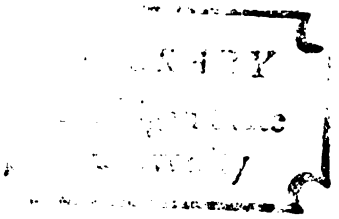
AN INTERCITY RAIL PASSENGER PLAN FOR THE STATE OF MICHIGAN

THESIS FOR THE DEGREE OF M. U. P.

MICHIGAN STATE UNIVERSITY

JAMES PAUL WARNKE

1975



ABSTRACT

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By

James Paul Warnke

The railroad system in the United States is currently in a state of flux. From a historical perspective it may be said that deterioration and lack of emphasis have characterized the industry, especially the passenger system, while freight traffic has also experienced problems. For a significant period of time these events were allowed to go unchecked, but the recent energy crisis has brought the realization that a balanced transportation system is necessary if we are to most efficiently utilize our resources. In this same vein, it was determined that the railroads would play a significant role in the restructuring of transportation priorities and legislative actions taken in this decade have reflected these feelings.

Rail passenger services have been greatly affected by this process. Amtrak, which was created in 1970, was a huge step forward in the rehabilitation of the nation's rail passenger network. Further legislative action, however, placed a greater initiative on individual states in determining their role in the upcoming revitalization. The 403-B Amtrak provision, in which the states could contract with Amtrak for desired rail passenger service by agreeing to pay two-thirds

of the yearly operating loss, helped increase the nationwide service. Recently, rail continuation subsidies (aid to enable states to operate needed lines which were recommended for abandonment) were designated as being available only to those states who prepared a comprehensive state rail plan.

The State of Michigan has been integrally involved in the process. They currently aid in the operation of three routes under the 403-B provision and have reacted to legislation by designating some $60,000 for the creation of a statewide rail plan. It is from these developments that this paper has arisen. Given the fact that there is a need to develop a state rail passenger plan, this paper will attempt to devise such a system.

The report will inventory existing passenger operations within Michigan and point out possible areas of strengths and deficiencies in the present system. From the inventory of such variables as property, social, economic and political factors, areas deserving future service shall become evident. Current legislation shall also be considered, including analysis of the United States Railway Association's Preliminary System Plan and the recently released State Rail Planning Needs Study issued by the Michigan Department of Highways and Transportation.

The USRA Plan, although being prepared as basically a freight-oriented report, has definite connotations for passenger operations in terms of lines being analyzed for possible abandonment, recommendations for passenger route extensions

and, implications for funding procedures. The State of Michigan Report is a conceptual document which is also freight-oriented, but analysis of passenger sections allows one to decipher the scope and direction in which the State views the future of passenger services.

Through a combination of the results of analysis on the previous data, plus various limitations given in the forms of policy objectives, derived by the author, a final Michigan State rail passenger plan is proposed in this report.

Despite the fact that the State of Michigan has a moderately extensive passenger rail system in existence, the plan recommends an extended network, replete with long-range alternatives for implementation. It is held that this plan provides the optimum passenger service for the State and necessitates political and economic commitment from both the state and federal levels. Although the findings presented by the final plan of this report differ with those reported by the State of Michigan Department of Highways and Transportation, in their conceptual report, it is hoped that data presented in final plan form within this document will be helpful in the final determined State Plan.

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A THESIS

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This thesis is dedicated to my parents, Joseph and Lucille Warnke, whose constant aid and support facilitated fulfillment of my educational ambitions.

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The writer wishes to acknowledge several people, without whose assistance, the preparation of this thesis would be impossible. Professor Donn L. Anderson, who first suggested this possible area of study and was a continual source of contribution throughout the entire process. Several staff members of the Michigan Department of State Highways and Transportation who unselfishly gave time for interviews and referrals. And finally, my wife Arlene, who, aside from assisting in graphics and editing, rendered assuring comfort and endured many inconveniences during a difficult period.

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Introduction

A century ago the American railroad system was the most viable and profitable transportation form nationwide, in terms of both passenger and freight movements. In a relatively short period of time, however, our rail system has declined to the point where its very existence as a transportation mode is threatened. The competing modes of highway and air travel had developed such comprehensive, low cost networks that utilization of a mode characterized by unattractive fares, poor rolling stock quality, little or no track maintenance, poor on-time performance rates and a rising accident rate seemed absurd.

A recent turn of events, however, has made even several of the railroad's severest critics turn back to the rail system in an attempt to find an answer to the transportation crisis facing our country today. As this crisis developed, and the severity of the situation became clear, it also became apparent that this country could not allow its railroads to fade into oblivion. Since this awakening, steps have been taken to revitalize our rail system to the point where it may once again contribute significantly to a nationwide transportation system.

The first steps in the awakening process came about close to the time when the Pennsylvania Railroad, the largest in the country, let it be known that because of the cumulative effects of the ills previously described, it was in perilous financial straits. This paralleled a similar situ-

ation in the New York Central Railroad and a merger between the two endangered companies was approved after much debate. As a result of this situation, which was by no means an isolated instance, especially for railroads in the Northeast, a group of Senators led by Vance Hartke (Democrat from Indiana) and Lowell Weicker (Republican from Connecticut) introduced a bill to the Committee on Commerce termed the Essential Rail Services Act of 1973. The purposes of the Act were to designate a national network of essential rail lines, to require minimum standards of maintenance on such lines, to create a corporation to acquire and maintain rail lines in the Northeast, and provide financial assistance for rehabilitation of rail lines and other purposes.[1] Congressional hearings were held on February 28 and March 2, 1973, regarding this approach to the problem, and a large and diverse number of oral and written statements were submitted at this time.

By the time the hearings resumed in late May and early June of 1973, the members of the Committee were aware that the situation was far more widespread than previously anticipated. Many different plans and proposals had been offered by numerous groups and individuals, and it was clear that other legislation on matters such as the Freight Car Bill and

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[1] United States Senate, Committee on Commerce, Northeast Railroad Transportation Crisis: Hearings before the Subcommittee, Serial Number 93-8, Part I, (Washington: U.S. Government Printing Office, February 28 and March 2, 1973), p. 3.

the Surface Transportation Act of 1973 would be closely related to any Northeast Rail Bill.[2] Therefore, it was decided to postpone further hearings in order to concentrate on studying the various plans and proposals being offered to the Committee.

As a result of these developments, the Regional Rail Reorganization Act of 1973 came into being. Originally Public Law 93-236 of the Ninety-Third Congress, enacted January 2, 1974, the Act attempted to "authorize and direct the maintenance of adequate and efficient rail services in the Midwest and Northeast region of the United States and for other purposes".[3] It enunciated seven basic ideas:[4]

1) Identification of an adequate rail service system in the Midwest and Northeast Region (twenty states and the District of Columbia);

2) Reorganization of railroads in the Region into an economically viable system;

3) Creation of an Interstate Commerce Commission Rail Services Planning Office (RSPO);

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[2] United States Senate, Committee on Commerce, Northeast Railroad Transportation Crisis; Hearings before the Subcommittee, Serial Number 93-8, Part II (Washington: U.S. Government Printing Office, May 30, 31, June 4, 15, 21, 22, 1973), p. 255.

[3] United States Congress, House, Regional Rail Reorganization Act of 1973, Public Law 93-236, 93rd Congress, H.R. 9142, (1974), p. 1.

[4] Southeastern Michigan Transportation Authority, "SEMTA Fact Sheet", SEMTA Publication, (November), 1973, p. 4.

4) Establishment of the United States Railway Association USRA);

5) Inception of the Consolidated Rail Corporation (Conrail);

6) Assistance to the States and local and regional transportation authorities for the continuation of local rail services threatened with cessation;

7) Provisions of necessary Federal financial assistance at the lowest possible cost to the general taxpayer.

Thus, the ground was laid to attempt an overall financial and physical rehabilitation of rail carriers in the region. Of particular concern were those companies considered bankrupt (8 companies, 27,181 miles operated). Step five within the Act created Conrail, a unified profit-seeking corporation consisting of all bankrupt railroads in the Region. It was envisioned that Conrail would merge and then rehabilitate the carriers, and by eliminating redundant service, establish itself as an economically viable company. Conrail was responsible for: 1) the operation and modernization of properties transferred from bankrupt railroads, 2) negotiating agreements with Amtrak covering passenger properties, and 3) offering employment to workers of the bankrupt railroads, as well as negotiating new working agreements with unions.

The next, and possibly most controversial, step in this ongoing process came in February of 1974, when the U.S. Department of Transportation, executing one of its prime responsibilities under the Act, issued a two-volume Northeast and

Midwest regional rail report. The report was a comprehensive attempt to demonstrate the various problems concerning the railroads, as well as to give a basic description of the existing system and to identify/recommend areas where service should be retained. Within the recommedations for future service, however, was a section enumerating "potentially excess" rail lines, which either were not used currently or duplicated other existing services. In all, 61,184 total miles were studied, with about twenty-five percent (15,575) identified as "potentially excess".[5] The report was misunderstood by many companies and individuals, who interpreted these as lines doomed for abandonment. A great furor arose concerning what was considered to be an excessive reduction of services.

The greatest benefit of the D.O.T. Report--indeed of the entire Rail Reorganization process--was the public awakening aroused by the proposals. The idea that the Federal Government, through its various agencies, was attempting definitive action to solve the rail crisis caused the states and other vested interest groups to realize that prompt action was required if they were to have a meaningful input into this process. Statewide interest groups, such as farming concerns and other industrial elements, exerted pressure on the various state legislative and transportation-related bodies to react to these reports and attempt to alter plans which might seriously curtail rail services. Many smaller areas, which were

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[5]United States Railway Association, Preliminary System Plan for Restructuring Railroads in the Northeast and Midwest Region, (February, 1975), p. 3.

experiencing a slowdown in existing rail services or volumes handled by rail, nonetheless had a valid need for such services and could demonstrate the extent to which rail services affected them. In other cases, possible rail abandonments would have serious negative impacts upon many social and economic variables, which were not readily apparent in the cursory D.O.T. Report.

The legislative framework of the Act itself also provided stipulations for state involvement and participation in the reorganization. Title IV of the Act provides for Federal-aid assistance to be matched by the States for the continuation of local rail services. According to the Act:

> Each State in the region is entitled to an amount for rail service continuation subsidies from fifty per centum of the sums appropriated each fiscal year for such purpose in the ratio which the total rail mileage in such State, as determined by the Secretary and measured in point to point length (excluding yard tracks and sidings), bears to the total rail mileage in all the States in the region.[6]

This was particularly important in regard to the potentially excess lines as designated in the final reorganization plan. In lieu of having these lines abandoned, there were several available options open to the States. The States, individual railroad companies, or Amtrak would all be given options to purchase rights to segments designated for abandonment. The States would also be allowed to purchase these segments and, could retain them as public open space areas for recreational

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[6]United States Congress, House, Regional Rail Reorganization Act of 1973, Public Law 93-236, 93rd Congress, H.R. 9142, (1974), p. 26.

purposes or as possible future rail connections.

In order to qualify for these Federal grants, however, the State had to establish a plan for rail transportation and local rail services, administered and coordinated by a designated State agency. Thus, through the utilization of its most desirable element, monetary assistance policy, the Federal government insured State participation in the reorgaization process and enhanced the possibility of creating a truly unified, comprehensive national rail network.

The relationship of this process to passenger service in the State of Michigan is multi-faceted. An extensive network of rail lines traverses the entire State; Upper and Lower Peninsulas, with a variety of ownerships. Throughout the last century, various routes of inter and intrastate passenger routes have extended throughout the State, connecting numerous cities. By 1970, however, this statewide passenger system had been cut to a bare minimum, partly by those conditions of neglect referred to earlier and also because the rail companies realized that there was little profit to be gained by passenger service, especially in light of the dilapidated condition of their rolling stock. Thus, they were unwilling to invest further expenditures to increase the attractiveness of their passenger lines and began an active campaign of discouraging rail travel.

The coming of the energy crisis combined with congestion and high costs in other modes gave rise to the renewed interest in a national rail passenger system of which the State of

Michigan would be a most viable part. The past two years have witnessed the beginnings of a statewide system in rail passenger service, the scope and extent of which will be determined by the actions of three agencies: the National Rail Passenger Corporation (Amtrak), the State of Michigan Department of Transportation (under the leadership of the Passenger Rail Division), and the Southeastern Michigan Transportation Authority (Semta: a six county regional planning agency based in Detroit).

Amtrak was conceived under the Rail Passenger Service Act of 1970 which charged the Corporation with the twofold responsibility of organizing and managing the national rail passenger network of intercity trains under contracts with the various railroads. The legislation defined three basic purposes as the stated objectives and philosophy of this new quasi-public corporation:[7]

1) Provide modern, efficient intercity rail passenger service within the basic rail system of the nation.

2) Employ innovative operating and marketing concepts to develop fully the potential of modern rail service in meeting intercity transportation needs.

3) Strive for operation on a "for profit" basis.

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[7]National Railroad Passenger Corporation, Background on Amtrak, (September, 1974), p. 5.

> The railroads were given an option to join Amtrak upon payment of the equivalent of one year's avoidable loss on passenger service, payments to be made over a three-year period. Railroads that did not join were required to continue all of their passenger service without charge until 1975. The incentive was sufficient to persuade all but three intercity passenger railroads to join. In return for their payments, the joining railroads receive either common stock in the corporation or an immediate tax deduction for their amounts paid.[8]

The Act also required the Secretary of Transportation to designate a basic system of intercity passenger trains subject to the following criteria:[9]

1) Market size - measured by total population of cities along route and total air and rail passenger traffic between major cities on route.
2) Physical characteristics of route and track; measured by route miles, average authorized train speed, scheduled running time and freight traffic.
3) Current train ridership measured by passenger miles per year, passenger miles per train mile and number of trains per week.

Other factors evaluated included: current operating costs on route, relationships of route to other city pair route segments, mail revenue, adequacy of other travel modes on routes to be eliminated and service considerations.

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[8]Anthony Haswell, Amtrak: A Critical Appraisal from the Consumer's Viewpoint, Transportation Research Forum Thirteenth Annual Meeting, (1972), p. 114.

[9]National Railroad Passenger Corporation, Background on Amtrak, (September, 1974), p. 8.

On May 1, 1971, the Corporation began management of a system operating between twenty-one city end-points designated by the Department of Transportation. Thirteen railroads had signed contracts with Amtrak, while three others: the Denver and Rio Grande Western, the Rock Island and the Southern Railway, all declined to participate. Services were to be extended in the following months under three provisions, inherent in the Act, which could be initiated by one of several parties having a vested interest in that particular service extension.

Under the Act, the Corporation must designate one experimental route per year which must be continued for at least two years, after which time it may be discontinued if operating losses or lack of passenger support demand such action. Provisions were also made for participation by states or regional agencies in service not included in the basic Amtrak network. Under section 403-B of the Act, such extensions of service over various routes desired by the state or regional agency will be instituted if that agency agrees to pay two-thirds of the annual operating deficit. A final extension possibility came into existence when, on June 22, 1972, Amtrak negotiated agreements with the governments of Canada and Mexico for international connecting passenger rail service.

After a rather stormy beginning, characterized by poor available rolling stock, hesitant patronage, freight conflicts, poor on-time performances, poor route selection and dilapidated right-of-way, Amtrak has come a long way in improving

each of these components and is an improvement over the passenger system in pre-Amtrak years, when the railroads were actively attempting to discourage public usage. However, despite gains in these individual areas, there is much to be accomplished in every aspect involved in the overall system; particularly if the final product is to be a rational comprehensive nationwide network.

The second party involved in the state's rail passenger system is the Southeastern Michigan Transportation Authority.

> SEMTA was created by the Michigan Legislature in 1967 to provide a comprehensive and coordinated system of public transportation for the people of the six counties of Macomb, Monroe, Oakland, Saint Clair, Washtenaw, and Wayne. The area comprises nearly 4,000 square miles, with more than 4.6 million residents and includes more than 200 other cities, villages and townships. SEMTA is broadly empowered to plan, acquire, construct, operate and contract for public transportation facilities within its area.[10]

Although the Authority was basically organized to manage the metropolitan bus system, it has recently become important in statewide rail passenger service because it has created a division within the agency which is involved with intercity and commuter rail lines radiating from the Detroit region. SEMTA is a state funded agency and thus responsible to the state, but in a statewide rail system the regional agency is an important element in its ability to present regional interests and concerns, especially since the state's largest traffic

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[10]Southeastern Michigan Transportation Authority, "SEMTA Fact Sheet", SEMTA Publication, (November, 1973), p. 1.

generation lies at the focal point of this region.

The final agency involved is the State Department of Highways and Transportation in Lansing, in particular, the Rail Passenger section. This is perhaps the most important of the parties involved because it carries the main responsibility to insure that adequate statewide service is provided. Given the limited incentives of Amtrak to provide an intrastate route totally supported by the Corporation, combined with such measures as the section 403-B subsidies and the state plan requirements for federal aid; it is clear that if comprehensive statewide rail passenger networks are to be created, then it is up to the state agency to assume responsibilities for the formulation and implementation of such a plan. It is from these general concepts that this thesis originates.

The objective is to propose an optimum state intercity rail passenger plan for rail passenger service in the state of Michigan. The fact that the state is currently attempting to derive a systems plan for freight and passenger rail travel, clearly demonstrates the need and validity of such a plan and the State effort shall be utilized as a supportive element to the final plan derived by this thesis, but is in no way directly related to the findings and recommendations of my final plan.

The paper will utilize an inventory, analysis, final plan with alternatives type formula in deriving the final product. All three related parties: Amtrak, SEMTA and the Michigan State D.H.A.T., will be consulted and their inputs and

responsibilities defined in relation to all aspects of the final hypothesis. The hypothesis is that: given the demonstrated need for a statewide passenger rail paln, such a plan, with alternatives and a developmental program may be constructed relative to the needs and constraints of involved agencies.

It is acknowledged that there are a number of limitations in the evolution of a study of this nature. Because of the scope and extent of the topic involved in this study, the plan shall concern itself with Michigan's Lower Peninsula only, although references will be included regarding the Upper Peninsula in overall statewide figures and statistics. Another limitation involves the changing and current nature of the subject itself. Rail reorganization and rehabilitation policy is still in the formulation stage at the federal level; thus, this plan may be subject to various legislative decisions presently not determined. A final and perhaps most important limitation involves the quality and availability of rail passenger data within the state. Although this problem is not limited to Michigan alone, the fact remains that data concerning track conditions, operating agreements, previous rail ridership statistics and numerous other items have been poorly documented, if indeed, documented at all. Given the previous historical dropback it is apparent that since the railroads had been downgraded in the eyes of the public and the government, there was little or no effort to keep reliable records. Such documentation was in the hands of the indivdual rail companies and,

given their ambivalent attitude towards passenger service, especially in the last decade, it is not surprising that this data problem exists.

The study will be organized in terms of the typical planning process, dividing the development of the final plan into three major sections. The first step involves an inventory of existing rail passenger systems and facilities within the state concerning an analysis of the following variables: property, economic, social-recreational and political. Methodologies and criteria for various plan decisions will be made apparent during this discussion. The second section will attempt to relate the plan formulation process to the various available documents developed by the United States Railway Association and the State of Michigan Department of Highways and Transportation. Discussed will be the USRA Preliminary System Plan, Michigan section and the Michigan Railroad Needs Study, a planning report utilized as a primary step in the development of a state rail plan. The final section will present the final plan with alternatives and an outline of the anticipated implementation process. In this section responsibilities will be assigned to the various federal, state and regional agencies concerned in the actual plan layout.

Chapter I Inventory

A) Property

The State of Michigan has 6,614 miles of railroad trackage which may be broken down in the following form:*

TABLE 1

Upper Peninsula	Main Track Miles
1) Chciago and North Western Railway	467.96
2) Chicago, Milwaukee, St. Paul and Pacific Railroad	183.68
3) Copper Range Railroad	70.96
4) Escanaba and Lake Superior Railroad	66.72
5) Lake Superior and Ishpeming Railroad	134.53
6) Manistique and Lake Superior Railroad	38.47
7) Marquette and Huron Mountain Railroad	23.57
8) Soo Line Railroad	655.58
Lower Peninsula	
1) Ann Arbor Railroad	287.54
2) Boyne City Railroad	7.24
3) Cadillac and Lake City Railroad	21.17
4) Chesapeake and Ohio Railroad	1,463.68
5) Detroit and Mackinac Railway	232.05
6) Detroit & Toledo Shore Line Railroad	46.67
7) Detroit, Toledo and Ironton Railroad	117.14
8) Grand Trunk Western Railroad	834.88
9) Ludington and Northern Railway	4.76
10) Penn Central Railroad	1,890.19

*from Official Railway Map of Michigan, Michigan Public Service Commission.

TABLE 1 (Cont'd.)

11) Norfolk and Western Railway	119.82
12) Port Huron and Detroit Railroad	19.08
13) Delray Connecting Railroad#	3.16
14) Detroit Terminal Railroad#	16.29
15) Wyandotte Southern Railroad#	4.08
16) Wyandotte Terminal Railroad#	4.07

As might be expected, a great proportion of the total trackage lies in the lower section of the Lower Peninsula. Lines do traverse the entire width and length of the state with a certain amount of parallel service being offered. The Detroit Metropolitan area is heavily congested with lines which also include a number of railroad companies which are regionally oriented, that is, restricted to within the Detroit area alone. As from the introduction, Michigan once had a rather viable passenger system which, given the high profit revenues from freight, suffered from an increasing neglect by the various railroads. As the recent financial crises began to adversely affect the state's railroads, what little revenues that were available had to be utilized for necessities such as primary operating expenses and fuel. The result of these procedures was the rapid decline of operating equipment, particularly, trackage and roadbed. The following list demonstrates the maximum allowable operating speeds over the various classes of track as prescribed by the Department of Transportation:[1]

Detroit Metropolitan Area Railroads

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[1]Federal Railroad Administration, "Continuation of Local Rail Services", U.S. Department of Transportation, (April, 1974), p. 26757.

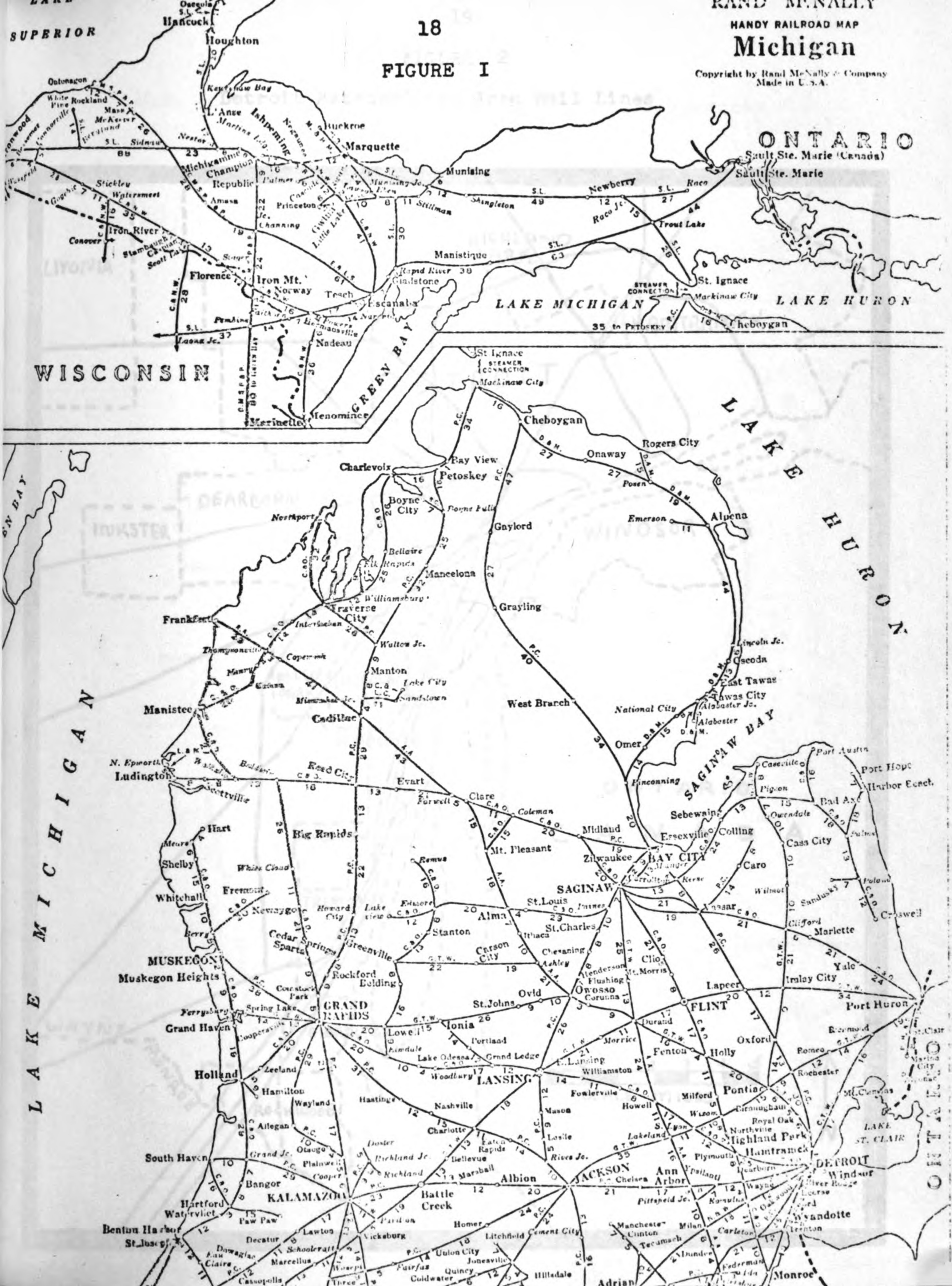
TABLE 2.

	Maximum Freight Speed	Maximum Passenger Speed
Class 1 Track	10 mph	15 mph
Class 2 Track	25 "	30 "
Class 3 Track	40 "	60 "
Class 4 Track	60 "	80 "
Class 5 Track	80 "	90 "
Class 6 Track	110 "	110 "

The amount of deterioration that has resulted from the previous years' neglect may be demonstrated by the fact that over fifty percent of the total trackage in the Lower Peninsula is considered to be lower than Class 1. This total also includes some lines that are generally considered to be mainlines for freight service.

The Department of Transportation, viewing such conditions as poor trackage, decreasing service and certain amounts of parallel routes was compelled in their January, 1974 Report, to designate some 2,275 miles of Michigan trackage as "potentially excess". This was 37 percent of the total Michigan trackage, the highest percentage of any state examined within the report. The report suggested that all rail lines in the northern section of the Lower Peninsula were excess, with the exception of the C and O line as far north as Manistee; and the entire Detroit and Mackinac Railroad between Bay City and Cheboygan. Proposed abandonments in Southern Michigan were selectively chosen in the hopes of ending duplicative routes and multiple railroad pickup and delivery services that were

FIGURE I


RAND McNALLY
HANDY RAILROAD MAP
Michigan
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ONTARIO
WISCONSIN
SUPERIOR
LAKE MICHIGAN
LAKE HURON
GREEN BAY
SAGINAW BAY
LAKE ST. CLAIR
Hancock
Houghton
Ontonagon
Marquette
Ishpeming
Munising
Newberry
Sault Ste. Marie (Canada)
Sault Ste. Marie
Trout Lake
St. Ignace
Mackinaw City
Cheboygan
Manistique
Escanaba
Gladstone
Iron Mt.
Norway
Florence
Iron River
Menominee
Marinette
Petoskey
Charlevoix
Bay View
Boyne City
Gaylord
Onaway
Rogers City
Alpena
Mancelona
Grayling
Traverse City
Frankfort
Manistee
Ludington
Cadillac
Manton
West Branch
Oscoda
East Tawas
Tawas City
Omer
Pinconning
Reed City
Evart
Clare
Big Rapids
Mt. Pleasant
Midland
BAY CITY
SAGINAW
Hart
Shelby
Whitehall
Fremont
Newaygo
MUSKEGON
Muskegon Heights
Grand Haven
GRAND RAPIDS
Holland
Alma
St. Louis
Ithaca
St. Charles
Owosso
Corunna
Flushing
FLINT
Lapeer
Port Huron
Ionia
Lowell
LANSING
Fenton
Holly
Pontiac
Royal Oak
Highland Park
Hamtramck
DETROIT
Windsor
Wyandotte
Monroe
Ann Arbor
Ypsilanti
JACKSON
Albion
Battle Creek
KALAMAZOO
South Haven
Benton Harbor
St. Joseph
Charlotte
Hastings
Allegan
Adrian
Hillsdale
Coldwater
Bad Axe
Cass City
Caro
Vassar
Sebewaing
Port Austin
Port Hope
Harbor Beach
Yale
Marlette
Imlay City
LAKE MICHIGAN

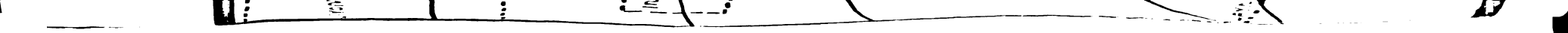
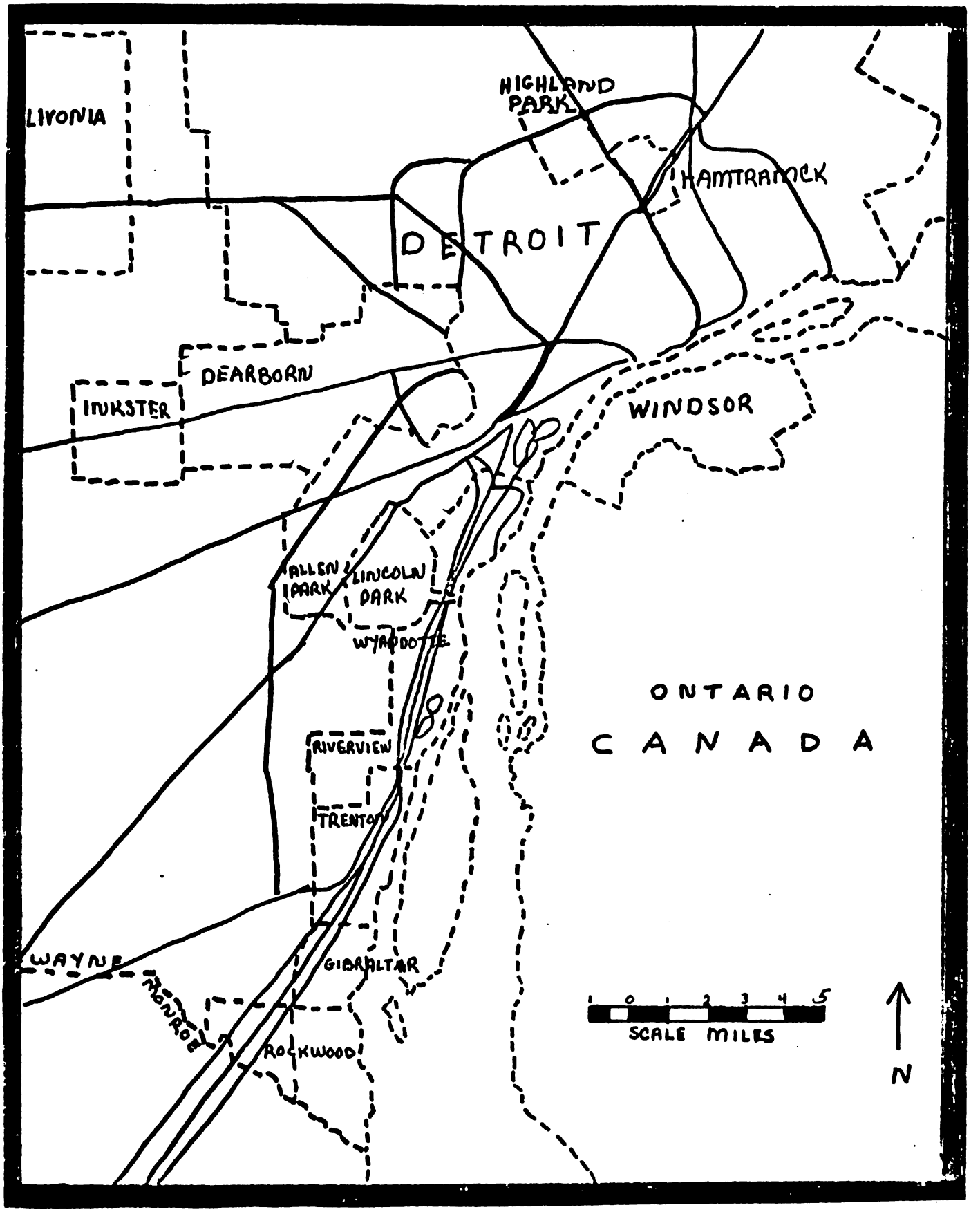


FIGURE 2

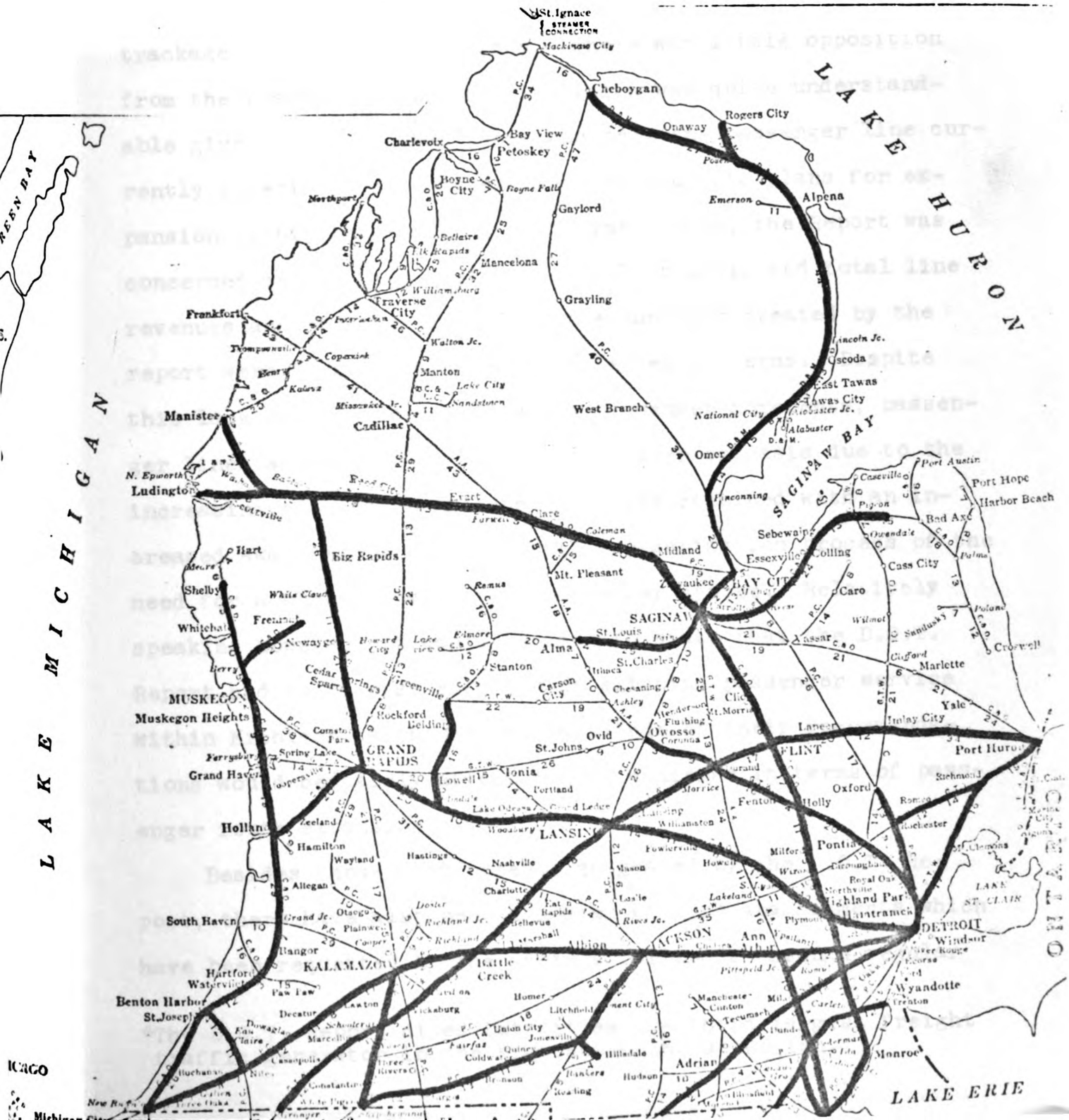
Detroit Metropolitan Area Rail Lines



U.S

FIGURE 3

U.S. D.O.T. State Rail Lines Not Potentially Excess



essentially local in nature. Citing the heavy overall freight density within the Detroit area,* most of the metropolitan rail lines would be retained.

The oeverall reaction to the D.O.T. Report was one of general concern, due particularly to the high percentage of trackage proposed to be excess. There was little opposition from the passenger point of view which was quite understandable given the fact that there was only one passenger line currently in existence and there were no specific plans for expansion within the state at that time. Thus, the Report was concerned mainly with freight ton-mile traffic and total line revenues and practically all of the concerns created by the report were in terms of freight oriented concerns. Despite this lack of real concern towards passenger movements, passenger lines were later to receive a greater emphasis due to the increasing effects of the energy crisis combined with an increased awareness within the rail reorganization process of the need for a comprehensive rail passenger system. Relatively speaking however, it would be safe to state that the D.O.T. Report had no adverse effect upon existing passenger service within Michigan, although the magnitude of their recommendations would certainly affect future concerns in terms of passenger route expansion.

Besides those abandonments suggested by the D.O.T. Report, there have also been a number of line abandonments which have been requested by the various railroads through regular

*The D.O.T. Report cited Detroit as the third largest freight traffic generator in the Midwest-Northeast Region.

Interstate Commerce Commission procedures. In several instances, these abandonments are identical to segments which are designated potentially excess by the Report and in the vast majority of cases, these abandonments are in the primary status of being applied for and not yet approved. The fact remains however, that these abandonments have a good chance of approval and must be examined in terms of their potential value regarding any future passenger rail network. Once an abandonment has been approved, options are readily available to remove trackage and roadbed, as well as selling the rail right-of-way for another use. Naturally, once this process takes place, costs of restoring service to the area, either by negotiating to reacquire the property rights or by establishing a new line in a parallel area, have risen immeasurably.

There is a listing of abandonment applications and/or approvals within the state of Michigan during the last few years in the appendix, while the following map graphically illustrates these areas.

The majority of these abandonments occur on lines which have freight related service only, but the magnitude of these abandonments, in terms of total miles and geographical distribution, will certainly have far-reaching effects upon possible future passenger services. These abandoned lines must be given low priority in determining new network routes, given the increased investment necessary to restore these lines to viable service levels.

Present passenger service within the state may be divided

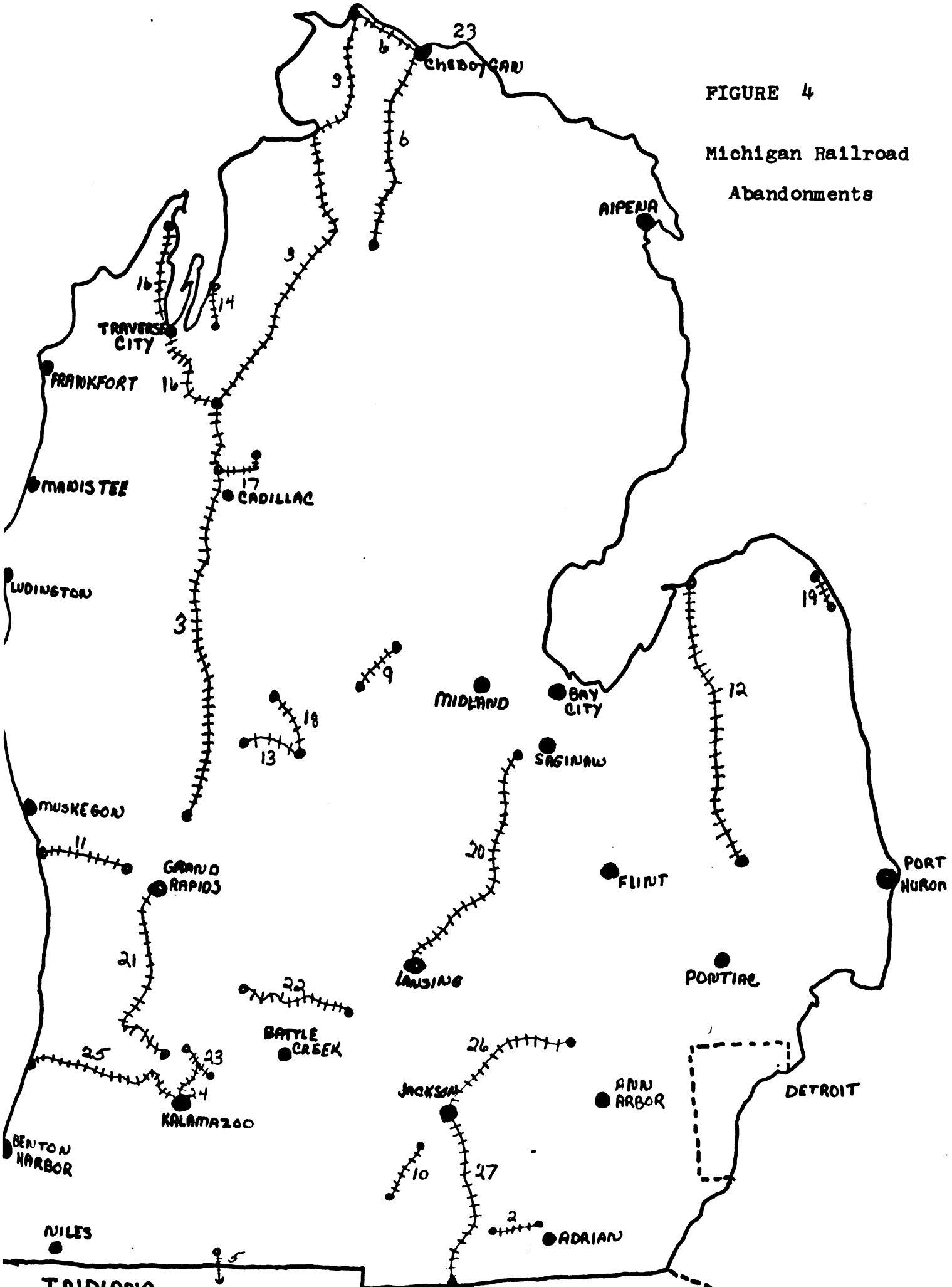


FIGURE 4

Michigan Railroad Abandonments

into two sections: intercity and commuter. The first attempt at restoring service was initiated by Amtrak when Detroit was named among the twenty-one major cities designated by the Secretary of Transportation for rail passenger service. On May 1, 1971 service began on the short-run route between Chicago and Detroit. The service entails two trains per day each way running along some 283 miles of Penn Central trackage, 217 of which lies within the state of Michigan. After leaving Detroit other station stops along the route are: Ann Arbor, Jackson, Battle Creek, Kalamazoo and Niles. The route is entirely financed by Amtrak and, although it still runs at a deficit has shrunken in recent years, as was anticipated by Amtrak in their first annual report.[2]

TABLE 3.

Actual Fiscal Year 1973

Revenue - $ 1.2

Expense - $ 2.2

Deficit - $ 1.0

Planned Fiscal Year 1974

Revenue - $ 1.4

Expense - $ 2.9

Deficit - $ 1.5

Planned Fiscal Year 1975

Revenue - $ 2.7

Expense - $ 3.6

Deficit - $ 0.9

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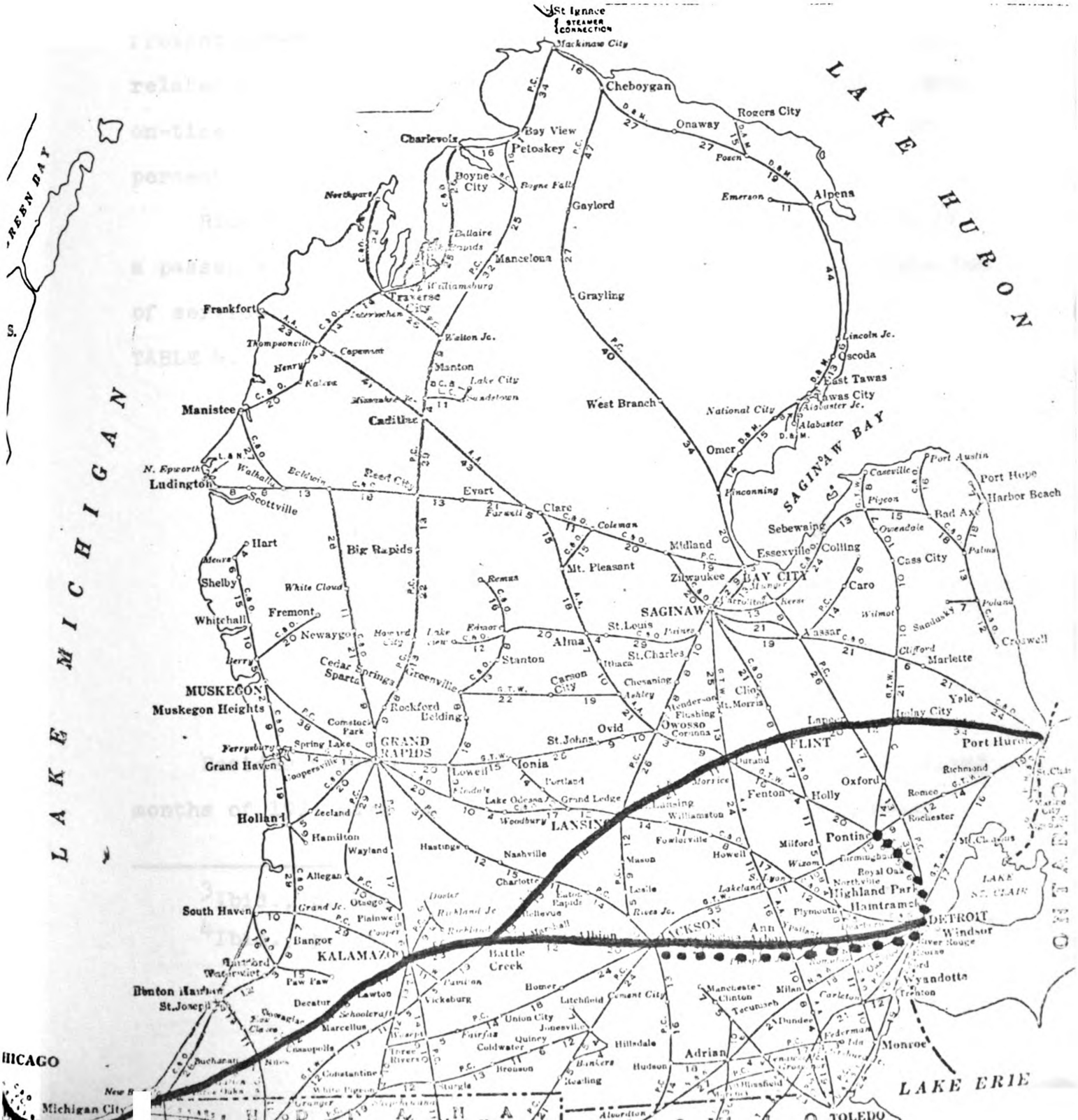
[2]National Railroad Passenger Corporation, Amtrak Annual Report: 1973, (February, 1974), p. 5.

FIGURE 5

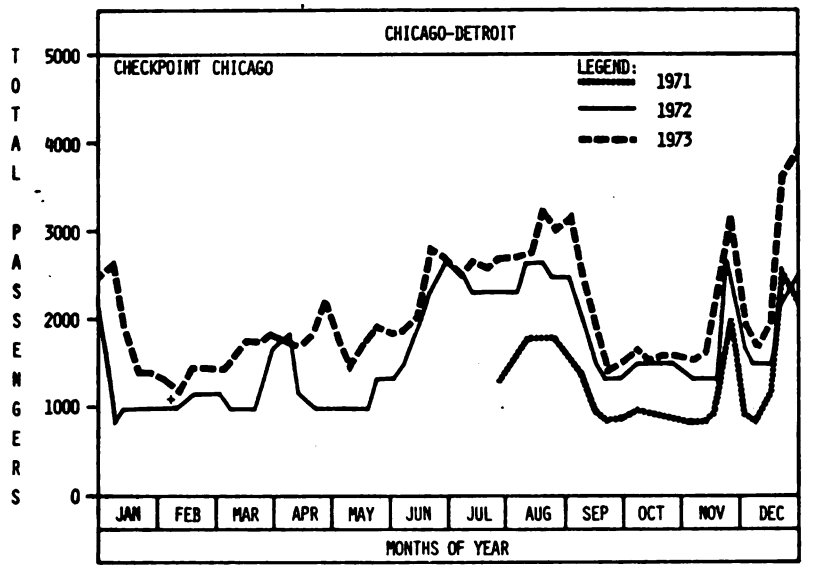
Existing Michigan Passenger Routes



Amtrak on-time performance for the Detroit-Chicago route fell from 91.1 percent in 1972 to 74.4 percent in 1973.[3] A variety of factors may be the cause of this problem. Poor equipment and track maintenance were primary reasons for delays but other items, such as competition with high density freight movements, signal failures and passenger or employee related delays also contributed. However, in the latest year, on-time performance has improved and stabilized near the 80 percent level.

Ridership, another important factor in the evaluation of a passenger line, has been on the rise ever since the inception of service.[4]

TABLE 4.



+PENN CENTRAL STRIKE (FEBRUARY 8, 1973).

Besides these statistics, ridership for 1974 and the first months of 1975 have been such that there has been a request

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[3]Ibid., p. 11.

[4]Ibid., p. 55.

for more cars on each trip and an overall increase of trips from two to four per day each direction.

The Detroit-Chicago run has also benefited from an integral commitment from the state of Michigan in terms of stations and marketing. Stations along the line have been upgraded and refurbished so as to provide a reasonable amount of passenger comfort and convenience. Road signs designating location and directions to the various rail stations have been constructed by the Michigan State Department of Highways on all major arterials leading to the rail terminal facilities.

Another indication of the current status of the Detroit-Chicago run may be demonstrated by the fact that it is currently being seriously considered for Turboliner service. The Turboliner is a French-built, high-speed passenger train which has been currently operating in the Chicago-Saint Louis corridor.

> In October of 1974, the Turbo replaced the daily runs of the Wolverine and the Saint Clair, Amtrak's conventional passenger service from Chicago to Detroit. The five-car Turbo, which daily operates between Chicago and Saint Louis, was on a test run to determine if Amtrak's turbine service should be extended there in the spring of 1975. Next spring Amtrak will receive four more Turbos, boosting its Chicago-based fleet to six. Some time prior to the time Amtrak officials must choose a route for the new service.[5]

From all indications from Amtrak thus far, it seems relatively certain that the Detroit-Chicago corridor will be chosen for the Turbo service, a welcome addition indicating a healthy line.

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[5]David Gilbert, "Fast Turbo Tests Detroit Run", The Chicago Tribune, (October 24, 1974), p. 7.

The second intercity passenger route run in the state of Michigan is the Blue Water between Chicago and Port Huron.

> The Blue Water Limited, Amtrak's new Chicago/Port Huron train, started regular revenue service on Sunday, September 15, 1974. The train follows the present Penn Central route of Amtrak's Chicago/Detroit run to Battle Creek where it takes to the rails of the Grand Trunk Railroad to Port Huron. The train is being run as a result of an agreement between Amtrak and the Michigan State Department of Highways and Transportation under the now famous 403-B provision of the Amtrak law. As is required by the agreement, the State of Michigan has agreed to pay 2/3 of the cost of operating the train.[6]

The Blue Water Limited travels some 325 total miles, 259 of which is within the State of Michigan. After leaving Port Huron, other Michigan stops include Lapeer, Flint, Durand, Lansing/East Lansing, Battle Creek, Kalamazoo and Niles.*

The establishment of this service was an important step forward in the movement towards an overall statewide passenger system in that it demonstrated the willingness of the State Department of Highways and Transportation to commit itself financially to rail passenger transportation.

Since this system has been in existence for such a short time there are no statistical data present on its operational status. Through examination of Amtrak press releases and the various testimony presented at the recent Interstate Commerce Commission Hearings on Amtrak service, in early March of this year, the general view on the state of this line is one of

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[6]William Fahrenwald, "The Blue Water Limited", The Fast Mail, 4 (September, 1974), p. 4.

*The Lapeer and Durand stops are minor stops with limited facilities.

optimism. Although there is currently an operating deficit, it is not as great as was anticipated at service inception. On-time performance has been as reliable as the other Amtrak routes (approximately 75 to 80 percent). Ridership has also been greater than was originally hoped for, particularly in the Lansing/East Lansing area. A great deal of credit regarding these achievements was credited to good station location. This is particularly interesting considering the fact that station location was a very controversial issue, so much so, that it caused a lengthy delay in service inception.

It was originally hoped that the Blue Water Limited would begin service sometime in early May of 1974. As was previously noted, service actually began in mid-September of the same year. The problem was the location and creation of a stop in the Lansing/East Lansing area. The controversy centered over the choice between two locations: one, an original rail station, now converted into public use (a restaurant) which was located in the heart of the Lansing business district. The second choice was on a section of the Michigan State University campus, which, although located in an area of less intensive land use, was readily accessible to the large student population and the adjacent highway system. Despite the fact that arrangements had been made to locate in the downtown site, a number of difficulties over the purchase price of the building, plus the increasing awareness of the benefits entailed in the East Lansing location resulted in a reversal of the original decision. A second problem arose when it was realized that the new conceptual

plan for the facility had its direct access channeling passengers over a set of rail lines. The end result of this process however, produced the location that seems best under the limited amount of experience since the run has begun.

A more important point was that the actual commencement of the route was delayed close to five months simply because of problems which could have been more than adequately solved by a reasonable amount of planning. This particular situation is by no means unique in the current restoration of passenger service throughout the country. Stations which are virtually dilapidated, having fallen into disuse many years hence, have been pressed into service in order to care for the needs of rail passenger travel. Although the great proportion of terminals in Michigan are in relatively good shape, the station at Niles is a problem area. Although Niles is not one of the more important stops along the Blue Water route, in terms of passenger volumes, a need exists to provide adequate facilities for rail passengers' needs. At present the station, which was built in the mid-1900's is shuttered and closed, but improvements must be made if Amtrak service in Michigan is to become a viable entity. It would seem that these problems would be corrected in the near future given the overall positive trends of facilities within the state.

Ground was broken for a new terminal at Port Huron in August of 1974. Total project cost, with two-thirds being paid by the State of Michigan Department of Highways, is $223,500. Completion is expected in early 1975. Four other stations on

the Grand Trunk's portion of the Port Huron-Chicago route were upgraded by painting, remodeling, building new platforms and installing train-serving facilities, also with state support.[7]

On October 30, 1974, at the joint request of the states of Michigan and New York and made possible through an agreement with the Canadian government, Buffalo-Detroit (the Empire State Express) service was inaugurated. The Empire State Express was an extension of existing New York-Buffalo service, connecting Detroit with New York via southern Ontario. Because of the advantages this service provided for both states, a unique agreement was reached for funding. The route was to be state subsidized under the 403-B provision with New York, Michigan and Amtrak each paying one-third of the yearly operating deficit. The service was instigated partially because New York connecting service to the west had been previously run through Cleveland and Buffalo. General lack of interest in terms of patronage caused abandonment of the route, but a general desire remained to provide the east-west connection. Thus, the Detroit-Buffalo service is hoped to be the means of fulfilling this desire while also stimulating the necessary level of passengers to insure continuation.

A final proposal should be mentioned, which is a definite planned addition to the Michigan system, to the point where a formal request has been made to Amtrak. The request is for

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[7]National Railroad Passenger Corporation, Amtrak Annual Report: 1974, (February, 1975), p. 19.

connecting service from Port Huron to Toronto, extending the opportunity of establishing a direct Chicago-Toronto route through transferring with the Blue Water. Although little is known on the present status of this request, one might expect approval, judging on decisions on previous requests. There is also the added incentive of expanding international service routes, a point which Amtrak feels is a desirable marketing component. Service will be provided, if approved, through the 403-B subsidy program.

The remaining existing passenger service within Michigan may be considered commuter service operated through the Southeastern Michigan Transportation Authority (SEMTA). In mid 1973 SEMTA entered into a purchase of service agreement with the Grand Trunk Railroad for continued and improved commuter service between Pontiac and Detroit. "Service operates along the Woodward corridor which is one of the most historical corridors in the Southeast Michigan region. It is centered on Woodward Avenue which has long served as the primary access to the hinterland of early Detroit."[8] The commuter service presently operates at the following stations:

Pontiac (Huron Street)

Bloomfield Hills Station (Long Lake Road)

Charing Cross Station (Charing Cross Road)

Birmingham Station (Maple Road)

Oakwood Blvd. Station (12 mile road)

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[8]Southeastern Michigan Transportation Authority, SEMTA's Current Projects, (November, 1973), p. III-B-1.

Royal Oak Station (11 mile road)

Pleasant Ridge Station (10 mile road)

Ferndale Station (9 mile road)

Chrysler Center (Highland Park)

Milwaukee Junction (Grand Blvd.)

Detroit (Saint Antoine)

> There are three trains operated inbound during the morning peak period and three outbound during the evening peak, Monday through Friday, as well as one post peak inbound morning train from Birmingham. Despite heavy competition from surrounding freeway systems, the line currently carries over a thousand passengers per day. The exact numbers vary from day to day depending on the season, day of the week, weather conditions, and special events held within the downtown area. The recent energy crisis has added to ridership, as well as the parallel increased congestion on Interstate 75, the route's main highway competitor.[9]

Trip length between Pontiac and Detroit is 26 miles and the average travel time is 58 to 60 minutes including stops. This gives an average speed of only 26 miles per hour and it is clear that if travel times could be improved, ridership would increase at a significant rate.

SEMTA is currently evaluating projects which will determine to what extent the Grand Trunk commuter line will be improved. With the amount of existing daily work trips within the area (see Tables), it is clear that some method of alleviating the massive congestion involved must be found. In approaching this problem SEMTA states:

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[9]Ibid., p. III-B-1.

FIGURE 6

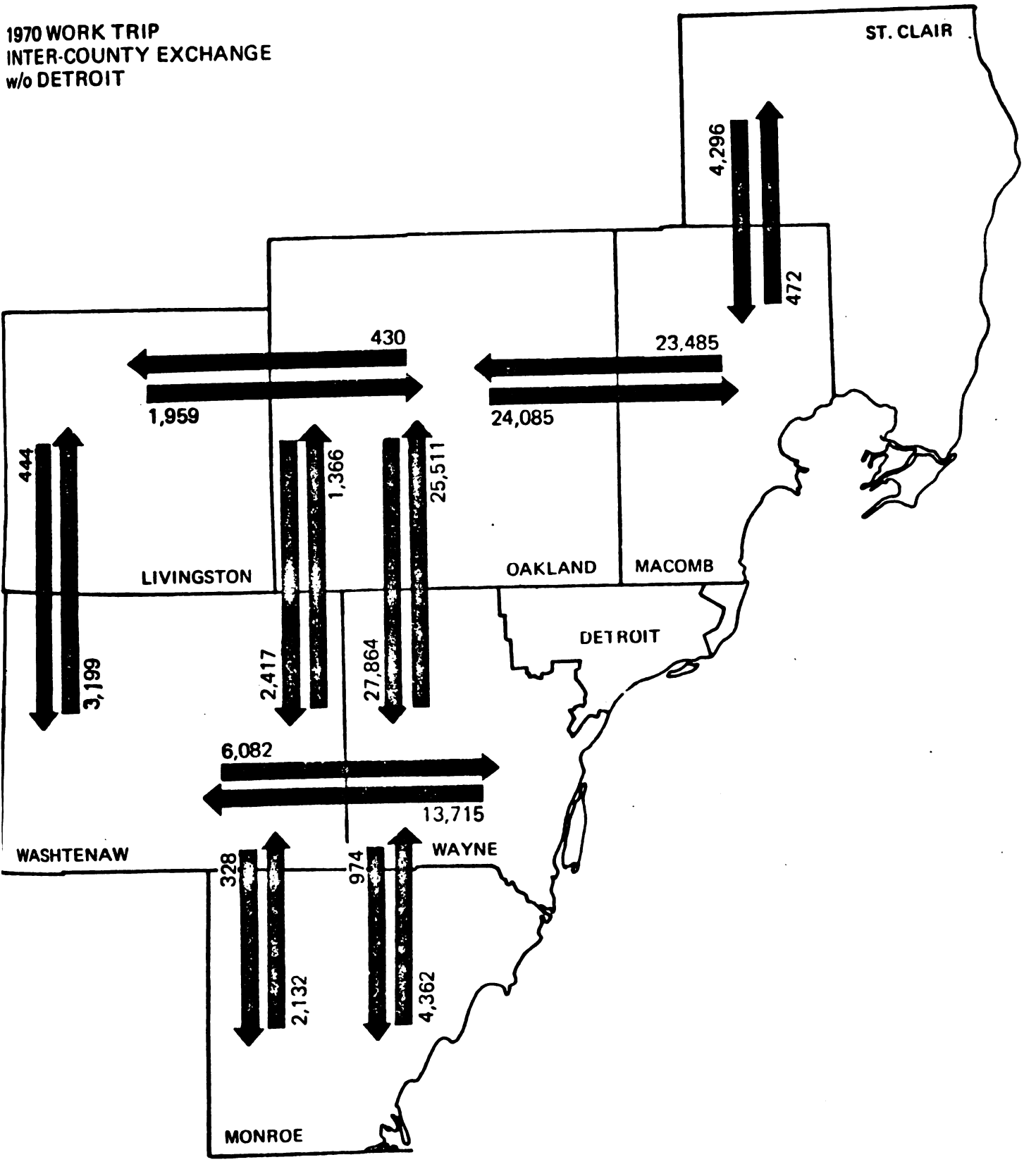
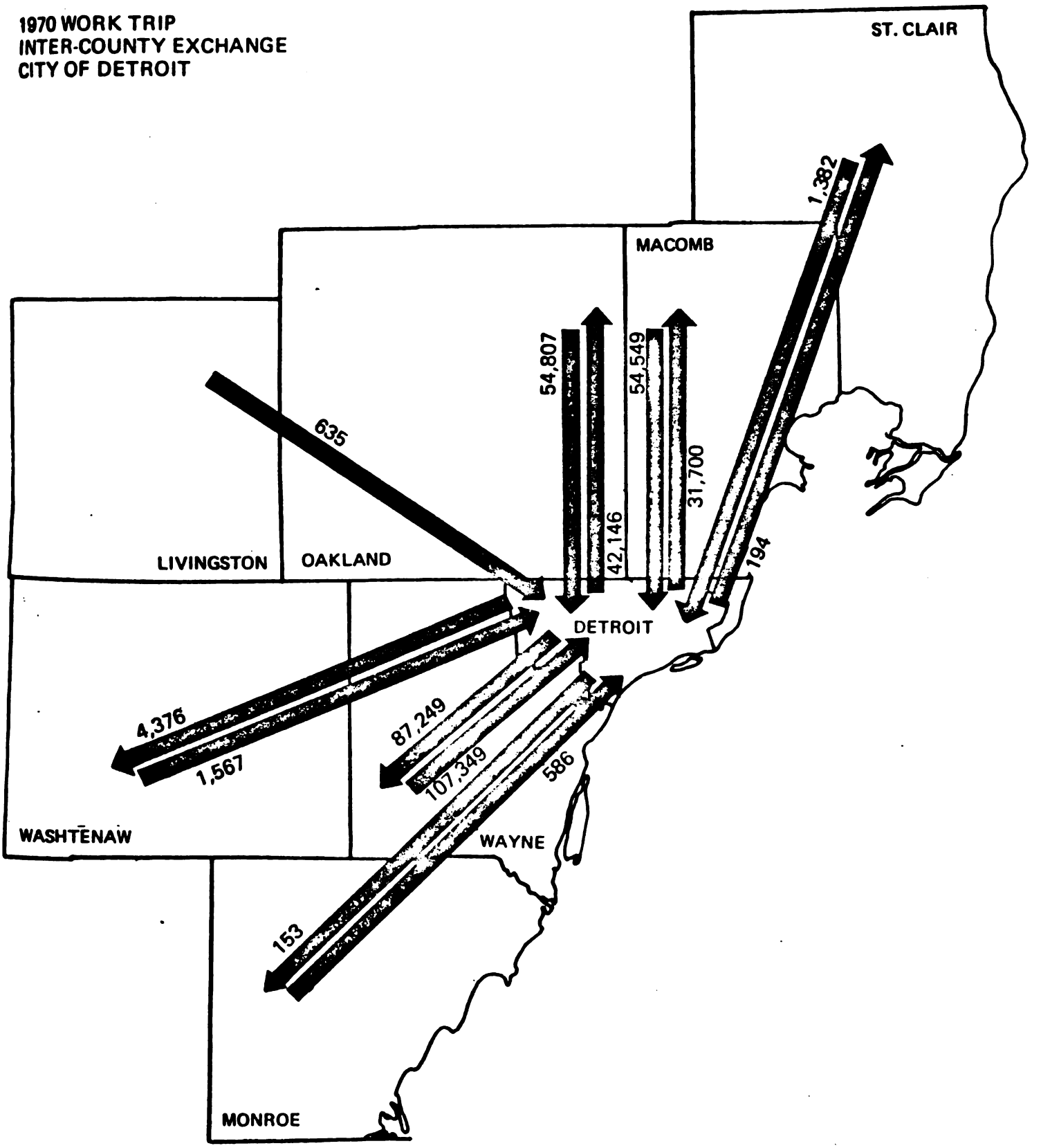

1970 WORK TRIP
INTER-COUNTY EXCHANGE
w/o DETROIT
ST. CLAIR
4,296
472
430
1,959
23,485
24,085
444
3,199
1,366
2,417
25,511
27,864
LIVINGSTON
OAKLAND
MACOMB
DETROIT
6,082
13,715
WASHTENAW
328
2,132
974
4,362
WAYNE
MONROE

FIGURE 7


1970 WORK TRIP
INTER-COUNTY EXCHANGE
CITY OF DETROIT
ST. CLAIR
MACOMB
LIVINGSTON
OAKLAND
WASHTENAW
WAYNE
MONROE
DETROIT
635
54,807
42,146
54,549
31,700
1,382
194
4,376
1,567
87,249
107,349
586
153

> The ultimate objective is to provide a sector of the region's population with a satisfactory choice in the management of their work trips. Additionally, if a significant percentage of the population which travels the Woodfield Corridor by auto switch into transit vehicles, positive changes would take place throughout the urban structure, such as greater transit ridership and consequently a reduction in operating deficits. Increased patronage will have a favorable impact upon traffic congestion and its many ramifications. Loss of time, air and noise pollution, accident probability, stress and strain upon the commuter as well as on the vehicle, and other products of congestion should be reduced if the experiment succeeds and more people adopt public transportation.
>
> Increased patronage will finally strengthen service, and may ensure its continuation or even enhance schedule frequency and/or quality of service. Increased available transit services will expand the opportunities for mobility and increase the sense of satisfaction within the community on the part of persons who may have access to the service.[10]

The second commuter run is Amtrak's daily Detroit to Jackson service, begun on January 20, 1975. Service is on the heavily traveled Penn Central route, a distance of some 74 miles. This service is also run under the 403-B two-thirds state subsidy program. Perhaps the most interesting and encouraging aspect about the service is that Amtrak has consented to participate in what must be considered a commuter route, despite the intercity connections. The official policy of Amtrak had been to shy away from such short-run commuter type operations, but the advent of Jackson-Detroit service indicates a change in viewpoint and opens new avenues for other types of in-state short-run routes.

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[10]Ibid., pp. III-B-3, III-B-4.

The route runs three trains to Detroit in the morning and evening peak periods with offpeak service throughout the day at regular intervals. Stops are made at Jackson, Ann Arbor, Yipsilanti, Dearborn and several Detroit stations. Present ridership status is reported as satisfactory, at slightly higher levels than when the Penn Central controlled operations.

This service originated from a Penn Central daily operation between Ann Arbor and Detroit. Operations were then limited to a single Budd car which was based in Jackson. Daily service was subsidized partially through a purchase of service agreement with SEMTA, acting under the auspices of the Michigan Department of Transportation. In early 1973, when it became evident that the Penn Central was indeed going bankrupt and that service on this line would eventually be discontinued, SEMTA organized a feasibility study regarding the possibilities of taking control of operations. Prior to the completion of this study, however, it became evident that there were distinct opportunities available in terms of operating service through Amtrak's 403-B option. Negotiations were made with the state in terms of arranging such service and the route was officially absorbed into the Amtrak framework in January of 1975.

Although there are no clear statements as to the conclusions, if any, that were reached by the original feasibility study, it would seem safe to conjecture that route status in terms of levels of operation and patronage was such that

continuing service was deemed desirable. Furthermore, it was quite evident that an Amtrak takeover, although by no means a cure-all, would represent a substantial increase in the overall level of service and act as a stimulus to ridership growth. The deteriorated condition of the Penn Central rolling stock, plus their antagonistic attitude presented towards passenger service in general presented distinct opportunities for service improvement.

One improvement was made immediately--the designation of Jackson as a terminal. Previous service had at one time limited passenger travel to the Ann Arbor corridor, despite the fact that the train was stationed in Jackson and had to make this daily trip in any case. Other future plans for this route include "the increase in the frequency of trips made daily, refurbishment of on line station facilities, obtaining new rolling stock as soon as possible and negotiating an agreement with the soon to be created Conrail system regarding their ownership of the right-of-way."[11]

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[11]James Wiljanen, Interview, (October 16, 1973).

B) Social

A second important area to be considered in any statewide passenger rail plan, as well as in an overall national system, consists of the social aspects or benefits afforded by the provision of this service. Public opinion towards the recommended mode also plays a most important role in that ridership is determined by such attitudes.

Amtrak has been constantly criticized most severely for its inability to show a profit at the end of each fiscal year. The problem is not Amtrak's continuing non-profitability in terms of dollars and cents, but rather the inability of its critics to realize the social benefits involved, social benefits that may more than balance a certain amount of economic loss. The basic problem in this however, is that there are no quantifiable methods presently available to measure social benefits in order to gauge the percentage of economic loss for which they compensate. The fact remains that such social benefits exist and, in many cases, adequately counter the effects of yearly operating deficits.

A case in point is the position taken by noted social critic Lewis Mumford who claims that if the nation is to have a truly humane, efficient and balanced transportation system, then the railroads must play a vital role in the overall framework. Mumford points out that "Between 1920 and 1940 the United States still had one of the most efficient passenger-train services on the planet. As long as the transportation system was in balance, the railroad, as the central

element in a national system, enabled all the subordinate parts to function effectively. When the railroads responsibility for passenger service slackened, the entire system became unbalanced."[12] The early economic attractiveness of the developing highway and air systems, encouraged a massive overemphasis towards these systems to the point where we have overdeveloped them today. Such policies as the Highway Revenue Act of 1956 which enabled a great expansion of the Interstate Highway network, virtually duplicating the existing railroad system, was a great boon to the trucking industry; a more effective method of killing off the railroads could not have been invented.

Mumford recommends three main points for reorganizing the system:[13]

1) Halt further highway construction before any more urban neighborhoods are depopulated or spoiled for family residence by high-rise buildings, and before any more agricultural land is covered with wall to wall concrete. Turn over the federal funds which are currently allotted to highways to the rebuilding of the entire rail network.
2) As a minimum immediate goal, restore as many passenger trains as were available in 1950, by providing at least minimal trains of two or three cars, newly designed, with full provision of baggage, manned by skeleton crews. Allocate public funds not only for redesigning and manufacturing

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[12]Lewis Mumford, "We've Got to Get Working on The Railroads", Harper's Magazine, (August, 1972), p. 2.

[13]Ibid., p. 4.

rolling stock, as well as repairing neglected equipment, but for assembling and training a new generation of railroad workers. Restoration of adequate service is the prime condition for making the railroad popular again.

3) Reduce the disgraceful body count from auto accidents by lessening needless motor travel--such as long distance commutation and cross-country haulage. This can be achieved largely by restoring all the railroad's attractions of comfort, safety and diminishment of fatigue over long distances.

Mumford acknowleges that the turnaround will not occur overnight and that a certain amount of financial loss must be expected, especially in the early time period. These financial sacrifices must be made in order to regain the balance in our national transportation system and we must not ignore the social benefits, which, although not numerically quantifiable, do represent an important element in the system. It should be remembered that it was an over-emphasis on economic variables that resulted in our present situation and such a mistake should not be repreated.

Thus, in the preparation of a statewide rail passenger system for Michigan, these social aspects will exist and should be recognized as compensatory for financial losses which might occur during the various stages of plan preparation. In dealing with an intrastate system such as the Lower Peninsula of Michigan, it should be realized that we are concerned with a route structure that must be considered short-range in scope. This is an important factor in that Amtrak's long and medium

range routes are responsible for a great percentage of yearly financial deficits. Yearly deficits on the Michigan state system could therefore be considerably smaller than might be expected from Amtrak averages and projections. The energy efficiency of rail travel, particularly when compared to air and auto travel is an advantage; besides this fact, passengers utilizing rail travel will actually save money, given competitively priced rail fares in contrast to the increasing costs of auto travel. The competing highway network will also benefit from a viable rail network, in that the greater the number of riders on the rail system, the fewer are left to the highway system. This is especially important in the State of Michigan which has a most complete highway network, but is often plagued by overuse and congestion. Many people have argued that the average American traveler will not leave his car to travel by rail, but a number of studies have proven that this is not the case. The necessity is that rail service must be reliable and attractive in order to stimulate ridership necessary for success. As was pointed out, Amtrak has generally been lacking in the provision of these amenities, but this criticism must be qualified in terms of the recent advances made in these directions, and the state of the industry at the time of its recent turnover. These optimistic views notwithstanding, Michigan service must be attractive and reliable in order to be competitive.

As examples of the variables which patrons consider to be important in their choice of travel mode, the following

studies are offered:

Alexis N. Sommers in a traveler mode choice survey in North Carolina ranked the following factors in terms of passenger's importance:[14]

1) Door to door travel time

2) Convenience

3) Scheduling

4) Comfort-Cleanliness-Noise

5) Terminal access and egress

6) Necessity for transportation at endpoints

7) Reliability-On-Time performance

8) Cost

9) Safety

Allan N. Nash and Stanley J. Hille also studied public attitudes towards transport modes in Baltimore, Maryland and Philadelphia, Pennsylvania and returned definitive results regarding what would be considered important attributes to an overall ideal transportation system. Although their study divided trip purposes into work vs non-work, there were no dramatic differences between the two, thus leading them to believe that it was feasible to determine overall categorical preferences. Another drawback was the fact that the sample was taken from college freshmen, hardly an ideal universe, but study reliability and validity is still thought to be high after an examination of the results. The following list

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[14] Michigan State Department of Highways and Transportation, Report #223: 1971 Average Twenty-Four Hour Traffic Flow, (1972), p. 64.

of factors, arrayed in order of importance suggests basic attributes necessary for a successful transport system (e.g., passenger rail).[15]

1) Reliability of destination achievement (including elements of safety and confidence in the vehicle);
2) Convenience and comfort;
3) Travel time (but with large trip purpose differences);
4) Cost;
5) State of vehicle (with cleanliness overshadowing newness);
6) Self esteem and autonomy (with emphsis on independence rather than pride);
7) Traffic and congestion (both in and out of the vehicle); and
8) Diversions (including nature of travel companions, availability of radio and scenery).

What these studies show is reliability and travel times are generally considered to be more important than cost. This is especially true in work trips, which is important in the Michigan rail passenger system in that the great majority of the Amtrak clientel are students and businessmen traveling in work or work-related functions. Lansing, the state capital, and Detroit, the chief economic and business generator, are vital nodes in the system. The extensive state system of educational institutions throughout the southern Lower Peninsula should be considered in route selections.

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[15]Allan N. Nash and Stanley J. Hille, Public Attitudes Towards Transportation Modes: A Summary of Two Pilot Studies, A Paper from the 47th Annual Meeting of the Committee on Socio-Economic Aspects of Highways, p. 43.

In order for the Michigan passenger rail system to be competitive, it seems that good travel speed, coordinated and frequent scheduling are most important in the ability of the system to attract patronage. These ideas, in turn, point out where general improvements must occur. Massive trackage and roadbed improvements must occur before a reasonable increase in travel speeds may be reached. As an example of a positive-thinking attitude towards track rehabilitation within the state, a Michigan-based railroad passenger group, the Michigan Association of Railroad Passengers, has proposed a five-step program for the upgrading of trackage for the nation's passenger trains.

The proposal was made in a reply statement dated November 15, 1974, to the Interstate Commerce Commission's Adequacy of Intercity Rail Passenger Service - Track Standards. The case is an attempt by the Commission to design track standards for the nation's rail passenger system.

The recommendations of the Association were concerned with high-speed service (e.g., Detroit-Chicago corridor). However, it might be applied on a nationwide basis. The proposals include the following:[16]

1) Begin immediate removal of slow orders to bring track standards to the level of May 1, 1971, the date of Amtrak's takeover.
2) Install centralized traffic control signaling along the entire length of the passenger routes. MARP estimated that

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[16]Joseph C. Schleen (ed.), "Michigan Rail Passenger Group Proposes Track Upgrading Plan to the Interstate Commerce Commission", Traffic World, (November, 1974), p. 54.

this would raise traffic capacity by fifty percent for a single track, and three percent for a double track.

3) Double track for both routes.

4) Eliminate grade crossings. The passenger group says that this is essential for safe operation at high speeds.

5) Upgrade one track to class six, leaving the other at the May 1, 1971, level. The slower tracks would be used by freights; the faster track would be used by Amtrak, thus eliminating the problems incurred by dual usage.

The MARP proposal calls for payment for the first phase by the railroads, with upgrading being cared for by a two percent freight rate surcharge. These surcharges would remain in effect for phases two through four, when Amtrak and the railroads would split the cost. Phase five would be funded entirely by Amtrak since only they would stand to gain from the improvement.

Another basic problem in regard to speed improvements of passenger trains is the relative amount of passenger-freight conflict on line. In many cases it has been pointed out that passenger trains have been sidetracked in order to permit freight traffic to pass. This was basically because neither the federal government nor Amtrak had control of such procedures. The individual railroads on which these passenger trains operated would naturally give precedence to their own revenue-producing trains. In this process however, they were doing serious damage to the Amtrak process, which was manifested by horrendous on-time percentages. These procedures

have improved to a certain extent, but the conflict still is very much in existence and, with ambitious plans for passenger route expansion, there must be a solution to this problem.

The Interstate Commerce Commission hearings regarding intercity rail passenger service under Ex Parte 277, Sub 2 also addressed this issue. The case is investigating the feasibility of upgrading passenger trackage to enable train speeds up to 110 miles per hour and their effects on freight traffic. Three major freight haulers: the Burlington Northern (B.N.), the Chessie System and the Missouri Pacific (MoPac), testified in regard to the problem.[17]

> The Burlington Northern said that increased passenger train speeds over upgraded existing rail lines would greatly increase delay to freight trains. Reasons for the delay included signal spacing requirements and additional necessary clearance time for the high speed passenger trains. The resultant congestion would be intolerable, reported the B.N., not to mention interruptions and delays to local freight switching movements.
>
> In its October 22, 1974 statement, the Chessie System stated that high-speed passenger train service is not compatible with heavy tonnage and heavy capacity freight cars on the same track. The road stated that super elevation requirements and stress increases on rail and track structure necessary for the high-speed operations create serious difficulties for running freight traffic over the identical tracks.
>
> The Missouri Pacific cited past experience in noting that it is much more efficient to maintain a more nearly uniform speed for passenger and freight trains instead of high speeds on certain segments and lower levels on others.

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[17]Joseph C. Scheleen (ed.), "Railroads Fear that High-Speed Passenger Trains Could Interfere with Freight Movements", Traffic World, (November, 1974), p. 45.

> MoPac also noted that most freight carriers would be quite reluctant to increase freight train speeds even if they were given the opportunity. It told the I.C.C. that when freight train speed was over 60 miles per hour, the possibility of equipment failure was much greater. Greater operating speeds also mean greater fuel consumption, which causes higher operating expenses.

Most lines recommended that for passenger speeds of 110 miles per hour, separate rights-of-way would be necessary. Most carriers also admitted that this process would take at least ten years and overall costs would be quite prohibitive.

The considerations presently being given to the Detroit-Chicago corridor in terms of high-speed service make this last point most important, particularly when one considers that the entire state is well traversed with moderate and large volume freight lines (See Map). The Detroit-Chicago corridor has a very high density in terms of freight traffic, especially east of Kalamazoo. With possible turbine service at speeds of 110 miles per hour, there are some very apparent problems. Given the volumes on the remaining lines and considering various options for a statewide passenger, it is clear that trade-offs and concessions are necessary on both sides of the freight-passenger arguments.

A final socially-oriented variable concerning the formulation of a statewide passenger rail plan involves the types of geographical area served. Previous sections have established that the plan limit itself to the Lower Peninsula, but this still leaves a vast area to be patterned into a final system. From examples and patterns in similar attempts at

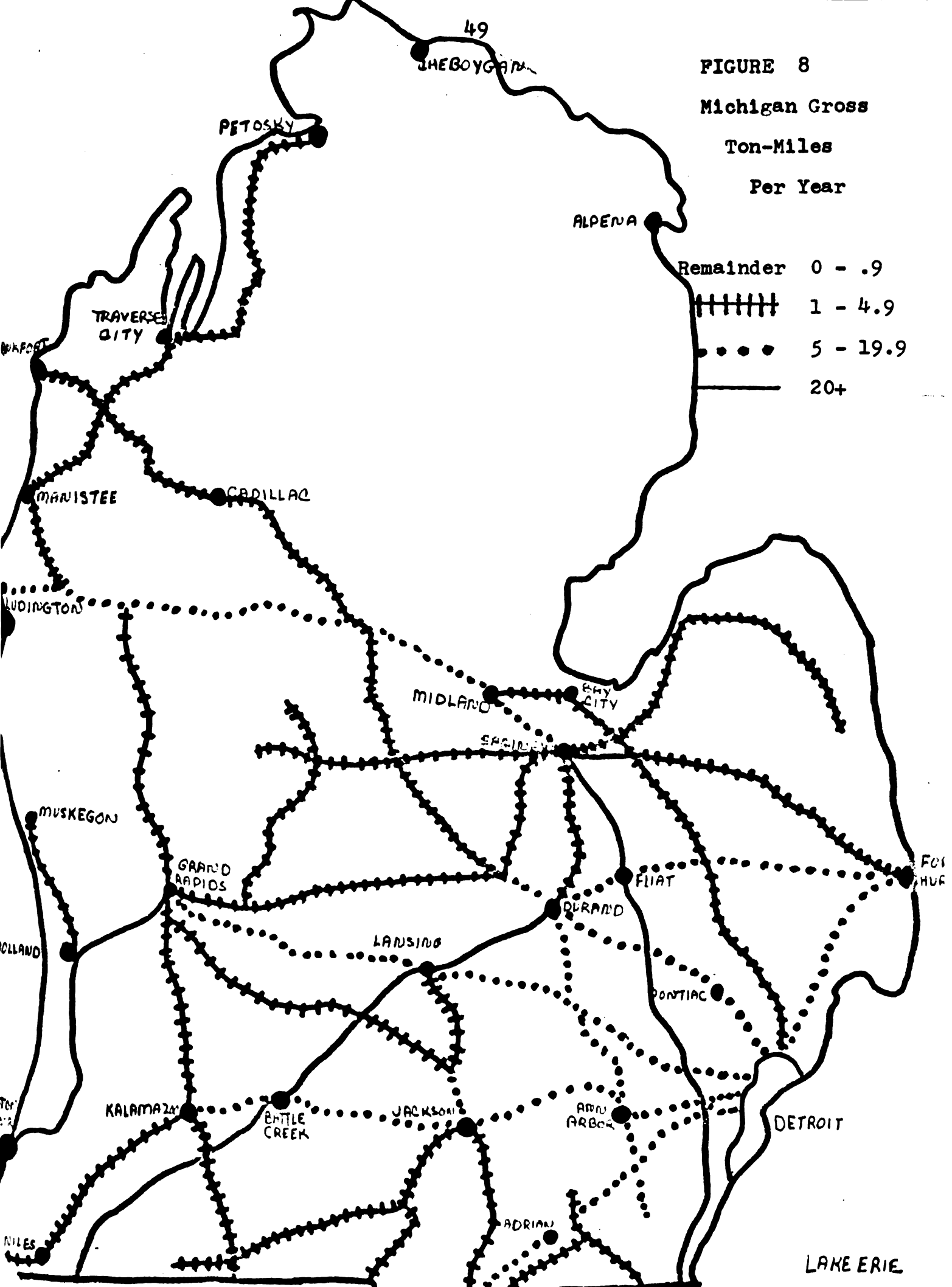

FIGURE 8

Michigan Gross Ton-Miles Per Year

Remainder 0 - .9

1 - 4.9

5 - 19.9

20+

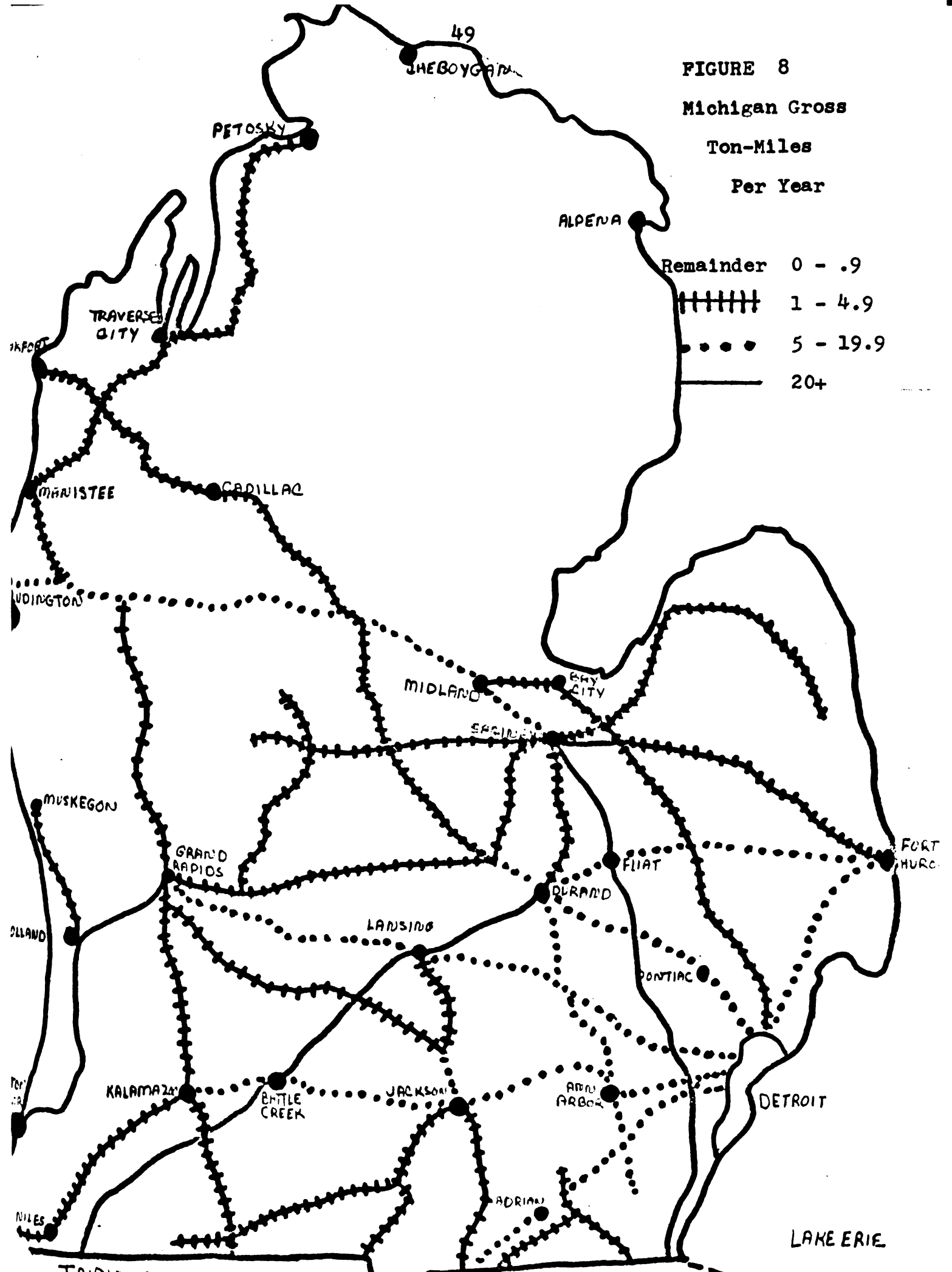

FIGURE 8

Michigan Gross Ton-Miles Per Year

such plan formation the rather idealistic goal of serving all "major" population and recreational centers has emerged. Holding to this rather general statement, the following Table is offered as a preliminary conceptual outline, which is by no means a final plan, but rather a method of limiting to a workable size, the number of areas to be finalized in later sections. These areas defined in the following Table are chosen not only for their sufficient population base (10,000+ in most cases), but also their geographical relationship in terms of the existing rail pattern and their proximity to recreational areas.[18]

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[18] United States Bureau of the Census, Population of Places: Table #6, Michigan, 1960 and 1970, (1970), p. 24.

TABLE 5.

City	1970 Population	% change from 1960	Presently Served by Amtrak
Albion	12,112	- 5.0	Yes
Alpena	13,805	- 6.0	No
Ann Arbor	99,797	+48.2	Yes
Battle Creek	38,931	-11.9	Yes
Bay City	49,449	- 7.8	No
Benton Harbor	16,481	-13.9	Yes
Cadillac	10,000	- 1.2	No
Cheboygan	5,553	- 5.2	No
Detroit	1,511,482	- 9.5	Yes
East Lansing	47,540	+57.4	Yes
Flint	193,317	- 1.8	Yes
Grand Haven	11,844	+ 7.0	No
Grand Rapids	197,649	+11.5	No
Holland	26,337	+ 6.5	No
Jackson	45,484	-10.3	Yes
Kalamazoo	85,555	- 4.5	No
Lansing	131,546	+22.2	Yes
Manistee	7,723	- 7.2	No
Midland	35,176	+26.6	Yes
Muskegon	44,631	- 4.0	No
Muskegon Heights	17,304	-11.5	No
Niles	12,988	- 6.2	Yes
Pontiac	85,279	+ 3.7	Yes
Port Huron	35,794	- 0.8	Yes
Saginaw	91,849	- 6.5	No
Traverse City	18,048	- 2.1	No
Yipsilanti	29,538	+40.9	Yes

FIGURE 9

Statewide Major City Designations

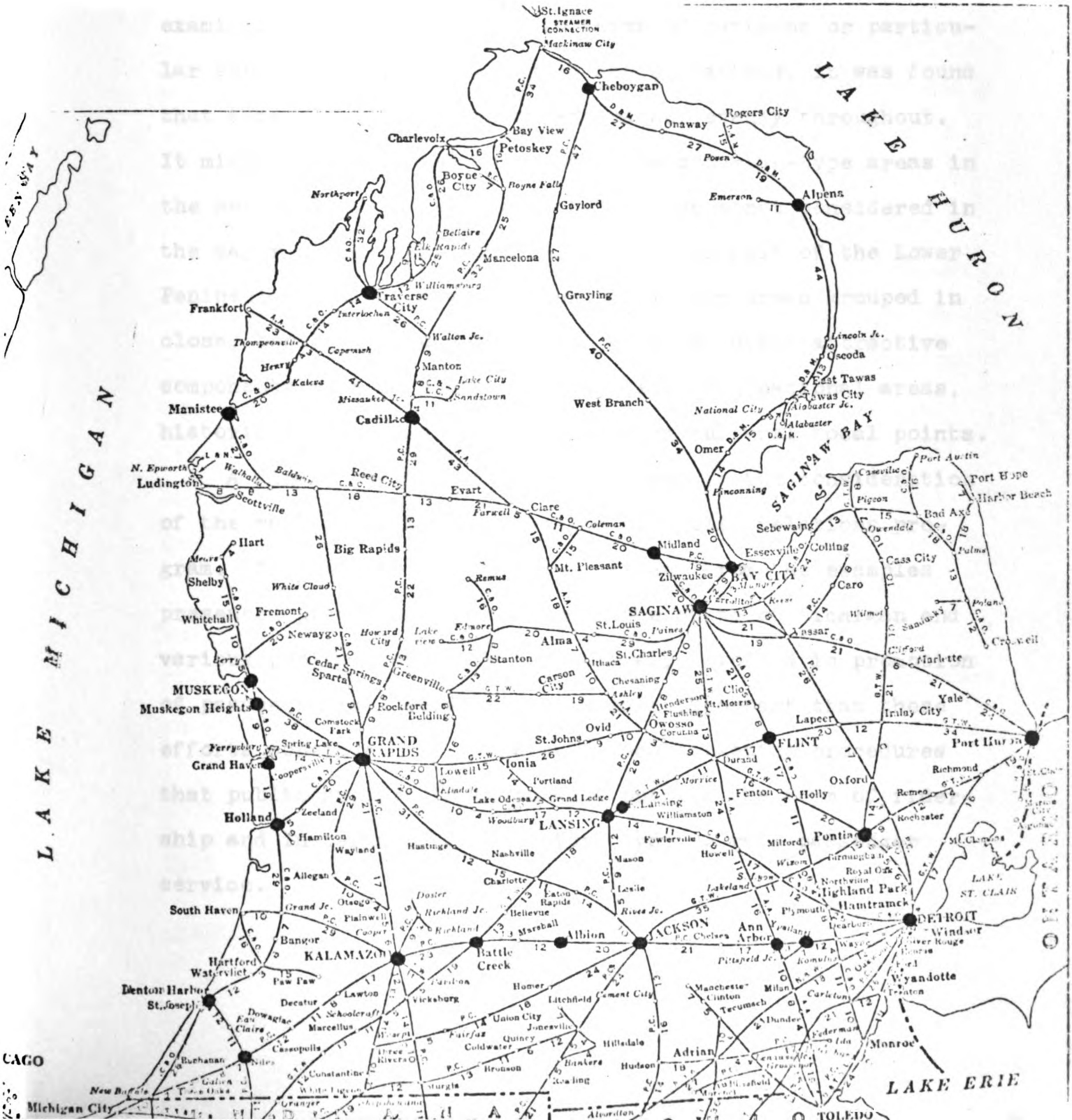
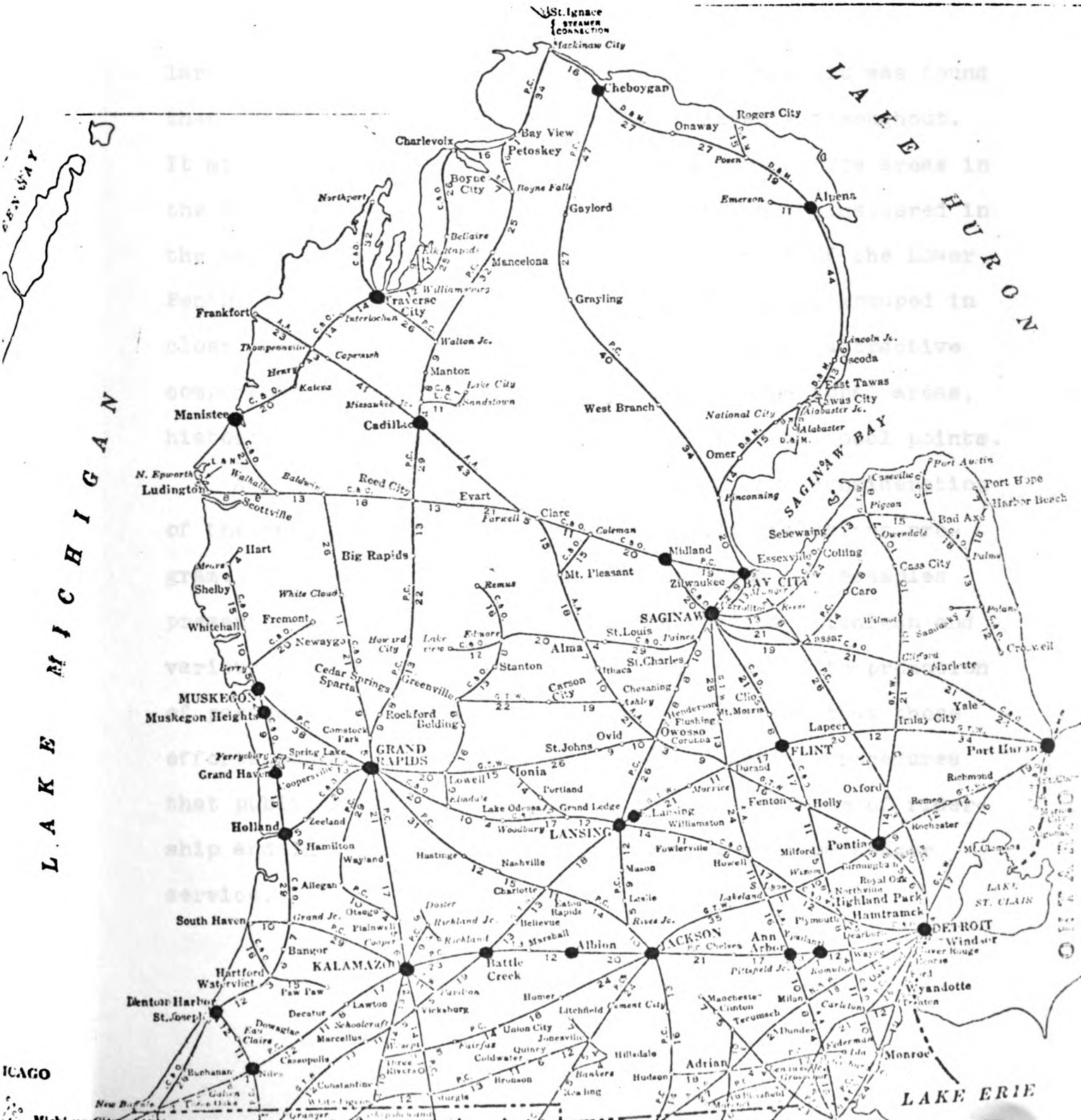


FIGURE 9

Statewide Major City Designations



The state is well known for its social and recreational attractions, particularly in terms of winter sports in the upper areas of the Lower Peninsula. There are three main rail lines that spread northward into these areas, one of which is presently involved in abandonment procedures. In examining these upper areas in terms of patterns or particular sub-regions of recreational concentrations, it was found that these locations were spread rather evenly throughout. It might also be noted that immediate suburban-type areas in the metropolitan areas around Detroit were not considered in the major cities designations. The lower half of the Lower Peninsula, besides having major population areas grouped in close, proximate route patterns, also had other attractive components such as educational centers, recreational areas, historic attractions and various other cultural focal points.

A final, but most important aspect in the consideration of the rail plan is the marketing or public relations program. Although it is more than evident from the examples presented previously that Amtrak, the State of Michigan and various public groups are all actively involved in promotion of passenger rail service, it is most important that these efforts continue. It is through such marketing procedures that public support is encouraged both in the form of ridership and in terms of legislation favoring rail passenger service.

C) Economic

Ever since the inception of Amtrak in 1971, vast amounts of government monies have been poured into the tills of the quasi-public corporation in order to insure its survival. Because of this large input of funds, the economic phase of rail passenger service has been the source of the greatest amount of criticism and public concern regarding the future of Amtrak. "Amtrak revenues have grown moderately (e.g., 52.6 million in '71 to 60.2 million in '72), but losses have continued (e.g., 37.8 million in '71 to 36.5 million in '72)."[19] Thus, economic conditions must be of prime importance in any attempts to evolve a statewide system. Although it has been recently demonstrated that social benefits may make up eonomic deficits where they exist in a limited sphere, it must be demonstrated that projected routes will incur deficits that are not of an unreasonable nature and that there are sufficient state and federal programs available to fund the final system.

Recently Amtrak published a series of projected profit and loss by route statements which gave future anticipated figures for the three existing Michigan routes. Figures given in millions:[20]

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[19] David Lawrence, "Progress in Amtrak", Illustrated U.S. News, (May, 1972), p. 52.

[20] National Railroad Passenger Corporation, Amtrak Annual Report: 1974, (February, 1975), p. AI-5.

TABLE 6.

1) Detroit-Chicago	Revenue $	Cost $	Net $	Load Factor	Rail Passenger Miles
Fiscal year 74 -	1.9	4.5	-2.6	63.7	37.6
Fiscal year 75 -	2.5	3.5	-1.0	57.5	40.8
Fiscal year 76 -	3.3	3.8	-0.5	57.6	50.5
Fiscal year 77 -	6.7	4.3	+2.4	50.0	83.0
Fiscal year 78 -	6.9	4.7	+2.2	50.0	85.0
2) Port Huron-Chicago	Rev. $	Cost $	Net $	L.Factor	Rail Pass. Miles
Fiscal year 75 -	.4	.7	-0.3	33.5	5.7
Fiscal year 76 -	.5	.9	-0.4	33.5	7.2
Fiscal year 77 -	.5	.9	-0.4	33.5	7.2
Fiscal year 78 -	.5	.9	-0.4	33.5	7.2
3) Jackson-Detroit	Revenue $	Cost $	Net $	L.Factor	Rail Pass. Miles
Fiscal year 75 -	.1	.3	-0.2	40.0	1.1
Fiscal year 76 -	.1	.4	-0.3	40.0	2.2
Fiscal year 77 -	.1	.4	-0.3	40.0	2.2
Fiscal year 78 -	.1	.4	-0.3	40.0	2.2

From these figures it can be noted that although operating deficits will shrink and patronage should rise, financial losses will continue. Thus, there must exist sufficient finances to compensate for this.

On the federal level all indications point towards a continuing policy of expanding monies available to Amtrak. The federal government has poured vast amounts of funds into Amtrak and late last year the "Interstate Commerce Commission granted Amtrak the ability to issue some $500 million in bank

notes which may be issued to the Federal National Mortgage Association, the United States Railway Association, a Federal Financing Bank, or any other similar federal agency. The Commission also noted that any notes given to cover defaults in principal or interest will be guaranteed by the Secretary of Transportation."[21] President Ford mentioned that since the Corporation (Amtrak) was charged with the responsibility of providing modern and efficient service, funds should be provided as necessary to allow Amtrak to expand and modernize equipment and make various other improvements.

Recently, as of the beginning of 1974, the trend in Washington was towards a realization that Amtrak will not assume profitability for a fairly long period of time, as evidenced by the fact that even several Amtrak executives have admitted this fact. As this realization develops, it is seen that since Amtrak is currently in debt to an ever-mounting degree, it is quite ridiculous to expect the Corporation to extract itself from the federal-owed indebtedness and still maintain a course towards reaching financial viability. Thus, a movement is currently afoot to absolve the Amtrak debt by changing loans to grants and continuing this practice until Amtrak is closer to self-sufficiency. If this procedure is put into practice it would greatly extend the opportunity for route expansion.

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[21]Joseph C.Scheleen, (ed.), President Ford asks additional Amtrak Appropriation", Traffic World, (October, 1974), p. 45.

Another method by which federal funding is available to Amtrak, and thus, also to the state of Michigan is under the Rail Continuation Subsidies issued by the Federal Railroad Administration under the Regional Rail Reorganization Act of 1973. Details of the Act say that: "A state may receive the transitional funding if rail services within its boundaries are discontinued under the provisions of the Reorganization Act. Eligible states must (1) develop a comprehensive state rail plan; (2) have the jurisdiction to develop and maintain efficient rail services; (3) assure fiscal responsibility; and (4) comply with the regulations. The legislation authorized up to $180 million over a two-year period."[22]

> Under section 255.7 regarding Rail Service Continuation Assistance: The federal share of the cost of providing rail service continuation subsidy under section 402 (b) (1) of the Act shall equal seventy per-centum of such costs and shall not exceed a term of two years. The state share shall be 30 per-centum. In no event, however, may the non-federal share be augmented by any federal funds directly or indirectly unless the funds are provided through a federal program which specifically authorizes the augmentation of a non-federal share of a federally subsidized program with such funds. Also, the basic apportionment for each state in the region is determined by the Administrator in accordance with the provisions of section 402 (b) (1) of the Act. Persuant to such provisions the Administrators have determined that the total mileage of all states in the region is 61,184 miles; that the total mileage in each state in the region and their ratio to the total mileage in the region is as follows:[23]

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[22]Federal Railroad Administration, "Continuation of Local Rail Services", U.S. Department of Transportation Federal Register, 39 (April, 1974), p. 12528.

[23]Ibid., p. 12530.

The state of Michigan was determined to have total state rail mileage of some 6,159 miles, which was 10.1% of the total rail mileage within the region. Thus, under the terms stated within the rules, Michigan is entitled to 10% of the basis apportionment of $180 million over the two year period. This means that the state is guaranteed up to $9 million each year for the two years in federal funding. To obtain this aid, Michigan's share would come to approximately $2.7 million each year, if the maximum amount of federal funds were to be utilized.

Viewing these legislative actions it seems that federal funding will be more than adequate in the coming years and, especially under Amtrak's 403-B state subsidy program, it would appear that the time is ripe for the development of comprehensive state rail networks. The federal government has demonstrated both its willingness for the development of such plans and the continuing financial aid to make the plans work, in its planning requirements prior to assistance eligibility. The state of Michigan has, through past funding experiences and present planning directions, been more than eager to comply with their own necessary expenditures to involve federal participation. As early as May of 1974 the state was voicing reassuring attitudes towards the eventual result of the Rail Reorganization Act. Edgerton T. Bailey, head of the freight section of the Michigan State Department of Highways and Transportation, stated that: "Combined federal-state subsidies of $13 million a year will bolster shaky Michigan railroad lines

starting in mid-1975. Michigan's share of federal rail subsidy under terms of the Reorganization Act would amount to about $9 million. The state share is an additional $4 million per year to appropriated by the Legislature. The subsidy runs for two years, but could well be extended. Lines would receive enough money to offset losses, plus a reasonable rate of return."[24]

The state has had a history of supporting rail passenger measures in both intercity service under Amtrak and commuter lines under SEMTA. In the 1973-74 General Transportation Fund, in the Capital and Demonstration Grants section the following measures were approved:[25]

1) $500,000 to SEMTA for the development of 500 parking spaces to serve the Grand Trunk and Penn Central rail facilities.
2) $60,000 for the statewide rail needs study, towards the formation of a state rail plan.
3) $136,350 towards the assumption of the state share in providing Amtrak service in the Port Huron-Chicago corridor. Remaining deficits were to be assumed by Amtrak and interested regional governments.

The 1974-75 General Transportation Fund, in its Capital and Demonstration Grants program, designated approval for the

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[24] Associated Press, "Shaky Rail Lines Bolstered by Subsidies", The Lansing State Journal, (May 1974), p. B-7.

[25] Michigan State Department of Highways and Transportation, The General Transportation Fund: 1973-74, (July, 1973), pp. 8-9.

following rail-related projects:[26]

1) $950,000 towards the current Port Huron-Chicago Amtrak service.
   - To provide one daily round trip
   - To make physical plant improvements at Battle Creek
   - To make track capacity improvements at Lansing and Flint
2) $435,000 towards establishing a Toronto connection off the Port Huron-Chicago Amtrak service.
   - To provide one daily round trip during the last half of the 1974-75 fiscal year.
   - To make improvements at Port Huron, including U.S. Customs and Immigration Facilities.
3) $307,400 to SEMTA for the Grand Trunk Western Commuter Rail Demonstration Project.
   - For the purchase, renovation and modernization of existing equipment.
   - Purchase and upgrading of twelve used coaches and two used locomotives.
   - Revision of downtown terminal trackage.
4) $367,600 for Amtrak line capacity and reliability improvements.
   - To provide a passing track at Lawton with necessary signal and interlocking work.

There is no indication that this cooperation will be discontinued, particularly since the state is currently in the

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[26]Michigan State Department of Highways and Transportation, The General Transportation Fund: 1974-75, (July, 1974), pp. iii-iv.

process of completing their statewide rail plan, which will make them eligible for federal aid.

Another encouraging prospect concerning the establishment of the Michigan passenger plan relates to the recent change in command of the Amtrak organization. On January 29, 1975, Paul H. Reistrup, a former vice-president of the Illinois Central Gulf Railroad, was named as the new president and chief executive officer of Amtrak. He replaced Roger Lewis, original president who incurred a great deal of opposition over several of his operating theories and procedures which were implemented during his reign.

Upon assuming control of the operation, Reistrup stated that: "I have no illusions about this new job. We are looking at a situation where expenses are twice as high as revenues. I do not see how it is possible for Amtrak to make a profit in the corporate sense of the word, but something has to be done to reverse the expense trend. As an interim goal, Reistrup seeks to reverse the trend towards rising costs per passenger mile, even if the total deficit grows as traffic expands. The main weapon to be utilized in Reistrup's arsenal will be a growing emphasis on short-haul service in corridor areas."[27]

This is most important in that the state of Michigan in its development of a state passenger plan will be emphasizing short-haul corridor type movements. The recent inclusion of

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[27]Louis M. Phelps, "Amtrak Seen Stressing Short-Haul Runs Under its New President", The Wall Street Journal, (January, 1975), p. 2.

the Jackson-Detroit corridor is a prime example of this type of route. Reistrup also noted that a good way to improve cost performance is to obtain greater seating density and more passengers per train. Since the greatest percentage of the Amtrak market consists of older people and college students, who would drive if they did not take the train and would be unlikely to fly, you may attract them in large numbers only in corridor markets where there is a sufficient amount of traffic between two cities. He noted that up to this point in time, Amtrak has not done a thorough job in developing these market areas, especially in the Great Lakes region. Track repairs will be the prime priority, as opposed to recent emphasis on the more dramatic and exotic high-speed equipment and methodologies.

It seems that the current re-emphasis within the Amtrak organization, indeed, within the entire federal rail structure, will assume a profile that will be easily adoptable to the type of procedures necessary in the formulation of a Michigan state rail passenger plan.

A final consideration given in the economic outlook for passenger rail system, regards the ridership potential or demand for such service. It was mentioned in previous sections that one of the greatest problems in drawing up a plan of this sort was in terms of the lack of available data regarding previous routes. As might be expected, there are no available figures on passenger demand from those railroads which operated passenger lines years ago. That data which is available

consists of relatively new and unstructured figures related to ridership on existing Amtrak routes. In the case of the state of Michigan, two of the three existing routes are so recent that any type of meaningful ridership figures from which trends may be derived are non-existent.

As was shown in the revenue/expense table, Amtrak has predicted rising ridership figures for all Michigan passenger routes within the next few fiscal years. It is true that in some instances a peaking period is predicted in a relatively recent time, but the ridership rate will be such as to retain economic stability. This, of course, relies on the validity of the Amtrak projections which may be a bit optimistic. When viewing the existing changes that have occurred in those present Michigan routes, plus the attitudes that Amtrak and the federal government have manifested, one has to be encouraged about the possibility of stimulating future ridership figures.

A study which lends some idea as to the possible passenger volumes on intrastate routes in Michigan is one performed by the Stanford Research Institute in July, 1971. They were contracted by the state of Michigan to examine three alternate routes in the Detroit-Chicago corridor:[28]

a) Route 1 = Detroit-Durand-Lansing-Battle Creek-Kalamazoo-Chicago

b) Route 2 = Detroit-Lansing-Battle Creek-Kalamazoo-Chicago

c) Route 3 = Detroit-Ann Arbor-Jackson-Battle Creek-Kalamazoo-Chicago

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[28]John W. Billheimer, Analysis of Alternative Rail Passenger Routings in the Detroit-Chicago Corridor, (July, 1971), p. 3.

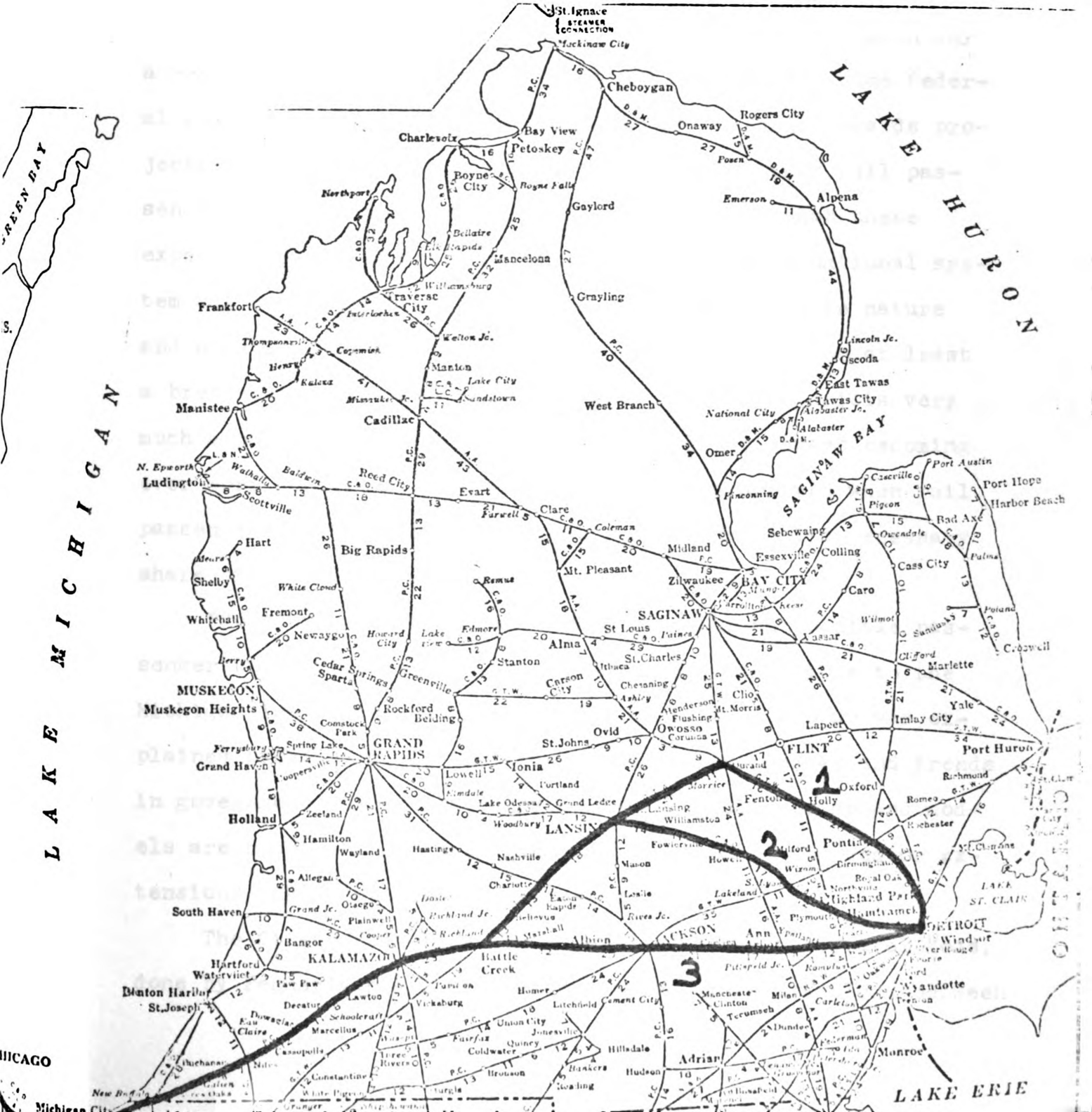
Using variables of total travel time, total out of pocket per capita cost (dollars), frequency of service, and the number of families within the SMSA or city pair having annual incomes of $10,000 or more, a demand model was defined and results were calibrated for each route and by shifting variables within each route. The resulting annual passenger levels and losses per route were enough to indicate that route 3, the present route utilized within the corridor, was best suited to handle the operation. The conclusion of this study indicated that even the best suited of the three routes was quite unlikely to make a profit and that passenger service within the state would be a risky operation.

Despite the negative attitudes expressed within this particular report, there are a number of factors inherent in the makeup of the study which lend more positive outlooks towards passenger ridership on interstate routes. First of all a number of figures within the study are totally irrelevant to future passenger routes in the state because they examined anticipated train speeds of 80, 150 and 250 miles per hour. These expected speeds are totally absurd in relationship to an overall intrastate system and it was routes that anticipated such speeds which were the cause of the greatest percentage of anticipated revenue losses.

This study was completed prior to the recent energy crisis and the turnaround of attitudes favoring passenger route extensions. Thus, this particular study had a prime emphasis on the route's obtaining a profit in strict monetary

FIGURE 10

Alternative Detroit-Chicago Passenger Routes



terms. Recent trends have fostered the idea that any type of structure such as a passenger rail system which offers a necessary travel function to the public, need not be overly concerned with the ideal of realizing profits. The government has shown an ability to aid in the funding of the passenger rail system and, with this help, there is no valid reason why a reasonable national system could not be created. The federal government expends an enormous amount of funds towards projects that are certainly much less beneficial than rail passenger service and it would seem quite logical that these expenditures could continue until such time as a national system was created that was viable and comprehensive in nature and organized to such a point that profit-making, or at least a break-even point was reached. With the energy crisis very much a part of everyday life and our public highways becoming ever more congested, the time has certainly arrived when rail passenger service must be revitalized to assume its necessary share of the national traveling public.

Two other studies seem to have theories on possible passenger train ridership which are much more compatible to the Michigan intrastate situation. The basic problem, as was explained previously, is that given the current crises and trends in government involvement, most existing passenger demand models are too profit-oriented and tend to dismiss changes or extensions that could be very necessary.

The first study is a Passenger Preference for Travel Mode, done by Pennsylvania State University on train travelers between

Philadelphia and Harrisburg in 1970. The study compared trip modes of auto, rail, air and bus and purposes of business, commuter, personal and student, as well as a combination of all purposes. Results were reported and utilized in the state of Pennsylvania's response to the D.O.T. Report which stated that:

> Rail passenger service is justified in corridors of 150 to 180 miles in length because it is the preferred mode. Usually, it will be the fastest, safest, least costly mode (including value of time) for this distance. For distances of less than 150 miles, rail passenger service is the preferred mode of common carrier travel for the same reason. Rail travel maintains over 25% of the total market until 300 miles are exceeded, as only the highest density travel corridors can support rail travel for non-stop distances in excess of 400 miles. When rail service is scheduled to provide convenient service with standard transportation load factors (48-51%), rail service is reasonably economical.[29]

The study also noted that rail service is very important to the public convenience and necessity. A diesel rail car requires a half gallon of fuel per mile to move 80 seats with 40 passengers; that is 80 passenger miles per gallon. Automobiles average 20 passenger miles per gallon. Buses at 50% load factor, average 96 passenger miles per gallon, better than rail, but buses lack the passenger attraction to divert sufficient patronage from the automobile to accomplish anything significant. It is notable that in the Penn State Study, bus was not the preferred mode for any trip purpose, for any distance of travel. It has also been proven that for buses

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[29] Milton J. Shapp, Pennsylvania's Response to the U.S. Department of Transportation's Rail Cut Proposals, (March, 1974), p. 240.

to become significantly important, exclusive bus lanes must be utilized. When these lanes are created, costs of bus travel in terms of overall expenditures, actually rise to a greater level than that of rail service.

A final point raised by the study demonstrated the disproportionate advantages given to air and highway travel as compared to rail. The case is raised that future legislative apportionments should more equally balance rail finances as opposed to their competing modes. It seems that airways in particular, should be examined in terms of equitable payments for federal monies received.

The second study is one performed by John F. Direnzo and Louis P. Rossi for the New York State Department of Transportation. They developed a diversion model concerning four modes: auto, bus, air and rail for both business, non-business and all trip purposes. They studied trips made between:[30]

1) New York City - Buffalo

2) New York City - Montreal

3) New York City - Albany

Their basic results found the following to be true for rail passenger travel:

1) Passengers were completely divertible to rail if the train was faster and less expensive.

2) Passengers were not divertible to rail if train service was

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[30]John F. Direnzo and Louis P. Rossi, A Diversion Model for Selected Cities, New York State Department of Transportation, (December, 1970), p. 52.

slower and more expensive

3) Passengers were possibly divertible if:

a) train service was faster, but more expensive or

b) train service was slower, but less expensive

Both these studies present positive viewpoints for an intrastate rail system in a state such as Michigan where travel corridors are present and intercity mileage is of a short-range nature. Despite the fact that there are no strictly objective data available for predictions, the previous ideas present theories that seem to indicate a good possibility of obtaining sufficient ridership along expanded passenger routes.

D) Political

An integral element in any type of system such as passenger rail service which depends so heavily on governmental funding and support, is the political climate towards that particular system on both the federal and state level. The federal government assumed an active role in the railroad crisis when it became apparent that several large northeastern rail companies were about to go bankrupt. As the federal process continued, it became evident that passenger service would have to be assisted if it was to become a viable aid in solving some of the severe transportation problems existing in the country.

Due to several legislative actions which defined positive long-term federal involvement in Amtrak and the establishment of statewide rail plans, governmental attitudes towards rail service, especially passenger, have changed dramatically. Given these commitments, plus the fact that the energy crisis and environmental programs will continue, it seems virtually assured that such political favoritism is not merely a passing trend.

Although there are political critics of Amtrak in Washington who hasten to point out the weakpoints in the system, the majority of legislators realize that Amtrak is in its inceptual phase and that the overall benefits far outweigh its liabilities. One outspoken critic of the aid given to rail passenger service is Claude S. Brinegar who stated that if one might return to the year 1971 and could know that Amtrak, in 1974, would be requesting $200 million per year in subsidies, he would most certainly wonder if Amtrak would in fact be in

existence.

> The organization's officials have been quick to qualify such attacks however. Amtrak's projected deficit for the fiscal year that began July 1, 1974, they point out, is less than the $422-million forecast for the New York Transit Authority; the nearly $1 billion the Government will pay to operate the Federal Aviation Air Traffic Control System for planes, and the $5 billion spent each year for interstate highways.
>
> They also remind their critics that they took over a dying industry, and kept an alternative to the auto, the airplane and the bus--all of which operate on oil-based fuels-rolling. If a serious energy crunch comes, Amtrak executives add, the growing national investment in trains will surely pay off.[31]

Besides those legislative measures already in effect, for example, the local rail service continuation subsidies under the Regional Reorganization Act, there are a number of other measures currently being seriously considered which, if enacted, would have a tremendous impact upon statewide passenger rail service. It might also be noted that all of these measures are positive-oriented; that is, there are no serious measures now being proposed that would act contrary to the expansion and solidification of the nationwide passenger rail system.

Perhaps the greatest amount of talk, and justifiably so, is concerned with the deteriorated trackage and roadbed and what methods must be taken to rehabilitate the system. "The number of train derailments caused by faulty railroad track has jumped sharply in recent years and federal officials say

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[31]Robert Lindsay, "Amtrak: A Very Expensive Solution", The New York Times, (December, 1974), p. 4.

things could get worse before they get better. More than 7,000 trains were derailed in 1973, a twenty-seven percent hike over the 5,508 that went off the track in 1972. When you've got track that's in good shape, you just don't have derailments, said John Ingram, F.R.A. Administrator. There are some railroads that have remarkably good track (solvent western carriers), but in the country as a whole, it is deteriorating."[32]

The article also points out that Amtrak's twenty-six derailments this year and the vast majority of poor on-time performance rates are caused by poor condition of the right-of-way. Slow orders, which, because of track conditions, may drop allowable operating speeds to ten miles per hour, have plagued Amtrak recently. Amtrak reported nearly 52,000 slow orders in 1973. This situation, given federal indifference, will only get worse. The railroads experiencing these poor track conditions are those who are currently in dangerous financial condition. Thus, what little revenues are generated by current operations (the rate of return in railroads is about three percent), must be immediately utilized to continue operations. This inability to rehabilitate rights-of-way means slower trains, which translates into even lower profits yet. This impossible situation must be altered and the aid should logically be in some type of federal assistance or strategy. As a direct result of these problems, four separate alternatives have been

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[32]John W. Ingram, "Electrification: The Logical Step", The Philadelphia Inquirer, (September, 1974), p. 3.

proposed.

The first is the Interstate Railroad Act of 1974, sponsored by Senator Vance Hartke (Democrat, Indiana). "The Act would provide loan guarantees and outright federal grants paid from general tax revenue to private railroads to bring a network of trunk railroad lines designated by the Department of Transportation up to high standards."[33]

The second alternative is another proposal by Senator Hartke, co-sponsored by Senator Lowell Weicker (Republican, Connecticut), the Railroad Revenue Act of 1974.

> Describing the Act as one possible approach to solving the track and roadbed problems facing so much of our nation, Hartke said that the Bill would create an Interstate Railroad Corporation that would take over, maintain, and finance a national railroad track system, but allow the present carriers to remain in private ownership. While there is no mandatory conveyance requirement, those carriers who convey their lines to the new corporation, would have the benefits of operation over the system; those carriers who decided not to join, may instead maintain their trackage to the standards required by the legislation. . Those lines acquired by the new corporation would be exempt from state and local property taxes, but this loss in needed revenue for state and local government would be made up by equivalent payments to the states by the federal government.[34]

Costs of this program would be financed for a six year period, by a one percent tax on all surface freight shipments. Long-term maintenance would be enabled by a charge of one

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[33]William C. Harsh, "Push Interstate Rail Not to Rebuild Roadbeds", The Chicago Sun Times, (October, 1974), p. 6.

[34]Joseph C.Scheleen, (ed.), "Hartke-Weicker Bill Would Use Two Levies for Rail Track Rehabilitation", Traffic World, (September, 1974), p. 13.

dollar per 1,000 gross ton-miles on freight and passenger carriers utilizing the system. This proposal currently exists as Senate Bill 4012.

A third alternative is currently a proposal before Congress: House Rule #16523. Introduced by Representative Harrington (Democrat, Massachusettes), before the Interstate and Foreign Commerce Committee, the Bill has four basic objectives:[35]

1) The designation of a national network of essential rail lines.
2) The creation of a non-profit corporation to acquire and maintain these lines.
3) The provision of minimum standards for rail line maintenance.
4) The provision of financial assistance to not only the corporation, but also to the states for rehabilitation procedures.

The final proposal was submitted by Pennsylvania Governor Milton J. Shapp in his response to the original D.O.T. rail cut proposals. An early and vocal critic of the Report, Governor Shapp published a document calling for the establishment of what he terms a United States Rail Trust Fund. "The fund, similar to the Highway Trust Fund that is fed by the Federal Gasoline Tax and is used to build interstate and other federally aided highways, would be raised through a five percent surcharge on railroad freight revenues. This surcharge would be used to repay thirty-year government backed bonds. Proceeds from the bonds would be used by private railroads to rehabilitate,

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[35]Joseph C.Scheleen, (ed.), "House Rule Number 16523", Traffic World, (September, 1974), p. 62.

modernize and expand their track, electrify heavily used mainlines and modernize their yards."[36]

Although none of these proposals is currently near realization, the mere fact that they have been presented and have been cordially received is a promising sign. The implications which this type of legislation would have on rail passenger service in Michigan would be far-reaching. With adequate rights-of-way, on time performances and reliability would greatly increase and should stimulate increased ridership, a factor vital to the program's success. Given the current crisis in rail transportation, the question seems to be not whether action will be taken to solve track dilapidation, but rather, the methods utilized in the solution.

A second major topic now being considered for the railroads is the concept of electrification. Noting the amount of freight moved per gallon of fuel by rails and the relatively low emissions from diesel locomotives, John Ingram states that:

> The energy crisis, for all its frustrations and inconveniences, has precipitated a new appreciation for the public carrier and the virtues of economy and efficiency in transportation. Clearly, a super railroad system would be a valuable asset for the United States. The energy crisis has given a new urgency to the development of alternatives to petroleum-based transportation power systems. The next logical step, then, is electrification of high-density intercity freight and passenger lines."[37]

Rail electrification is not new to the United States. Several present metropolitan areas (New York, Chicago and

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[36]William C. Harsh, "Push Interstate Rail Not to Rebuild Roadbeds", The Chicago Sun Times, (October, 1974), p. 6.

[37]John W. Ingram, "Electrification: The Logical Step", The Philadelphia Inquirer, (September, 1974), p. 3.

Philadelphia) have electrified their commuter lines. The number of actively electrified lines in our country is somewhat less than half of our total national route miles. This figure may be compared with such foreign countries as Switzerland, Japan, West Germany and Sweden, all of whom have some forty to ninety percent of their total trackage electrified. After a rather intensive study, a government task force has concluded that the federal government, the Department of Transportation and the Federal Rail Administration should have an active role in this electrification process. Citing a possible goal of electrifying some 20,000 or more route miles, approximately 10 percent of the total nationwide, the government is convinced that electrification represents the key to the future for heavy density rail passenger and freight lines.

In his report entitled a United States Rail Trust Fund, Governor Milton J. Shapp of Pennsylvania makes a strong case for the electrification of rail routes. The following are presented as the basic justifications for electrification:[38]

1) Electric locomotives are less expensive to operate than diesel because they need less maintenance; maintenance is less expensive and they are more reliable.
2) Electric locomotives have a significant reserve potential reserve for use on start-ups, grades, and in changing speeds. The result is shorter trip times and smaller locomotive fleets.

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[38]Milton J. Shapp, A United States Rail Trust Fund, (1974), p. 31.

3) High-speed passenger service is most effective on electrified track. This is so because electric engines can achieve running speeds more quickly, and are cleaner and more reliable than diesels.

4) Electrification will provide a significant opportunity to use an energy source which is not petroleum-based. It will enable a part of the transportation system to rely on coal, nuclear and hydro-produced power instead of diesel fuel.

Also, the following costs are particular to rail electrification:[39]

TABLE 7.

1) Costs (1968-69 dollars) Per Track Mile	$
A) Cantenary	53,750
B) Substations	10,000
C) Electrical Distribution	1,250
D) Signalling (Standard CTC to Electric)	11,500
E) Communications	6,700
F) Other Costs (Bridges, Tunnels, Etc.)	1,202
G) Total Cost Per Track Mile	84,402
2) Cost Adjustment to 1974 Dollars	x 1,215
3) Total Costs Per Track Mile, 1974 Dollars	102,548

Electrification's relationship to passenger rail service in the state of Michigan is, at best, unclear. Although the benefits electrification are undeniable, there are no such lines present within the state. It would seem that in the

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[39]Ibid., p. 53.

frame of an overall statewide system, there is certainly a place for such procedures, but the fact remains that current conditions are such that there is much to be done prior to the consideration of electrification. The importance of this, is that the topic is being seriously considered and there seems reasonably good chances for affirmative government action in the near future.

The state of Michigan has also had a history of political receptiveness towards rail progress. As was shown in the inventory, Michigan has been particularly impressive in their willingness to involve itself in the expansion of passenger rail routes within the state under the 403-B subsidy program. They currently operate one international route and have definite plans for another and their ability to obtain Amtrak's assistance in the commuter-type Jackson-Detroit route, was most impressive. Michigan's current funding and commencement in formulating a statewide freight-passenger system is another indication of their political commitment towards state rail systems.

Previous legislative actions had begun paving the way for this governmental interest. "Enrolled Senate Bill Number 559, the Metropolitan Transportation Authorities Act of 1967, created Detroit-based SEMTA, which was empowered to plan transportation facilities in the area, acquire real and personal property, institute condemnation proceedings, apply for grants and loans from the federal government, sell, lease or use any property acquired for the purposes of the Act, grant to util-

ities, the rights of property use of transportation facilities, contract with other governmental units for various services and exercise various other powers defined within the Act."[40]

The second major piece of legislation was Enrolled House Bill Number 5707, an act to amend various sections of Act Number 51 of the Public Acts of 1951. Under this Act, the motor vehicle highway fund was created, in which: "The general transportation fund is created within the motor vehicle highway fund. There is appropriated each fiscal year from the motor vehicle highway fund to the general transportation fund an amount equal to the net revenues, after deducting a proportionate share of refunds and collection costs offered by law, from one-half cent per gallon of the tax on gasoline and liquified petroleum gas imposed by Act Number 150 of the Public Acts of 1927, as amended, deposited in the motor vehicle highway fund after January 31, 1973. All monies in the general transportation fund are appropriated each fiscal year and the Department of Administration shall cause to be paid from the fund such amounts and at such times as are certified to it by the Department of State Highways persuant to this act, but no moneys shall be expended from the general transportation fund after June 30, 1975 except as specifically appropriated by the legislature."[41]

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[40]State of Michigan Legislature, The Metropolitan Authorities Act of 1967, (July, 1967), p. 1.

[41]Ibid., p. 3.

Basically what this meant was the 1/2 penny of the gas tax would be utilized for non-highway uses. This total came to approximately twenty-three million dollars per year.

Governor William Millikin, recently elected to another four year term, is an avid proponent of rail expansion in the state. He has supported virtually every pro-passenger railroad measure introduced on all governmental levels. He actively participated in the inaugural run of the Blue Water Limited, in which he stated that: "We are celebrating something we once took for granted and later abandoned." He also promised that: "Although the Blue Water is Michigan's first state assisted passenger train, it won't be the last."[42] He also went on to promote what was the state's most ambitious rail fund proposal to date: the $1.1 billion Bond Proposal, which was placed before the state's voters in November of 1974.

> The inauguration of the Blue Water service was hopefully the beginning of a vast program to bring back the passenger train to Michigan. State voters voted on a $1.1 billion transportation bond issue on November 5, 1974. $326 million of the money would be used to develop or rebuild rail and bus systems. The remainder of the money would be utilized for airport development ($100 million), port development ($50 million), bicycle and other non-motorized modes ($25 million), urban transportation ($540 million) and new systems ($20 million). The rail allocation includes improving of both freight and passenger facilities and $80 million has been set up to upgrade 650 miles of track with signal, grade crossing and possible route relocation projects. $15 million would be used to upgrade 500 miles of track to intermediate speed, including signal and grade crossing improvements. Money has also been allocated to purchase a sufficient number of cars to equip new trains. The

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[42] Roy Arpan, "The Inaugural Trip of the Blue Water Limited; Chicago-Port Huron", The Fast Mail, 4 (October, 1974), p. 6.

> bond solution to old and obsolete terminals, both bus and rail, is to establish ten intermodal terminals in major cities and upgrade or replace all other facilities.[43]

The bond proposal failed the referendum vote by a margin of close to fifty-seven percent. Although some were quick to interpret this failure as a negative public indication towards rail service, it has generally been reported that this was not true. The measure was heavily laden with aid to all modes and it was several of these which incurred the public's displeasure. It was generally agreed that the rail-oriented elements of the proposal would have passed on their own merits, but the comprehensive package was too optimistic in its attempts to successfully enact an all-encompassing comprehensive program. Most experts feel that the package will be presented again, in a new reduced form and that this new proposal which would still include the rail related legislation, should be successful.

The bill had also included a $542 million grant through SEMTA, which would be the state's share of an urban mass transportation system for the southeast section of the state. "The key to the SEMTA proposal calls for 75 miles of high level (exclusive right of way) transit in six major corridors. It was believed that rail rapid has the inside track. There is a five phase construction program for the area and the plan is an all encompassing multi-modal idea for the Detroit metropolitan area. Although there was no sure feeling as to the exact problem areas within the legislation, it seems that the SEMTA plan was a tenuous inclusion, especially due to the fact that

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[43] Ibid., p. 12.

this accounted for approximately half of the overall grant. At this time it is not specifically known in what areas cuts will be made, but the intercity rail related sections were generally agreed to be necessary and not harmful. Thus, although the defeat of the transportation bond proposal was a setback, it is not being viewed as a defeat. Other such measures (e.g., New York State) were rejected several times before their ultimate acceptance and it seems that Michigan's proposal may need but a few trimmings and alterations to make it an acceptable product.

Chapter II Current Legislation

A) The United States Railway Association

The second step of the overall U.S. Department of Transportation's regional rail reorganization process was the responsibility of the United States Railway Association. Their task was to develop a "Final System Plan" providing for the reorganization of rail services and the disposition of rail properties of the bankrupt railroads. The Association was authorized to issue obligations totaling not more than $1.65 billion to be used for making the loans necessary for the completion of the Act. On February 26, 1975, the Association published a "Preliminary Systems Plan" as a preliminary phase in final plan preparation.

> The Regional Rail Reorganization Act contemplated that this report and the plan which it describes would be 'preliminary', and the Association wishes to stress the aptness of that description. The February 26, 1975 statutory deadline has given the Association less than eight months from the date the Board of Directors to office to conduct a transportation planning effort of great complexity. During the period between the release of this report and the completion of the Final System Plan, USRA will continue the collection and refinement of relevant data and will develop more fully aspects of the rail services plan that are now tentative.[1]

Although this preliminary plan is conceptual in nature, many of the recommendations presented will be included in the final plan and, by law, become mandatory routes in the USRA system. In terms of the relationship of the preliminary plan to proposed Michigan passenger service, there are areas of

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[1] United States Railway Association, Preliminary System Plan for Restructuring Railroads in the Northeast and Midwest Region, (February, 1975), p. 3.

definite comparison. Despite the fact that the USRA plan is limited to discussion of the bankrupt reorganized railroads and is heavily freight-oriented in terms of data analysis and implementation, sections regarding proposed line abandonments, proposed passenger route extensions and future subsidy programs.

The Plan designates the following Michigan rail lines for intensive analysis:[2]

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[2]Ibid., p. 523.

TABLE 8

Intrastate - Penn Central

USRA Line #	Terminals
391	Lenawee Jct to Ida
392a	N & W Xing East of Adrian to Adrian
394	Grosvenor to Moreni
395/395a	Lenawee Jct to Manchester
398	Jonesville to Litchfield
402	Montgomery to Bankers
404	Fort Wayne Jct to Horton
436	Oakman Spur to Dearborn
438	Cairo to Colling
438a	Vassar to Caro
440	Bay City to Gaylord
440a	Bay City to Water Street Jct
440b	Gladwin Branch at Pinconning
441	Gaylord to Mackinaw City
442	Mackinaw City to St Ignace
443	Bay City to Midland
444	Munger to Denmark Jct
444a	Vassar to Denmark Jct
445	Vassar to Millington
445a	Millington to Lapeer Jct
445b	Lapeer Jct to Oxford
446	Saginaw to Hagar
446a	Denmark Jct to Hagar
447/447a/447b	Saginaw to Bay City

TABLE 8 (Cont'd.)

451/452/453	Rives Jct to Grand Rapids
454	Mackinaw City to Cadillac
454a	Cadillac to Cedar Springs
455	Lansing to Jackson
455a	Lansing to Saginaw
456/457/458	State Line to Vicksburg
458a	Kalamazoo to Three Rivers Jct
459/459a	Kalamazoo to Vicksburg
460	Grand Rapids to Moline to Plainwell
461	Cedar Springs to Comstock Park
461a	Comstock Park to Grand Rapids
463	Plainwell to Otsego
463a	Otsego to Dorr
463b	Dorr to Byron Center
463d	Lamar to Grand Rapids
464/465	Parchment to Doster
464a	Plainwell to Kalamazoo
466	Kalamazoo to Dowagiac
470	Traverse City to Walton Jct
472	Muskegon to Fuller
472a	Muskegon Heights to Muskegon
473	Haires to Three Rivers Jct
530a	Hudson to Cement City
635	Niles to Benton Harbor
636	Carleton to Detroit
680	Buchanan to Dowagiac

TABLE 8 (Cont'd.)

688	Oxford to Utica
692a/693a	White Pigeon Jct to Hillsdale
698	At Cheboygan (D & M Trackage Rights)

Ann Arbor Railroad

1300	Dundee to Owosso
1301	Owosso to Thompsonville

Interstate - Ann Arbor

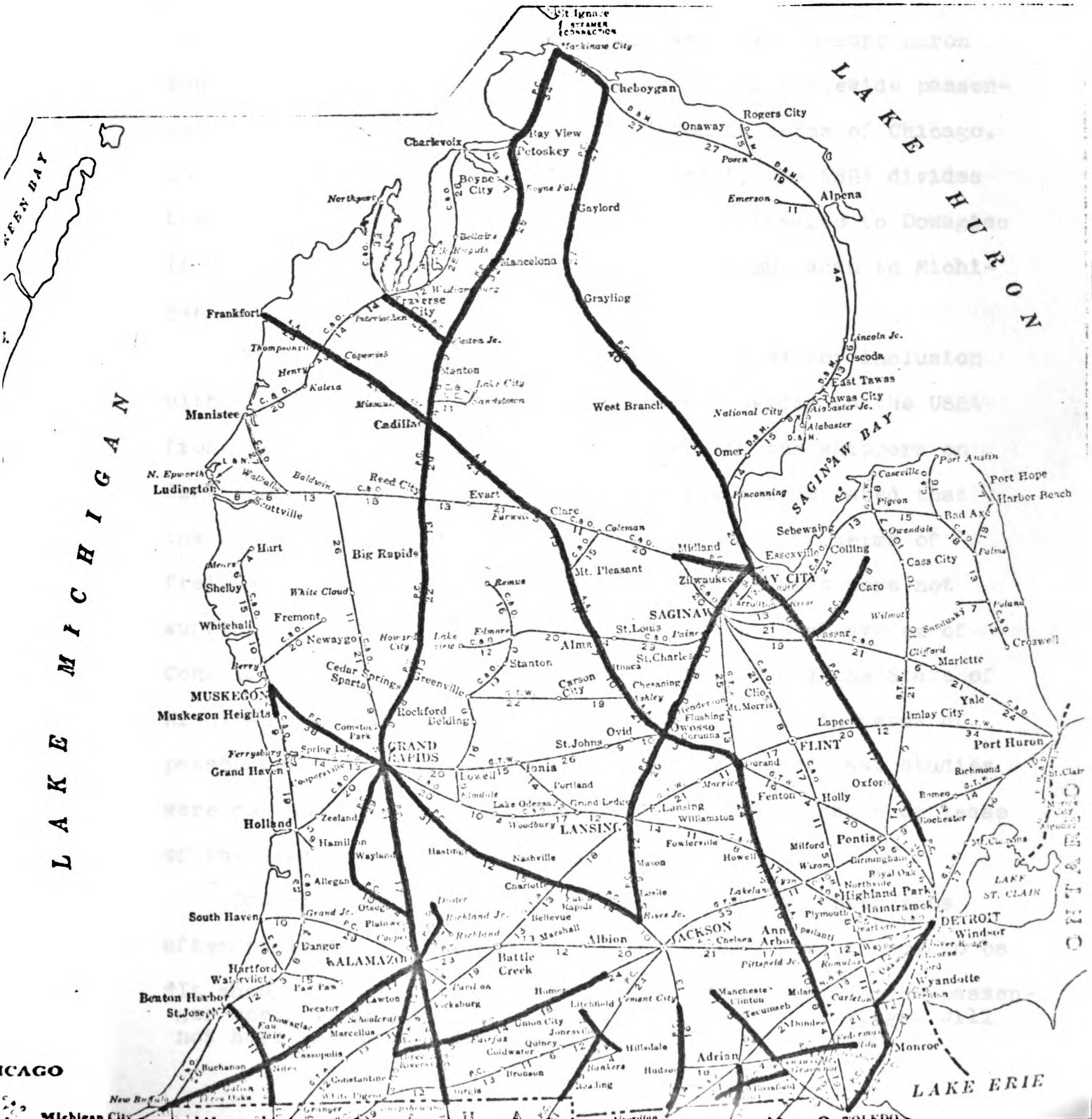
1302/1303	Thompsonville, Michigan to Kewaunee, Wisconsin

Penn Central

401	Montgomery, Michigan to South of Angola, Indiana
467	Buchanan, Michigan to Michigan City, Indiana
637	Niles, Michigan to South Bend, Indiana
393	N & W Xing east of Adrian, Michigan to Vulcan, Ohio
437	Carleton, Michigan to Alexis, Ohio (C&O Rights)
530	Hudson, Michigan to Bryan, Ohio

FIGURE 11

Michigan Lines Intensively Analyzed by the U.S.R.A.



This intensive analysis section covers some 1,616 miles of trackage (total includes trackage rights) in the state. In terms of existing passenger routes, there is one area of comparison: the Penn Central line from Kalamazoo going west to the Indiana state line at New Buffalo. The line is currently utilized by both the Chicago-Detroit and Chicago-Port Huron routes and is vital to the continuity of any statewide passenger system, given its strategic position in terms of Chicago. In its analysis of this particular segment, the USRA divides the line into three different sections: Kalamazoo to Dowagiac (# 466), Dowagiac to Buchanan (# 680), and Buchanan to Michigan City, Indiana (# 467).

Kalamazoo to Dowagiac was not recommended for inclusion within the Conrail system. Information provided to the USRA from the Rail Services Planning Office, various shippers on line and interested governmental agencies demonstrated that the line generates an excess financial burden in terms of freight revenues and that overall freight volumes were not sufficiently high to merit inclusion in the final system of Conrail.* Discussions were held with Amtrak and the State of Michigan regarding the route's necessary status in terms of passenger operations and both authorities stated that studies were currently underway to determine how the purchase or lease of the segment would be carried out.

Dowagiac to Buchanan was divided into two subsegments after preliminary analysis by the USRA, one of which was to be

*It should be here noted that Conrail, while considering passenger needs in the structure of its preliminary findings, will not have passenger operations under its jurisdiction.

recommended for inclusion in the Conrail system, while the other will be served by Conrail if passenger service is continued on line under Amtrak or with the aid of other transportation agency sponsorships. The first subsegment, from Dowagiac to Niles, was reassessed on the basis of traffic data at Dowagiac and found profitable. The second, from Niles to Buchanan, was re-evaluated on the assumption that the line will be operated by Amtrak, who will bear its maintenance costs. This subsegment will be served by Conrail on the condition that passenger service continue and the fixed plant costs are born by the passenger entity.

The final section, Buchanan to Michigan City, Indiana was not specifically ruled upon. Citing the fact that no significant information had been provided by interested parties, plus the fact that Amtrak and the State of Michigan expressed concern over the status of future passenger traffic on route, the USRA determined that the line did not appear, at first glance, to be financially self-sustaining in terms of freight traffic. They asserted that preliminary analysis will be completed sometime between the publication of the Preliminary Plan and the Final Plan.

Thus, it appears that the existing state passenger network has been given financial responsibilities by the Preliminary Plan. The percentage shared by Amtrak and the state is at present unknown, but given the fact that a current state-subsidized route (Chicago-Port Huron) is operating on this line, seems to demand some type of state assistance in the acquiring

or lease of these segments. Of definite benefit to the passenger system is the fact that since this line is not being included in Conrail and freight operations will be severely curtailed, the process of upgrading the Detroit-Chicago corridor to high-speed Turboliner service, with a minimum of freight conflict is greatly facilitated.

It does not seem appropriate at this time to discuss the ramifications which the remaining line segment decisions have on proposed passenger extensions. It is merely sufficient to note their presence and location, realizing that newly proposed passenger routes lying on such lines have this additional benefit/constraint according to the Preliminary Plan recommendations.

The second major impact of the USRA Preliminary Systems Plan on Michigan passenger service, concerns the recommendations for regional passenger service endorsed by the plan. The Plan acknowledges both the advantages and necessity for rail passenger service within the region and outlines existing Amtrak routes as a given. In a policy of limiting their passenger recommendations to high-speed corridor service, the USRA identifies and later recommends specific city pairs to be served by passenger service, with the Northeast corridor receiving special emphasis as deserving dense, high-speed service. In regard to the State of Michigan, two basic corridors were identified: Detroit-Chicago, and Detroit-Cincinnati.

According to the data compiled by the USRA,[3] "Detroit-

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[3]Ibid., p. 181.

Chicago, route length of some 284 miles, serves 12.85 million total population (Detroit = 4.43 mill., Chicago = 7.61 mill., intermediate SMSA's = .81). Present service level is approximately 6'50" travel time with 2 daily round trips. This compares to 6'00" highway travel time. The recommended service level is to attain 5'00" transit time and upgrade service to 4 daily round trips.

The Detroit-Cincinnati route, 282 miles in length, serves 7.42 million total population (Detroit = 4.43 mill., Cincinnati = 1.38 mill., intermediate SMSA's = 1.61). There are no present routes serving this area and highway travel time is 6'00". Transit time for the recommended service is to be 5'30", consisting of 2 daily round trips.

Thus, the plan suggests elevating Detroit-Chicago service to four daily round trips and establishing new Detroit-Cincinnati service. Because of the powers given to the USRA in their ability to designate a final system, plus the considerable amount of governmental backing, it seems almost assured that these new changes will be implemented. Given the overall status of the Detroit-Chicago corridor, upgrading the number of daily trips can only aid in the overall success of the system. The Detroit-Cincinnati corridor is another valuable addition to the Amtrak system. Besides the endpoint cities, this route will also serve such areas as Toledo and Dayton and generate greater traffic in terms of people into the Detroit metropolitan area, also giving the Michigan population alternative route patterns towards southern destinations. It would seem

at first glance that the State of Michigan would incur no financial responsibilities in this newly designated route. Service is between two major population centers and bi-state in nature, which is the type that Amtrak usually funds. It also seems that new routes designated by the USRA will be entirely Amtrak funded, given the nature of the USRA criteria and the fact that both are government sponsored/funded.

The final USRA ruling having connotations for Michigan passenger service regards federal funding procedures for rail continuations. As was mentioned in the economic inventory, sections 402 and 403 will provide monies to assist regional states in operating rail services, freight and passenger, over properties that will not be included in the Final Plan, but which the states deem necessary to prevent unemployment, energy shortages, or degradation of the environment and provide loans to assist states or local/regional transportation authorities in modernizing or acquiring properties not included within the Final Plan. Not only are these articles valuable in themselves, but there are current movements to increase section 402 funds, now authorized for two years, to eight years of availability. If an eight year program was approved, areas of service which were not included in the final plan, but were essential to comprehensive service (e.g., statewide passenger service) would be easily created at a minimum of statewide expense.

The USRA Preliminary Systems Plan has nay connotations for rail service for states within the designated regions. In the State of Michigan, the Plan expands passenger route services

by creating a new route and increasing frequencies on another. Its generous subsidy programs avail massive federal funds to aid in state-operated services and, by decreasing freight traffic on a major corridor, it facilitates the transition of that service to high-speed status.

B) The State of Michigan Railroad Needs Study

The State of Michigan has issued for publication through the Michigan Department of State Highways and Transportation, a Planning Report on Michigan Railroad Needs. This report is a preliminary step in the overall statewide endeavor to establish a viable, comprehensive freight/passenger network which will be submitted to the federal government in the form of a State Plan. This report is a preliminary study of the statewide rail need and is not to be considered as representative of final state policy regarding discussed properties, routes, or traffic. Despite this fact, the report is quite useful in determining where the main areas of emphasis lie and what prioritized goals, are envisioned for the final plan. It also alerts various public agencies, vested interest groups and the general public as to where areas of possible conflict lie, allowing them sufficient time to let their own views and needs be known so as they might be incorporated in some way into the final system.

The following are the goals for the Michigan railroad planning process:[4]

1) To provide and maintain an adequate and efficient railroad network within Michigan and linked to the regional and national network.
2) To promote present and future financial viability, stability,

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[4]Michigan Intercity Railroad Task Force, The Michigan Railroad Needs Study, (February, 1975), p. 17.

and efficiency within the Michigan railroad system.

3) To maintain and promote competition as needed in the provision of transport services.

4) To provide service for existing economic base activities and subsequently encourage desirable patterns of social and economic growth and development within Michigan.

5) To minimize adverse social and economic impacts of changes in railroad service.

6) To promote the ecological and aesthetic quality of the environment.

7) To improve the energy efficiency of transportation services.

8) To provide for the equitable distribution of public subsidy costs among state, regional, and local jurisdictions proportionate to the benefits received.

9) To develop the institutional capability for implementing policy, i.e., enabling legislation and funding provisions to carry out chosen State policy regarding railroads.

Although the report is heavily concentrated on freight routings, there is a section on passenger movements which describes the conceptual outlook of the state towards a final passenger system. Under section 3.1.2.4., Passenger Routes and Proposals, the existing system is acknowledged with emphasis on the fact that the State has entered into subsidy agreements with Amtrak. It is also pointed out that this re-establishment of passenger service within the state is the beginning of an extensive program of service extensions planned for the late 1970's and early 1980's.

A system has been designed to connect major urban areas within the state, a major urban area being defined as one with 50,000 plus population. These areas would be serviced by high-speed (80-110 mph), high frequency (at least four round trips per day) rail passenger routes. There were no specifics as to when this system would be operational.

"Based on criteria that included population, availability of existing direct trackage, and present corridor travel volume by all modes, five corridors were identified for high-speed, high-frequency service. In order of priority they are:"[5]

1) (Chicago) Kalamazoo-Ann Arbor-Detroit
2) (Chicago) Battle Creek-Lansing-Flint-Port Huron
3) Detroit-Flint-Saginaw-Bay City
4) Detroit-Lansing-Grand Rapids-Muskegon
5) Grand Rapids-Kalamazoo-(Chicago)

The costs involved in preparing the right-of-way for such high speed and frequency operations are such that the State has designated the new system to aim for achievement of this route structure over a minimum of trackage miles. For example, the Port Huron and Grand Rapids routes will utilize sections of the Detroit-Chicago mainline, rather than traditional routes demanding other line improvements. Grade Crossing improvements or eliminations are mentioned specifically as methods which, although accruing great public benefits to the overall system, are quite costly to investigate and implement.

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[5]Ibid., p. 50.

"An estimated $175 million would be needed for the five route system to finance stations, and upgrade track and signal systems. This amount would have been provided by the $1.1 billion bond issue which was defeated in the November election. Alternate methods of financing are being explored, including the possibility of a revised bond issue in 1976."[6]

Besides the basic system which was previously listed, there have been four generalized areas defined for further study:[7]

1) North-south service on both the east and west side of the Lower Peninsula
2) Connections with the high-speed network at Grand Rapids and Bay City
3) North-south service from eastern Wisconsin north into the Upper Peninsula
4) East-west service across the Upper Peninsula between Ontario and Wisconsin/Minnesota

Final determination on the creation of these routes would be made based on population, track availability, nearness to key recreational areas, and potential shared benefits for improved freight service.

Administration of this newly proposed system could be continued under the present agreements between Amtrak and the State, by a proposed quasi-public State Rail Corporation (Currently under consideration by the legislature), or by a

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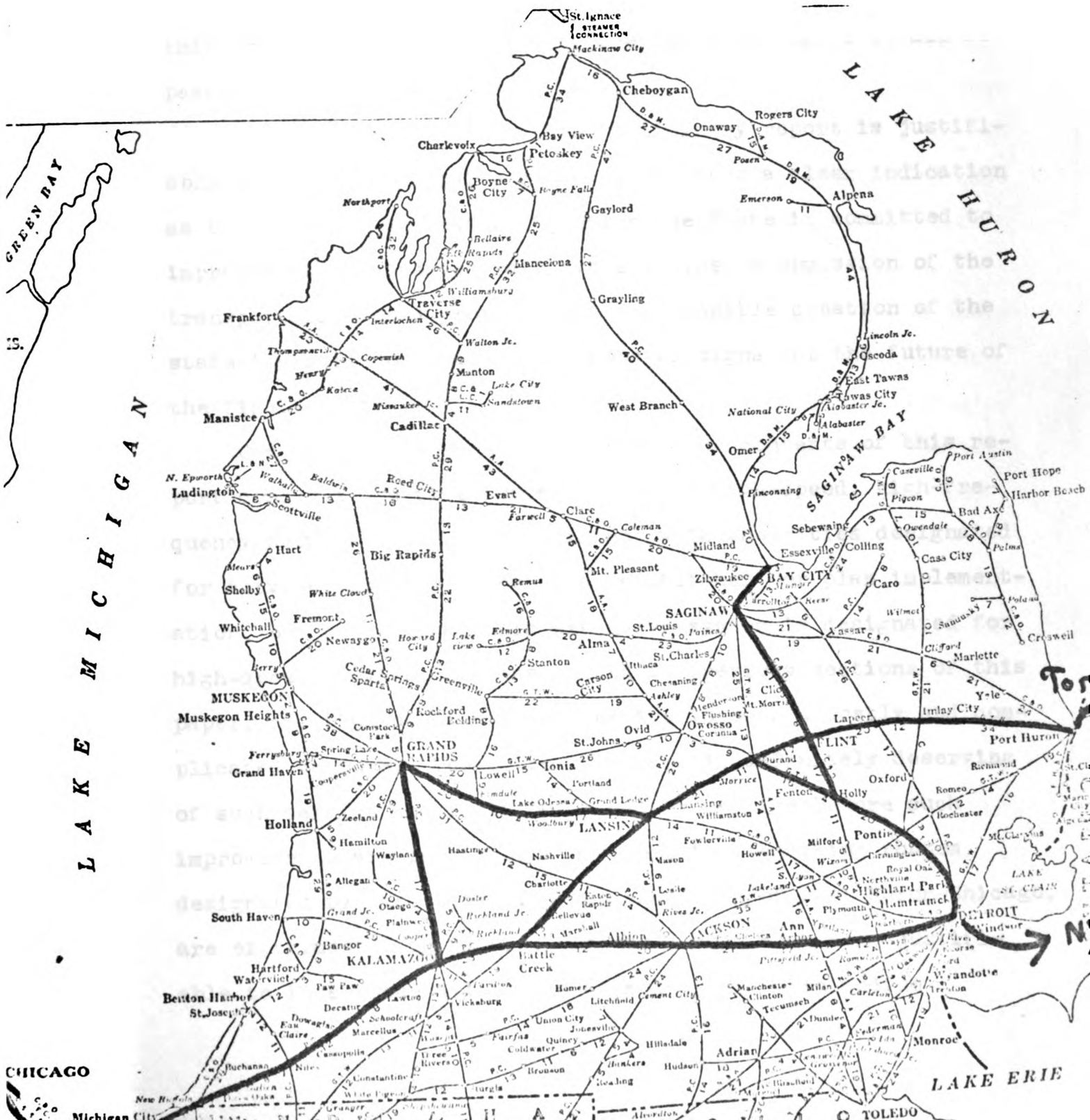
[6]Ibid., p. 52.

[7]Ibid., p. 52.

FIGURE 12

Proposed State Passenger Network

By the Michigan Rail Study



combination of these three parties. Since public subsidation is certain to be required for these proposed efforts, it is stated that goals should clarify the need for such aid. A consultant has provided the State with a report on how to determine or evaluate rail passenger proposals. It is stated that this report will be utilized by the State in regard to all new passenger route proposals.

Despite the fact that this preliminary report is justifiably long-range and quite general, it gives a clear indication as to the scope and extent by which the State is committed to improving the passenger rail system. The resubmission of the transportation bond proposal and the possible creation of the statewide rail corporation are hopeful signs for the future of the final network.

One area of concern arising from the contents of this report concerns the five-route designated high-speed, high-frequency network. The problem is not with the cities designated for service, nor the priorities established for plan implementation, but rather that this extensive system is designated for high-speed service. As was stated in previous sections of this paper, creation of high-speed service is both a costly and complicated venture. The Detroit-Chicago is definitely deserving of such service and it is but a matter of time before such improvements are instituted; however, the remaining routes designated by the State with the exception of Port Huron-Chicago, are experimental in nature. It would seem much more justifiable to insert these lines as 60 mph speeds with medium

frequency service, at least until their success could be firmly gauged in terms of public benefits and ridership rates. By creating such an extensive high-speed network, there also involves freight conflicts. The proposed passenger network would force the substantial amount of freight traffic currently running on the lines to either adapt to higher speeds, or resort to utilizing other lines. This is particularly difficult considering the fact that freight carriers are not willing to run at higher speeds and there are few, if any, alternative routes available as substitute freight routes. Thus, it seems that this extensive high use proposal is relatively inoperable.

By utilizing this 60 mph basic speed network, fixed costs of implementation would be reduced greatly, such sunken funds would not be lost if passenger service was later downgraded or modified since freight would still benefit from improvements, and monies would be available to more seriously consider the four generalized areas of future expansion as designated by the report.

Another concern regarding the report deals more specifically with the four lower priority areas of future expansion. Although these are generally stated, they involve service on rail lines that are currently in jeopardy according to preliminary indications of the USRA. Thus, they should be compiled into more than merely a conceptualized form so as to indicate interest in these segments and persuade the USRA to hold judgement that would abandon these segments and make reinstatement at a later date much more costly.

The overall feeling towards the report is one of optimism. If anything, the State has acted in an overly ambitious manner towards the future system, which is the complete opposite of what one might have expected given the previous years' attitudes on passenger service. The basic goals and objectives of the State are clear and concisely presented and consider all aspects of concern which are involved in transportation and are in tune with those desires expressed by federal legislation regarding the formulation of such state plans.

A final section of the report recommends some eighteen rail-related positions which the State should adopt as official policy concerning future rail decisions. Of this list, the following have direct impact upon the creation of a final expanded statewide rail passenger system:[8]

a) All federal-aid funds for railroad programs will be utilized to the greatest extent possible.

b) The Regional Rail Reorganization Act of 1973 provides funds (which require 30% matching) to subsidize continuation of rail service. It will be the State's policy to continue in operation for the two-year period any lines that meet the criteria established for the subsidy funds.

c) A State Rail Plan that meets criteria published by the Federal Railroad Administration will be produced, with adequate opportunity for public participation before implementation. The Department will seek out and promote adjustments in services and traffic in their attempt to preserve service,

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[8]Ibid., pp. 99-102.

with abandonment only as a last resort.

d) Line abandonment proposals are expected to continue in future years. The State will require that official notification of intent for such abandonment be made at least one year in advance of submitting a formal petition to the Interstate Commerce Commission so that the State can pursue an effective planning process in cooperation with the carrier and the communities affected.

e) Major decisions on the extent of the rail system should not be made on the basis of projected availability of track and ties for needed upgrading of the system. Such "limitations" should be considered as temporary deficiencies that could be corrected over time, while the loss of rail service must be considered "irreversible".

f) Michigan believes that rail passenger transportation has many advantages not currently being exploited. Preliminary studies indicate the viability of some corridors is greatly enhanced by considering passenger service potential. Proposals for expanded Michigan inter-city and commuter rail service will be developed and evaluated.

Such State policies, if formally adopted, would lay a firm groundwork for creation and support of a truly unified, comprehensive State rail plan for both passenger and freight movements. It coordinates fully with present Federal aid programs, sets strict priorites, and rationally examines important aspects of rail-related actions prior to making final decisions.

Chapter III The Final Plan

A) Evaluation Summary

The State of Michigan has an extensive layout of rail trackage covering virtually all areas of the Lower Peninsula. For the most part, trackage standards in the state are less than adequate; however, conditions are such that with a reasonable amount of repair, rights-of-way could be restored to acceptable (e.g., 60 mph) standards.

In terms of existing passenger service, the State has shown itself to be a leader in the Amtrak program, especially in terms of the 403-B shared subsidy program. The Detroit-Chicago route has experienced increased ridership to such an extent that high-speed Turboliner service is soon to be implemented along the line. Besides this route, the State also operates three of the eleven state-subsidized Amtrak lines nationwide, consisting of 631 of the total 1,972 miles in this system. These lines have shown every indication of success since their inception and two are particularly noteworthy. The Detroit-Buffalo service marked the first time that two states had ventured into a single subsidized line. The Detroit-Jackson route was important in that it marked the first Amtrak commitment to short-run service of this kind. Another proposed route from Port Huron to Toronto provides direct service from the United States to Canada.

The Port Huron to Chicago route was heavily endorsed by many political figures in the state and began service after a series of minor difficulties which delayed the original

proposed startup date. As is the case with the other statewide routes, preliminary indications have shown that the line is faring better than was predicted.

Terminal facilities within the State are currently in a phase of transition with many stations located on existing passenger routes being renovated in order to provide the proper comfort and services for passengers. Although this process is certain to be long term in nature, given the years of dilapidation that preceded the reorganization process, the extent and nature of the state's commitment is such that future prospects in terms of these facilities is most optimistic.

In Chapter II it was demonstrated that there exists a number of social benefits provided by rail passenger service. Because of these benefits, it is possible to de-emphasize the necessity for tangible economic gain on such routes. Such ideas have also fostered the theory that rail passenger routing is a public service and may be federally subsidized and provided irrespective of economic gain.

Social-related studies ranking variables involved in the provision of rail passenger service, according to passenger preference, enables us to realize what services should be provided in order to attract the maximum ridership potential. Variables such as reasonably good and reliable travel times, good scheduling and an adequate level of comfort are integral elements to be provided in order to obtain good ridership.

Rail passenger/freight conflicts must also be considered in any widespread route structure. Previous experiences,

especially in high-volume areas, have alerted us to the problems created by poor freight-passenger coordination. Although freight volumes may be benficial in terms of retaining lines that might otherwise be abandoned, in most cases, such congestion may result in poor on-time performances for delayed passenger trains. Another consideration was the fact that freight trains are incompatible with high-speed passenger rights-of-way and, in most cases, are content to travel at medium speeds (e.g., 60 mph).

Utilizing criteria developed in terms of desired network conceptualization, twenty-seven Michigan cities were selected in terms of their population and social-recreational attractions as candidates for receiving rail passenger service. Fourteen of these selected cities currently have passenger service, including commuter runs.

Economic and political considerations which were reviewed in their respective sections, demonstrated several important points about a future statewide network. Primarily, although there is expected to be no dramatic upward changes in terms of yearly operating deficits on existing Michigan rail passenger lines, Amtrak studies demonstrate gradual cutbacks in operating losses as progress is made on rolling stock and roadbed improvements and ridership rates increase to peak levels. Despite this fact, outlooks for funding within the state are most optimistic. Michigan has demonstrated a willingness and ability to commit state funds to rail passenger programs and recent efforts (e.g., $60,000 towards state rail plan development,

$1.1 million bond issue) have done nothing to dissuade this outlook for future years. The 403-B program insures the availability of obtaining desired rail lines and the Rail Continuation Subsidy program offers the funding aspects to the various states desiring to institute such service.

Federal involvement has also increased to the point where nationalization of the right-of-way and possible electrification of various passenger lines, especially in corridors of high accessibility, are being seriously considered on Capitol Hill. The State of Michigan has been progressing towards a system of track rehabilitation through the utilization of various state funds and Federal Unemployment Relief monies. Both these measures are positive steps towards aiding the current rail crisis, particularly in the case of restructuring the rights-of-way.

The recently released Preliminary Systems Plan of the United States Railway Association had several definite implications for Michigan rail passenger routes. Penn Central and Ann Arbor railroad lines, which comprised a significant proportion of the total state trackage, were intensively studied with regard to their potential abandonment. Although these recommendations did little to hinder the existing system, they manifest many ramifications towards lines that may be included in a final comprehensive rail network. This is not to infer that the USRA Plan is incorrect in their abandonment assumptions, nor that it is harmful towards future rail networks, but rather that it must be recognized as a stimulus to action

in terms of designating lines which have present unperceived values or those which will be necessary at a future date.

The USRA Plan also added another route to the present Michigan system when it designated the creation of service in the Detroit-Cincinnati corridor. Although the Plan is but a recommendation for future service, when one considers the political and legal impact given to the USRA's final network, it is plain to see that such suggestions will be implemented at time of Final Plan adoption.

The final impact of the USRA Plan proposed increasing from two to eight years, the $90 million per year rail continuation subsidies available to states who wish to retain or commence service on a line not recommended for inclusion in the Final Systems Plan.

A last, but most important recent event which concerns the future state of a Michigan passenger rail plan, is the conceptual network presented in the Michigan Preliminary Planning Report on a State Rail Plan. This report, though conceptual in nature, details a future rail passenger system which demonstrates the scope and extent of the network envisioned to be the final state system. Although this thesis is in no way connected with the efforts currently underway by the Michigan State Department of Highways and Transportation regarding formation of a state rail plan, networks conceived within the criteria of this paper must duly note and consider proposals presented by the State as indicative of their final legislative policy.

The State has also detailed generalized long-range policy considerations detailing general geographical areas to be served by lines yet to be specified. The implication is that consideration of these alternative policies will commence only at such time when completion of the basic route system is completed. Financial probabilities are also enhanced by the promotion of creating a quasi-public rail corporation whose basic responsibility would be to create and operate a statewide rail system consisting of those lines abandoned by the USRA and not currently operated by Amtrak agreement.

In this cursory examination of the State Report, one basic area of question arises. The high-speed, high-frequency nature of their proposed passenger network seems to be in conflict with existing conditions, such as freight movements and incremental costs. The tremendously high capital investment involved in creation of this network, plus the fact that although areas of further study are defined, they are not elucidated regarding alternative areas of expansion after the primary system is created.

The relationship of this State conceptual report to the final plan to be presented in this paper had no significant effects, save the fact that general directions are outlined. The State Report was utilized not as a guiding criteria for policies presented in this plan, but rather as a supportive element in network design similarity. For the most part, the State Report greatly enforced the overall scope of the network proposed within this paper. The State's ideas were much higher

in terms of financial commitment, their network was more intensive, and their alternatives broader in scope. Thus, the network proposed here seems most rational when compared with the much more extensive plans prepared by the State.

B) Goals and Objectives of the Final Plan

In attempting to establish a statewide passenger plan, there is a need to define the various goals and objectives which will guide the selection of routes and, thus, the final route pattern. As far as long-range, comprehensive goals are concerned, those evolved in the Michigan Rail Needs Planning Report (listed on page 95 of this paper) are quite thorough and will be utilized in this plan as the long term policy objectives for the preparation of this network.

In this thesis, a series of short-range concerns have been developed derived from analyses of previous sections, which will place limits on network formulation. These restraints or limitations, which are utilized as immediate goals and objectives in the derivation of the plan, are as follows:

1) All proposed and alternative lines shall operate on existing trackage
2) Proposed and alternative routes shall be intra-state in nature; all connections to areas outside the state of Michigan may occur on the high-speed, high-frequency Detroit-Chicago corridor line.
3) High priority shall be given to those proposed lines which lie on trackage currently designated as not for inclusion in Conrail in the USRA Plan, in order that their value in terms of passenger service be realized prior to release of the Final Plan.
4) All proposed and alternative routes shall aim to achieve 60 mile per hour operating speeds in order to insure that

speeds will be such to make rail service competitive with other modes, but not so high as to present problems for accompanying freight traffic.

5) Although realization of an economic profit shall not be a necessity for immediate or short-run plans, attempts will be made to structure a system which will not abuse the fact that funding aid is available.

6) Conceptual networks established by previous sections (e.g., cities eligible on the basis of population/recreation attractiveness) while valuable in the sense of establishing limits for system creation, are not all-inclusive universal elements which must be served by passenger routes. Final network arrangements shall be made in terms of combinations of various conceptual systems which, in congruity amongst themselves, are supportive to the extent of deserving service.

Thus, I have developed these six short-range policy objectives from the data analyzed in the previous sections. Their purpose is to provide rational limitations on the formulation of my final plan network and alternatives for further study. The State of Michigan's goals, while well-conceived and quite thorough, are the type of broad range policies most useful in a preliminary conceptual network. My goals, on the other hand, are conceived as action-oriented prerequisites to final plan formulation.

C) The Final Plan

The following is the route structure I propose for the final systems plan regarding a state rail passenger network. The first section details the basic proposed plan including existing routes, routes not yet in existence, but certain to be implemented in the light of their recommendation by a given authority and routes proposed as additions to the system, recommended as aresult of analysis completed within this work. The second section details alternative routes which would replace or restructure final plan segments which through various situations, were deemed appropriate to be changed. The final section relates alternative routes which are additions to the basic structure proposed in the final plan. Routes are identified in terms of major cities on route.

TABLE 9

I. Final Plan Network

a) Existing System

1) Detroit--Ann Arbor--Jackson--Battle Creek--Kalamazoo--Niles--Chicago

2) Port Huron--Flint--Lansing--Battle Creek--Kalamazoo--Niles--Chicago

3) Detroit--Buffalo, New York (through Canada)

*4) Detroit--Yipsilanti--Ann Arbor--Jackson

*5) Detroit--Birmingham--Pontiac

b) Subsequent routes (in final proposal stages)

6) Port Huron--Toronto, Canada (connecting with Port Huron--Chicago)

7) Detroit--Toledo, Ohio--Dayton, Ohio--Cincinnati, Ohio

c) Newly proposed routes

8) Detroit--Pontiac--Flint--Saginaw--Bay City--Midland

9) Detroit--Pontiac--Durand--Lansing--Grand Rapids--Muskegon--Grand Haven--Holland--Benton Harbor--Niles (connections with Detroit-Chicago)

II. Restructured Alternative Routes

1) Detroit--Pontiac--Durand--Lansing--Grand Rapids--Kalamazoo

2) Detroit--Livonia--Howell--Lansing--Grand Rapids--Kalamazoo and/or Muskegon routes.

III. Additional Alternative Routes

1) Bay City--Alpena--Cheboygan

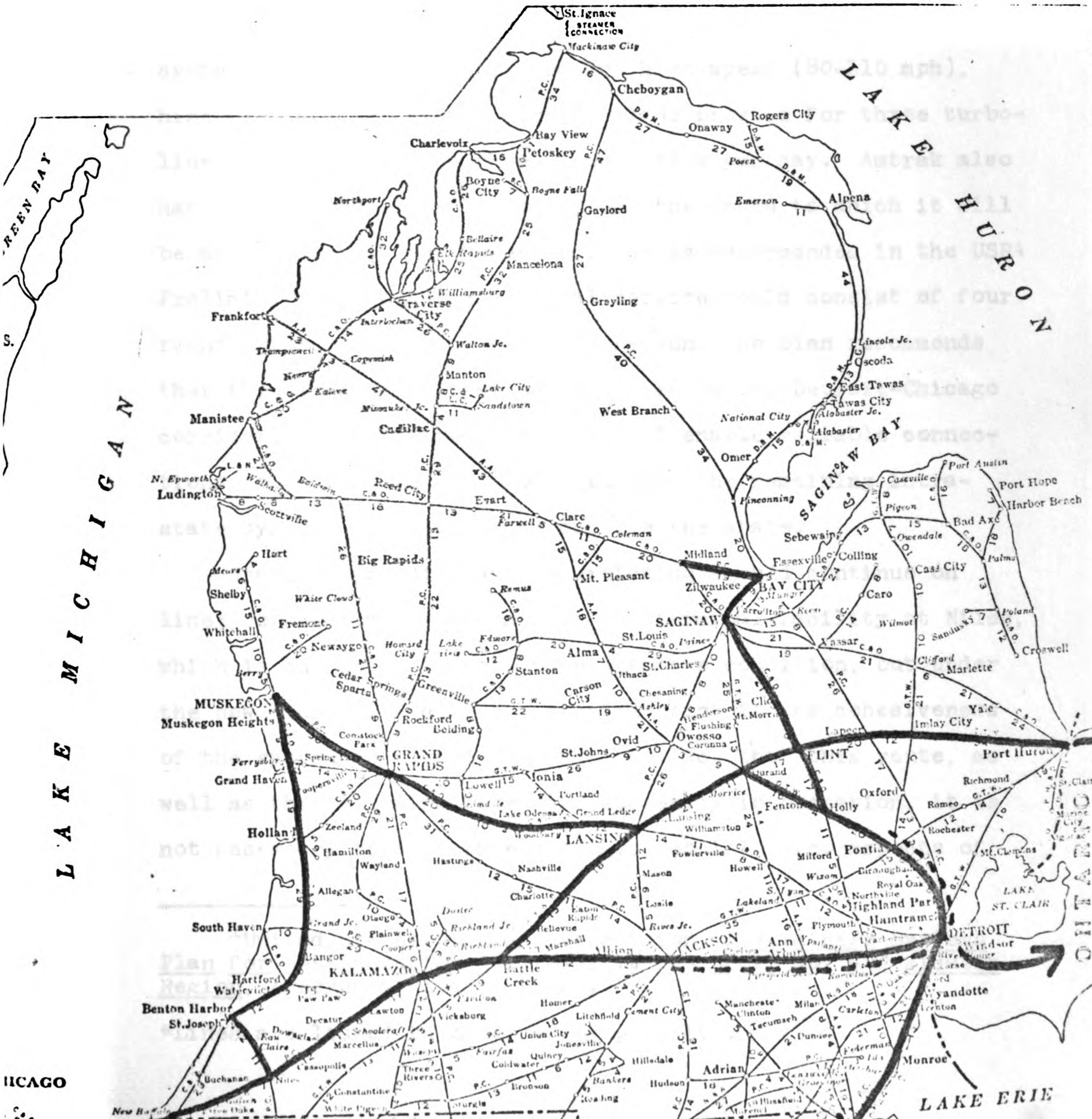
2) Bay City--Grayling--Cheboygan

3) Grand Rapids/Kalamazoo--Cadillac--Traverse City--Petosky--Mackinaw City

*Lines are listed in order of my priority.

FIGURE 13

Propsed State Rail Passenger Plan



In describing these elements which make up the final recommended Michigan rail passenger plan it seems appropriate to give a detailed description of the various parameters under which these lines shall operate. We shall first address those lines recommended for the basic systems plan:*

1) The Detroit-Chicago line will be key line in the overall system. It should be upgraded for high-speed (80-110 mph), high-frequency service. Current plans provide for three turboliners which would run three round trips per day. Amtrak also has another turboliner ordered, but the route to which it will be assigned is as yet undecided. As is recommended in the USRA Preliminary Systems Plan,[1] ideal service would consist of four round trips per day and for this reason, the plan recommends that the final turboliner be relegated to the Detroit-Chicago corridor. Such frequent service will enable reliable connections to be made between this line and the remaining intrastate system, towards points outside the state.

Station upgrading and refurbishing should continue on line; especially in the case of the terminal facility at Niles, which is currently in less than adequate condition, but under the new plan, will act as a pivotal point in the cohesiveness of the system as a whole. Given the fact that this route, as well as the following four, are currently in operation, it is not necessary to reiterate economic, social, etc. aspects of

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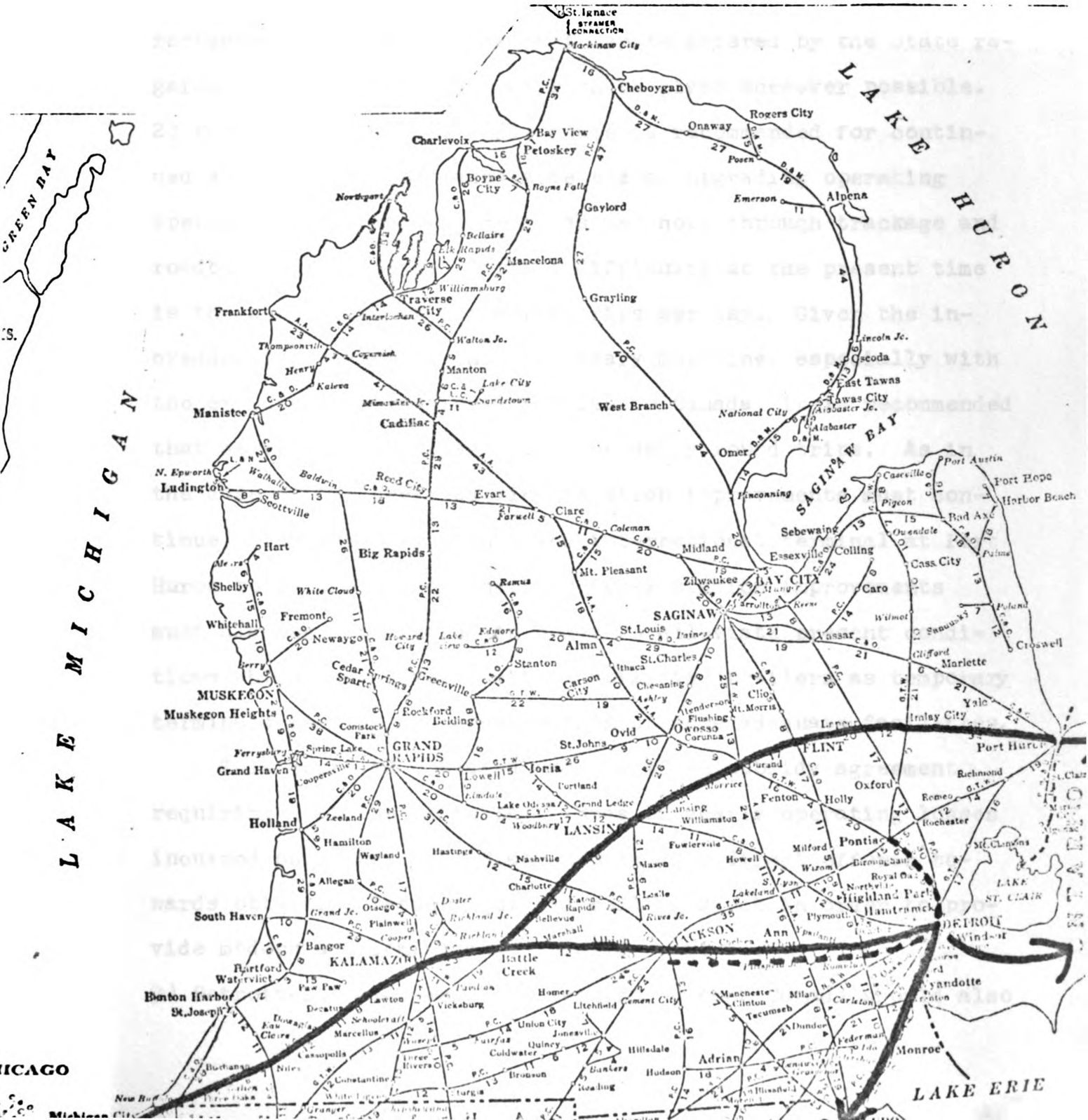
[1]United States Railway Association, Preliminary Systems Plan for Restructuring Railroads in the Northeast and Midwest Region, (February, 1975), p. 27.

*Lines are listed in order of my priority.

FIGURE 14

Present Passenger Route Structure



the route which have been presented in previous chapters. It may be sufficient to state that in the case of the Detroit-Chicago route, the full operating costs are absorbed by Amtrak. Thus, financial burdens on the State Department of Highways and Transportation are minimal, although the plan strongly recommends such assistance that may be offered by the State regarding various operating aspects be given whenever possible.

2) Port Huron-Chicago. This route is recommended for continued service with increased attempts at upgrading operating speeds to an average of 60 miles per hour through trackage and roadbed improvements. A prime difficulty at the present time is the scheduling of two round trips per day. Given the increased importance of this secondary mainline, especially with the expected international service to Canada, it is recommended that service be increased to three daily round trips. As in the case of the previous line, station improvements must continue, with the newly conceived international terminal at Port Huron to be the prime concern. Other station improvements must also be effectuated in order to alleviate present conditions which have several cities utilizing trailers as temporary terminals pending the construction of more adequate facilities.

This route is operated under a 403-B subsidy agreement requiring that the State pay 2/3rds of yearly operating losses incurred on route. The State should also direct efforts towards obtaining better equipped rolling stock in order to provide modern and comfortable service on route.

3) Detroit-Buffalo, New York service through Canada should also

continue. This route is a model of bi-state cooperation in rail passenger and provides a route service which, although desirable, was found to be unsuccessful in other route alternatives. It is recommended that one round trip per day service continue unless ridership increases to the point where additional service is deemed desirable. Provisions should be directed by the State of Michigan to improve trackage to the point where a 60 mile per hour speed would be averaged. Possibilities exist and should be researched regarding arrangements with Canada to provide stops in that country and in attempting to lease or purchase Canadian equipment.

Cost considerations on this route should be minimal in the sense that the usual two-thirds operating agreement has been decreased to one-third shares for each of the parties involved.

4) The Detroit-Jackson commuter type route. Another novel decision in regard to Amtrak expansion should be continued with increased scheduling adjustments made as deemed necessary by ridership rates. It is expected that trackage will be no real problem considering the fact that this route lies on the Detroit-Chicago corridor. Instead, major efforts should be aimed at obtaining rolling stock in much better condition than is currently utilized on route.

5) Detroit-Pontiac service is currently in very good shape. Since this is also a commuter type operation, there is little major implications regarding the overall plan. It is recommended, however, that this important service continue at

present levels of service. Funding agreements between the Grand Trunk Railroad and the State of Michigan, through SEMTA should also continue, with preparations made for possible State or State/Amtrak takeover should unforeseen circumstances threaten route continuance.

It should be mentioned in respect to the two lines just previously described that, in the light of present attempts by SEMTA and the City of Detroit to obtain a metropolitan transit system under federal funds from the Urban Mass Transportation Authority[2], there may be necessary alterations of these current commuter operations caused by the implementation of such action.

The following two routes are included in the existing system; although they are not presently operating, it is but a matter of time before their implementation.

6) Port Huron - Toronto service is in the final stages of approval. Given the nature of this service (international) plus the fact that Canadian rolling stock is to be utilized in the operation and higher standards of Canadian rights-of-way, it seems that this service will be beneficial to all parties involved. Although the funding procedures are not presently known, it would seem that such costs to the State would be restricted towards improving the Port Huron international terminal and two-thirds of the yearly operating loss on route which should not be very high given the extent to which this service exists within the state. (The implication is that the Canadian

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[2]Thomas Kizzia, "Rail Rapid for the Motor City", Railway Age, (September, 1974), p. 42.

section of the route will involve minimal operating losses, given the present structure of their rail system).

7) Detroit-Cincinnati, Ohio service as recommended by the USRA Preliminary Systems Plan is endorsed by this plan. Besides providing valuable service to several high density areas not currently being served, it also gives Michigan residents a number of alternative connections from their statewide network. Recommended service calls for two daily round trips per day between the two areas. Given the fact that the USRA has recommended the creation of this route, it is necessary upon legislative approval of the Plan, that Amtrak fund total operations on route. Other facility-type provisions which would be provided by individual states, present no real problem since the only Michigan terminus is Detroit, and this area is already well-developed in terms of facilities for handling passenger services. The one problem that should be guarded against in relation to this additional service is the increased congestion created at Detroit. High priority should be assigned to coordinating rail passenger traffic within the Detroit metropolitan area so as to facilitate passenger movements in these areas.

The following routes are new system components, justified on the basis of previous inventory data evaluation and are also recommended for inclusion in the final plan.

8) Detroit-Tri-Cities service is recommended on the fact that this relatively concentrated high population area (Saginaw, Bay City, Midland = approx. 176,474 pop.) as designated by

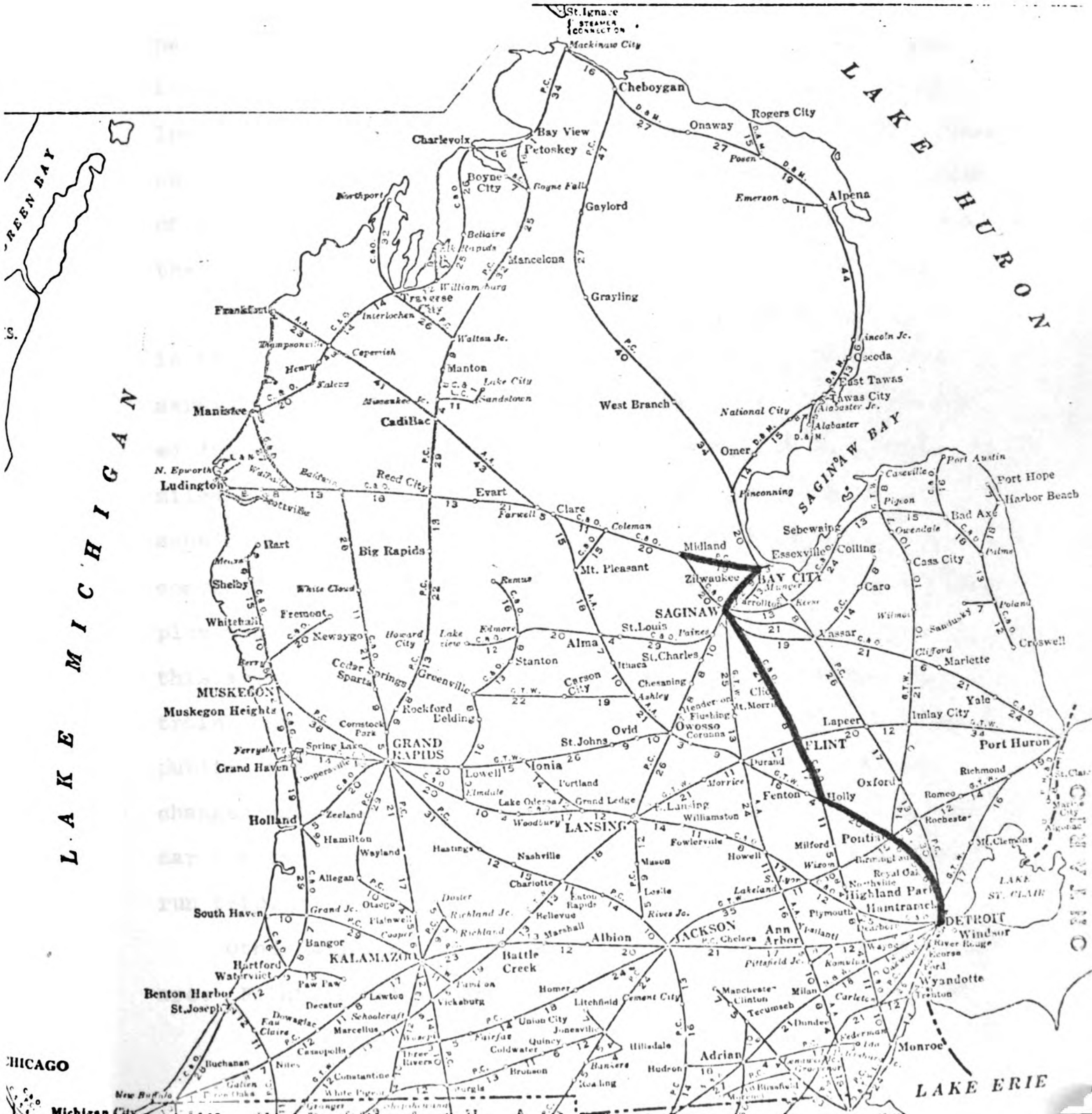
the major cities map, is not currently served by passenger service. There are relatively large highway volumes within this general area as demonstrated by the State 1971 Average Traffic Flow Map and such a route would provide viable connections with both the Port Huron-Chicago and Detroit-Chicago routes. Total route mileage from Detroit to Midland is approximately 124 miles; good relative length for this type of service and the route runs over a combination of Grand Trunk Western, Chesapeake and Ohio and Penn Central trackage. The Penn Central trackage runs from Saginaw north to Bay City and from Bay City west to Midland and both of these sections are recommended for inclusion within the Conrail network.

From all available sources researched within this report, this trackage is classified as no better than class 1. In order to achieve the desired 60 mile per hour averages, it will be necessary to achieve class 3 and, given the fact that this speed reliability is a necessity in order to achieve sufficient ridership volumes, it is hereby recommended that all funds received in the state rehabilitation efforts, be given, as first priority, to those routes which are designated to operate passenger service.

From examination of other 403-B subsidy routes which entail conditions similar to those encountered here it is possible to estimate the state's share in terms of yearly operating loss to the route. Both of the new routes recommended for service within this final plan network would be operated with Amtrak under the 403-B service arrangement. Although the

FIGURE 15

Additional Route 1



state has mentioned the possibility of a state rail corporation, the fact that this proposal is in the conceptual stages necessitates that new routes be run under the Amtrak system. Based on previous 403-B data, it seems that with a minimum of 50% load factor (average number of passengers carried as compared with available numbers of seats) the route would cost the state approximately $64,800. for the first year. These losses would be expected to decrease as improvements were made on line and ridership increased. Viewing this total in terms of previous and committed Michigan rail funds, it seems that there would be no real problem in handling such a deficit.

One particularly innovative idea concerning this route is the fact that the line extends to Midland, as opposed to merely stopping at Saginaw and Bay City. This was recommended due to the fact that there was relatively little extra mileage involved (19 miles one-way), the USRA Plan had not scheduled this Penn Central segment for abandonment and the combination of the population involved (Midland = over 35,000) plus the fact that it was deemed desirable to keep people in this area from having to travel to Bay City or Saginaw for train connections. It is often the case that once a potential public transportation passenger enters his auto, he often changes his mind concerning the public mode and utilizes his car for the entire trip, especially in the case of a short-run trip.

Other major areas served by this Detroit-Tri-cities route are: Flint, Pontiac and the northern suburbs of the Detroit

metropolitan area.

9) Detroit-Niles via Grand Rapids and Muskegon. A basic inconsistency in the existing passenger network was the fact that the Grand Rapids area was not being served. The second recommended route tied in the Grand Rapids area with its two major cities of interaction: Lansing and Detroit. Observing the population/recreational map (Figure 9), it was also discerned that Muskegon and several cities located along the western shoreline were not being served, but seemed to possess several desirable aspects regarding the inception of this service.

Thus, a second major new route was devised, stretching some 300 miles in total length, which would connect the major areas of Detroit, Lansing, Grand Rapids, Muskegon, Muskegon Heights, Grand Haven, Holland, Benton Harbor and connect with the Detroit-Chicago corridor at Niles. Connections with Port Huron/Toronto-Chicago could also be made at Lansing. The route runs along Grand Trunk Western, Chesapeake and Ohio and Penn Central trackage. Of the 38 miles between Grand Rapids and Muskegon, 28 would be utilized on Penn Central property not scheduled for inclusion within the Conrail network (the remaining 10 miles would be traveled on Grand Trunk parallel right-of-way). If the State were to wish to purchase this segment for passenger service, costs of acquisition could run close to $1.8 million,[3] but some of this might be regained by

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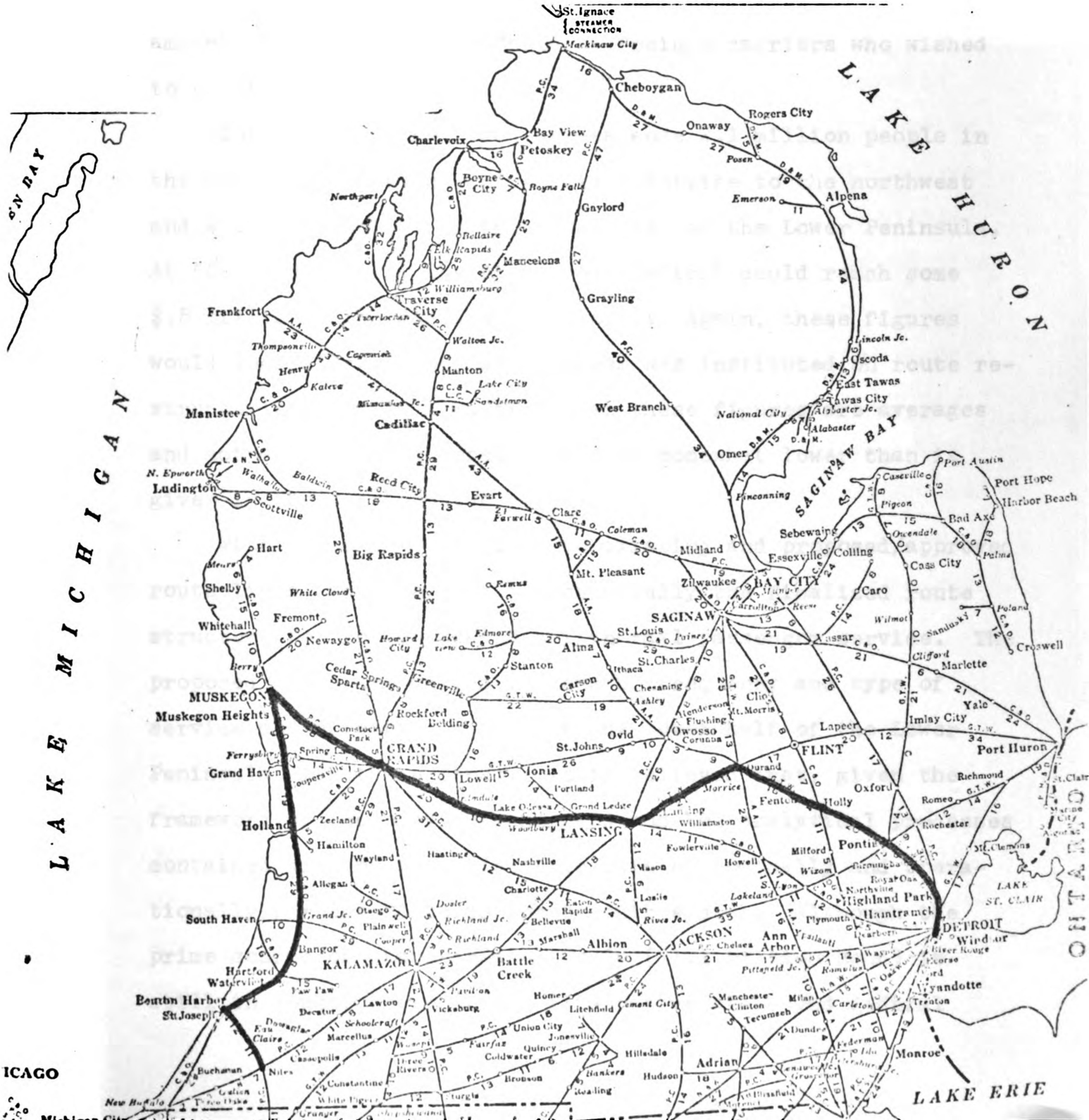
[3]Richard M. Corbett, Recommendation for the Chicago Area Rail System for 1995, A Technical Report, (September, 1973), p. 14.

FIGURE 16

Additional Route 2



leasing with freight carriers. The remaining Penn Central segment from Benton Harbor to Niles is recommended for inclusion in the Conrail system. The key item here seems to be the willingness and ability of the State to purchase the excess segment. As was also stated, another key point here could be the amount of lease monies offered by freight carriers who wished to utilize the line.

Potentially, the line serves some 2.1 million people in the major cities alone and provides service to the northwest and western sections of the lower half of the Lower Peninsula. At 50% load factor, the first year deficit could reach some $.8 million (Michigan share of loss). Again, these figures would logically improve as progress was instituted on route restructuring. It is also true that these figures are averages and actual operating losses could be somewhat lower than is given in the previous two routes.

With these two additions to existing and proposed/approved route lines, we have what is essentially the finalized route structure for recommended Michigan rail passenger service. The proposed lines are varied in length, frequency and type of service and effectively blanket the lower half of the Lower Peninsula with these lines. It is believed that, given the framework of the previous chapters and the analytical processes contained within, it is feasible both economically and operationally for the State to create this system. Although the prime source of state-created funds ($1.1 billion Bond) is still in doubt, there exists alternative state and federal

sources from which these funds may be derived. This is not to underestimate the attractiveness of the Bond Proposal which, if it passes next attempt, will greatly speed up terminal and roadbed rehabilitation processes and spur overall economic gain on routes benefiting from these improvements.

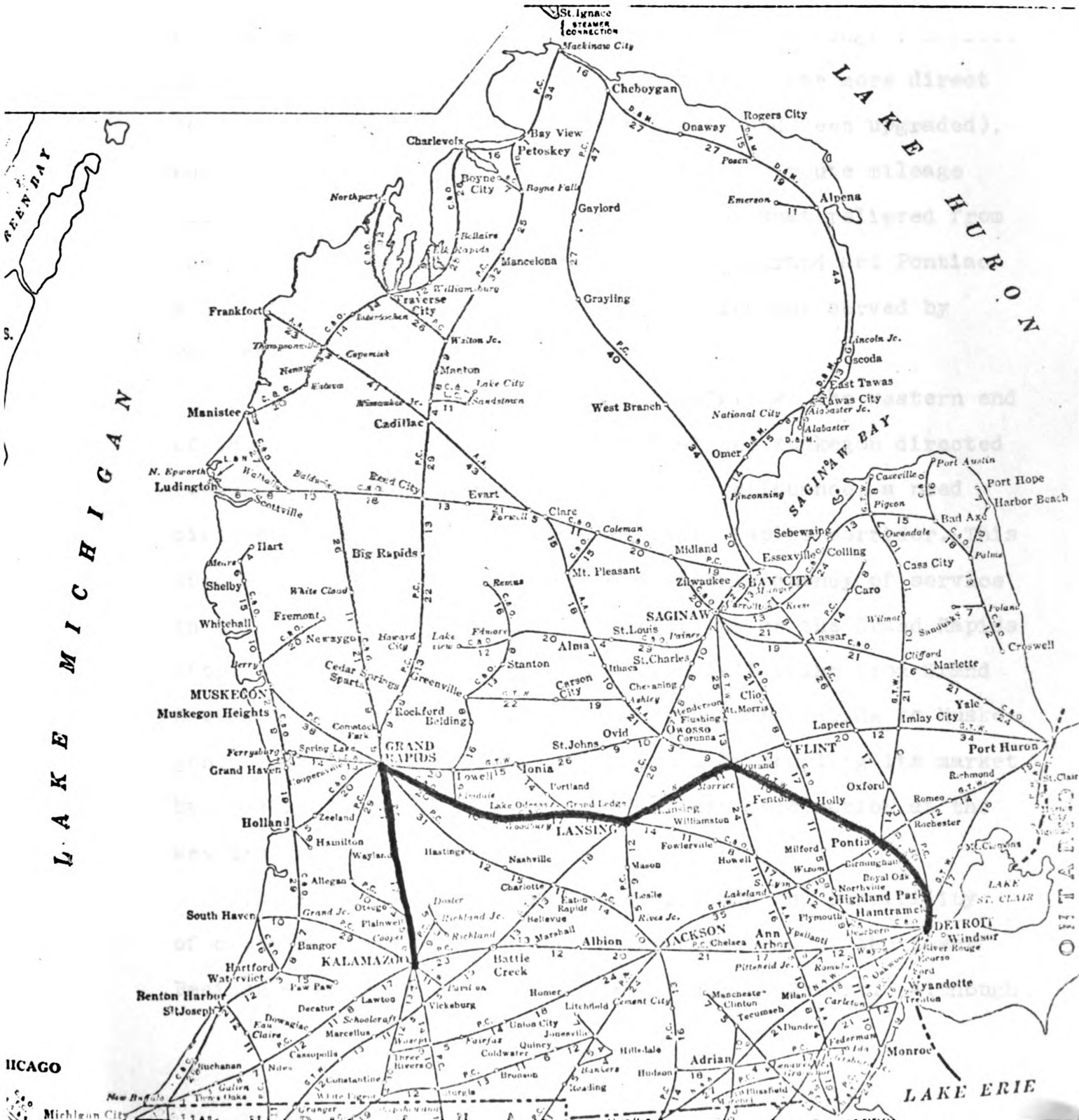
These route additions have been presented in the order in which they should be implemented and the entire process is aimed at a completion date of 1980, at which time the system should be fully operational. Despite the fact that this system is viewed as the most desirable and economically viable system for the State at this time, there are a number of other possibilities or alternatives which have been raised in the analysis sections of this report, and areas of future study defined by the State in their Planning Report. A short discussion of these alternatives follows, noting that it is recommended that the preceding overall systems plan be implemented prior to addressing these issues. Two of the alternatives regard changes that might be made on proposed final plan routes and the other three mention possible areas of future long-range (1990?) additions to the system.

Restructuring Alternatives

1) This first alternative is in relationship to the Detroit-Niles, via Grand Rapids and Muskegon route. This alternative entails utilizing the Penn Central Grand Rapids to Kalamazoo line, which is slated for inclusion in the final Conrail network, as an alternative to the western shore route pattern. This route would be necessary in the case that problems

FIGURE 17

Restructured Alternative 1



concerning line purchase or economics of the original route arose after implementation. This action would shorten route length, as well as population and geographical areas served by the operation and would be instituted only if the route proved such a financial savings necessary.

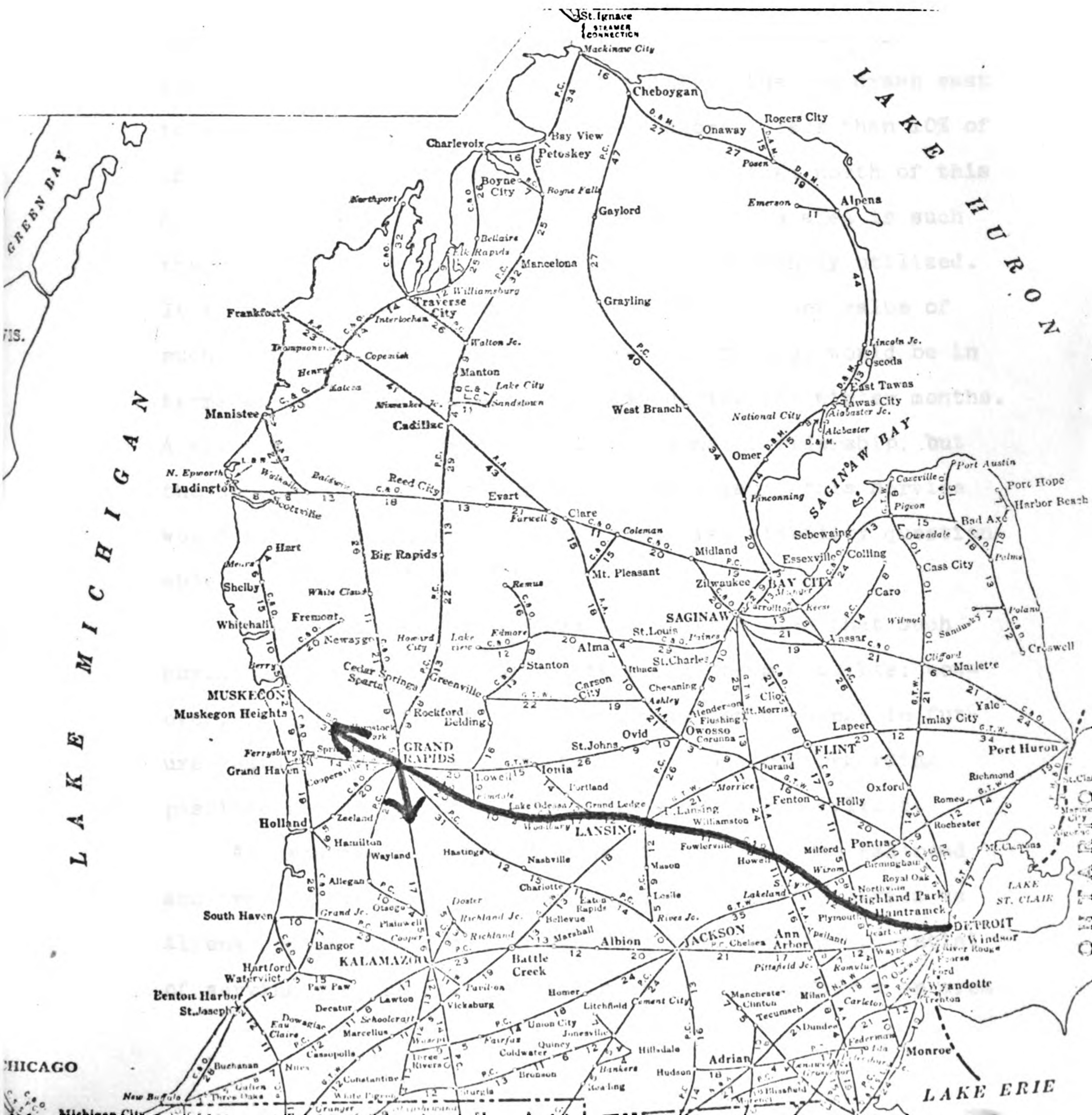
2) The second restructured alternative is two-pronged; Detroit to Lansing routing would be switched over to the more direct Chesapeake and Ohio line (after this line had been upgraded), which would have three distinct advantages: route mileage would be lessened, congestion would be somewhat relieved from the heavily traveled Grand Trunk lines at Durand and Pontiac and a line segment serving different cities not served by passenger service could be included.

The other alternative involves traffic at the western end of the line. If it was determined that the Muskegon directed route was successful enough to warrant continuance, a need might also exist for the Kalamazoo-Grand Rapids corridor. This suggested alternative would increase the frequency of service in this direction and alternate operations at the Grand Rapids stop. Volumes would be equally split, half going from Grand Rapids to Kalamazoo and half going from Grand Rapids to Muskegon. Thus, this particular route would be doubling its market by creating two possible points of origin/destination at the western section of the state.

The final set of alternatives approach the possibility of creating a passenger route to the north end of the Lower Peninsula as mentioned by the State Planning Report. Although

FIGURE 18

Restructured Alternative 2



there seems to be no justifiable need for such service at the present time, it is admitted that such a course of action may be feasible in the long-range future. It is true that major cities have been defined as being located in this area and that numerous recreational attractions are located here; however this population is not significant enough to attract passenger train service. If an imaginary line was drawn east to west from Bay City to the western shores, less than 10% of the State's total population would be contained north of this area. The recreational attractiveness of this area is such that the major highway network is most prevalently utilized. It is viewed here that the only possible foreseen value of such train service, at least in the near future, would be in terms of weekend service, especially during the winter months. A ski train could be successful, in terms of ridership, but the amount of fixed costs necessary to arrange this service would be such as to make overall financial viability questionable.

Thus, it is the recommendation of this plan that such northbound service does not at this time seem feasible; however, in the light that these variables could change in future years, three separate options are discussed regarding possible routes on which such service could be utilized.

Alternative one uses the Detroit and Mackinaw Railroad and travels along the eastern shore, serving such cities as Alpena and Cheboygan. Although this route has the potential of serving the greatest population base, it traverses an area

FIGURE 19

Addition Alternative 1

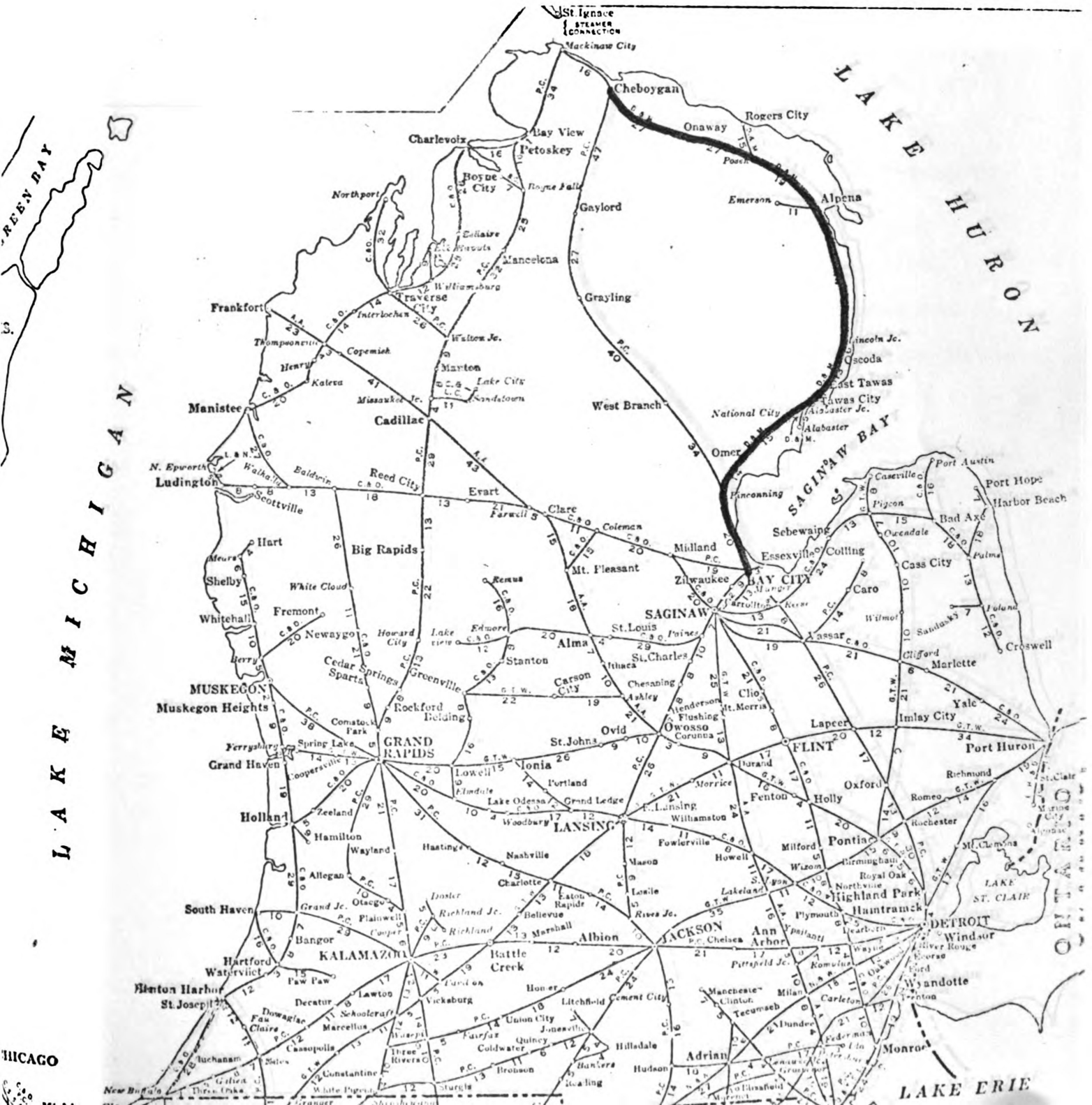
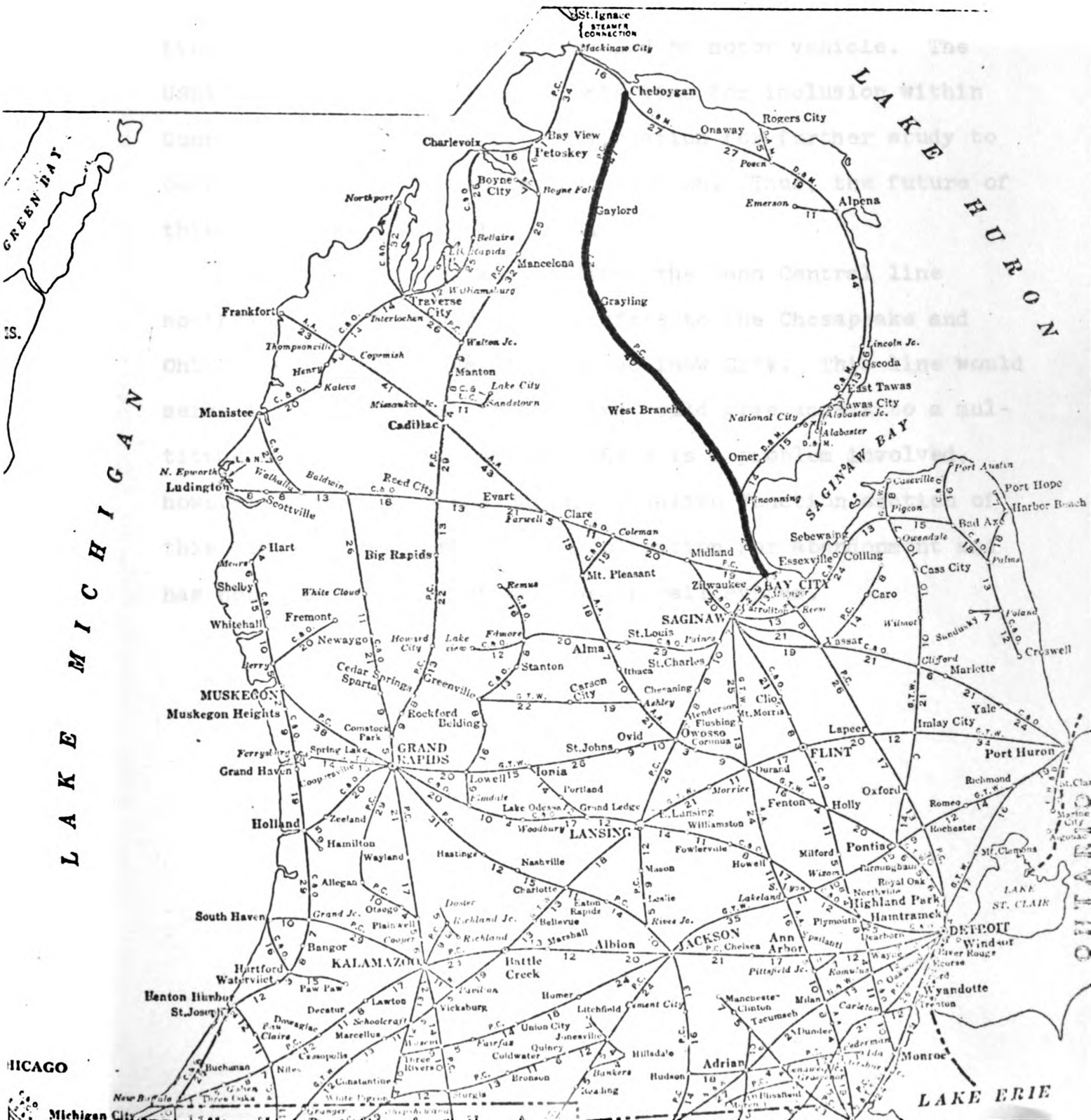


FIGURE 20

Addition Alternative 2



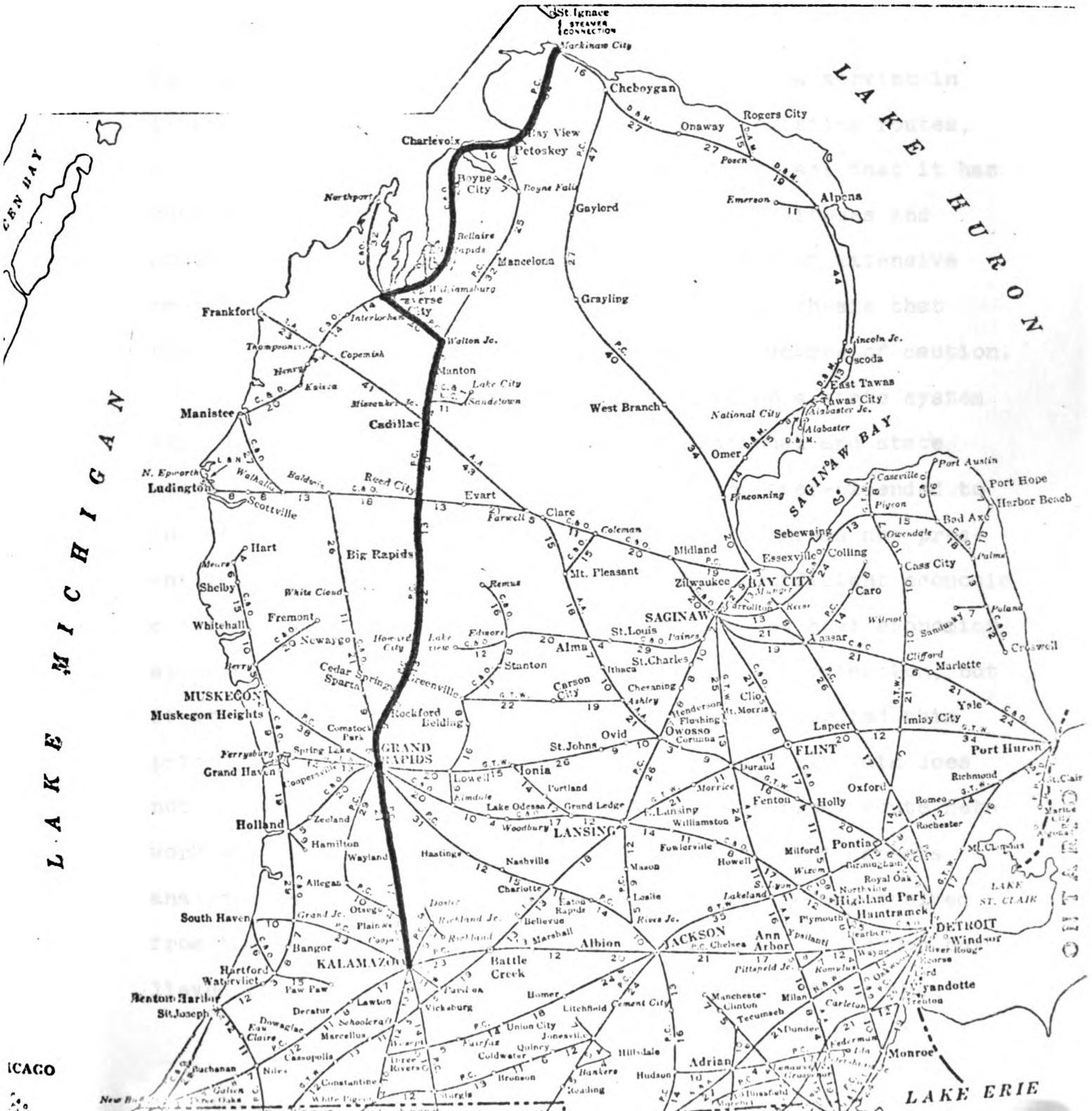
which contains the least in recreational attractions.

Alternative two lies on the Penn Central line running northwest from Bay City through Grayling and Gaylord to Cheboygan. This section of the state seems to be heavily populated with recreational areas and highway volumes indicate this section to be the most heavily traveled by motor vehicle. The USRA Plan has not recommended this line for inclusion within Conrail, although there is a stipulation for further study to occur on the Bay City to Gaylord section. Thus, the future of this line is seriously in doubt.

The final alternative utilizes the Penn Central line northward from Kalamazoo and trasfers to the Chesapeake and Ohio line from Traverse City to Mackinaw City. This line would serve a medium population area and would give access to a multitude of recreational areas. There is a problem involved, however, since the Grand Rapids to Walton Junction section of this route is currently under application for abandonment and has not been included within the Conrail system.

FIGURE 21

Addition Alternative 3



D) Summary and Conclusions

In summation, it may be said that the State of Michigan is well on its way towards a state rail passenger network. A combination of the various existing social, economic, political trends, with the existing and immediately proposed passenger rail routes, give the State an excellent base from which to begin. Recent proposals aim to establish new service in beneficial areas and to upgrade and improve existing routes, rights-of-way and rolling stock. Despite the fact that it has been demonstrated that there are sufficient attitudes and monies available to provide for the initiation of extensive passenger networks, it is the position of this thesis that these factors must be applied with a certain degree of caution.

A prime goal in this study was to develop a state system that would be comprehensive in terms of national and state needs, but also viable in terms of not being over-extended to the degree where service would be provided in areas not presently having, or not capable of generating, sufficient economic consistency. True, this paper has demonstrated that economics alone cannot be the sole criteria for route determination, but it is also inversely true, (and this paper has applied this principle), that the mere non-emphasis on economic gain does not connote expansion wherever possible. The final route network was formulated not in terms of one or several aspects analyzed in the Inventory, but as a system which was evolved from the application of all gathered criteria. It is not believed that a system can be constructed, at least one that

would be viable for the long term, from the application of a general categorized criteria (e.g., to serve all cities of 10,000 or more). There would be no quicker method of killing off such a new system than to over-extend its capabilities in terms of ridership or economic capabilties.

Thus, the recommendations in the final plan presented within this paper are tempered by these factors and two basic route additions are proposed, which would serve two specific markets (the tri-city area and the Grand Rapids-Muskegon area) not presently being served. It was also these types of considerations that led to the determination to designate these new lines, as well as existing lines, as medium-speed, medium-frequency routes, in order that they might be compatibly integrated with freight traffic.

It is also realized that because of the possible changing events in this area, especially in terms of ridership and economic support, there might be the necessity for revision of these proposals. Thus, a series of restructuring alternatives is given for these new lines, which, although restricting or altering former line structure, enable service to continue in the basic market area.

Because of expressed political persuasions from the state and those reiterated in the State Rail Needs Study, it is realized that there may be some future time when rail passenger service to the northern half of the Lower Peninsula may be viable and desirable. As has been stated, it is the viewpoint of this paper that such an alternative is not currently feasible.

Nevertheless, three alternative routes are listed demonstrating possible patterns to this area. It would seem that existing bus service would easily handle the transit ridership currently occuring here and there should be a consideration of arranging schedules in order to facilitate passenger interface between these modes.* Also, there is a possible market for special trains such as winter ski trains on these routes, but this depends on the amount of northern trackage remaining in the future, as well as the availability of funds for creation of such service.

*Amtrak has current agreements with Greyhound Bus Lines to establish intermodal service in areas not served by passenger rail.

APPENDIX

APPENDIX

TABLE 10

Michigan Railroad Abandonments*

1) Railroad Company - Grand Trunk Western
   Terminii - Brush Street to Saint Antoine (within Detroit)
   County - Wayne
   Length in Feet - 880'
   Docket Number - AB-31
   Status - New Application
   Date Filed - March 19, 1973

2) Railroad Company - Penn Central
   Terminii - Adrian to Clayton
   County - Lenawee
   Length in Miles - 6.3
   Docket Number - AB-5 Sub-36
   Status - Approved, effective thirty-five days from date
   Date Filed - March 27, 1973

3) Railroad Company - Penn Central (owned by the Penndel Co.)
   Terminii - Cedar Springs to Mackinaw City
   Counties - Kent, north to Cheboygan
   Length in Miles - 201.9
   Docket Number - AB-5 Sub 1 9
   Status - New Application
   Date Filed - April 2, 1973

4) Railroad Company - Chesapeake and Ohio
   Terminii - Southwest of Coleman, to Northeast of Mount Pleasant

*Abandonment data gathered from issues of Traffic World, ICC Decisions sections, dated January, 1973 through February, 1975.

County - Isabella

Length in Miles - 11.64

Docket Number - AB-19 Sub-6

Status - New Application

Date Filed - June 25, 1973

5) Railroad Company - Penn Central (portion owned by Penndal Co.)

Terminii - Sturgis, Michigan to Kendallville, Indiana

County - Saint Joseph

Length in Miles - 37

Docket Number - AB-5 Sub-172

Status - New Applications

Date Filed - July 23, 1973

6) Railroad Company - Penn Central

Terminii - Gaylord to Mackinaw City

Counties - Otsego to Cheboygan

Length in Miles - 62.3

Docket Number - AB-5 Sub-175

Status - New Application

Date Filed - July 23, 1973

7) Railroad Company - Penn Central

Terminii - Albion City Line to its terminus

County - Calhoun

Length in Miles - .2

Docket Number - AB-5 Sub-189

Status - New Application

Date Filed - August 27, 1973

8) Railroad Company - Penn Central

Terminii - Eaton Rapids Line to terminus

County - Eaton

Length in Miles - .6

Docket Number - AB-5 Sub-190

Status - New Application

Date Filed - August 27, 1973

9) Railroad Company - Penn Central

Terminii - Lansing City Line to Terminus

County - Ingham

Length in Miles - .6

Docket Number - AB-5 Sub-191

Status - New Application

Date Filed - August 27, 1973

10) Railraod Company - Penn Central

Terminii - Fort Wayne Junction to Horton

County - Jackson

Length in Miles - 14.7

Docket Number - AB-5 Sub-193

Status - New Application

Date Filed - August 27, 1973

11) Railroad Company - Grand Trunk Western

Terminii - Marne to Grand Haven

County - Ottawa

Length in Miles - 21.5

Docket Number - AB-31 Sub-2

Status - New Application

Date Filed - October 28, 1974

12) Railroad Company - Grand Trunk Western

Terminii - Imlay City to Caseville

Counties - Lapeer to Huron

Length in Miles - 66.3

Docket Number - AB-31 Sub-3

Status - New Application

Date Filed - October 28, 1974

13) Railroad Company - Chesapeake and Ohio

Terminii - Lakeview to Edmore

County - Montcalm

Length in Miles - 12.5

Docket Number - 26885

Status - Approved, effective thrity-five days from date

Date Filed - December 19, 1974

14) Railraod Company - Chesapeake and Ohio

Terminii - Williamsburg to Elk Rapids

Counties - Grand Travese, Antrim

Length in Miles - 9

Docket Number - AB-18-5

Status - New Application

Date Filed - 1974

15) Railroad Company - Chesapeake and Ohio

Terminii - Traverse City to Northport

County - Leelanau

Length in Miles - 32

Docket Number - 26757

Status - New Application

Date Filed - 1974

16) Railroad Company - Penn Central

Terminii - Traverse City to Walton Junction

County - Grand Traverse

Length in Miles - 26

Docket Number - AB-5-48

Status - New Application

Date Filed - 1974

17) Railroad Company - Cadillac and Lake City

Terminii - Missaukee Junction to Lake City

Counties - Wexford, Missaukee

Length in Miles - 12

Docket Number - AB-4 Sub-1

Status - New Application

Date Filed - 1974

18) Railroad Company - Chesapeake and Ohio

Terminii - Remus to Edmore

Counties - Montcalm, Mecosta, Isabella

Length in Miles - 16

Docket Number - AB-18-1

Status - New Application

Date Filed - 1974

19) Railroad Company - Chesapeake and Ohio

Terminii - Port Hope to Harbor Beach

County - Huron

Length in Miles - 7

Docket Number - 26927

Status - New Application

Date Filed - 1974

20) Railroad Company - Penn Central

Terminii - Lansing to Paines

Counties - Ingham, Clinton, Shiawassi, Saginaw

Length in Miles - 59

Docket Number - AB-5-191

Status - New Application

Date Filed - 1974

21) Railroad Company - Penn Central

Terminii - Grand Rapids to Plainwell

Counties - Kent, Allegan

Length in Miles - 43

Docket Number - AB-5

Status - New Application

Date Filed - 1974

22) Railroad Company - Penn Central

Terminii - Hastings to Charlotte

Counties - Barry, Eaton

Length in Miles - 27

Docket Number - AB-5-150

Status - New Application

Date Filed - 1974

23) Railroad Company - Penn Central

Terminii - Doster to Richland

Counties - Barry, Kalamazoo

Length in Miles - 8

Docket Number - 26939

Status - New Application

Date Filed - 1974

24) Railroad Company - Penn Central

Terminii - Kalamazoo to Richland Junction

County - Kalamazoo

Length in Miles - 9

Docket Number - 26706

Status - New Application

Date Filed - 1974

25) Railroad Company - Penn Central

Terminii - Kalamazoo to South Haven

Counties - Kalamazoo, Van Buren

Length in Miles - 39

Docket Number - 26696

Status - New Application

Date Filed - 1974

26) Railroad Company - Grand Trunk Western

Terminii - Jackson to Lakeland

Counties - Jackson, Ingham, Livingston

Length in Miles - 35

Docket Number - AB-31-1

Status - New Application

Date Filed - 1974

27) Railroad Company - Penn Central

Terminii - Jackson to Alvordton, Ohio

Counties - Jackson, Lenawee, Hillsdale

Length in Miles - 43 (in Mich.)

Docket Number - AB-5-112

Status - New Application

Date Filed - 1974

28) Railroad Company - Lake Superior and Ishpeming (Upper Peninsula)

Terminii - Marquette City line

County - Marquette

Length in Miles - 2.4

Docket Number - AB-68 Sub-1

Status - Approved, effective 35 days from September 3, 1973

Date Filed - September 3, 1973

29) Railroad Company - Chicago and North Western (Upper Peninsula)

Terminii - Wakefield to Connorsville

County - Gogebic

Length in Miles - 5.3

Docket Number - AB-1 Sub-5

Status - Approved, effective 35 days from date

Date Filed - July 23, 1974

30) Railroad Company - Chicago and North Western (Upper Peninsula)

Terminii - Swanzy to New Swanzy

County - Marquette

Length in Miles - 4.19

Docket Number - AB-1 Sub-4

Status - Certificate and Order, Effective 35 days from date

Date Filed - February 10, 1975

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