

HE
2771
.M5
M52
1982

MICHIGAN RAIL SYSTEM RATIONALIZATION PLAN

TIER II
PHASE I
THE ANN ARBOR REPORT



Michigan
Department
of Transportation

MICHIGAN DEPARTMENT OF TRANSPORTATION

MICHIGAN RAIL SYSTEM RATIONALIZATION PLAN

Tier II

Phase I

The Ann Arbor Report

March 26, 1982

STATE TRANSPORTATION COMMISSION

Hannes Meyers, Jr., Chairman
Carl V. Pellonpaa, Vice Chairman

William C. Marshall
Lawrence C. Patrick, Jr.

Weston E. Vivian
Rodger D. Young

DIRECTOR

John P. Woodford

CONTENTS

INTRODUCTION 2

 Program Background
 Ann Arbor System
 Program Strategies

STUDY OBJECTIVES AND APPROACH 9

 Rail Rationalization
 Ann Arbor Problem Statement

REGIONAL ECONOMIC BACKGROUND 16

 Agriculture
 Forestry
 Mining
 Employment
 Relationship to the Ann Arbor

ANALYTICAL FRAMEWORK AND ANALYSIS ELEMENTS 29

 Framework
 Analysis Elements
 Rail User Survey

THROUGH TRAFFIC ANALYSIS 38

ANN ARBOR SYSTEM ALTERNATIVES 41

 Termination of Cross Lake Service
 Toledo to Ann Arbor
 Toledo to Whitmore Lake
 Toledo to Durand
 Toledo to Ithaca and Swan Creek
 Toledo to Harlan/Yuma (Sand Mines)

ANALYSIS SUMMARY 52

CONCLUSIONS 61

INTRODUCTION

Program Background

Michigan's rail freight program began in 1976 in response to the bankruptcies of the Penn Central Railroad (PC) and the Ann Arbor Railroad (AA), which together comprised 35 percent of the rail mileage in Michigan. These bankruptcies initiated a chain of events resulting in more extensive federal and state government involvement in railroad transportation. At the federal level, it was determined that rationalization, or a paring down of rail mileage would be necessary to reorganize these bankrupt railroads. As an alternative to immediate discontinuance of service on nearly 900 miles of track, Michigan has participated in a subsidy program provided for by the Regional Rail Reorganization Act of 1973.

Initially, the program was intended to be of a temporary nature, providing the opportunity for these rail lines to become profit-making railroad operations. However, during the five-year experience with this program, it has become increasingly obvious that while the program provides for essential transportation services, it will require long-term support.

In addressing the future direction of the program, there has been considerable discussion regarding the identification of those lines warranting a long-term state commitment. The major concern has been directed at stabilizing financial support for the continuation of essential core services. "Rail rationalization" was identified in the 1981 Appropriations Act as a requirement for the expenditure of funds after October 1, 1981. The Appropriations Act also outlined a financial reduction of 25 percent per year on currently subsidized lines so that, at the end of a five-year period, these subsidies would be eliminated. These two legislative requirements are interpreted as requiring the department to reconsider the elements of the current rail preservation program and reduce its cost while maintaining essential services.

The Michigan rail program to date represents the efforts of the state to preserve rail transportation options essential to the well-being of the economy and citizens of Michigan. Rail service continuation subsidies and capital investments on the Ann Arbor Railroad have been an integral part of the assistance program. Total program appropriations are summarized in Table 1.

Table 1

CAPITAL AND OPERATING PROGRAMS

<u>CAPITAL PROGRAMS</u>				<u>OPERATING PROGRAMS*</u>			
<u>CONTRACT YEAR</u>	<u>TOTAL</u>	<u>FEDERAL</u>	<u>STATE</u>	<u>CONTRACT YEAR</u>	<u>TOTAL</u>	<u>FEDERAL</u>	<u>STATE</u>
1975-1976 Rail	\$ 1,832,155	0	\$ 1,832,155				
Water	0	0	0				
1976-1977 Rail	0	0	0	1976-1977 Rail	\$ 12,473,923	\$ 8,707,018	\$ 3,766,905
Water	\$ 664,531	0	\$ 664,531				
1977-1978 Rail	\$ 2,457,677	\$ 1,150,820	\$ 1,306,857	1977-1978 Rail	\$ 8,831,219	\$ 6,453,031	\$ 2,378,188
Water	0	0	0	Water	<u>1,784,619</u>	<u>901,941</u>	<u>882,678</u>
1978-1979 Rail	\$ 6,108,398	\$ 2,794,681	\$ 3,313,717		\$ 10,615,838	\$ 7,354,972	\$ 3,260,866
Water	<u>137,500</u>	0	<u>137,500</u>	1978-1979 Rail	\$ 12,834,799	\$ 5,524,199	\$ 7,310,600
	\$ 6,245,895		\$ 3,451,217	Water	<u>3,146,245</u>	<u>582,181</u>	<u>2,564,064</u>
					\$ 15,981,044	\$ 6,106,380	\$ 9,874,664
1979-1980 Rail	\$ 29,868,081	0	\$ 29,868,081	1979-1980 Rail	\$ 17,127,300	\$ 3,656,697	\$ 13,470,670
Water	<u>35,500,000</u>	0	<u>35,500,000</u>	Water	<u>1,401,726</u>	<u>376,326</u>	<u>1,025,400</u>
	\$ 65,368,081		\$ 65,368,081		\$ 18,529,026	\$ 4,033,023	\$ 14,496,003
1980-1981 Rail	\$ 45,504,961	0	\$ 45,504,961	1980-1981 Rail	\$ 8,342,500	\$ 3,544,500	\$ 4,798,000
Water	<u>1,161,996</u>	0	<u>1,161,996</u>	Water	<u>2,810,500</u>	<u>322,500</u>	<u>2,488,000</u>
	\$ 46,666,957		\$ 46,666,957		\$ 11,153,000	\$ 3,867,000	\$ 7,286,000
				1981-1982	\$ 11,156,100	\$ 2,700,000	\$ 8,456,100
TOTAL 1975-1981	\$123,235,299	\$ 3,945,501	\$119,289,798	TOTAL 1976-1982	\$ 79,908,931	\$32,768,393	\$ 47,140,538

TOTAL PROGRAM APPROPRIATIONS \$ 203,144,230

*Excludes Wisconsin's share

Ann Arbor System

With the creation of Conrail, the portion of the Ann Arbor from Toledo to Ann Arbor was to be included in the Conrail system. This would have left the rest of the line with no substantial traffic base and reduced its potential effectiveness as a cross-state and cross-lake route, since Conrail would have encouraged the southern shippers to utilize the Chicago gateway. In order to avoid the adverse affect of segmenting the Ann Arbor, the state purchased the Toledo to Ann Arbor segment and subsidized Conrail to operate the entire Ann Arbor until the operating contract was awarded to Michigan Interstate in 1977.

Michigan Interstate Railway Company (MI) operates the portion of the line from Toledo to Ann Arbor, including the Saline Branch, (47.54 miles), under a common carrier certificate granted by the Interstate Commerce Commission. The remainder of the line, extending from Ann Arbor to Frankfort (254.46 miles), including the Saginaw Branch (28.0 miles) and the carferry routes across Lake Michigan, is operated under a designated operator certificate issued by the Interstate Commerce Commission.

The greater part of the Ann Arbor mainline, the Saline Branch, and the docks at Frankfort, are owned by the state. The Saginaw Branch is owned by the Trustee of the Penn Central Railroad and leased by the state.

The state also has trackage rights on the portion of the mainline that extends from Durand to Ashley (32 miles), which is owned and operated by the Grand Trunk Western Railroad (GTW). The yard and the locomotive and car shop facilities in Owosso are also owned by the GTW and leased to the state.

In addition to the purchase of the right of way, the State of Michigan acquired the rolling stock of the Ann Arbor Railroad. At the time of acquisition, the rolling stock consisted of 15 locomotives and approximately 425 pieces of rolling stock. Since the acquisition, one of the locomotives as well as approximately 50 pieces of rolling stock have been scrapped. The remaining rolling stock is leased to Michigan Interstate for approximately \$400,000 per annum.

For its cross-lake operation, Michigan Interstate has three carferries available the Viking, A.K. Atkinson, and City of Milwaukee. The City of Milwaukee was purchased by the state from the Grand Trunk Western when cross-lake operations between Muskegon and Milwaukee were discontinued. The Viking and Atkinson are owned by the Trustee of the Ann Arbor Railroad and leased to the State of Michigan.

The 391 route miles of the Ann Arbor Railroad represent the largest single element in the Michigan rail program. The Ann Arbor has been considered the program's highest priority rail service project; the objective has been to preserve the line as an integrated line - haul system that would serve as a viable developmental railroad over its diagonal route across Michigan's Lower Peninsula.

The state's interest in saving the Ann Arbor Railroad was primarily based on Michigan's desire to maintain its extensive mileage through northwest lower Michigan and the carferry passenger services to Wisconsin. In 1976, when a portion of the Ann Arbor was to be transferred to Conrail and the remainder abandoned, the states of Michigan and Wisconsin opted to continue total Ann Arbor operations based on the following major concerns:

- All cross-lake carferry routes were subject to abandonment attempts potentially jeopardizing "short route" rates to numerous businesses in Michigan and Wisconsin.
- On-line Ann Arbor businesses expressed need for continued rail service citing potential loss of business and job loss in an area of the state already experiencing high unemployment. Loss of rail service could inhibit on-going regional attempts at economic development. The Ann Arbor was assessed to be able to provide a backbone rail system to foster future development.
- The elimination of carferry oriented tourism would have an adverse effect on Frankfort, Benzie County, the northwest Lower Peninsula and portions of Wisconsin.
- The continued viability of the Green Bay and Western Railroad was perceived to be dependent on cross-lake and Ann Arbor connections.
- Shippers using the cross-lake routing expressed a preference for this service based on less damage, shorter transit times and a supply of empty cars.
- Potential operating efficiencies were not being realized, especially relating to cross-lake operations. Improvements such as construction of more efficient vessels were being considered.

Based on these concerns, Michigan adopted the policy of retaining the Ann Arbor intact, which involved acceptance of several legal responsibilities that otherwise would have been Conrail's. These responsibilities required:

- The state purchase of the Toledo-Ann Arbor track and operating equipment from the Ann Arbor trustee.
- That an operator would be designated as a common carrier for the Toledo-Ann Arbor track. This means that abandonment of service on this trackage would be subject to the Interstate Commerce Commission (ICC) abandonment procedure.
- Labor protection be assured to bankrupt railroad employees that were to be Conrail employees.

These responsibilities and several major issues relating to the Ann Arbor require attention in the analysis. These issues are:

- Michigan Interstate, as the present operator of the Ann Arbor, has common carrier responsibilities on the Toledo-Ann Arbor segment. It is assumed that changes in the operation of the Ann Arbor system would not alter or adversely affect this situation.
- Labor protection afforded to Ann Arbor employees would require a legal determination of ultimate responsibility for provision of benefits, should their employment be terminated.
- The retention of the Ann Arbor routing was based on the expectations of substantial benefits to Michigan industry by the protection of "short route" rates. Rate-making leniency, provided for under the "Staggers Act", will ultimately make short route rate making concerns obsolete.
- Under the five year federal rail assistance program, the State of Wisconsin received a share of federal funds. With the expiration of Ann Arbor Railroad eligibility for federal operating assistance, Wisconsin has indicated that their commitment to the Ann Arbor would be critically reviewed.
- Estimates of rehabilitation of the Ann Arbor range up to \$30 million, depending on the degree to which operating speeds are increased. The variation in the level of capital improvement warranted under alternative operating structures is significant.
- The state contracted for an Integrated Tug Barge system (ITB), which was considered an alternative to the high cost cross-lake carferries. The extent to which the ITB will reduce operating costs has been the subject of continuing debate.
- In the Tier I screening methodology, two segments of the Ann Arbor system were recommended to be included in the essential core system (Toledo to Ann Arbor and Ann Arbor to Whitmore Lake). The segments from Ashley to Ithaca, Harlan to Cadillac, and the segment from Owosso to Swan Creek fall into the questionable

category. The remaining segments were identified as non essential on the basis of local service needs and are primarily maintained for cross lake through traffic movements.

- Initiatives have been undertaken by private interests to develop rail passenger services utilizing the Ann Arbor. Such service is envisioned to benefit the tourist economy of the northwest Lower Peninsula.
- The port communities of Frankfort-Elberta benefit from the passenger-motor vehicle travel via the carferries. While passenger services can be retained independent of rail freight services it is less likely Frankfort would retain passenger service in the absence of Ann Arbor carferry operations.

Program Strategies

The comprehensive nature of Michigan's rail assistance program places heavy demands on state financial resources. The state funding source is the Comprehensive Transportation Fund, a subcategory of the Michigan Transportation Fund reserved for public transportation. The primary source of this fund is the state gas and weight tax, which is declining due to smaller and more efficient automobiles and a slowing of the growth in total miles of travel. Thus, the state revenue base is declining just as federal aid programs are being phased out. The result is intensified competition for program funds among non-highway transportation modes.

Further competition for state funds is developing through additional rail program demands. The railroad abandonment process has been liberalized in favor of the carrier, with very little potential for successful opposition. Consistent with this trend, Congress gave Conrail liberalized rights to abandon service without opportunity for opposition. The only alternative is to offer financial assistance for continued service. This is resulting in additional financial pressure on the rail program.

Further fiscal pressure is emerging from economic development programs recently initiated by the state. If rail service can be a catalyst or is critical to any economic expansion project, that service is recognized as a high priority. Recent examples are the commitments to rail service at the new industrial plants at Hamtramck and Sterling Heights.

Considering the above constraints, the State Transportation Commission adopted four recommendations currently serving as program guidelines.

1. Restructure the rail subsidy program to take into account a legislative mandate to phase out present subsidies over a five year period, with an annual 25 percent reduction over the 1982-1986 period and consider competitive proposals for the five-year period to achieve cost reductions in the operation of basic services.
2. Establish a process to define an essential core system, which is sensitive to changes resulting from abandonment actions by solvent carriers or Conrail.
3. Capitalize lease and tax obligations at the earliest possible time on any line for which a long term commitment is made.
4. Any substantial change in the extent of subsidized rail service will be preceded by a public hearing.

The Transportation Commission guidelines are consistent with the results of the State Transportation Plan (STP), which indicate that:

1. A basic level of service is necessary in each transportation mode to achieve a balanced transportation system.
2. The achievement of economic development and revitalization goals are constrained by existing levels of funding.
3. The relationships between levels of government which provide transportation services must be re-examined to maximize the use of projected funds.
4. Opportunities for private sector financial participation in transportation must be explored.

These guidelines outline a fundamental philosophy that continuing financial assistance may well be necessary to maintain essential rail services. Within this context a thorough analysis of the Ann Arbor system is critical to the determination of appropriate program strategy. Further efforts to support the cross-lake routing must be justified considering alternative projects that may have to be foregone because of financial limitations.

STUDY OBJECTIVES AND APPROACH

Rail Rationalization

With mounting pressure on program financing and the requirements expressed by the legislature, a well-defined, systematic process for priority determination is increasingly important. This is the purpose of rail rationalization.

In Michigan, a two tier process has been adopted to define an essential core system and to suggest priorities. The first tier analysis (adopted January 27, 1982 by the State Transportation Commission) screened all lines considered as candidates for financial assistance. The screening utilized an objective appraisal methodology based upon the concept of diminishing returns. Specifically, the intent was to use readily available data, to produce a rank-ordering which would clearly indicate those line segments which clearly warranting state assistance, and those which clearly do not.

The methodology for Tier I of the rationalization analysis provided for a review, evaluation and placement of each segment into one of the following categories:

1. Lines which are clearly viable or that should be included in the essential core system because of their contribution to program objectives;
2. Lines with questionable viability, but with the potential to be included in the essential core system;
3. Clearly non-viable lines, not to be included in the essential core system.

Tier II is designed to assess benefits relative to the costs of state financial support for individual lines. Thus, it is program cost oriented, and dependent upon a very thorough analysis of a wide variety of factors. A guiding concept is program opportunity costs, which addresses the question of what are the state's best investment opportunities in accomplishing rail service objectives given limitations on financial resources.

This stage of Tier II analysis is directed to an evaluation of the Ann Arbor system and is structured against the backdrop of the five rail rationalization objectives developed in Tier I. The Ann Arbor system analysis was developed within the four step Tier II process, which emphasizes the relationship of rail service to regional economic stability and the potential for the system's economic viability.

Figure 1 presents the relationship of the Ann Arbor system analyses to the Michigan rail system rationalization process. A display of the Tier II flow diagram, in terms of the data and analysis steps, is presented in Figure 2. The first three steps which are relevant to the Ann Arbor system analysis are summarized below:

- Step I - Specific Ann Arbor traffic, cost and revenue data were collected, analyzed, and integrated for analyses of alternative strategies. Primary data was developed through field surveys for application in an impact model and for use in alternative strategy analyses. Regional economic data was collected and used in the analysis of regional economic dependency on the Ann Arbor system. Operating costs, revenues, carferry data and rehabilitation figures for the Ann Arbor were also collected.
- Step II - The current distribution of traffic by commodity was employed to adjust previously developed forecasts of potential traffic. Forecasts were developed by A.T. Kearney in 1980 for the department, and reflect a range of probable traffic in 1985. The sensitivity of revenues to changing commodity mixes is reflected in the alternative forecast levels used in the analysis.
- Step III - A rail abandonment impact model was adapted for use in the analysis. This impact model required input from field surveys, which were specifically designed for that purpose. The impact model permits the comparative examination of potential employment and disposable personal income losses, and the cost impact of alternate transportation service. In conjunction with financial analysis and field survey data, the impact model results serve as input to the evaluation of alternative state strategies.

Figure 1

MICHIGAN RAIL SYSTEM RATIONALIZATION PROCESS

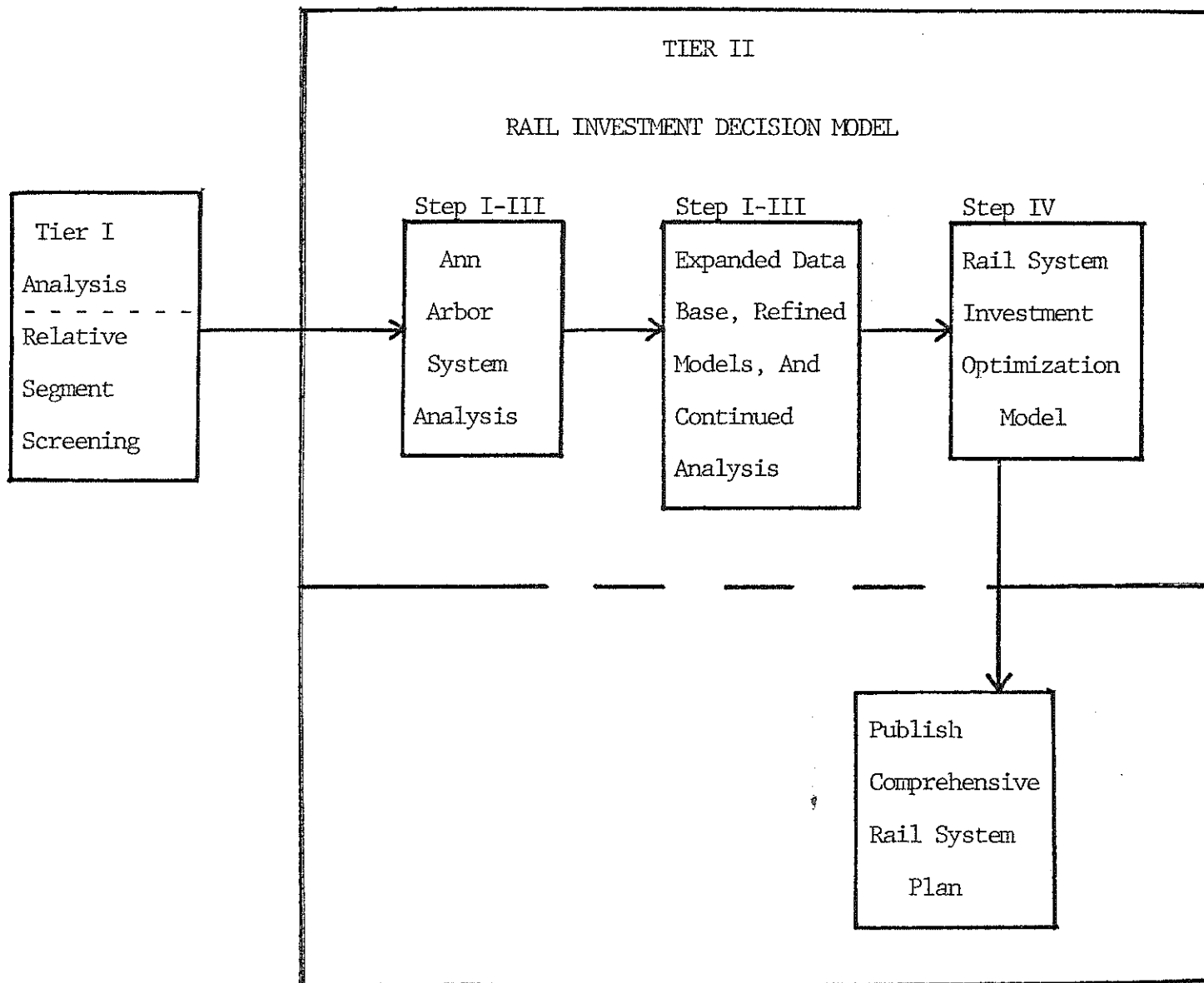
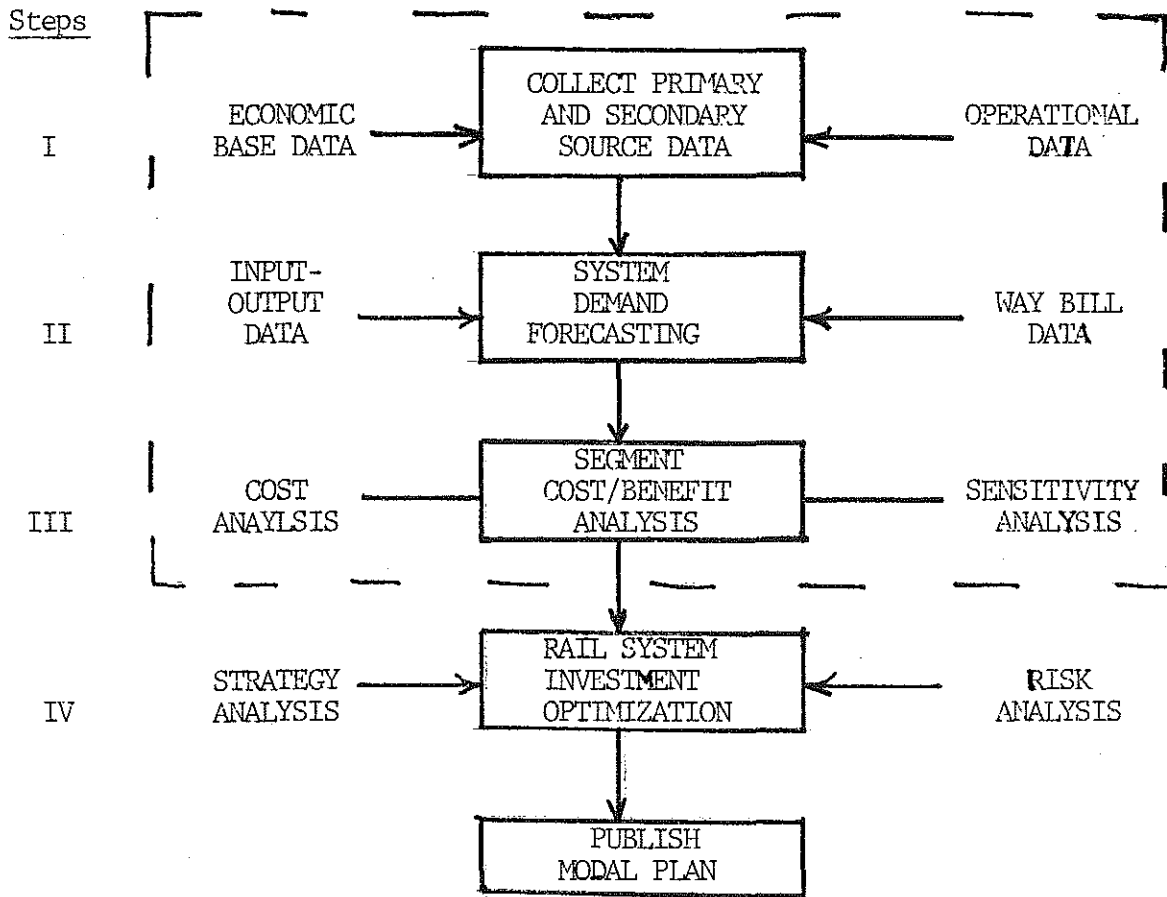


Figure 2

RAIL RATIONALIZATION PLAN
RAIL INVESTMENT DECISION ANALYSIS MODEL

TIER II FLOW DIAGRAM

Ann Arbor System Analysis



Ann Arbor Problem Statement

The Ann Arbor serves the largest number of carloads and track in the rail assistance program; it has also resulted in the largest subsidy. The five year subsidy period (1976-1981) represented in Table 2 illustrates the magnitude of the Ann Arbor subsidy. The lack of financial improvement has led to the question of whether or not the Ann Arbor's large traffic base can result in a profitable system and, if not, do benefits exceed public costs.

The analysis addresses the potential of either cross-lake and/or on-line traffic increases to improve the financial status of the Ann Arbor. Major efforts have been undertaken to increase average revenue per car on the high cost through traffic. Attraction of high rated commodities was accomplished by the refusal of a rate increase, the flag-out of Ex Parte 357. Since the institution of this flag out, the average revenue per car on cross-lake traffic has increased from \$311 to \$550. However, as a result of this flag out action, various U.S. and Canadian railroads have attempted to cancel routings or surcharge Ann Arbor traffic to counteract the rate reduction. Some of the measures taken against the Ann Arbor have been successful but others have been reversed by the Interstate Commerce Commission or by court actions. Currently, Michigan Interstate is contesting Union Pacific route cancellations on soda ash, a high revenue commodity. The ultimate decision in this case is crucial to future Ann Arbor efforts to solicit high revenue through traffic by discounting rates.

Although Ann Arbor through traffic economics have been substantially improved since 1978, the on-line traffic has reached an all time low due to the extreme downturn in the Michigan economy. The reduction in local traffic from a high in 1978 of 25,635 carloads to 18,117 in 1981 has hindered improvement in the overall Ann Arbor financial condition. Michigan Interstate's financial projections are shown in Table 4.

Other Michigan railroads dependent on the auto industry have experienced similar financial problems due to the state of the economy (see Table 3).

Table 2

ANN ARBOR RAILROAD FINANCIAL DATA

323.2 MILES INCLUDING SAGINAW BRANCH AND CARFERRY

	4/1/76-3/31/77	4/1/77-3/31/78	4/1/78-3/31/79	4/1/79-3/31/80	4/1/80-3/31/81
Revenues	\$ 10,889,330	\$ 8,823,948	\$ 11,012,110	\$ 14,105,664	\$ 18,455,000
Costs	16,015,893	14,467,994	16,338,091	21,096,976	26,610,000
Subsidy	5,126,563	5,644,046	5,325,981	6,991,312	8,155,000
Lease	713,950	713,950	731,488	1,135,445	680,464
Taxes	189,293	189,293	189,293	440,543	242,391
Other	133,890	139,551	178,409	224,200	250,581
Total	\$ 6,163,696	\$ 6,686,840	\$ 6,425,171	\$ 8,791,500	\$ 9,328,436
Accelerated Maintenance/ Rehabilitation					
Unaudited	\$ -----	\$ 4,872,948	\$ 4,832,775	\$ 4,499,619	

Note: First year revenue represents Conrail total revenue; subsequent years are based on divisions.
All figures are unaudited.

Table 3 .
 Profit/(Loss)
 in 1,000's

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981*</u>
Grand Trunk Western	\$8,000	\$6,000	(\$1,037)	(\$1,198)
Detroit Toledo and Ironton	\$3,000	\$4,000	(\$3,611)	(\$1,581)

* Nine months - 1981

Source: Michigan Interstate - Union Pacific Case.

REGIONAL ECONOMIC BACKGROUND

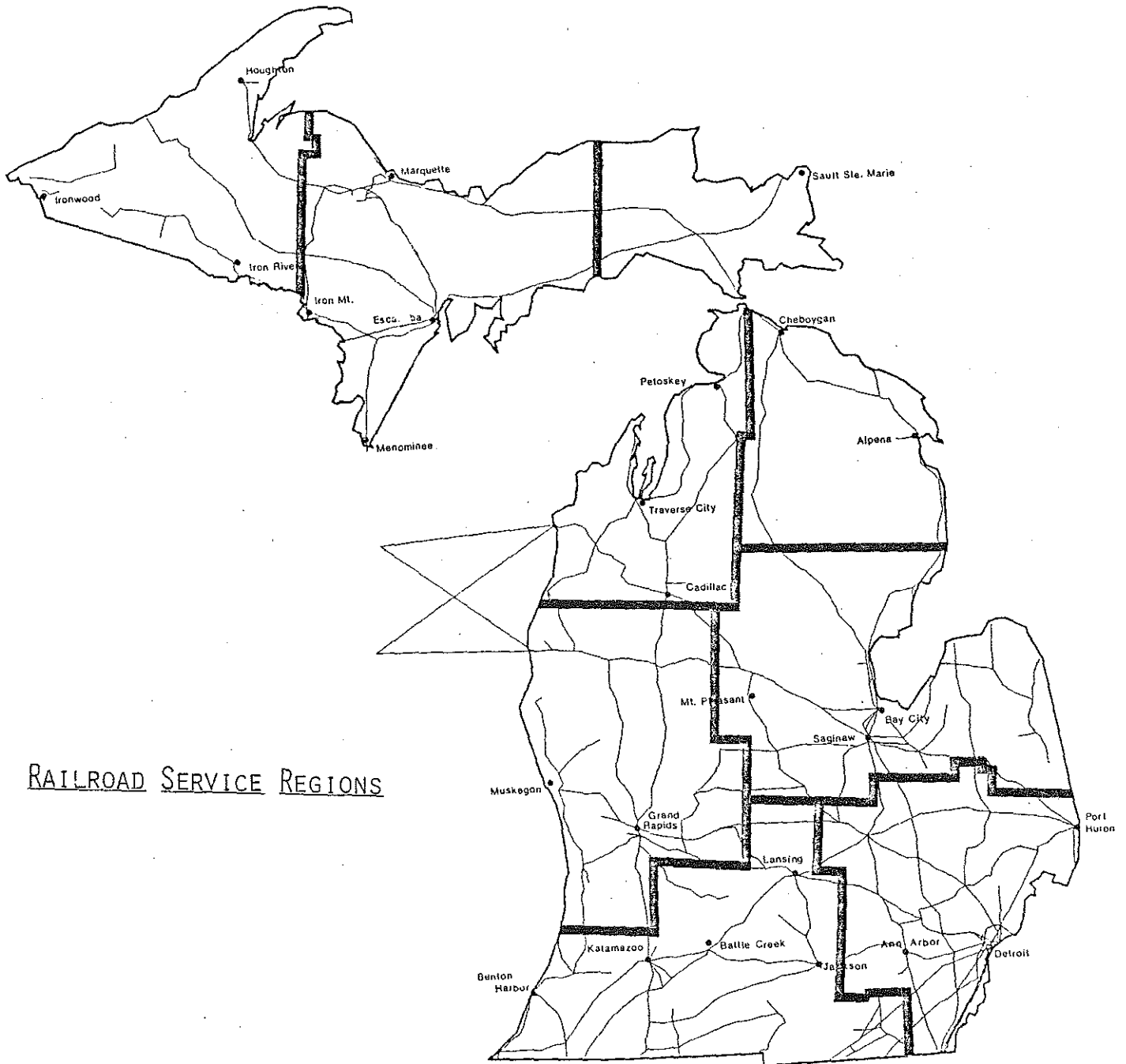
Michigan is often referred to as an industrial state, a classification justified by its extensive manufacturing base. Durable capital goods production, notably the manufacture of automobiles, trucks, and parts, have historically been the mainstay of the state economy.

A focus on manufacturing activity statewide, however, tends to obscure the importance of other economic activities. Most manufacturing activity in Michigan is in the southern third of the state. Other activities particularly important to regional economies are located outside of the main manufacturing and transportation corridors. The consideration of rail service with respect to these sectors and activities led to the definition of rail service regions, and to the identification of regionally important economic sectors in the rail program objectives.

Specifically, the objectives are designed to preserve rail services to regions dependent upon commodities which move efficiently by rail. Natural resource and agriculture sectors are examined here to gauge the importance of each to the rail service regions (Figure 3).

Figure 3

RAIL RATIONALIZATION PLAN



RAILROAD SERVICE REGIONS

Table 4

ANN ARBOR ESTIMATED
ANNUAL PRO-FORMA INCOME STATEMENTS
(\$ in 1000's)

Carload Mix

Received & Forwarded	26,028	26,028	26,028
Bridged	<u>19,934</u>	<u>36,040</u>	<u>40,381</u>
Total	45,962	62,068	66,409

Revenues

Freight	\$21,924	\$33,828	\$38,569
Other	<u>727</u>	<u>1,133</u>	<u>1,511</u>
Total	\$22,651	\$34,961	\$40,080

Expenses

M of W	\$ 2,724	\$ 3,204	\$ 3,336
M of E	2,052	2,604	2,748
Traffic	216	252	264
Marine	6,636	10,788	12,096
T & E	8,064	10,164	10,716
General	1,356	1,356	1,356
Tax Accrual	1,668	1,956	2,028
Other Income & Expenses	<u>3,420</u>	<u>3,420</u>	<u>3,420</u>
Total	\$26,136	\$33,744	\$35,964
Profit/(Loss)	\$(3,485)	\$ 1,217	\$ 4,116

Agriculture

Agricultural activity encompasses a wide range of commodities, the production of which depends on weather, climate, soil type, and terrain. The southern half of the lower peninsula possess comparatively flat terrain, a long growing season, and is generally conducive to field crop production. In the northern half of the Lower Peninsula and the Upper Peninsula, the terrain is less flat, the growing season is shorter and soil conditions are generally less favorable for crop production. This is reflected in Table 5, which shows that over 91 percent of State agricultural earnings are generated in the southern and central regions of the state, with the Upper Peninsula and the two northern most regions of the Lower Peninsula accounting for the remaining 9 percent.

Forestry

The harvesting of trees in Michigan for paper, veneer, particle board, and insulation board occurs in a pattern opposite that of agriculture. More forestry occurs in the Upper Peninsula (particularly in the west and central regions) than in the northern or southern portions of the Lower Peninsula. The pattern which displays the value of forest products harvested is shown in Figure 5.

Mining

Mining includes a variety of activities that remove chemicals, minerals, and metals from the ground. The western and central Upper Peninsula are the only two regions where copper and iron are mined, making these two regions significant from both a regional and state perspective. In 1979, the iron ore mining industry (in the central Upper Peninsula) employed 3083 people at five active mines.

Mining activity in other areas of the state is generally not as concentrated as in the west and central Upper Peninsula regions, nor does it compose a large proportion of economic activity. Exceptions (cement manufacture which uses limestone, lime, gypsum, etc.) are located in Presque Isle and Alpena counties, in the northeast region, and in

TABLE 5

Labor and Proprietors Earnings Michigan Agriculture
By Region 1978

<u>Region</u>	<u>(1,000s dollars) Total Agricultural Income</u>	<u>% of Labor and Proprietors Income</u>
Western Upper	\$ 3,255	1.1
Central Upper	9,438	1.1
Eastern Upper	1,480	.8
Northwest	38,216	4.2
West Central	165,923	2.8
East Central	165,834	4.0
Northeast	7,014	1.6
Southwest	186,222	2.1
Southeast	97,260	.3
State	674,960*	1.1

*Column does not add due to rounding.

Bureau of Economic Analysis, Regional Economic Information System, in
Michigan Statistical Abstract, Fifteenth Edition, 1980, East Lansing,
p. 453-5.

Figure 4

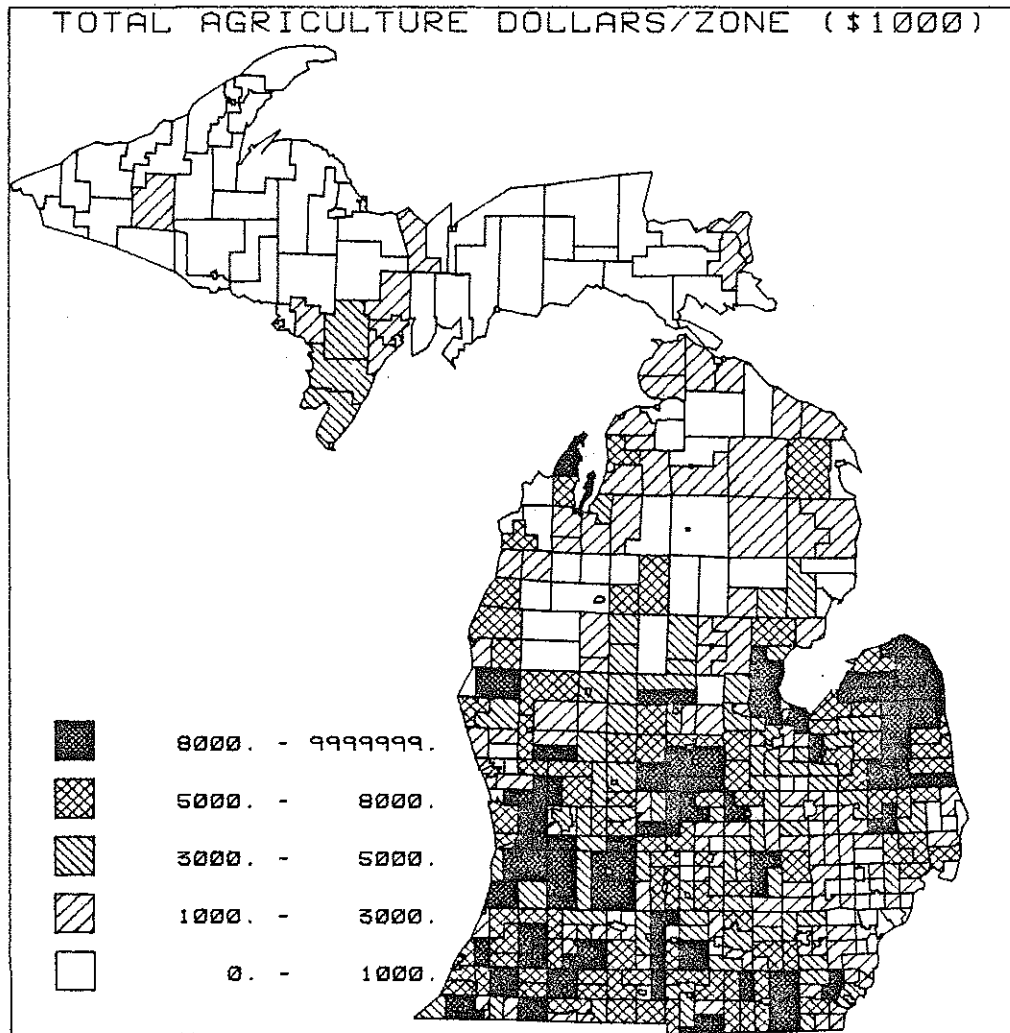


Figure 5

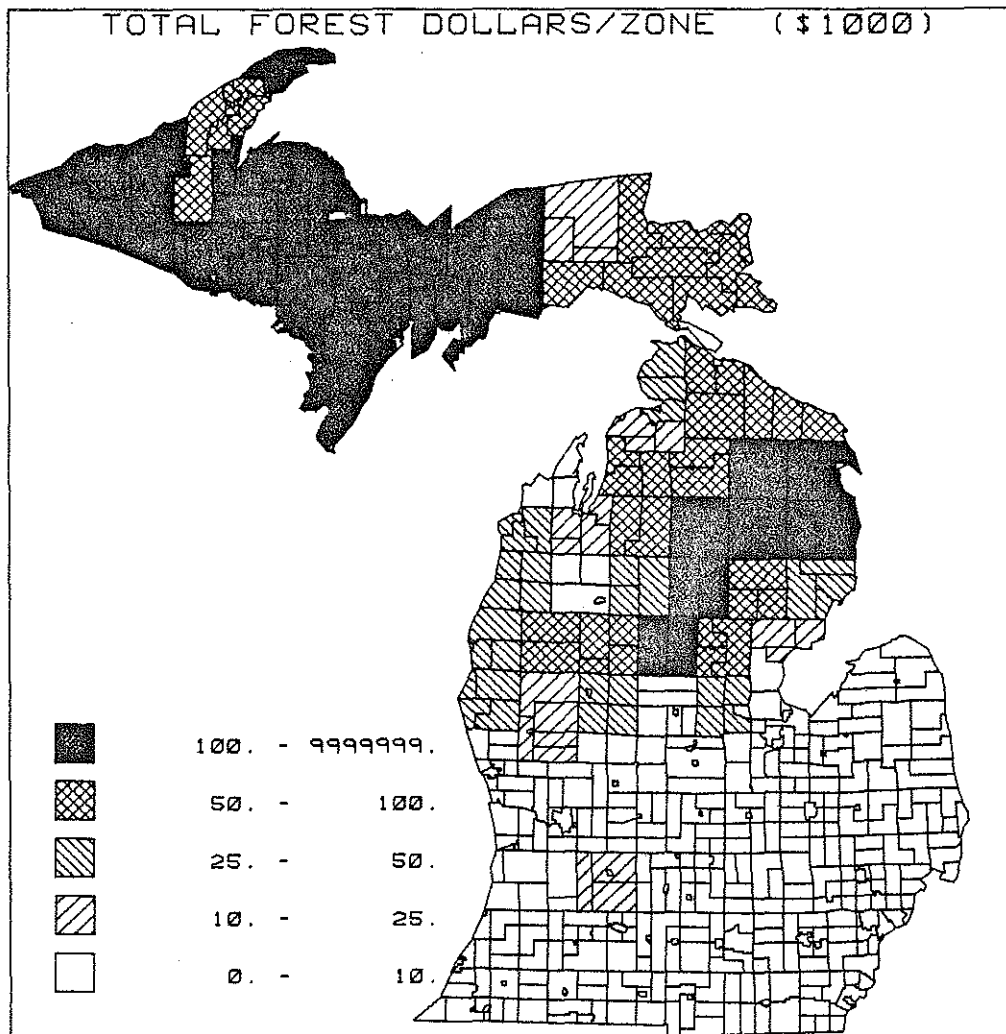


Figure 6

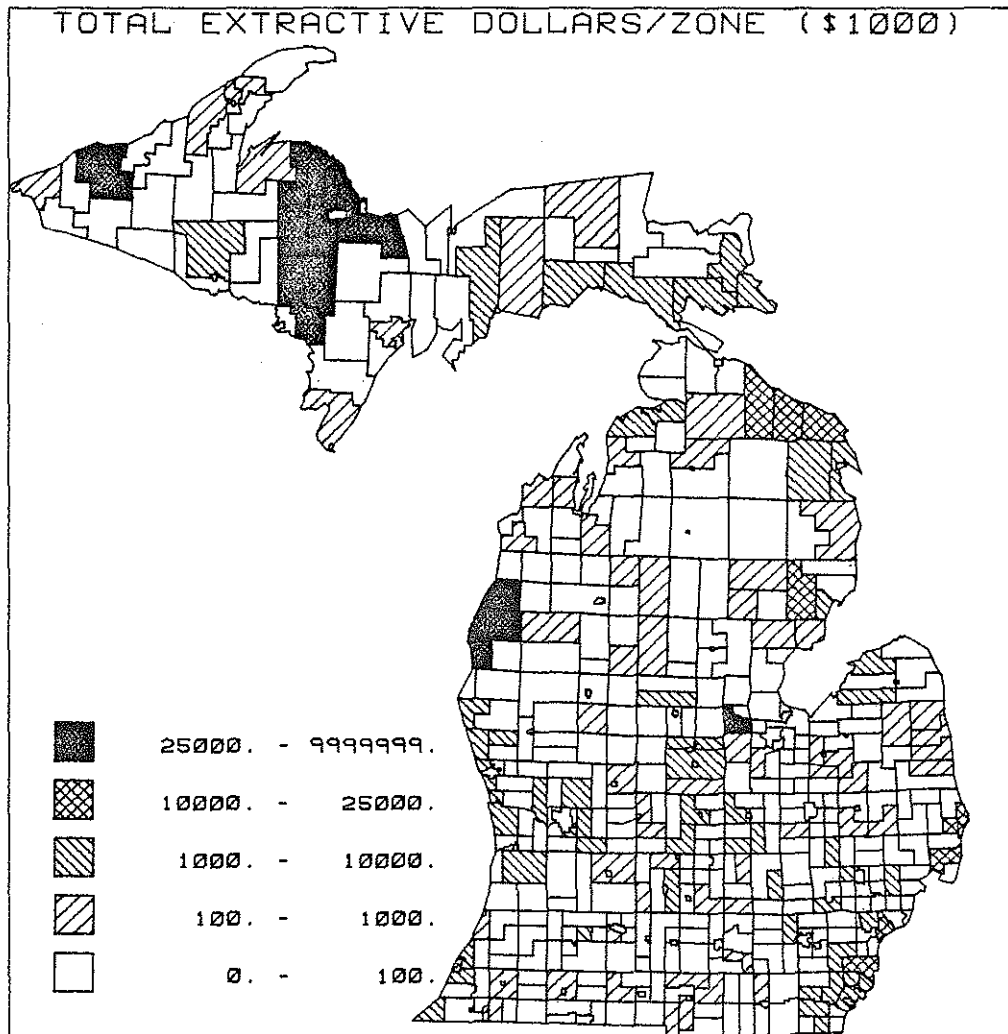


Figure 7

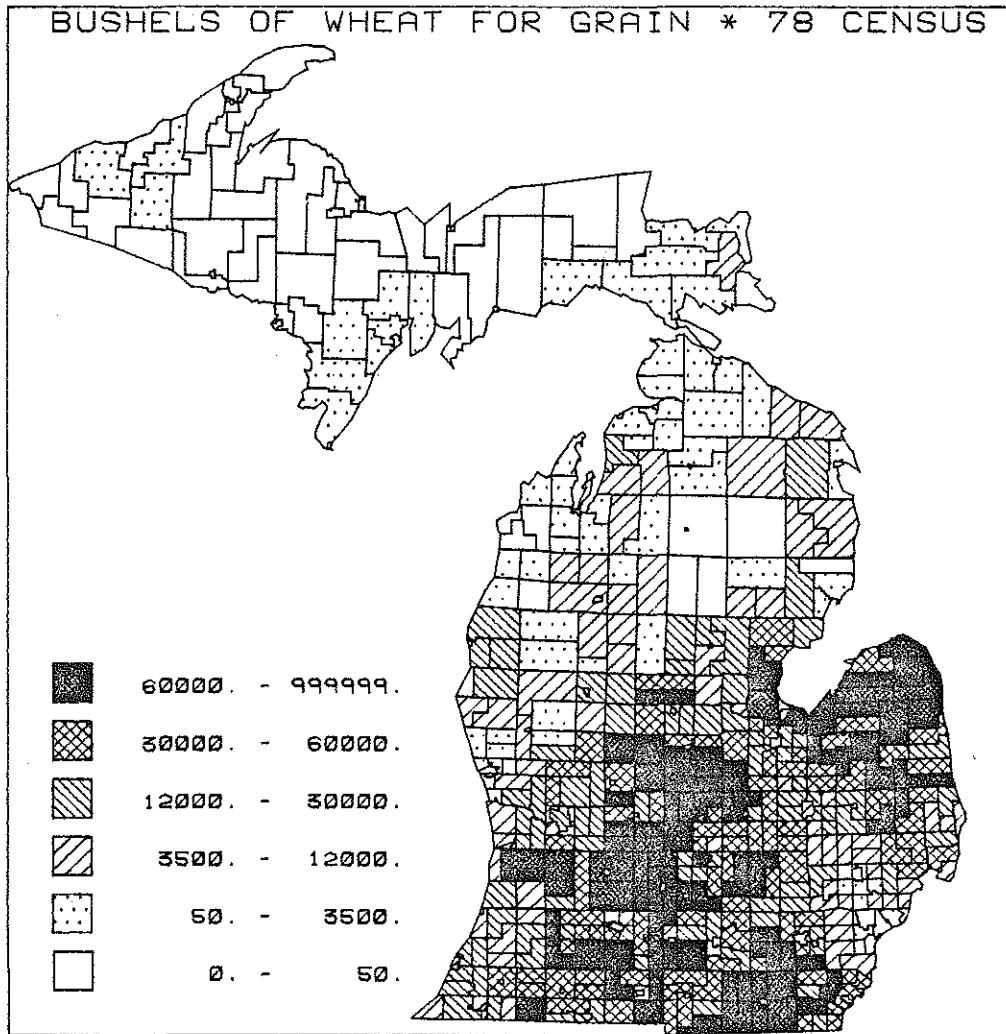


Figure 8

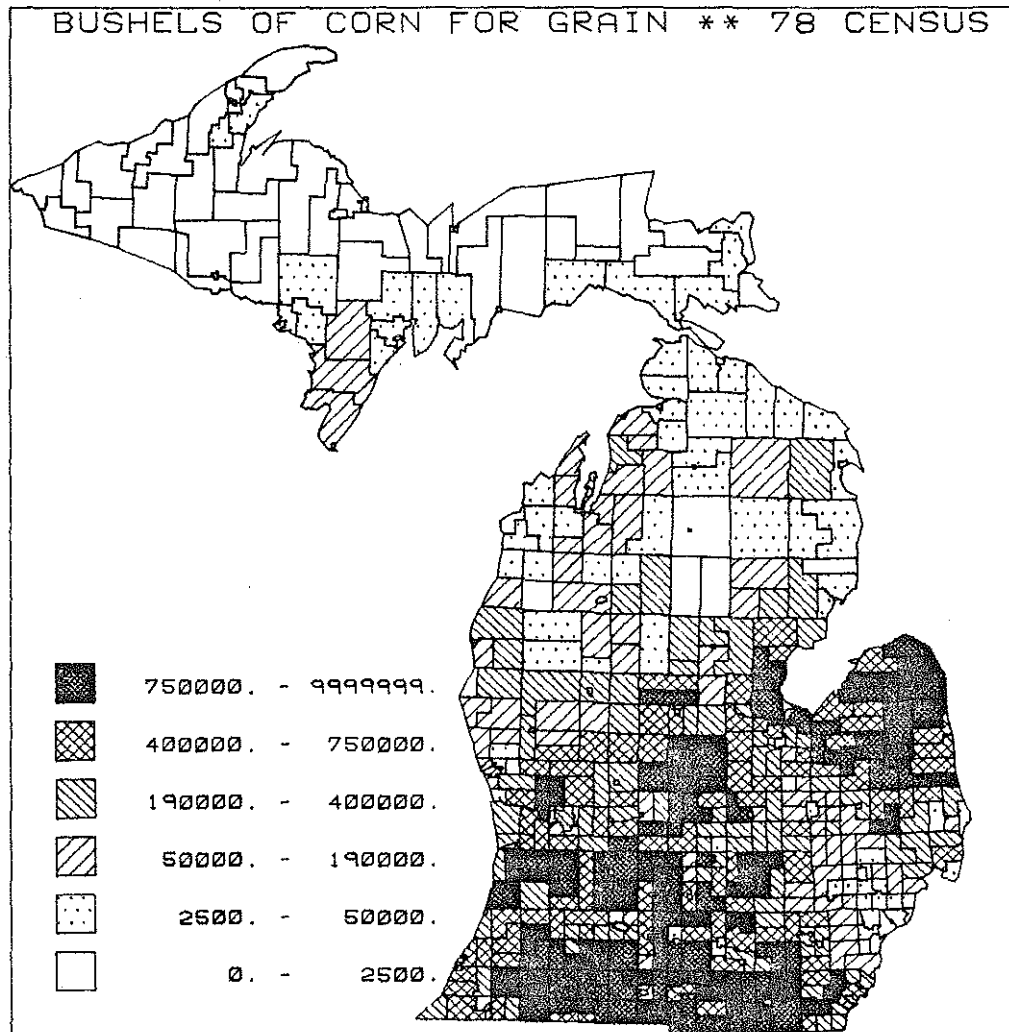
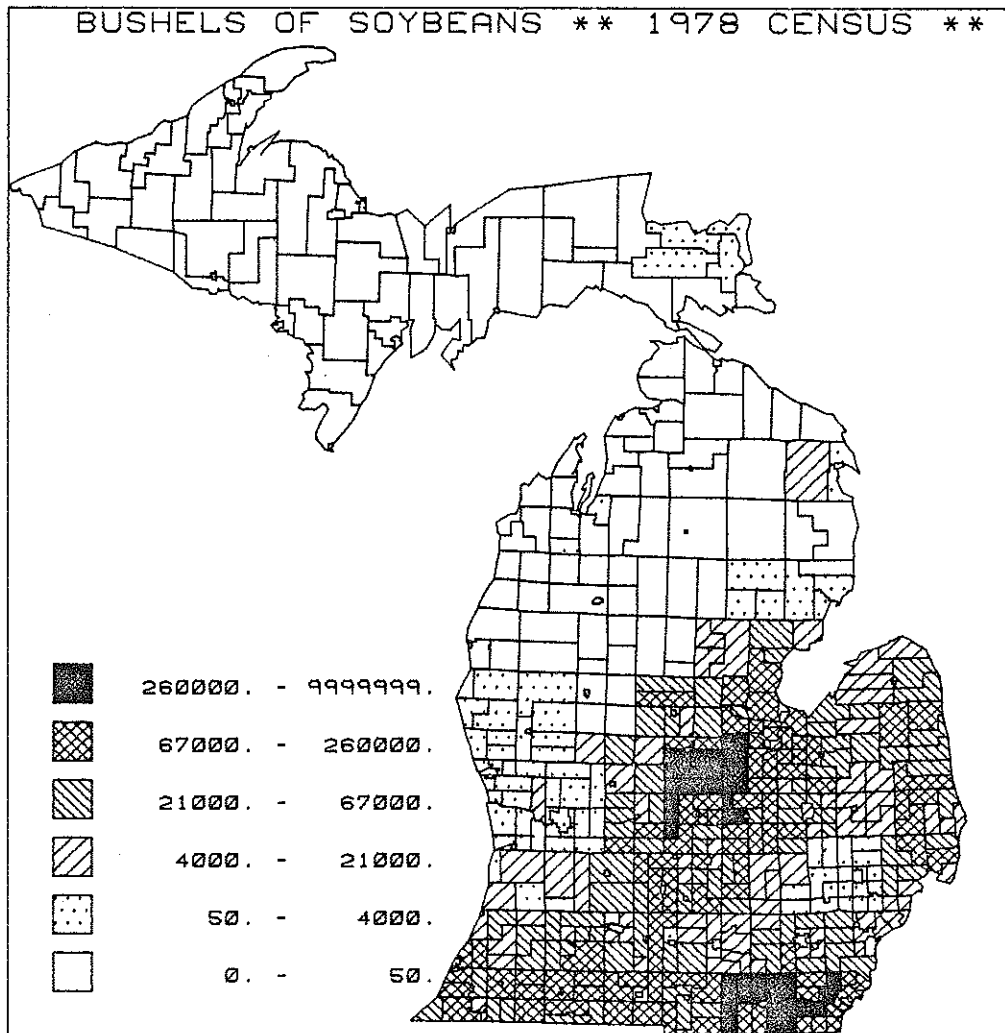


Figure 9



Emmet County in the northwest region. Additionally, natural and liquid petroleum gas is becoming important to the northwest region, specifically in Kalkaska County. Sand mining is also important to the region. The Harlan/ Yuma area has provided significant amounts of foundry sand and considering opposition to alternative sites adjacent to Lake Michigan these may become more important in the future.

Relationship of the Ann Arbor Rail Service to The Regional Economies

The Ann Arbor Railroad passes through the northwest, west central, east central, southwest, and southeastern rail service regions between Toledo and Frankfort. As such, it represents rail service availability to natural resource industries such as, mining and forestry; manufacturing firms, retail establishments, and agriculture. The importance of Ann Arbor rail service, vis-a-vis respective regional economies and rail program objectives is examined in this section for later use in regional impact analysis.

Mining

Mining activity along the Ann Arbor Railroad is located in the northwest region, and consists primarily of sand, natural gas, and material used in making concrete. The only commodity that is moved to a significant degree by the Ann Arbor Railroad is sand to and from the Harlan/Yuma area. Natural gas from Kalkaska County moves by rail by another carrier.

Forestry

Wood and wood products industries in the northwest region do not depend upon Ann Arbor rail service.

Agriculture

Agriculture was shown to be an important activity on two levels; on the basis of total agricultural output, and on the basis of the proportionate contribution of agricultural activity to regional incomes. The northwest region is most dependent upon agriculture, with 4.2 percent of labor and proprietors' incomes generated through agricultural activity.

In 1981, there were 66 grain elevators or terminals located in counties that have Ann Arbor rail service. These represent 21.6 percent of the state's 339 facilities, and 25.3 percent of state elevator capacity. Of the elevators in the affected counties, only 18 are solely dependent on the Ann Arbor Railroad. This is due to the presence of alternative rail service at some locations, and the fact that some elevators or terminals do not use rail service. The rail dependent elevators represent less than 2.5 percent of total state elevator capacity, and 9.8 percent of capacity in the affected regions.

Table 6

GRAIN ELEVATORS AND CAPACITIES IN
REGIONS AND COUNTIES SERVED BY THE
ANN ARBOR RAILROAD
1981

Ann Arbor
Rail Dependent
Elevators

	No. of Grain	(000) y	Elevators W/O any Rail Serv.	Elevators W/ Rail Service	Elevators W/Non Ann Arbor Service Available	# of Elevators/ % of Elev.	Capacity/ % of Capacity
Northwest Region	14	528	5	9	7	2/14.3%	47/8.9%
Benzie County	-	-	-	-	-	-	-
Manistee County	1	100	0	1	1	0/0	0/0
Missaukee County	4	97	2	2	0	2/50%	47/48.5%
Wexford County	2	100	0	2	2	0	0
West Central Region	65	8,743	21	44	43	1/1.5%	12/1.1%
Osceola County	5	43	1	4	3	1/.2%	12/27.9%
East Central Region	103	40,698	32	72	64	8/7.8%	645/1.58%
Clare County	2	28	0	1	1	0	0
Gratiot County	12	6,881	0	12	8	4/33.3	375/55
Isabella County	8					4/50%	270/45%
Southeast Region	62	12,424	16	46	39	7/11.3%	1261/10.2%
Livingston County	5	223	0	5	4	1/20.1%	100/44.8%
Monroe County	11	7,982	3	8	6	2/18.2%	358/4.5
Shiawassee County	11	2,480	4	7	3	4/36.4%	803/32.4
Washtenaw County	5	486	2	3	3	0/0	0/0
Southwest Region	84	16,536	34	50	50	0/0	0/0
Clinton County	7	958	2	5	5	0/0	0/0
Statewide	339	79,074					

In terms of regional importance of the Ann Arbor Railroad to grain elevators, the Ann Arbor is the sole rail service provider to two of the 14 terminals in the northwest region. This represents 8.9 percent of that region's elevator/terminal capacity and 14.3 percent of its elevators/terminals. The southeast region has 9.7 percent of its facilities, and 10.1 percent of its capacity served exclusively by the Ann Arbor Railroad.

In the east central region 7.7 percent of grain terminals representing only 1.58 percent of regional terminal capacity is dependent on the Ann Arbor. Dependence is lower in the west central region, where .14 percent of capacity and 1.54 percent of elevators rely on Ann Arbor service.

ANALYTICAL FRAMEWORK AND ANALYSIS ELEMENTS

Framework

In viewing the Ann Arbor rail system, it became clear that an analytical framework was necessary to disaggregate the Ann Arbor analysis into discreet and manageable subsets. This framework was used to examine issues associated with the different traffic characteristics on the Ann Arbor system.

Basic data matrices were developed for each level of analysis, based on different traffic characteristics. The data matrices included commodity, traffic, cost, and revenue information. The dimension of these matrices reflect the commodity mix and traffic projected to each level.

The resulting framework divided the issues into the following subsets according to traffic and impact levels.

SUBSET A - Through Traffic Issues

This level of analysis examines the influence of traffic which passes through the state and across Lake Michigan, but neither originates nor terminates within Michigan. The two principal issues examined are: (1) whether this traffic is compensatory, i.e., whether the revenues generated by this traffic offsets the costs incurred serving it and, (2) the potential for this traffic to be compensatory in the future, given the deregulation of rail rates.

Subset B - Michigan Cross Lake Traffic

Michigan cross lake traffic is rail traffic that either originates or terminates in Michigan, and that utilizes the cross-lake services provided by the Ann Arbor railroad. The question addressed at this level is whether the revenues generated by this traffic and the contribution and importance of this traffic to the state justify the subsidy costs which may be required to continue existing services.

Subset C - Local Traffic

The third level of analysis relates to whether the local traffic generated along the line contributes adequate revenues or benefits to shippers to justify continuation of the service. A separate matrix of data was developed for Subset C. These data were disaggregated into operational segments north from Toledo.

Analysis Elements

The analysis of the Ann Arbor Railroad's financial potential was based on existing and future (1985) traffic revenues and costs. The importance of both through traffic (cross-lake) and on-line traffic in achieving the potential of non-subsidized service was addressed within the analysis. Traffic data used in the analysis were projected using Ann Arbor Railroad records (1979/80/81) and analysis conducted in 1980 by A.T. Kearney, Inc., a rail consultant.

Cross Lake Traffic:

For this study, the cross-lake traffic was projected for 1985 at high, medium, and low levels of 27,500, 18,600, and 6,500 carloads, respectively. These projections reflect rate and service sensitivities and result in differing commodity mixes that are particularly important to the Ann Arbor's efforts to offset the high cost of carferry service relative to "land" expenses. Commodity mix projections were based on consultant interviews with major shippers regarding rates, service, and the future of their individual businesses. The resultant mix was used in the analysis to develop appropriate costs and revenues.

Cross Lake Revenue:

Revenues for the high, medium, and low 1985 traffic levels were developed using average revenue by commodity from 1981

Ann Arbor records. Each major commodity group generated an estimated revenue figure which was incremented with miscellaneous carferry revenue from passenger, auto, and truck fares. Projected miscellaneous carferry revenue was based on the per trip average reported by the Ann Arbor in 1981.

Carferry Costs:

Carferry cost information was based on 1981 Ann Arbor carferry records prorated by the number of trips necessary to accommodate the 1985 projected traffic levels. Costs for the movement of through traffic were developed using Ann Arbor unit costs submitted in the Union Pacific route cancellation case currently before the Interstate Commerce Commission.

Integrated Tug-Barge Costs:

A major study of the costs of operating the Integrated Tug-Barge system is under contract with a consultant, but has not yet been completed. Therefore, only the costs of the present Ann Arbor carferry fleet have been used in this analysis. There will be little difficulty, however, in substituting the tug-barge information into the analysis when it becomes available.

Analytical Techniques:

The question of whether through traffic can be compensatory was analyzed by estimating total carferry costs and variable costs associated with land movements relative to through traffic services. A Rail Form A type analysis, which represents only variable "land" costs, was employed. This type analysis states the incremental costs and revenues of Ann Arbor through traffic, based on the assumption that the land portion of the Ann Arbor railroad (between Toledo and Frankfort) would be operated.

Alternative Ann Arbor configurations were also analyzed to assess the financial implication of operating portions of the Ann Arbor. These alternatives were developed by comparing total revenues and costs of the Ann Arbor as operated in alternative configurations.

Operating Cost Analysis:

A series of detailed cost estimates have been prepared for Ann Arbor Railroad operating revenues and expenses for various alternative configurations. The current Ann Arbor system and six operating alternatives were analyzed at three distinct traffic levels: 1981 on-line and 1981 overhead traffic (status quo); 1978 on-line and 1981 overhead traffic (Michigan Interstate's best annual performance for each category); and 1978 on-line and 1981 overhead traffic plus anticipated new trackage rights and freight revenues.

Current revenue information by commodity and station, as well as the specific characteristics of the proposed operating alternatives were furnished by the Michigan Interstate staff. Actual Ann Arbor Railroad unit cost factors for 1981 were utilized to the maximum extent possible. The department assumed an efficient and rehabilitated railroad with sufficient reliable motive power and routine completion of all road assignments. The only significant departure from actual Ann Arbor costs occurred in the track maintenance account, where \$10,647 per route mile (the 1981 Class I railroad average) was substituted for the Ann Arbor's budgeted \$5,515 per route mile. Michigan Interstate management suggested that a more appropriate normalized maintenance figure would be \$16,000 per main line mile and \$7000 per branch mile.

Interviews with the Michigan Interstate marketing staff disclosed the potential for significant new traffic generation at five locations involving nine separate traffic movements. In addition, Michigan Interstate is actively negotiating a major trackage rights agreement with the Grand Trunk Western for mileage between Durand and Toledo. If all nine potential movements materialize, an additional 12,551 carloads would move over the Ann Arbor. Several of these movements however, are speculative. For study purposes, the Grand Trunk Western trackage rights agreement and two traffic movements involving 3,260 carloads were included as new revenue sources.

Ann Arbor Railroad Rehabilitation:

The department's analysis of the operating alternatives have assumed a rehabilitated Ann Arbor Railroad with a normal main line train speed of 40 miles per hour. Taking into account the Ann Arbor estimates of projects underway, and estimates prepared for the Northwest Regional Rail Rationalization Report, the department estimates an additional expenditure of \$25.5 million will be necessary to restore the Ann Arbor to a normalized maintenance cycle. This includes 105 miles of continuous welded rail installed to replace light-weight conventional bolted rail, 255 miles of tie renewals, surfacing, and 6 miles of track sledding. Particular emphasis has been placed upon the replacement of

approximately 85 miles of rail north of Ithaca. South of Owosso, substantial tie replacements and extensive surfacing are necessary to prevent premature deterioration of heavier rail laid between 1964 and the Ann Arbor's bankruptcy in 1973.

Data Sources:

Data Category	Source
- Ann Arbor Railroad Traffic and Revenue Information	Ann Arbor Railroad (Michigan Interstate Railway Corporation)
- Cross-Lake Traffic Projections	<u>Forecast of Cross-Lake Michigan Rail Carferry Traffic</u> , A. T. Kearney, Inc., 1980, prepared for MDOT
- Carferry Cost Information	Ann Arbor Railroad (Michigan Interstate Railway Corporation).
- Tug Barge Cost Information	McMullan and Associates, Inc., prepared for MDOT (preliminary findings)
- Rail Operating and Cost Information	Ann Arbor Railroad (Michigan Interstate Railway Corporation)
- Rehabilitation Cost Estimates	Ann Arbor Railroad (Michigan Interstate Railway Corporation)
- Shipper Impact Information (Employment Impact, Alternative Transportation Feasibility, etc.)	MDOT Telephone Survey, conducted February 4 & 5, 1982
- Local Area Unemployment Rates, by County	Michigan Employment Security Commission
- Unemployment Duration Factors	Michigan Employment Security Commission
- Average Wage Levels, by Industry	Michigan Employment Security Commission, Special Release, in <u>Michigan Statistical Abstract, Fifteenth Edition, 1980</u> , (Michigan State University East Lansing, MI), September 1980, MDOT

Data Category	Source
- Tax Rate Schedules	1981 State and Federal Rate Schedules
- Truck Cost Factors	<u>U. S. Dept. of Agriculture, Fruit and Vegetable Truck Rate Report</u>
- Population	U. S. Bureau of Census, Census of Population and Housing 19 P. L. 94-171 Population Counts
- Agriculture: Production and Sale	U. S. Bureau of Economic Analysis, Regional Economics Information System, in <u>Michigan Statistical Abstract, Fifteenth Edition 1980</u> , (Michigan State University, East Lansing, (MI), September 1980
- Grain Elevators	Michigan Department of Agriculture
- Minerals: Production and Sales	Michigan Department of Natural Resources, Michigan Mineral Producers, 1978, Special Release, in <u>Michigan Statistical Abstract, Fifteenth Edition, 1980</u> , (Michigan State University, East Lansing, (MI), September 1980
- Employment	Michigan Employment Security Commission
- Forestry: Production and Sales	North Central Forest Experiment Section, U. S. Forest Service, U. S. Department of Agriculture, <u>1977 Census of Agriculture</u>
- Manufacturing Sales	U. S. Department of Commerce, Census of Manufacturing, 1977

Rail User Survey:

The department conducted a telephone survey in early February 1982 of those firms that used rail stations along the Ann Arbor Railroad. The survey was conducted to learn how important the rail system was to regional businesses, and to gauge the impacts upon individual firms and region's should rail service be terminated. Firms along the Ann Arbor from Whitmore Lake south were contacted when department records indicated a potential for utilization of Ann Arbor cross-lake service. These firms were surveyed only to learn the impact of a possible loss of Ann Arbor cross-Lake routing, since Ann Arbor service south of Whitmore Lake is not otherwise considered to be in jeopardy.

A total of 72 on-line shippers were identified between Whitmore Lake and Frankfort. Of 70 shippers successfully contacted, 45 reported that they are current Ann Arbor users. Thirteen additional shippers south of Whitmore Lake were identified as potential cross-lake users. All the latter were contacted, and two reported actual use of Ann Arbor cross-lake service.

All of the firms currently using rail service were asked; 1) would the loss of rail service affect their sales or market position; 2) if they anticipated changes in their business activities which would be sensitive to rail service; and, 3) what personnel actions they would take as a result of rail service loss. Firms were also asked questions concerning the feasibility of alternate rail service if current service becomes unavailable.

Impact Methodology:

The Tier II analysis includes consideration of job loss and cost impacts of transportation alternatives that result as a consequence of rail service abandonment. The rail impact model provides estimates of disposable personal income loss associated with employment changes reported in the shipper survey, and estimates of transportation cost increases associated with truck movements to public siding facilities (team tracks) on alternate rail lines.

The model estimates the personal income loss, state and federal tax losses, and unemployment and welfare compensation payments resulting from job losses reported by shipper surveys. Impacts are then discounted over time, which allows for the gradual reemployment of labor. Reemployment rates are determined by statistics obtained from the Michigan Employment Security Commission (MESC). The limits on reemployment potential are determined by local area unemployment rates, that are also obtained from the MESC.

Table 7

RAIL IMPACT MODEL PARAMETERS

Employment Multiplier	1.41
Average Secondary Wage	\$15,689.00
Trucking Cost	\$ 1.25 ¹
Discount Rate (Annual)	12.0% ²
Percent of Impacted Employees Remaining Unemployed	
After Six (6) Months	37% ³
After Nine (9) Months	30% ³
After Four (4) Years	6% ³
Local Unemployment Rate	15.6%

¹ Source: U. S. Department of Agriculture, Fruit and Vegetable Truck Rate Report .

² First Boston Transportation Financing Newsletter, Feb. 12, 1982.

³ These parameters are adjusted upward to reflect local unemployment conditions.

For the Ann Arbor analysis, the model was updated to reflect current local unemployment rates, current (1981) federal tax rates, and average wage rates by industry. Complete documentation of the model is available from the Bureau of Transportation Planning.

Opportunity Costs:

The concept of opportunity cost has application in systems and financial analyses within both the public and private sector. In general, all applications focus on estimating:

- 1) the stream of investment costs inherent in a decision,
- 2) the degrees of potential error in decisions associated with project cost elements considering inflation rates;
- 3) under fixed budget projections, the opportunities for investment that may provide a higher return on investment.

The consideration of opportunity costs in this study is concerned with the optimal allocation of rail program funds between rail segments and services in the state that currently require subsidies in order to continue operations, as well as other rail lines that may be abandoned in the future. The commitment of funds to long term track rehabilitation means that there will be less funds available for rail service continuation elsewhere in the state.

Since continuation of the Ann Arbor rail system in its present configuration will require a substantial proportion of the rail funds available, the program savings that may be available under alternative Ann Arbor configurations are large. In the context of the Ann Arbor system analysis, the term opportunity cost is used:

- 1) To dimension the savings to the state which would result from various investment and restructuring strategies.
- 2) To indicate the amount of funds under each strategy that could be available to apply against all other lines identified as essential. The fundamental premise is that these funds would be applied to:
 - acquire and rehabilitate tracks where necessary to retain essential core system rail freight service, and
 - continue operation assistance where necessary to maintain essential core system rail services.

THROUGH TRAFFIC ANALYSIS

The through traffic analysis, which addressed the compensatory nature of Ann Arbor cross-lake traffic, was based on the 1985 high, medium and low traffic levels of 27,500, 18,600, and 6,500 carloads respectively. Costs were estimated using actual 1980/81 Ann Arbor carferry records and variable costs for the on-line rail movement. Revenues were based on 1981 Ann Arbor averages by commodity as applied to the 1985 traffic projections and mixes.

For 1980/81, actual Ann Arbor carferry costs averaged \$3485 per one way trip (\$350 per carload). Using these averages in conjunction with average carloads per trip and practical vessel capacities reported by the Ann Arbor Railroad, annual operating costs were developed. These figures appear in Table 8.

TABLE 8
CARFERRY COSTS

	<u>Traffic Level</u>	<u>Trips</u>	<u>Cost</u> (\$ millions)	<u>Loads/</u> <u>Trip</u>	<u>Cost/</u> <u>Load</u>
High	27,500 cars	2,400	\$8.4	11.4	\$305
Medium	18,600 cars	1,760	\$6.2	10.5	\$334
Low	6,500 cars	680	\$2.4	9.6	\$369
Actual 1981	17,840 cars	1,784	\$6.2	10.0	\$349

The projected on-line variable costs for through traffic averaged \$270 per carload (see Table 9). Costs by major commodity type were developed using a Rail Form A type analysis based on unit costs submitted by the Ann Arbor in the Union Pacific route cancellation case before the Interstate Commerce Commission.

Based on the analysis, the combination of total carferry costs and on-line variable costs averaged \$620 per carload. The comparative average revenue per carload for 1980/81 traffic was \$555, which included the equivalent of \$30 per carload in revenue accruing from passenger/truck/auto traffic.

TABLE 9

THROUGH TRAFFIC ANALYSIS

	<u>High</u> (27,500 carloads)	<u>Medium</u> (18,600)	<u>Low</u> (6,500)
Rail Revenue	\$15,051,500	\$ 9,889,500	\$ 3,492,500
Misc. Revenue	710,655	519,790	200,600
Total Revenue	\$15,762,155 (\$573/car)	\$10,409,290 (\$559/car)	\$ 3,693,100 (\$568/car)
Carferry Cost	\$ 8,395,365 (\$305/car)	\$ 6,217,504 (\$334/car)	\$ 2,399,040 (\$369/car)
On-Line Cost	\$ 7,636,150 (\$277/car)	\$ 5,039,695 (\$270/car)	\$ 1,723,580 (\$265/car)
Total Cost	\$16,031,515 (\$582/car)	\$11,257,199 (\$605/car)	\$ 4,122,620 (\$634/car)
Revenue/Cost Ratio	.98	.92	.89

The revenues, costs, and net results associated with each traffic level are presented in Table 9. Total revenue on a per carload basis averaged between \$559 and \$573, while carferry and on-line variable costs averaged between \$582 and \$634 per carload. The resultant revenue to cost ratios for Ann Arbor through traffic were below unity, indicating that cross-lake re below unity, indicating that cross-lake through traffic does not contribute positively to the Ann Arbor's financial situation.

Through traffic is only of value to the Ann Arbor if it provides revenues in excess of costs. This was identified by Michigan Interstate as a principal motivation for seeking high revenue cross-lake traffic.

Discounting rates (the flag out) on specific commodities was employed by the Ann Arbor to increase cross lake revenues and thereby improve cross lake economics. Substantial increases in per car revenues have been realized, raising average revenue from \$311 per car in January 1978 to \$550 in November 1981. While substantial improvements have occurred, the analysis based on 1981 revenue illustrates that a satisfactory revenue/cost ratio will not be attained solely through increases in traffic. Additional improvements in attracting high revenue traffic or surcharges on low rated commodities, such as the \$75/car Ann Arbor surcharge on low rated paper, are necessary for the through traffic to cover costs.

In addition to increases in revenues, cost reductions could also result in a more favorable revenue/cost ratio for through traffic. Operating efficiencies have been projected by utilization of the integrated tug-barge, however, specific operating costs are not currently available for use in determining actual cost savings. Another alternative available to alleviate the high cost of carferry operations is financial participation by the State of Wisconsin and/or the Green Bay and Western Railroad, which both benefit from the cross-lake connection with the Ann Arbor. Shifting of Ann Arbor cross-lake operations to the Port of Ludington could also possibly result in cost savings through consolidation of marine facilities and joint usage of C&O track between Ludington and Clare.

Although possibilities exist which may enhance the through traffic revenue/cost relationship, it should be noted that fixed operating costs, rehabilitation costs, and capital costs associated with Ann Arbor ownership and the integrated tug-barge were not considered in developing the revenue/cost cost ratios.

In addition to analysis of through traffic, consideration was given to service for cross-lake traffic that originates or terminates in Michigan. Specific 1981 figures are not available for Michigan traffic, however, a 1978 Ann Arbor traffic analysis identified approximately 2300 cross-lake carloads as originating or terminating in Michigan. Surveys and discussions with Michigan Interstate suggest that the 1982 traffic

level of Michigan oriented cross-lake traffic would approximate 3500 carloads. While the revenue from this level of traffic is not especially significant, its importance lies in the benefit to Michigan shippers. This traffic was included in and costed with the through traffic.

ANN ARBOR SYSTEM ALTERNATIVES

To assess the total costs of continuing the cross-lake operations relative to portions of the Ann Arbor, various alternative configurations and traffic levels were analyzed.

The alternative configurations of the Ann Arbor are based on Tier I analysis, which reflected significant traffic generating points. The cost, revenues and impacts are summarized individually for the following.

- Termination of Cross Lake Service
- Toledo To Ann Arbor
- Toledo To Whitmore Lake
- Toledo To Durand
- Toledo To Ithaca and Swan Creek
- Toledo To Harlan/Yuma (Sand mines)

Toledo-Ann Arbor-Frankfort and Cross-Lake

This alternative addresses the financial and impact estimates associated with the potential termination of cross-lake Ann Arbor service.

	Financial Analysis (\$ millions annual)		
	Traffic Level		
	1978	1981	Optimistic Future
Carloads			
On Line	26,029	18,882	29,289
Cross Lake	18,600	18,600	18,600
Profit (Loss)	(\$1.789)	(\$4.019)	(\$.798)
Rehabilitation ¹	\$3.242	\$3.242	\$3.242
Total Profit (Loss)	(\$5.031)	(\$7.261)	(\$4.040)

¹ Annualized Cost

Summary: Operation of the existing Ann Arbor system is not estimated to generate financial profits under any assumed traffic composition or level of efficiency. The "optimistic case", which reflects probable on-line traffic and revenue increases and the 1985 cross lake traffic projections yields a financial loss of \$4.0 million. The 1981 on-line traffic levels, which reflect a depressed Michigan economy, yield a total financial loss of \$7.26 million. Both estimates incorporate all feasible operational efficiencies.

Toledo-Frankfort Only

	Financial Analysis (\$ millions annual)		
	Traffic Level		
	1978	1981	Optimistic Future
Carloads	26,022	18,852	29,282
Profit (Loss)	(\$.377)	(\$2.288)	\$.636
Rehabilitation ¹	\$3.242	\$3.242	\$3.242
Total Profit (Loss)	(\$3.619)	(\$5.530)	(\$2.606)

¹ Annualized Cost

Summary: Operation of the Ann Arbor from Toledo-Frankfort as an alternative, in conjunction with termination of cross-lake service, is estimated to result in a net financial loss of \$2.6 million per year, assuming "optimistic case" traffic levels and all feasible operating efficiencies. The projected loss, assuming efficient operations and 1981 on-line traffic levels, is \$5.5 million. These estimates include an annualized rehabilitation cost of \$3.2 million, without which actual operations could not approach the level of efficiency permitted in the cost estimates.

Economic impacts on the Frankfort area are related to the effect of job loss associated with the carferry employment and tourist industry employment, which over a 5 year period are estimated to result in a net personal income loss to laid off employees of \$4.34 million. The initial year impact was estimated to be \$1.79 million. These impacts would be mitigated to the extent any labor protection benefits to carferry employees offset income losses.

The employment effects of terminating Ann Arbor cross lake service at Frankfort were estimated by the department in the Northwest Michigan Rail System Rationalization Study. In addition to 160 Ann Arbor Railroad employees in the Frankfort and Elberta area, 102 job losses were estimated to result from the loss of tourist trade and the indirect effects of losses in purchasing power in the community. The economic effect of these job losses was estimated using the impact model.

The Northwest Michigan Rail System Rationalization Study reported that the 50 or so jobs attributable to the ferry tourist traffic constitute only about five percent of the average number of retail trade and service jobs available in 1979. The combination of ferry, tourist-related, and induced jobs (approximately 262) amount to 18 percent of the non-manufacturing jobs, or about 6.7 percent of the total jobs held by county residents.

This is unquestionably a noticeable impact on the local economy. But the most important question is whether the local economy will be strong enough to withstand such a loss; whether the worst-case impact would remove so much of the local income that the remaining businesses would not be able to sustain themselves.

Frankfort's situation is analogous to the situation of Michigan cities that have been bypassed by new road construction, diverting traffic away from traditional main streets or other commercial districts. These cases have been studied in detail, especially the tourist-dependent towns in northern Michigan. From this long list of studies some general observations have emerged. In towns with a diversified economy that include some industrial employment, in places where the regional economy is growing, and in towns removed from a competing nearby center, no permanent decline will be caused by the loss of traffic. These conditions were assessed to apply to Frankfort.

Toledo To Ann Arbor

This segment is 47.5 miles long and has common carrier status; it is thought to be profitable and can be operated by the existing carrier (MI) under contract at no cost to the state. This segment would include operation of the Pittsfield to Saline branch. This segment appears in Tier I as an essential core line.

Financial Analysis
(\$ millions annual)

Traffic Level

	1978	1981	Optimistic Future
Carloads	11,818	8,309	14,818
Profit (Loss)	\$2.904	\$1.487	\$3.309
Rehabilitation ¹	\$.319	\$.319	\$.319
Total Profit (Loss)	\$2.585	\$1.168	\$2.990

¹ Annualized Cost

Toledo-Whitmore Lake

This system would be 56.7 miles long and appears in the Tier I report as an essential core line. Whitmore Lake adds a significant number of carloads that could not be served by an alternate carrier.

Financial Analysis
(\$ millions annual)

Traffic Level

	1978	1981	Optimistic Future
Carloads	13,522	9,653	16,522
Profit (Loss)	\$3.063	\$1.570	\$3.467
Rehabilitation ¹	\$.415	\$.415	\$.415
Total Profit (Loss)	\$2.648	\$1.155	\$3.052

¹ Annualized Cost

User Survey Summary: Ann Arbor Railroad users north of Whitmore Lake reported a total of 1,568 full time and part time employees. Fourteen businesses (31% of all rail users) indicated that their future plans were sensitive to rail service availability. Twenty four (53%) said their plans were not sensitive to rail service and seven did not know.

Eight firms (18% of rail users) indicated that if rail service was discontinued, they would have to hire new employees, creating a minimum of twenty new jobs. Not all respondents were able to indicate the extent of additional employees necessary.

Six firms (13%) indicated they would lay off employees if rail service is lost. This would total fifty jobs lost. Five other businesses (11%) said they would go out of business if rail service is lost, affecting 74 additional employees.

Twelve businesses (27% of rail users) indicated they presently use a team track for loading/unloading and the remaining users have their own private siding. Five users (11%) of private sidings said they would be willing to use a team track on an alternate rail system.

Several questions were asked to determine the extent to which firms would experience transportation problems. Eight firms (18%) said they would experience weight restriction problems if they switch mode to highway only. Twelve said (27%) they would experience capital cost increases for their transportation operation, while eleven firms (24%) said they doubted the reliability of common carriers to transport their commodities. Fourteen (31%) businesses said their business costs would increase. One firm said they would expect a definite business loss from a reduced market as a result of Ann Arbor rail service abandonment.

Economic and Service Impact

Number of Carloads Served	9,653
Percentage of Total Land Traffic	55.4%
Number of Shippers Served	23
Percentage of Ann Arbor Users	34.3%
Job Loss (on-line shippers)	124 jobs
Personal Income Loss Net of Taxes and Unemployment Payments	
Initial Year	\$3.55 million
Present Value of 5-year Impacts	\$8.65 million
Additional Transportation Cost	
Annual	\$ 68,220
Present Value of 5 Year Impacts	\$253,735

Summary: Restructure of the Ann Arbor to Whitmore Lake, the operation of two profitable essential core system segments only, will eliminate the entire Ann Arbor subsidy, but will result in significant impacts. In addition to the economic impact on the Frankfort area resulting from cessation of the carferry service, job losses and economic impact may result from the discontinuance of service to the existing traffic concentrations north of Whitmore Lake. Impacts are concentrated along the Saginaw Branch (to Swan Creek), Ashley to Ithaca, and at Harlan. These segments were identified as "questionable" in the Tier I Rail Rationalization Study.

Were an alternate carrier able to provide service to the sand deposits at Harlan and to the Saginaw Branch, the direct job loss to Ann Arbor shippers would be reduced by 63 jobs.

Toledo-Durand

The addition of 39.1 miles from Whitmore Lake to Durand would create a system 95.8 miles long. This system would extend to an interchange point with the Grand Trunk Western. It would also serve the station of Cohoctah which is not served by an alternate carrier.

	Financial Analysis (\$ millions annual)		
	Traffic Level		
	1978	1981	Optimistic Future
Carloads	13,724	9863	16,724
Profit (Loss)	\$2.123	\$.690	\$3.089
Rehabilitation ¹	\$.719	\$.719	\$.719
Total Profit (Loss)	\$1.404	\$ (.029)	\$2.370

¹ Annualized Cost

User Survey Summary: If the Ann Arbor were structured to run only from Toledo to Durand, forty-three shippers would lose rail service. This includes ten shippers who presently use an Ann Arbor team track to load/unload. Also, five shippers with private sidings indicated they would be willing to team track to an alternate rail facility. Eleven shippers losing service indicated their future business would be sensitive to rail service. Of the three located between Durand and Ithaca or Swan Creek, none including a current team track user would be willing to ship from alternative rail facilities. These three shippers move an average of 80% of their traffic by rail.

Economic and Service Impact

Number of Carloads Served	9,863 carloads
Percentage of Total Land Traffic	56.5
Number of Shippers Served	25 shippers
Percentage of Ann Arbor Users	37.0%
Job Loss (on-line shippers)	115 jobs
Personal Income Loss Net of Taxes and Unemployment Payments	
Initial Year	\$3.44 million
Present Value of 5-year Impacts	\$8.39 million
Additional Transportation Cost	
Annual	\$ 55,920
Present Value of 5 Year Impacts	\$207,296

Summary: Operation of the Ann Arbor Railroad to Durand will also likely result in the elimination of all Ann Arbor subsidies. While the financial analysis is based on assumptions which bias the outcome in favor of cost efficiency in operations, probable traffic increases and potential revenue resulting from Grand Trunk Western's utilization of Ann Arbor track will likely be sufficient to ensure profitable operations in any case.

Extending Ann Arbor service to Durand will not significantly affect the impacts resulting from service loss. Only nine rail user jobs would be preserved at the stations of Howell and Cohoctah. Alternate service to the Saginaw Branch and Harlan would reduce direct rail user employment impacts by 63 jobs.

Toledo-Ithaca and Swan Creek

This system allows a two-branch service into the primarily agricultural areas of Ithaca and Swan Creek. An additional 31.2 miles of track to Ithaca and 28 miles between Owosso and Swan Creek would create a system 155 miles long. There are other options for serving the Swan Creek branch, but there is no alternate carrier available for Ithaca. Durand-to-Ithaca and Owosso-to-Swan Creek were both categorized as questionable in the Tier I report. This system would serve the North Star station, as well as Henderson, Oakley, Chesaning, and St. Charles on the Swan Creek Branch.

Financial Analysis
(\$ millions annual)

Traffic Level

	1978	1981	Optimistic Future
Carloads	14,252	10,781	17,512
Profit (Loss)	\$ 923	(\$.366)	\$1.935
Rehabilitation ¹	\$.843	\$.843	\$.843
Total Profit (Loss)	\$.080	(\$1.209)	\$1.092

¹ Annualized Cost

User Survey Summary: If rail service were provided from Toledo to Ithaca and Swan Creek, thirty shippers would lose service. This would include eight shippers who were presently team tracking and four shippers using private sidings who reported they would team track to an alternate rail loading facility. Seven shippers (south of Yuma) reported their future business plans to be sensitive to rail service loss. Six shippers reported they would hire a total of fifteen employees, while two firms would lay off five people. Two firms would go out of business, affecting thirty-five employees. One firm would expect reduced business and eighteen shippers reported they would experience no employment affects.

Economic and Service Impact

Number of Carloads Served	10,781 carloads
Percentage of Total Land Traffic	61.1%
Number of Shippers Served	38 shippers
Percentage of Ann Arbor Users	56.7%
Job Loss (on-line shippers)	44 jobs
Personal Income Loss Net of Taxes and Unemployment Payments	
Initial Year	\$2.43 million
Present Value of 5-Year Impacts	\$5.94 million
Additional Transportation Cost	
Annual	\$45,164
Present	\$167,983

Summary: Continuation of Ann Arbor service to Ithaca and to the Saginaw Branch (Swan Creek) would result in a minimum operating loss of \$366,000 when high levels of operating efficiency and 1981 local traffic levels are assumed. Using 1978 local traffic levels, which reflect the situation on the Ann Arbor prior to the downturn in the automobile industry and the Michigan economy, service is estimated to generate a maximum operating profit of \$922,844. Probable traffic and revenue increases reflecting the optimistic case will generate operating profits of \$1.9 million.

This alternative would require rehabilitation of \$6.6 million, which when annualized over a 25-year life at a cost of capital of 12%, yields a cost of \$843,000 per year.

Local service impacts are significantly reduced when traffic concentrations on the Saginaw Branch and Ithaca are served. Direct job loss is reduced to 44 jobs, the majority of which are associated with the movement of sand traffic from Harlan.

Toledo - Yuma/Harlan (sand deposits)

An additional 1216 miles for a total of 262 miles of track would be required to serve the sand deposits at Yuma/Harlan. It is doubtful that attempting to serve the sand with an alternate available carriers, and existing tariff which would be lost. Configuring the Ann Arbor System to serve Yuma/Harlan would include serving ten additional stations between Ithaca and Yuma; the benefits of this are mitigated, however, by the fact that five of the major stations have alternate carriers. These are Alma, Mt. Pleasant, Shepard, Clare and Cadillac.

Financial Analysis
(\$ millions annual)

Traffic Level

	1978	1981	Optimistic Future
Carloads	25,740	18,618	29,000
Profit (Loss)	\$.127	(\$1.883)	\$1.140
Rehabilitation ¹	\$2.774	\$2.774	\$2.774
Total Profit (Loss)	(\$2.647)	(\$4.657)	(\$1.634)

¹ Annualized Cost

User Survey Summary

If rail service were extended from Toledo to Yuma/Harlan, seven shippers would lose service. Three are team track users. One private siding user reported to be willing to team track to an alternate rail loading site. One shipper reported his future plans to be sensitive to rail service. This shipper used a private siding and has no interest in team tracking to an alternate rail system. Three firms indicated they could hire as many as ten additional employees and two shippers would lay off seven employees. Two shippers reported no employment affects, and no shipper expected to go out of business.

Economic and Service Impact

Number of Carloads Served	18,618 carloads
Percentage of Total Land Traffic	98.5%
Number of Shippers Served	60 shippers
Percentage of Ann Arbor Users	89.6%
Job Loss (on-line shippers)	7 jobs
Personal Income Loss Net of Taxes and Unemployment Payments	
Initial Year	\$1.87 million
Present Value of 5-Year Impacts	\$4.56 million
Additional Transportation Cost	
Annual	\$38,766
Present Value of 5 Year Impacts	\$144,217

Summary

Operation of the Ann Arbor to Harlan, where a significant concentration of industrial sand traffic is generated, results in minimal local service impacts, but significant operating losses and rehabilitation costs.

The 1981 traffic levels costed for efficient operations (assuming track rehabilitation which permits 40 mile per hour operation) yeild an operating loss of \$1.9 million. Adding the annualized rehabilitation of \$2.8 million yields a minimum financial loss of \$4.7 million for this operation.

The "optimistic" case financial analysis, when adding the annualized rehabilitation, yields a financial loss of \$1.6 million.

ANALYSIS SUMMARY

The Tier II Ann Arbor analysis addressed the relationship of the characteristics of Ann Arbor service to the rail rationalization objectives adopted by the Michigan Transportation Commission. The analysis of the Ann Arbor was chosen as the initial Tier II effort on the basis of the complexity of issues associated with alternative Ann Arbor systems, and on the basis of the magnitude of state support necessary to continue the Ann Arbor relative to all other rail assistance projects. Because of size and complexity, the resolution of Ann Arbor Railroad issues is a key element in future Commission rail assistance policy.

The state's interest in preserving the Ann Arbor extends back to 1970, when both the Ann Arbor and C&O applied to the Interstate Commerce Commission for approval to abandon carferry service; the Ann Arbor on the Frankfort-Kewaunee route, and the C&O on the Ludington to Manitowoc route. These were successfully opposed by interveners and in 1972, the I.C.C. denied the applications. In 1974, the Ann Arbor again petitioned the Interstate Commerce Commission to abandon the entire railroad, including the carferry routes. The company testified that if the application to abandon carferry operations was not granted, the Ann Arbor would be forced into bankruptcy.

The states of Michigan and Wisconsin opposed the abandonment application. Testimony was presented that with a new vessel, improved service, aggressive development of new markets, and possible long term financing through government guaranteed loans (or some alternative financial support), the carferry service could operate profitably.

The Interstate Commerce Commission issued an order postponing further hearings on the application and the Ann Arbor management filed for bankruptcy. This placed the railroad under the terms of the Regional Rail Reorganization Act of 1973, and subsequently the state rail assistance program.

The initial state objective for retention of the Ann Arbor as a cross state and cross lake carrier was based on the anticipation that through traffic movements would generate sufficient net revenue to cross-subsidize the retention of local service along the Ann Arbor corridor. Accordingly, this study addressed both through traffic and local service issues.

Using traffic projections for 1985, adjusted to reflect the current commodity and revenue mix, the study addressed the potential for cross-lake through traffic to generate revenues in excess of costs. For three traffic levels, revenues were found to fall marginally short of carferry costs and variable on-line operating cost.

Through Traffic Analysis

Traffic Level	Total Revenue (In Millions)	Carferry And On-Line Variable Cost (In Millions)	Revenue/Cost
27,500 (high)	\$15.8	\$16.0	.98
18,600 (medium)	\$10.4	\$11.3	.92
6,500 (low)	\$ 3.7	\$ 4.1	.89

These results are supplemented by evaluations of seven possible alternative configurations of the Ann Arbor Railroad. The alternatives were chosen to reflect the findings of the Tier I analysis, and to focus on the relationship of service on specifically identified "gray" segments to the rail rationalization objectives. The analysis addressed both the total operating and rehabilitation costs and service loss impacts associated with each alternative, including the continuation of cross-lake service for three on-line traffic levels.

Total operating costs were estimated to reflect operational efficiencies appropriate for a rehabilitated 40-mile per hour railroad. As such, financial outcomes include rehabilitation costs which represent more realistic options available to the state. The total costs reflect "best" financial outcomes for each traffic level, and do not include management fees. Impacts calculated for each alternative reflect net personal income losses and increases in transportation cost for shipments trucked to alternative rail loading sites.

Total rehabilitation costs for each alternative are presented in Table 10. Annualized rehabilitation reflects the assumption of a 25 year life and a 12 percent amortization rate. The annualized rates were used in developing the 5-year present value calculations using a 12 percent discount rate. These values were employed in the calculation of the present value of total subsidies over a 5-year period.

Annual impacts for both personal income loss (economic) and trucking cost are identified by alternative in Table 11. For use in developing the net financial and impact summary table (Table 13), the cumulative present value of impacts over 5 years is reported. The impacts over the 5-year period reflect substantial re-employment of labor over the first year.

Table 10
Rehabilitation Costs
(Total, Annualized and Five Year)
(In Millions \$)

<u>Alternative</u>	<u>Total Rehabilitation**</u>	<u>Annualized</u>	<u>5-Year* Rehabilitation</u>
7. Toledo to Frankfort to Wisconsin	\$25.426	\$3.242	\$11.680
6. Toledo to Frankfort	25.426	3.242	11.680
5. Toledo to Harlan	21.75	2.774	10.000
4. Toledo to Ithaca Inc Swan Creek Branch	6.613	.843	3.039
3. Toledo-Durand	5.641	.719	2.592
2. Toledo-Whitmore Lake	3.255	.415	1.496
1. Toledo-Ann Arbor	2.505	.319	1.150

*5 years discounted to present value

** Does not include carferry related rehabilitation.

Table 11
Annual and Five Year
Economic and Alternative Mode Impacts**
(\$ millions)

<u>Alternative</u>	<u>Impacts (1 Year)</u>		<u>Impacts (5 Year*)</u>	
	<u>Econ.</u>	<u>Truck</u>	<u>Econ.</u>	<u>Truck</u>
7. Toledo to Frankfort to Wisconsin	0	0	0	0
6. Toledo to Frankfort	1.79	0	4.34	0
5. Toledo to Harlan	1.87	.038	4.56	.144
4. Toledo to Ithaca and Swan Creek	2.43	.045	5.94	.168
3. Toledo to Durand	3.44	.056	8.39	.207
2. Toledo to Whitmore Lake	3.55	.068	8.65	.253
1. Toledo to Ann Arbor	3.55+	.068+	8.65+	.253+

*5 years discounted to present value

** Impacts result from service discontinuance associated with the selection of a given alternative.

Financial results and impacts for a one year period for three traffic levels are presented in Table 12. The "medium" level reflects on-line traffic on the Ann Arbor prior to the downturn in the auto industry and the Michigan economy. The "optimistic" level reflects additional revenue prospects, while the "low" estimates are based on current depressed on-line traffic levels (1981). Each of these on-line traffic levels was combined with the medium projection of cross-lake traffic for the Cross-Lake Alternative.

On an annual basis, Ann Arbor service beyond Ithaca (including the Swan Creek Branch) is estimated to require substantial subsidies. The sharp increase in track rehabilitation necessary accounts for much of the difference; however, for medium traffic levels, the additional loss on operations alone for incrementally adding service north from Ithaca to Wisconsin is estimated at \$2.7 million (+\$9.23 million to -\$1.789 million). On cross lake service along, for medium traffic levels reflecting the 1981 commodity and revenue mix, the incremental loss is over \$1.4 million.

The annual impacts associated with each alternative are presented in the right hand column of Table 12. For continuation of Ann Arbor service to Frankfort only, the impacts reflect the loss of employment estimated to result from carferry service termination. For each other alternative, the impacts reflect the sum of carferry impacts and impacts resulting at all other stations not served.

Table 13 presents the summary of financial and impact results in terms of 5 year present values for each alternative for the low, medium, and best traffic levels.

The present value of the impacts over a 5-year period are combined with the present value of the financial profit or loss over the same period to develop the Net Financial and Impact Summary. Each entry in the Net Financial and Impact Summary table reflects the financial profit (loss) minus (plus) the value estimated for impacts on service not provided. For example, Toledo to Durand service generates a net profit of \$5.06 million for the medium traffic level. This profit is offset by impacts of \$8.60 million resulting from loss of service on mileage north of Durand and cross-lake, for a net negative value in the Financial and Impact Summary of \$3.54 million. Similarly, the negative financial outcome for Toledo-Harlan of \$10.46 million for the medium traffic level, when added to the impacts resulting from loss of service on mileage north of Harlan and cross lake of \$4.70 million yields a net negative value of \$15.16 million in The Financial and Impact Summary Table.

Table 12

Ann Arbor Annualized Financial and Impact Analysis Results
(In Millions)

	Annual Operating Results Profit(Loss)			Annualized Rehabilitation Costs	Annual Operating Results Plus Annualized Rehabilitation Costs			Total Annual Impacts Truck and Economic
	Best ¹	Low	Medium ¹		Best	Low	Medium	
7. Toledo to Frankfort to Wisconsin ²	(.798)	(4.019)	(1.789)	3.242	(4.040)	(7.261)	(5.031)	0
6. Toledo to Frankfort	.636	(2.288)	(.377)	3.242	(2.606)	(5.530)	(3.619)	1.79
5. Toledo to Harlan	1.140	(1.883)	.127	2.774	(1.634)	(4.657)	(2.647)	1.91
4. Toledo to Ithaca Including Swan Creek Branch	1.935	(.366)	.923	.843	1.092	(1.209)	.080	2.48
3. Toledo to Durand	3.089	.690	2.123	.719	2.370	(.029)	1.404	3.50
2. Toledo to Whitmore Lake	3.467	1.570	3.063	.415	3.052	1.155	2.648	3.62
1. Toledo to Ann Arbor	3.309	1.487	2.904	.319	2.990	1.168	2.585	3.62+

¹ Best: 78 Local Traffic + Good Traffic Prospects + GTW Trackage Rights (81 Rev/Car)
78 Local Traffic (81 Rev/Car)
81 Local Traffic (81 Rev/Car)

² 1985 Cross-Lake Traffic Levels and Revenues (corresponds to "medium" level projections)

Table 13

5 YEAR ESTIMATES
By Alternative
(In Millions)

	Financial Profit (loss) <u>Subsidy & Rehab.</u>			<u>Impacts</u> Summed	Net financial and Impact Summary*** <u>5 Year Analysis</u>		
	Best	Low	Medium		Best	Low	Medium
	7. Toledo to Frankfort to Wisconsin	(14.56)	(26.18)		(18.14)	0	(14.56)
6. Toledo to Frankfort	(9.39)	(19.93)	(13.03)	(4.34)	(13.73)	(24.27)	(17.37)
5. Toledo to Harlan	(5.89)	(16.61)	(10.46)	(4.70)	(10.59)	(21.31)	(15.16)
4. Toledo to Ithaca and Swan Creek	3.93	(4.36)	0.29	(6.10)	(3.72)	(10.46)	(5.81)
3. Toledo-Durand	8.57	0.10	5.06	(8.60)	(0.03)	(8.50)	(3.54)
2. Toledo-Whitmore Lake	11.00	4.17	9.55	(8.90)	2.10	(4.73)	0.65
1. Toledo-Ann Arbor	10.78	4.21	9.32	(8.90+)	1.88	(4.69)	0.42

***Op. Rev. Less Cost Less Annual Rehab. Less Impacts For 5 Years Discounted to Present Value

Figure 10

ECONOMIC ANALYSIS OF ANN ARBOR RAILROAD ALTERNATIVES (IN MILLIONS)

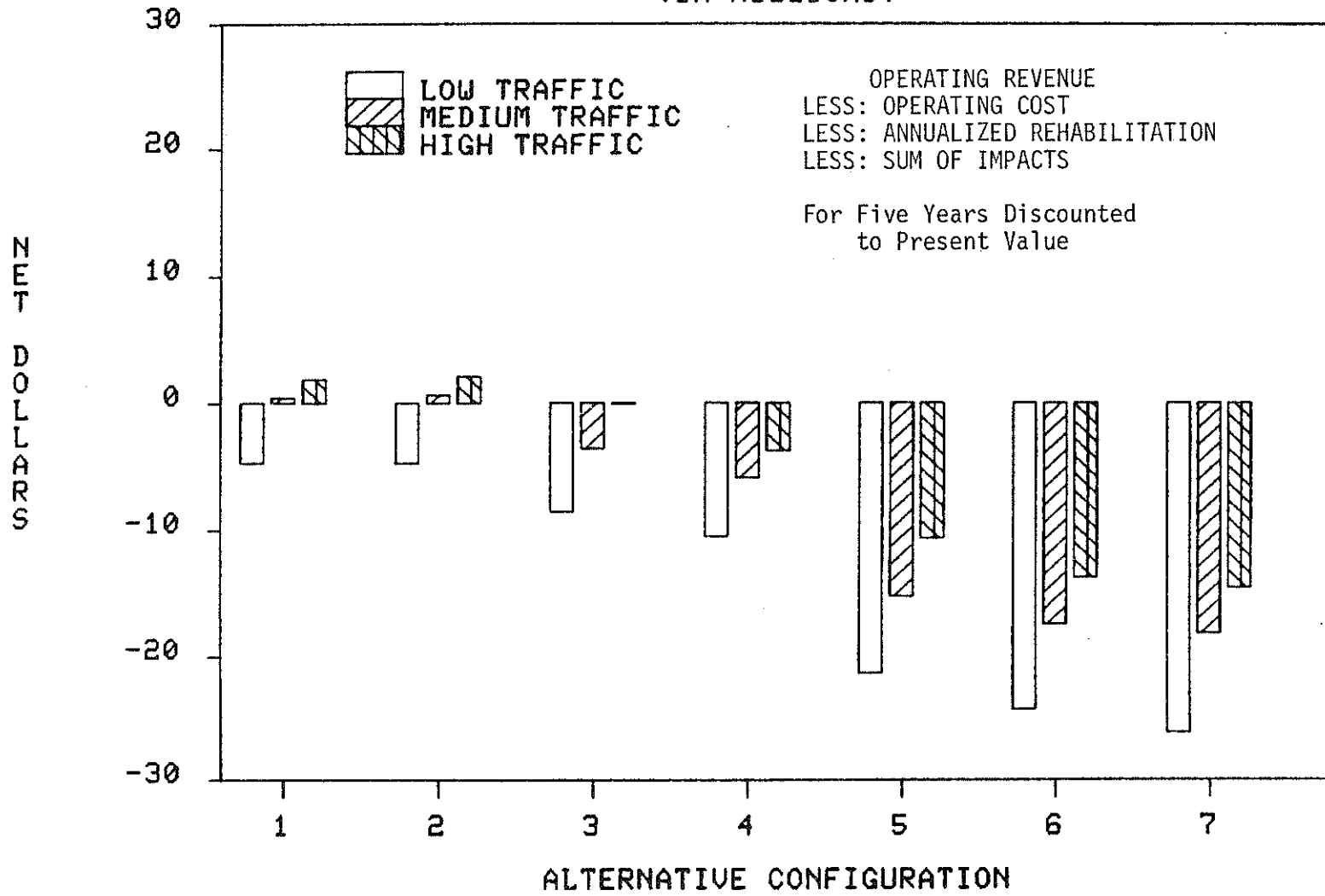
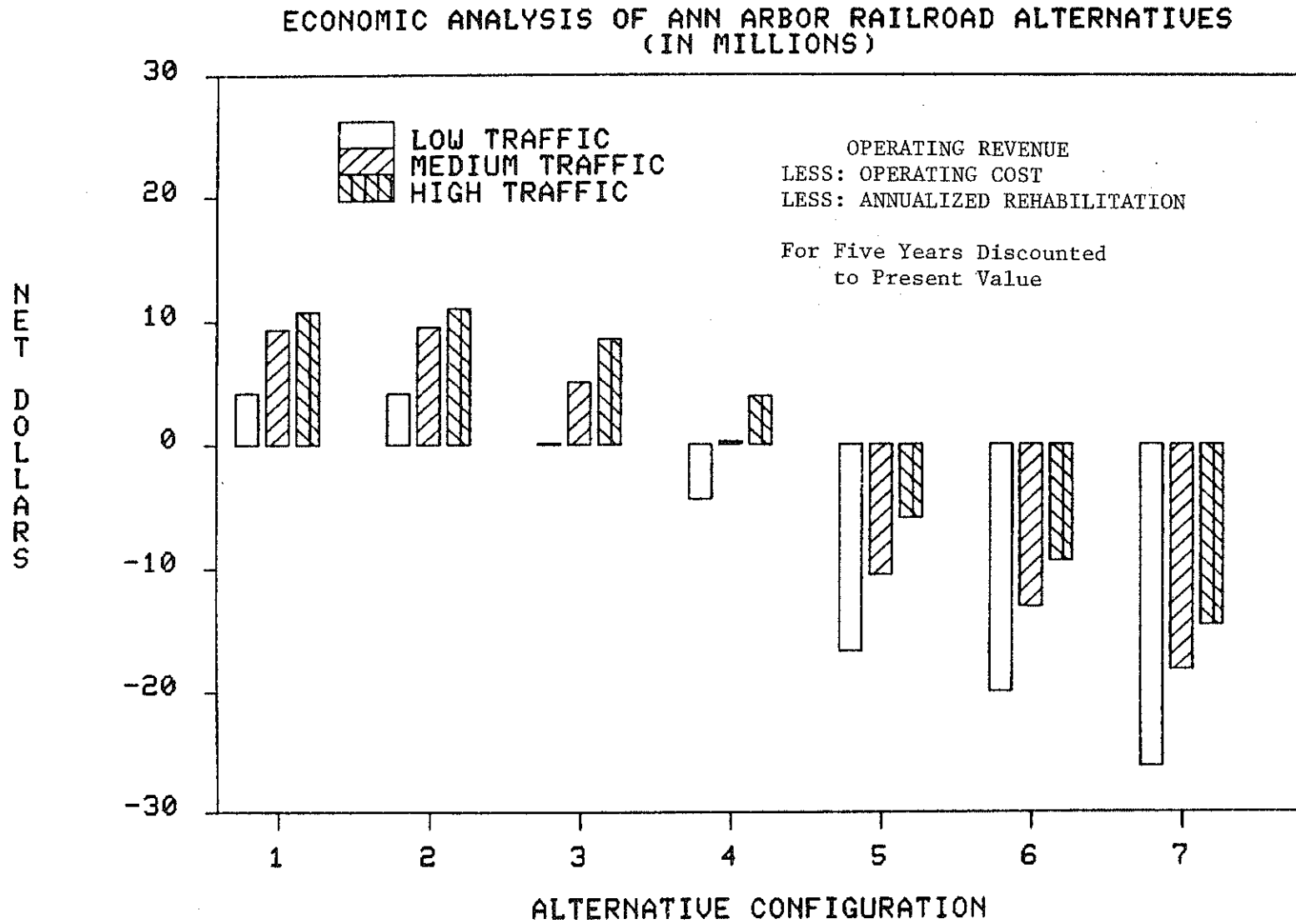


Figure 11



Values near the top of the Net Financial and Impact Summary Table reflect relatively high financial losses and low economic impacts. Values from the center down reflect relatively favorable financial outcomes offset by the larger impacts associated with greater loss of service.

CONCLUSIONS

This Tier II report provides a comprehensive framework designed to address the variety of issues relating to the several alternatives for preserving Ann Arbor Railroad service. Within the Tier I screening process, the southern part of the railroad (Toledo-Whitmore Lake) was identified as part of the essential core system. The balance was identified as questionable, primarily due to the complexities of through service, cross-lake ferries, long distances with light traffic density, and the need for rehabilitation of the line.

The objectives adopted as part of the Tier I screening also served as a backdrop for this Tier II analysis.

The first objective is directed at rail dependent industries. It is evident from shipper survey responses and a review of the commodities moving on the Ann Arbor Railroad that the sand mines at Yuma-Harlan represent the only "rail dependent" industry that may be significantly affected. There are other sources for this resource, and the user (Ford Motor Company in Cleveland) could be supplied by ship, a relatively efficient mode of travel for this extremely low value bulk commodity.

The second objective relates to enhancing economic development in the state through the continuation of service on rail lines. Although there are proposed rail user related economic developments adjacent to the Ann Arbor, significant enhancement of existing development in the Ann Arbor corridor through continued service seems unlikely since there is little on-line traffic, and user job loss is low with potential for relocation within the state. Most users have either other rail lines available or have relied on partial service by truck for some time.

The third objective relates to shifts to alternate modes. Shippers generating high traffic volumes, having high job

loss if service is terminated, and having a highly rail dependent commodity are potentially in most need of assistance to shift to an alternate mode. Review of the shipper surveys, the commodities moved, and job loss resulting from termination of service does not reveal a need for mitigative action with regard to this objective. There is generally low volume, few shippers, only one instance of exclusive dependency (sand) and little job loss. Reliance on truck is fairly high and there are few obstacles to accessing the nearest alternative rail line or acquiring truck service. Agricultural dependency is astonishingly low.

The fourth objective relates to cost effective capital investments and short term operational assistance to achieve viability. Rail needs are extensive and the public rail assistance budget is limited. The only means of placing a limit on needs is to restrict the public interest to an "essential" core system based on dependencies, lack of alternatives, and other meaningful criteria. Only then is it possible for a finite public budget to have a meaningful impact on stabilizing some degree of rail services.

The fifth objective is to stabilize regional rail service to major production centers in the state. Class three production centers are the highest level centers in east central and northwest Michigan. Individually, these centers are not highly important in the state economy. Collectively, however, they constitute a large share of the productive capacity of the state. In both the regions, the class three centers are extremely important to their local economies. The Ann Arbor does not serve any regionally important production centers exclusively (except sand). Termination of Ann Arbor service in either the east central or northwest regions would not affect service to major production centers..

Thus, the basic objectives of the state rail program are not dependent upon a continuation of the Ann Arbor as a line haul railroad from Toledo to Kewaunee via Frankfort...

The analysis indicates that cross lake traffic will not be a source of cross-subsidy of local service along Ann Arbor corridor.

The potential of the Integrated Tug Barge to greatly reduce costs of cross-lake service was not examined, since this is the subject of an uncompleted consultant report. The analysis suggests, however, that it may be possible for the cross lake service to produce revenue in excess of variable costs but not sufficiently to justify retention of the entire railroad.

Under the three traffic projections used in the analysis, it is obvious that the segments from Toledo to Whitmore Lake should be considered highly profitable, even with the need for extensive rehabilitation. Any restructuring of operations or contract relationships should insure that needed rehabilitation on the south segments be funded from earned revenues.

The analysis also suggests that the Ann Arbor Railroad could possibly produce revenue in excess of all costs as far north as Durand. Further, the degree of possible revenue deficiency of extending service to Ithaca and the Saginaw Branch should be considered reasonable in serving this predominately agricultural area.

During 1980, railroad pricing was significantly deregulated. In the past, short route rates via the carferry routes produced benefits to Michigan industries (whether or not the carferries were used). Eventually, it is likely that all rates will be reestablished to eliminate the rate advantage attributed to the carferry routes. (The effects of deregulation on the ferries are explained in detail in an appendix to this report.)

One of the conditions of acquiring the Ann Arbor Railroad during the Regional Rail Reorganization Act of 1973 process was that Ann Arbor employees would be afforded the same labor protection afforded employees integrated into the Conrail system. To date, the extent of such liability for labor protection has not been determined. It is apparent that this will require legal determination if a restructuring of the Ann Arbor should be undertaken, resulting in loss of some railroad employment

The state owns all but a small portion of the Ann Arbor route; the segment between Durand and Ashley is owned by the Grand Trunk Western Railroad. The state pays a trackage rights fee on this segment. If service should be terminated on any of the remaining track, the right of way would be prohibited from conversion to another use by virtue of state ownership. State ownership of the right of way also retains the option of future use for any economic development of such scale that rail service may be supported.

APPENDIX

RAILROAD RATEMAKING UNDER THE STAGGERS ACT: IMPLICATIONS FOR LAKE MICHIGAN CARFERRIES

RAILROAD RATEMAKING UNDER THE STAGGERS ACT:
IMPLICATIONS FOR LAKE MICHIGAN CARFERRIES

1. Historic Ratemaking
Philosophical bases
Procedures
Rate bureaus

2. Present Ratemaking
Price-setting freedom
Joint rates, cancellations, and surcharges
Class III roads

3. Rates Based on Short-line Distances
Types of rates
Effect of the Staggers Act
Importance of short-line distances

4. Conclusions
Effect of the Staggers Act on ferry-related rates

RAILROAD RATEMAKING UNDER THE STAGGERS ACT: IMPLICATIONS FOR LAKE MICHIGAN CARFERRIES

This act provides for a gradual but complete change in the way of setting the price for railroad transport, from artificially-set prices to nearly a freemarket situation.

Historic Ratemaking

Railroad freight prices (called rates) were traditionally regulated by the Interstate Commerce Commission according to an archaic doctrine based on the ideas that railroads had no competition and that rates should protect producers of certain goods in certain locations from discrimination and protect weaker carriers from price competition. To accomplish this, rates were set for different commodities according to what the ICC believed was the "value of service" or the "ability to pay." This caused an enormous amount of cross-subsidy, and railroads handled much freight at a loss. Rate divisions were negotiated between carriers within a rigid framework based on the amount of mileage owned by each carrier participating in a through route. This framework caused some terminal carriers to be chronic losers, and produced some very profitable bridge routes. Competition between railroads (and eventually, other modes) was prohibited to prevent carriers from squeezing out competition with ruinously low rates. Railroads were eventually required to set rates jointly, and were exempted from anti-trust legislation that makes this practice illegal in other industries. Rate bureaus, one for each territory of the country, were established as forums for negotiating rates and divisions.

This process dated back to some major court decisions in the last century. The present rate bureau structure dates to 1948. By the 1970s it was working this way:

Rates had no direct relation to marginal cost; they were set by a complicated and rigid formula that allocated a portion of a railroad's total cost to each movement. This caused rates in general to rise, but not in response to marginal cost, and only remotely in response to total costs, so that in recent years the whole industry has never yielded more than two percent return on investment. Practically the entire system in the northeast was bankrupt (due to a large percentage of terminal operations, plus failures of management) and at the prevailing rate of return the still-profitable carriers in the west was low as well. (This is the purpose of the Staggers Act: to make railroads sufficiently profitable so that they can again generate capital, and so avoid nationalization.

New rates or changes were proposed by individual railroads to the rate bureaus, which acted as a kind of preliminary review for the ICC. At the bureau, comment was heard from other railroads having joint or competing routes, from competing modes, and from shippers. The bureau, which is composed of all the railroads in a territory, either rejected the rate, or passed it onto the ICC. In practically all cases, the bureau behaved as the ICC would, presumably knowing from long experience what is permissible.

Operating under its traditional rules, the ICC adjudicated only the more important or divisive questions, such as complaints about divisions, complaints by shippers about high rates or car service, and complaints from other modes about unfair competition. The traditional rules resulted in a near-total lack of competition between modes, as carriers were prohibited from lowering rates or improving service to capture freight. Conversely, carriers were also prohibited from raising rates to drive away unprofitable business. Railroads accomplished some success in abandoning unprofitable lines, raising prices, and capturing merchandise traffic (high-value goods) through multi-modal ventures, but these advances always lagged far behind what a free market would have provided. Many unprofitable rate divisions are still in effect.

The organizational structure is still in place under the Staggers Act, but the rate-making rules are completely changed.

Present Ratemaking

The Staggers Act provides for rates based exclusively on "variable cost." Traditional doctrines of value of service are abandoned. In general, the Act allows railroad rates to rise (or fall) to equilibrium, just like any other business. There are still a few restrictions, some of which affect Michigan carriers.

In general, railroads are free to set whatever rate they want, unless they have "market dominance" for a particular route and commodity. The ICC may establish rates only where this market dominance exists, where dominance is defined as any movement for which a railroad charges more than 170 to 180 percent of its variable cost. In order to define variable costs, a completely new ICC-approved system of railroad accounting is being devised. As before, the details of this system will dictate how the new law actually works in practice. There is probably no way to predict how rates will behave for a particular route and commodity, without being very familiar with this cost accounting, and with the markets involved. As before, shippers and competing carriers can petition the rate bureaus and the ICC for changes, but only by proving that more than 180 percent of variable cost is being charged.

The law will take full effect by 1984. All the historic rates remain in effect, but can rise by six percent per year to a maximum of 18 percent until 1984, including blanket increases for inflation. After 1984, rates may rise by four percent per year. Blanket increases are illegal after 1983.

Traditional regulations governing long- vs. short-haul rates remain in effect, except that the ICC is instructed not to prohibit railroads from setting competitive prices consistent with the main objective of the act, which is, eliminating rates and divisions not generating adequate revenues. Presumably there will be opportunities to set rates to place traffic on the most profitable routes, so long as laws are not violated.

Joint rates will be set as before, by conferring between railroads and publication of the tariff by the bureau. But however, rate bureaus are prevented from even discussing single-line (local) rates, and only participating carriers may discuss and vote on joint rates, reducing cartelization and presumably increasing competition. Formerly, carriers could vote on competitors' rates.

Existing joint rates may be cancelled or surcharged when they do not provide a carrier with 110 percent of its variable cost. Other carriers may prevent this surcharge or cancellation by adjusting their rate division or by setting a new rate to compensate the cancelling carrier. There has been a wave of cancellations since this law was passed. Eventually, all the historic rates and divisions will either lapse through disuse, or will rise to some fraction of 180 percent of variable costs. Until then at least 110 percent of variable cost is guaranteed.

There are exemptions for joint rates with Class III railroads. Exemptions apply if a cancellation or surcharge will have an adverse effect on a Class III road, namely if it will reduce its ability to compete, cancel the last available route for a commodity transported via the road, or reduce the ability of a shipper on a Class III road to compete. If this can be proven, the ICC may order carriers to rescind surcharges or cancellations, and require carriage of traffic from Class III railroads at less than 110 percent of variable cost.

Rates Based on Short-line Distances

The charges for some rail transportation are based on the shortest rail mileage between the origin and destination, also called the "Docket 28300 distance." For some freight moving between central Michigan and the ferries' western hinterland (Wisconsin, Minnesota, North Dakota, and some other places this side of the Rockies), the shortest route includes the ferry routes. Not all traffic whose rates are based on these distances actually use the ferries. Most, in fact, probably moves through Chicago even though the basis for the rate is the distance through Ludington or Frankfort. The amount of traffic moving on rates based on short-line distances over the ferries is not known, but it is certain that it is a

small percentage of all freight, and that the effect of short-line distances is diminishing.

Which rates are based on short-line mileages?

There are a variety of types of railroad rates. Contract rates, recently legalized, cover the largest movements. Most railroad traffic moves under rates specific to certain routes, volumes, and commodities. Until recently, these were closely regulated, but were nonetheless the result of negotiation and marketing by the railroads. Goods and routes not covered by specific rates move under "commodity" rates, governing the movement of a variety of goods between certain points. These rates are higher than the other kinds. The small remainder of goods and destinations not covered by commodity rates move under "class" rates for carloads of goods not specified in the other tariffs. (A published rate is called a tariff.) Class rates are the costliest of all, and apply to low-volume or occasional freight. Except for some very-long-distance moves, all class rates are based on short-line distances, and so are a few commodity rates. Thus, short-line distances are the basis for the costliest rates applying to the lowest-volume movements.

How does the Staggers Act affect rates based on short-line distances?

Deregulation does not change rail rates themselves, or most of the procedures by which they're made. Rather, it allows railroads much more freedom than before in changing prices. Until changes are made, all the traditional rates remain in effect. Immediately after the act's passage, railroads moved to cancel or surcharge the most unfavorable joint rates, and in general to raise rates, although some prices have been cut to capture profitable traffic. However, the majority of rates for less-important traffic remain in effect. These will be changed gradually over the next several years, usually upward, as railroads adjust their rates and divisions to make all of their traffic generate an adequate return. Eventually, even the least-used commodity and class rates will be increased.

Rates for the low-volume, low-frequency movements that account for much of the ferry traffic will probably be among the last to be changed. So the artificially low prices protected by the existence of the short-line distances over the ferries will persist temporarily. Eventually, these will rise through surcharges or changes. Even though the short-line distance may remain the basis for the charge to the shipper, the price will rise such that connecting route segments, or competing routes through Chicago are not operated at a loss. Traffic will then flow over the route of the least real cost. Some observers expect that specifying the shortest route may no longer be of value to shippers, and that the short-line distance will lose its significance as a rate base where there is real competition between routes and carriers.

How much Michigan traffic was affected by short-line distances?

So long as traditional rates are in effect, the existence of the ferry routes gives certain Michigan shippers an artificially low price for transportation. There has been one attempt to estimate the extent of this saving. Under contract to the Michigan Department of Transportation, this was done by TERA, Inc. for the report Economic Benefit of Lake Michigan Car Ferry Service in 1976.

These consultants used 1973 one-per-cent waybill sample data to estimate the reduction in rates accomplished by cross-lake short-line distances. They estimated the average rate for each of twenty commodity groups for fifty centroid pairs in the eastern and western hinterlands of the ferry service. Then they multiplied rate by distance by volume for each movement, with and without the ferry route to determine the cost savings. Although the timeliness of the 1973 data and the correctness of this particular calculation can't be determined, this is theoretically the best way to determine the saving under traditional rates. The results were that in 1973 the short-line distances saved Michigan shippers \$4,652,902 and saved shippers to Michigan consignees \$3,152,762.

In order to learn exactly how much saving is accomplished by the maintenance of the short-line distance, it would be necessary to again sample the freight originating in central Michigan, and examine what rate it is moving under. It is not possible to generalize about the percentage of freight moving under rates based on short-line distances, or about the savings attributable to the existence of the ferry routes.

Conclusion

While the effect of short-line distances over the ferry routes was once significant and still persists, it is being eroded by surcharges applied under the Staggers Act, and by price competition permitted under the act. While the rate of change isn't known, eventually all existing rates will be cancelled, surcharged, or changed as dictated by a relatively free market in rail transportation. Even if some rates are still calculated based on short-line distances, the ferry routes will not have any ability to artificially depress prices to Michigan shippers, except to the extent of any natural competitive advantage the ferry service may have. Consequently, protection of short-line distances should not be a factor in any decision involving the ferry service continuation for more than two or three years into the future.

Sources

Very little is in print about the Staggers Act: Its exact workings are being determined by suits still pending. This report is based on the House-Senate Conference Committee Report, published in "Rail Deregulation Bill Passed by Congress," Traffic World, October 6, 1980, page 27, and continued in the issue of October 13, page 107.

Information about the effect of the act on rates based on short-line distances was obtained from conversations with officials of:

Federal Railroad Administration, Regulatory Analysis Division
AASHTO, National Conference of State Railway Officials
Interstate Commerce Commission
West Virginia Railway Maintenance Authority
Western Railroads Association
MDOT, Office of Transportation Safety and Tariffs
MDOT, Urban and Public Transportation

Economic Studies Unit
February 9, 1982