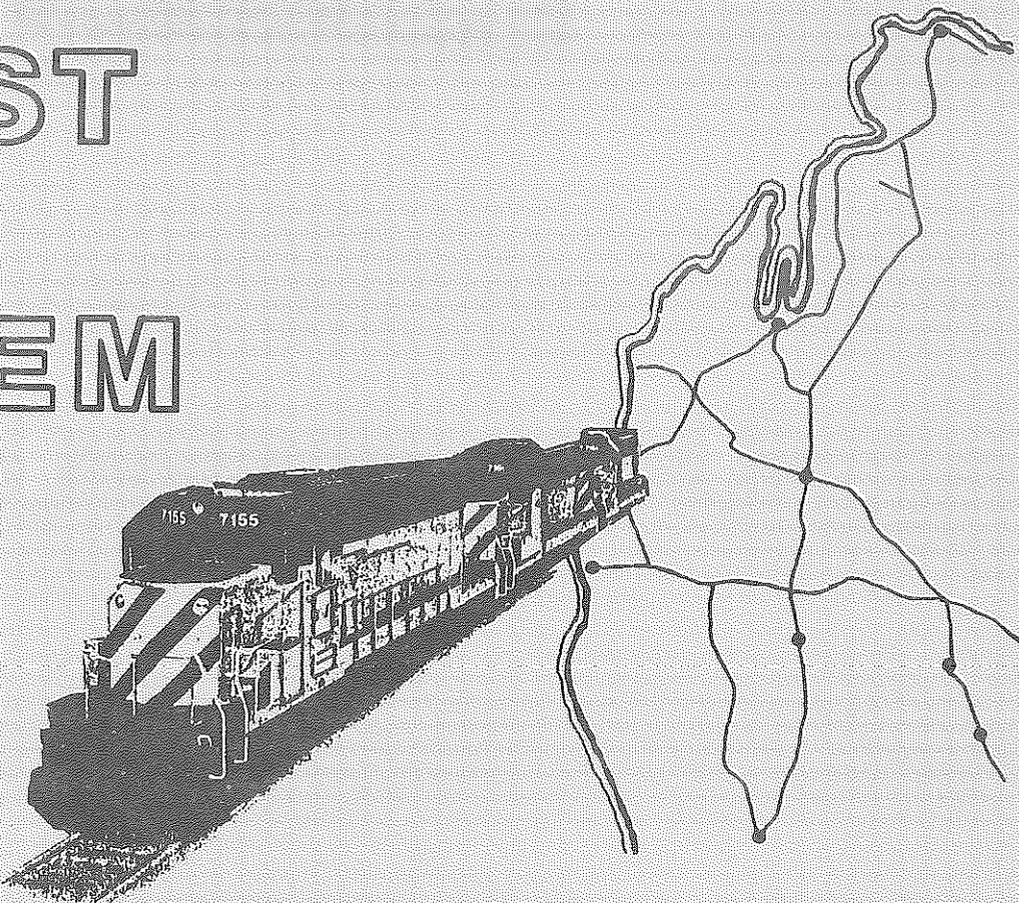


NORTHWEST MICHIGAN RAIL SYSTEM STUDY



MICHIGAN DEPARTMENT OF TRANSPORTATION



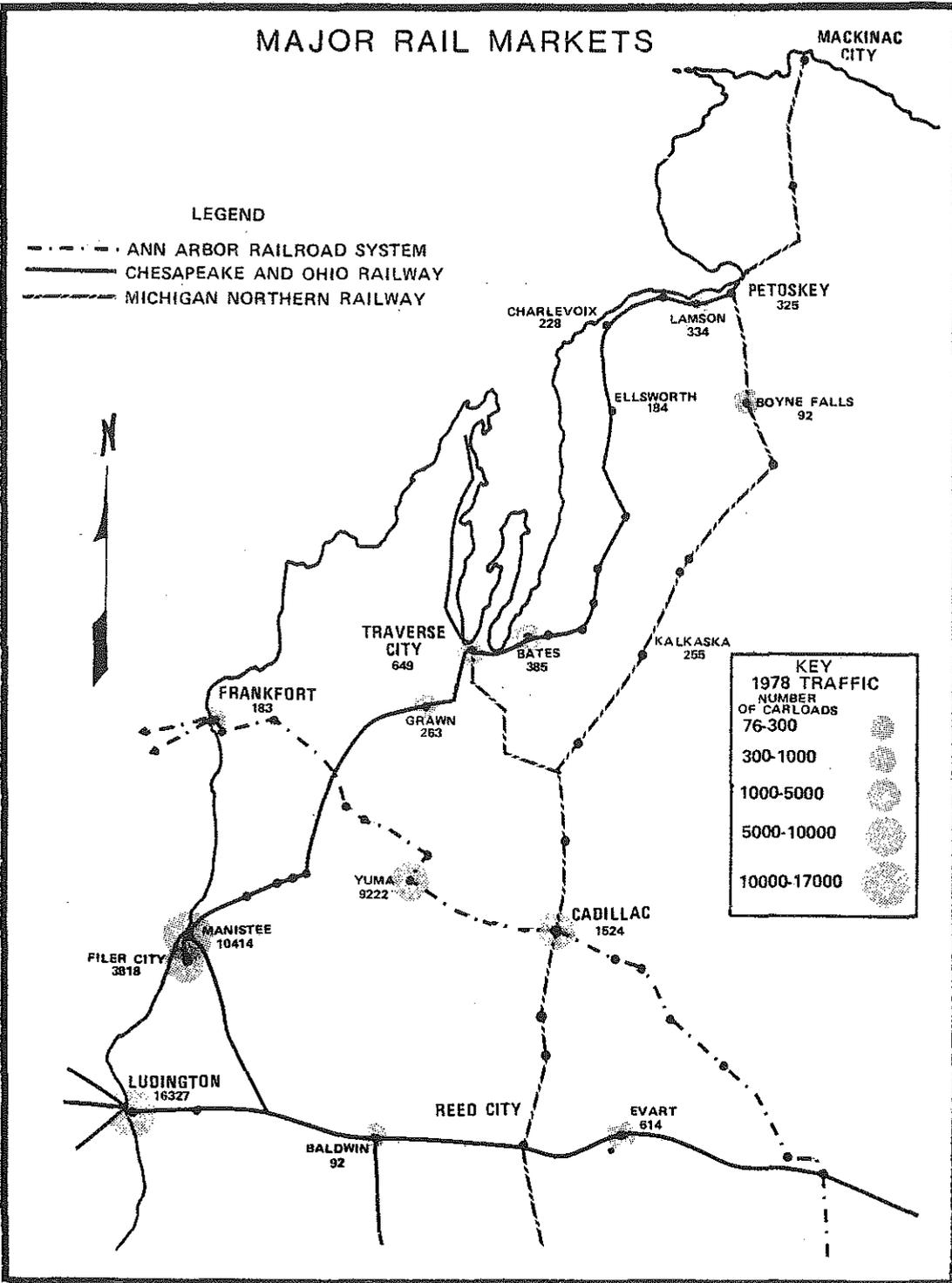
PLEASE SEE BACK COVER FOR PUBLIC HEARING SCHEDULE

NORTHWEST RAIL STUDY OBJECTIVES

The Michigan Department of Transportation has undertaken a study of the rail transportation system serving Northwestern Lower Michigan to address alternative strategies for maintaining essential rail services. Concern for the future characteristics and public cost of maintaining rail service to the area has been expressed by the Northwest Michigan Regional Planning and Development Commission and the Michigan Transportation Commission. Both requested a study to determine how future public funding may be used most effectively in the preservation and improvement of essential rail services, and to identify courses of action which will contribute to the financial stability of the rail system serving the area.

The rail system serving northwestern Lower Michigan is characterized by instability. All the track is subject to service abandonment or escalating subsidies. The area is served by the Chessie System (C&O), which has attempted to abandon local and cross Lake Michigan service; the Michigan Northern (MN), which operates the subsidized route between Mackinaw City and Comstock Park; (including Traverse City); and the Ann Arbor (AA), operated by the Michigan Interstate Railway Company over the subsidized route from Toledo, through Frankfort, to Kewaunee and Manitowoc, Wisconsin.

MAJOR RAIL MARKETS



THE AREA RAIL SYSTEM

Principal Rail Markets

The major traffic concentrations are found at Ludington, the Manistee area, Yuma, Cadillac, the Traverse City area, the Petoskey area, and Kalkaska. Rail traffic in the immediate vicinity of these principal rail markets accounts for over 95 percent of the 45,000 carloads of local traffic in the study area.

Ludington is the major regional rail center, originating and terminating over 16,000 carloads per year. In addition, all C&O cross-lake freight and passenger traffic moves through Ludington. The Manistee area is served by the C&O and accounts for over 14,000 carloads per year, 6,500 of which currently move cross-lake. Yuma is served by the Ann Arbor Railroad and generates 9,000 carloads of sand used by the Ford Motor Company in Cleveland, Ohio. New sand facilities on the AA are expected to begin operation at Harlan. Kalkaska, served by the Michigan Northern has potential for growth with the outbound movement of gas expected to average over 250 cars per month by mid-1980.

The carriers that provide regional rail service to these centers are:

The Michigan Northern (MN)

The Michigan Northern operates from Comstock Park (Grand Rapids) through Cadillac to Mackinaw City (generally parallel to the C&O line from Traverse City to Petoskey). The Michigan Northern also operates from Walton Junction to Traverse City. Together with the adjoining subsidized service at the Straits of Mackinac, the MN provides through traffic service.

Local traffic over routes currently operated by the Michigan Northern has increased since 1978 after three years of little or no change. The growth in local traffic in 1979 was primarily due to inbound pipe loadings at Kalkaska and outbound gas loadings at Walton Junction.

The Michigan Northern has operated since April 1, 1976, under contract to the State of Michigan. Traffic and financial information for the subsidy period follows:

MICHIGAN NORTHERN ORIGINATING AND TERMINATING REGIONAL TRAFFIC
APRIL 1, 1976 – MARCH 31, 1980

<u>STATION</u>	<u>4/1/76-3/31/77</u>	<u>4/1/76-3/31/78</u>	<u>4/1/78-3/31/79</u>	<u>4/1/79-3/31/80</u>
Cadillac	172	181	244	251
Missaukee Jct.	20	0	1	0
Manton	23	5	19	18
South Boardman	12	19	12	7
Kalkaska	216	236	497	365
Antrim	52	29	23	18
Mancelona	24	32	22	16
Elmira	0	4	17	22
Boyne Falls	89	52	96	58
Petoskey	143	134	75	85
Kegomic	0	3	0	1
Pellston	25	25	38	22
Levering	0	1	2	0
Kingsley	2	0	0	0
Traverse City	51	33	46	34
Walton Jct.	0	0	23	590
Alanson	0	0	1	0
TOTAL	829	754	1,116	1,487

MICHIGAN NORTHERN OVERHEAD TRAFFIC *

<u>MONTHS</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
January	0	6	173	141
February	0	229	190	120
March	0	16	190	528
April	11	17	300	685
May	7	26	621	601
June	9	10	642	717
July	13	2	590	745
August	20	6	563	571
September	8	8	389	346
October	2	7	346	393
November	2	37	354	325
December	4	204	423	249
TOTAL	76	568	4,781	5,421

* Traffic which both originates and terminates off the MN.

COMSTOCK PARK TO MACKINAW CITY AND TRAVERSE CITY BRANCH –
– 244.8 MILES

Michigan Northern Railway Company Financial Data

	<u>Actual</u>	<u>Actual</u>	<u>Actual</u>	<u>Per Contract</u>
	<u>4/1/76-3/31/77</u>	<u>4/1/77-3/31/78</u>	<u>4/1/78-3/31/79</u>	<u>4/1/79-3/31/80</u>
Revenues	\$ 337,977	\$ 461,823	\$2,562,417	\$2,552,600
Operating Cost	1,086,840	\$1,936,857	\$4,941,471	\$5,046,562
Subsidy	\$ 748,863	\$1,475,034	\$2,379,054	\$2,493,962**
Lease	606,128	606,127	772,090	1,223,330
Taxes	<u>179,419</u>	<u>192,297</u>	<u>217,951</u>	<u>241,790</u>
TOTAL SUBSIDY	<u>\$1,534,110</u>	<u>\$2,273,458</u>	<u>\$3,369,095</u>	<u>\$3,959,082</u>
Accelerated Maintenance and/or Rehabilitation	---	\$ 316,721	---	\$3,480,577

* As audited

** MN was paid an additional \$405,000 in 79/80

Straits of Mackinac Carferry Service

Service across the Straits of Mackinac has been provided by the Detroit and Mackinac Railway under State subsidy since 1976. In the early 1960's Straits traffic patterns had begun to change which led to a precipitous decline in cross-Straits movements culminating in a low of a few hundred carloads in 1976. Aggressive marketing by the Michigan Northern using a rate reduction has led to significant increases in traffic since 1978. Due to the interdependence of this renewed bridge traffic the interaction of the MN and the Straits service was addressed to some degree in this study. The traffic and financial information for the subsidy period is presented below:

MACKINAC CAR FERRY				
(Operator; Detroit and Mackinac Railroad)				
Financial Data:				
	Actual 4/1/76-3/31/77	Actual 4/1/77-3/31/78	Actual 4/1/78-3/31/79	Per Contract 4/1/79-3/31/80
Revenues	\$ 8,840	\$ 24,955	\$ 202,588	\$ -
Operating Cost	\$ 664,276	\$ 932,757	\$ 1,549,870	-
Subsidy	\$ 655,436	\$ 907,802	\$ 1,347,282	\$ 1,561,804
Lease	27,298	32,271	---	---
Taxes	---	---	---	---
Purchase	---	102,400	---	---
TOTAL SUBSIDY	\$ 682,734	\$1,042,473	\$ 1,347,282	\$ 1,561,804
Accelerated Maintenance and/or Rehabilitation*	---	318,796	165,527	
Carloads by Subsidy Year				
	4/1/76-3/31/77	4/1/77-3/31/78	4/1/78-3/31/79	4/1/79-3/31/80
	532	1,079	5,998	5,809
* Chief Wawatam purchased by the State for \$102,441 - in addition to the acct. maint. and rehab shown				

The Chesapeake & Ohio (C&O)

The C&O operates two principal services into northern Michigan. The main line runs west from the Saginaw/Midland area to Ludington and Manistee. Cross-lake carferry service is operated by the C&O from Ludington to the three Wisconsin ports of Manitowoc, Kewaunee, and Milwaukee. The C&O also operates the line from Manistee to Traverse City and Bay View (Petoskey).

(Financial information for the C&O trackage was not available to the State.)

C&O cross-lake service to Milwaukee is currently subsidized and the C&O is expected to refile an abandonment application for the Manistee to Petoskey and Ludington to Manitowoc services within the coming year. The likelihood that the C&O will be successful in its effort to abandon these services has increased due to the current policy of the Interstate Commerce Commission (ICC) to consider a carrier's opportunity cost* of providing service.

The Ann Arbor Railroad (AA)

The Ann Arbor Railroad provides service between Toledo, Ohio and the Wisconsin ports of Manitowoc and Kewaunee, and enters the study area at Clare where it intersects the C&O line from Midland to Ludington. From Clare, the AA line proceeds northwest crossing the MN at Cadillac and the C&O at Thompsonville. Conrail initially (April 1976) operated the Ann Arbor for the State under subsidy but was succeeded by Michigan Interstate in October, 1977.

Carloadings on regional trackage have been increasing through 1978 as a result of Yuma sand shipments. However, current loadings from Yuma and other auto industry movements have declined as a result of the downturn in the industry. Ann Arbor carferry traffic also increased as a result of the AA "flag out" on selected commodities, which became effective in late 1978.

* Opportunity cost is the return available on alternative investments.

The Ann Arbor cross-lake service is provided by three vessels; the City of Milwaukee, the Viking and the A.K. Atkinson. The two latter vessels are diesel powered and considered the most operationally efficient of the Lake Michigan carferry fleet. Financial information is presented below:

ANN ARBOR RAILROAD – 323.2 MILES (INCLUDES OWOSSO TO SAGINAW)				
Operator: Michigan Interstate Railway Company. (Conrail operated this line prior to October 1, 1977)				
Financial Data: (Rail Only)				
	Actual 4/1/76–3/31/77	Actual 4/1/77–3/31/78	Actual 4/1/78–3/31/79	Per Contract 4/1/79–3/31/80
Revenues	\$ 9,800,397*	\$ 7,968,554*	\$ 9,901,899*	\$ 11,614,500*
Operating Cost	\$13,591,490	\$12,120,141	\$13,840,462	\$15,358,900
Subsidy	\$ 3,791,093	\$ 4,151,587	\$ 3,938,563	\$ 3,744,400
Lease	454,950	454,950	472,488	510,827
Taxes	122,300	126,875	243,315	257,914
Other	133,645	139,536	178,409	200,000
TOTAL				
SUBSIDY	<u>\$ 4,501,988</u>	<u>\$ 4,872,948</u>	<u>\$ 4,832,775</u>	<u>\$ 4,713,141</u>
Accelerated Maintenance and/or Rehabilitation	--	\$ 566,000	\$ 3,538,559	\$ 4,499,619

* This figure represents 90.0 percent of revenue, balance is allocated to car ferry.

ANN ARBOR CARFERRY				
Operator: Michigan Interstate				
Financial Data: (Car Ferry Only - Frankfort, Michigan to Kewaunee and Manitowoc, Wisconsin)				
	Actual 4/1/76-3/31/77	Actual 4/1/77-3/31/78	Actual 4/1/78-3/31/79	Per Contract 4/1/79-3/31/80
Revenues	\$ 1,088,933	\$ 885,394	\$ 1,110,211	\$ 1,290,500
Operating Cost	\$ 2,424,403	\$ 2,347,853	\$ 2,497,629	\$ 2,606,100
Subsidy	\$ 1,335,470	\$ 1,462,459	\$ 1,387,418	\$ 1,315,600
Lease	259,000	259,000	259,000	259,000
Taxes	--	--	--	--
Other	245	15	--	--
TOTAL				
SUBSIDY	<u>\$ 1,594,715</u>	<u>\$ 1,721,474</u>	<u>\$ 1,646,418</u>	<u>\$ 1,574,600</u>
Rehabilitation				\$ 680,000

Northwest Rail Issues

Issues affecting the long-term stability and character of the rail system serving the Northwest are:

- that with escalating subsidies, declining transportation tax revenues, and the increasing potential for further abandonment continued rail service is in jeopardy.
- concern as to whether or not any of the existing services can be profitable.
- the efforts by the C&O to abandon all service in northern lower Michigan and across Lake Michigan.
- increasing subsidies necessary to continue the current level of Michigan Northern services in and through the region, and to provide a level of service at the Straits of Mackinac adequate to accommodate MN through traffic.
- the variety of alternative cross-lake investment strategies which have been proposed. The substantial investment associated with alternative proposals for future cross-lake services, uncertainty regarding the level of any future financial commitment to cross-lake service by the State of Wisconsin, and the potential for inefficiency resulting from public support of essentially duplicative facilities and services are crucial issues. The C&O has recently offered the State of Michigan its cross-lake ferry fleet and facilities, and a commitment to operate the three C&O cross-lake routes for 10 years in exchange for \$23 million and a state commitment for labor protection responsibilities at the end of the 10 year period. The proposed tug-barge service across Lake Michigan is scheduled to begin operation in 1982 with a capital cost of nearly \$40 million. Issues pertinent to the consolidation of cross-lake services at a single Michigan port, the degree of dependence of Michigan port city economies on lake service, and the implications for local service on connecting land lines are of major concern.

Study Assumptions

Basic assumptions employed in the study are:

- Cross-Lake Michigan service will be retained, to preserve economic benefits associated with cross-lake rates to Michigan shippers and to provide an alternative to Chicago routing for goods movement between Michigan and Wisconsin.

- The State of Michigan is also committed to the preservation of cross-lake passenger service, which can be planned and administered independently of rail freight issues.
- Service across the Straits of Mackinac will be retained, to preserve options for inter-peninsula oriented economic development.

Local rail service will be retained at regional centers of population and rail related economic activity, namely Cadillac, Yuma, Ludington, Manistee, Traverse City, Kalkaska and Petoskey. Service to major traffic and population centers is judged to be necessary to encourage rail related economic development and to preserve options for potential passenger services. However, because of considerable mileage and sparse traffic north of Kalkaska, one study alternative addressed the potential savings of discontinuing service to Petoskey.

- Tug-barge service across Lake Michigan will be available as a future option.

The principal study effort has been to illustrate the financial and service characteristics of alternative regional and cross-lake rail systems which meet the service objectives stated in the assumptions. The assumptions, however, are stated for the purpose of the study, and do not represent policy commitments. Such commitments can only be made through specific action by policy making bodies.

Study Alternatives

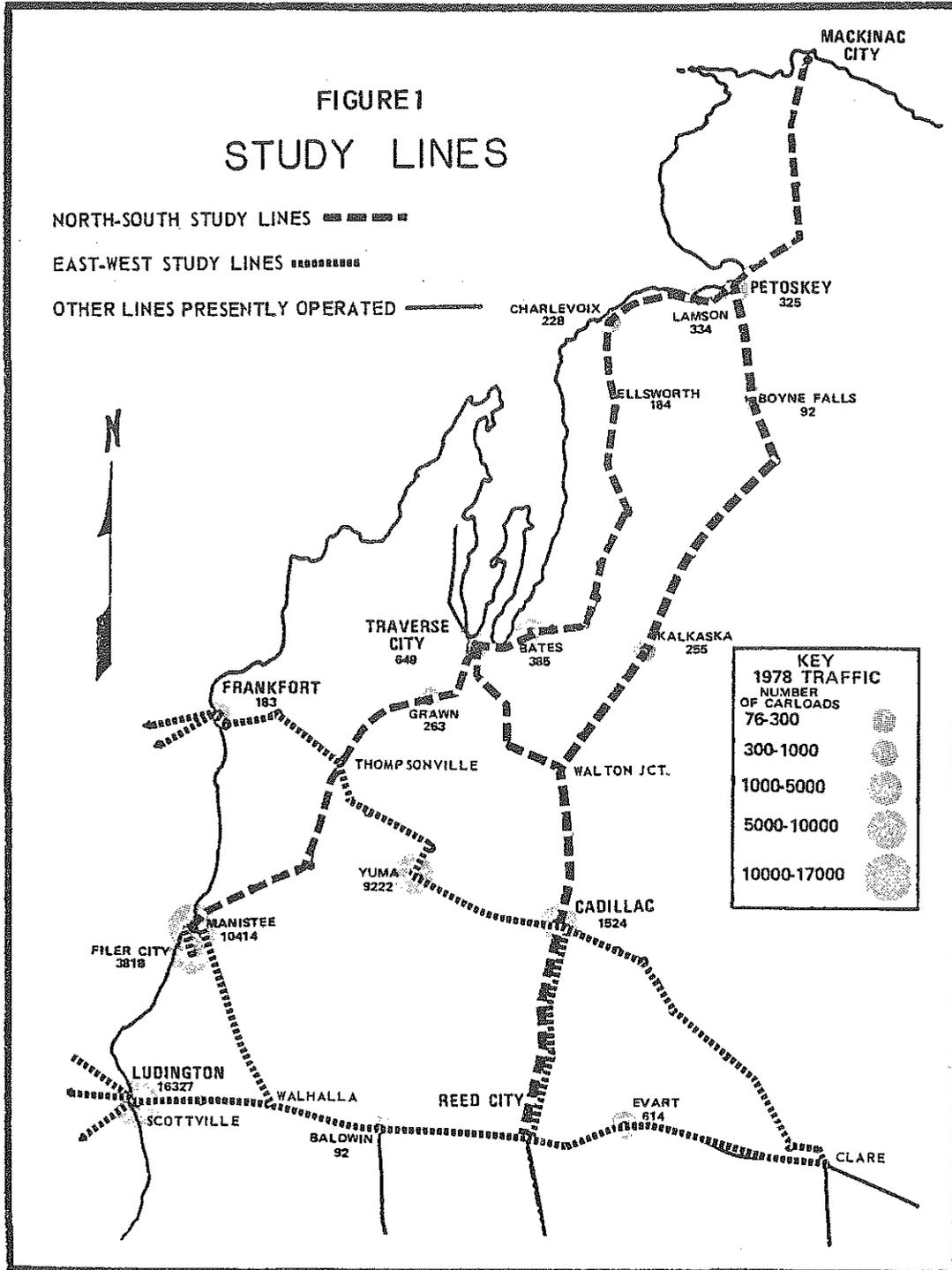
For analysis, rail lines in the region were divided into two major categories; north-south and east-west cross-lake. This division is compatible with current and anticipated routing patterns for most regional rail traffic. Figure 1 identifies the designation of lines in the north-south and east-west analysis categories.

FIGURE 1
STUDY LINES

NORTH-SOUTH STUDY LINES - - - - -

EAST-WEST STUDY LINES - - - - -

OTHER LINES PRESENTLY OPERATED ———



Rail system alternatives were developed to illustratively address issues critical to:

- consolidating cross-lake services at a single port.
- alternative operating responsibilities for east-west and cross-lake services.
- local north-south service via a predominantly C&O route vs. a MN route.
- the relative costs and implications of service to Petoskey.

The north-south alternatives focus on potential for consolidation of local services in the region, and assume a single carrier operation, with interchanges at Cadillac and Reed City, combining portions of the existing C&O and MN services.

In addition to the three principal north-south system alternatives, which assume a southern terminus at Reed City, variations were considered which provide for service south of Reed City to Comstock Park, and which provide for consolidating C&O traffic into the existing MN operation from Mackinac City to Comstock Park.

The east-west alternatives address the financial implications of cross lake service consolidation, and alternative route comparisons for single port systems. Only service west of Clare is addressed explicitly in the east-west alternatives.

GENERAL IMPACT CONCERNS

Background

Extensive State involvement in railroad system planning and financing began in response to threatened service losses resulting from the financial collapse of several Northeastern United States carriers in the early 1970's including the Ann Arbor and Penn Central in Michigan. The problems which precipitated the Northeastern railroad bankruptcies have continued to plague much of the national rail industry including northwest Michigan trackage.

Basic changes have occurred in traditional rail markets. Resource based industry has shifted and major improvements for competing modes, partially financed by government, have contributed to diversion of rail traffic. Consequently, segments of the rail industry face financial difficulties. Railroad earnings have been insufficient to meet capital requirements, and rates of return on investment are so low that railroads have been unwilling or unable to borrow sufficient capital.

Railroads are most profitable, efficient and competitive providing high volume, bulk-oriented service. The industry has accordingly tended to minimize investment in light density branch lines which often provide no opportunity for investment recovery. Rail deregulation can also be expected to further aggravate rail problems especially for areas such as the northwest by making rate increase and abandonment rules more lenient.

The character of the rail system in the northwest reflects the problems and trends of the industry as a whole. Regional rail demands were originally responsive to resource extraction. With the exception of sand and gas deposits significant regional traffic concentrations occur only at major regional centers. The balance of the regional system is characterized by extremely low density trackage. The major traffic centers account for 95% of the regional carloadings which in turn only account for a small percentage of the state's total rail traffic. Summarily, the region has a relatively large rail system for the traffic base that has existed in the recent past which has created a need for rationalization and an assessment of the associated impacts.

Social and Economic Concerns

The region is predominantly rural, in 1970, 69.4% of the total regional population resided in places with less than 2,500 inhabitants. Five centers, (Traverse City, Cadillac, Petoskey, Charlevoix and Manistee) contain the major concentration of regional commercial establishments, health facilities and job opportunities.

The economy of the region is characterized by lower than average wages and high seasonal unemployment. Four sectors comprise almost 85% of the total employment; manufacturing, public administration, trade and services with a heavy emphasis on tourism. Extractive industries such as lumber, sand and gravel in addition to agriculture are regionally important. Most development is light industrial which is not usually rail-oriented. Additionally, new industrial development from 1972 to 1978 occurred primarily in the five counties which continue to be served by virtually all the alternatives: Grand Traverse, Kalkaska, Wexford, Manistee and Antrim. In the cities and villages that could be potentially affected by regional abandonment, only six new industries were established between 1975 and 1978. The only certified industrial parks with full public services are also located in the regional centers. Therefore, future economic development is expected to follow the established trend of locating near these centers which will continue to receive rail service.

The characteristics of the regional commodities are important in determining impacts of service discontinuance. The two most significant commodities, sand from Yuma and chemicals from Ludington, constitute almost 90% of the study area rail traffic and will continue to receive direct service. The traffic subject to discontinuance is primarily team tracked, users currently truck their shipments to or from a siding used by a number of shippers. Shippers that would lose direct rail service are minimal. Loss of rail service was therefore assessed to have a small marginal affect on regional productivity. The major impact would be associated with the longer distances necessary for shippers to access the next closest station.

The major impact for individual rail users on lines subject to potential abandonment is therefore the cost of substitute service. In order to continue rail use, these shippers will have to team track. The degree of adverse affect on the individual shipper would depend on the shipment distance and the cost differentials between modes. The added cost involved to team track to another facility is not expected to be significant to the degree of jeopardizing business operations.

The commodities that were hauled on potentially abandoned lines account for only 9 percent of the total commodities that use rail in the region. Inbound fertilizer to Cedar Springs is the largest commodity movement (outside of the region but on the Michigan Northern Line). Outbound cement from Lamson is the second largest movement on a discontinued link. Other major commodities such as food and kindred products, petroleum, coal, and coal products have dispersed users throughout the region. These commodities are important to individual shippers and communities and it is unlikely that delivery would be totally discontinued.

The recent enactment of truck deregulation may affect shippers. The impact truck deregulation could have on industrial users of abandoned rail lines will depend upon the industries specific use of private trucks to team track the previously railed goods to the nearest railhead. Industries that use public carriers would have to negotiate rates that are now permitted to raise or decrease by 10% based on the approved ICC rate for that service prior to the enactment of deregulation. Whether rates will be higher or lower will depend upon market competition in the area. In general, deregulation is not expected to cause significantly increased freight costs to shippers using public carriers due to the relatively short distance to alternative team tracks, the relatively small quantity of goods to be moved and the fact that rail rates could also increase due to deregulation.

Concerns related to increased truck travel are energy efficiency, safety, pollution and the wear and tear impacts on roads and bridges. Analysis, assuming rail/truck conversion for traffic subject to rail abandonment, was performed and the specific results are included in the discussion of impacts by alternative. In general, the increase in VMT (vehicle miles of travel) on all affected links would be less than 1% of the existing highway travel. Trucking impacts are directly related to the increase in VMT. Increases in fuel consumption are minimal and could possibly be offset by a reduction in rail operations. The dispersion of travel in the region, lack of industrial emissions and the inherent capability of the air to cleanse itself all combine to minimize the possibility of smog formulation in the region's major urban centers therefore rationalization will have virtually no effect upon regional air quality. The increase in trucks which have a lower accident rate than autos, was predicted to insignificantly increase the number of regional accidents. The total VMT added to existing facilities were also assessed to result in a minimal amount of pavement and bridge deterioration on the routes impacted.

Further impacts on the potentially affected areas in the region would be the job losses associated with any firms going out of business and from railroad employees either losing employment or being shifted to another workplace. Due to the convertability of the affected commodities to truck and the relatively limited quantity of goods affected, it is expected that few, if any, industrial jobs would be eliminated. Job loss impacts will probably be most significant in regard to the consolidation of ferry services into one port. The potential job losses are for employees directly associated with the carferries and for port city based employment, including tourism. The magnitude of job loss potential at Ludington or Frankfort is difficult to surmise due to expected shifting of carferry employment and tourism according to the alternative chosen. Since at least one Michigan port is proposed to continue to provide rail, passenger, auto and truck cross-lake service, the region as a whole, would not lose employment, rather a shift of employment and revenues within the region would occur.

Rail Passenger Considerations

Rail passenger service in the region for the future, especially considering the current energy crisis, is a major variable to consider for regional rail system decision making. It is generally acknowledged that rail passenger service can be an efficient and effective transportation mode given the proper set of conditions, which include travel volumes of sufficient magnitude to take advantage of the unique ability of rail to carry additional passengers at very little incremental cost.

The prerequisite for rail to be advantageous is sufficient demand; at low demand volumes, rail is both expensive and energy inefficient. In northwest Michigan, demand volumes for daily service are predicted to be low—less than 50 passengers per train mile. The minimum cost of operating passenger service is approximately \$10 per train mile with a self-propelled (SPV-2000) vehicle. The operation of northwest passenger service at predicted volumes would result in a significant operating deficit, in addition to capital expenditures required to upgrade rail lines to permit higher speeds necessary for competitive passenger train service.

A number of factors exist in northwest Michigan which are generally unfavorable with respect to rail passenger service. These include: a small population base (204,000 persons) distributed among ten counties; few population centers including only four cities over 5,000 persons; few traditional rail passenger generators such as major universities; the availability of good commercial airline service to both Traverse City and Pellston; the availability of a reasonably good intercity bus network; a high proportion of family oriented recreational travel which, because of cost and other considerations, has not been a traditional user of public transit; and poor track conditions over long distances requiring significant public funding to provide higher speeds. These factors must be considered within the context that the population of the region is increasing rapidly, that the region is growing as both a convention and recreational center and that energy and other considerations may shift significant numbers of auto users to public transportation modes.

Rail passenger service in the U.S. is currently provided by Amtrak which does not assume any rail passenger service in areas such as northwest Michigan in their "Five Year Plan" Services will be concentrated in major travel corridors between metropolitan areas where passenger service advantages can be more fully exploited. A cooperative State/Amtrak service under the provisions of Section 403(b) might be possible with both the State and Amtrak absorbing the deficit. This is not likely in the near term given the budgetary problems of both Amtrak and the State,

Specially marketed passenger service operated as a private venture has been proposed for northwest Michigan. This service is planned to operate without direct public subsidy, however, major public investment in railroad rehabilitation to allow higher speeds is assumed. The demand potential for such a service is unknown given its uniqueness in the United States.

It should be emphasized that a basic premise of the study is to preserve rail service to major regional centers such as Cadillac, Traverse City, Manistee and Petoskey. This will allow rail passenger service to be provided to the major passenger market areas even if certain link segments are discontinued. The rationalization of the system could, in fact, be beneficial for rail passenger service in that consolidation of freight traffic on fewer miles would provide additional justification for track rehabilitation which is essential if rail passenger service is to be competitive in northwest Michigan.

Environmental Issues

Maintenance and use of rail right-of-way has preserved an artificial linear clearing where natural conditions were modified upon construction of the railroad facility years ago and have adjusted to the presence of the railroad grade. Natural plant succession is however, continually trying to encroach on the right-of-way. No significant environmental impact would occur from continued use of the right-of-way in a manner similar to past practice. Environmental impacts could occur if present maintenance practices were altered or an entirely different use is made of the right-of-way. To assess impacts, the type and extent of change would have to be known before any significant environmental impact could be assessed. With the assumption that the present right-of-way would not be used, if abandonment occurred, natural plant succession would occur over time, and the character of the present right-of-way would slowly change to become similar in composition to adjacent areas. As vegetation changes occur, bird and animal populations would adjust to the changing habitat and increase or decrease in population. This change could over time affect threatened or endangered species of plants or animals if their habitats were eliminated by the natural succession process. A field survey of all the affected right-of-way would be required to determine the extent of possible change.

Abandonment of some rail trackage could result in removal of bridges and culverts over watercourses crossed by various alternatives and eliminate potential use of the railroad right-of-way as a linear travel path for motorized vehicles. Thus, non-authorized use of the right-of-way might be effectively eliminated. This would allow natural succession

to occur. Bridge and culvert removal could potentially introduce debris and sediments into the watercourses, however, this could be minimized through proper dismantling procedures. If the piers and footings of bridges were also removed to at least below the streambed level, their presence as obstacles to boats and canoes would be eliminated. Likewise any alternation in stream flow, which occurs because of the bridge piers, would be eliminated if these elements were removed from the stream and its floodplain. Bridges to be removed could be of historical significance which the Michigan History Division would determine on a case by case basis.

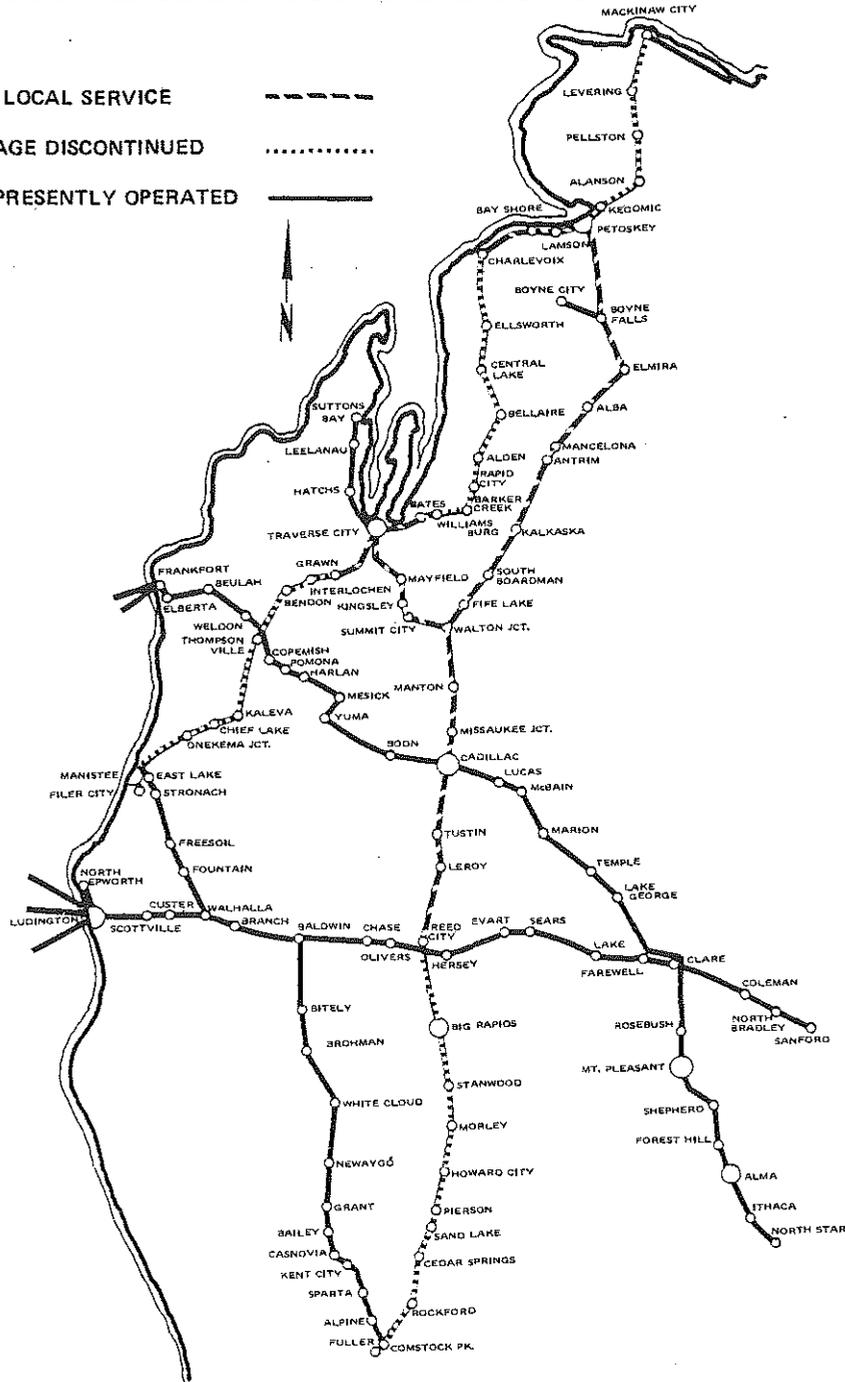
The environmental impact of port facility changes would be directly dependent on the scale and scope of the work required. Repair of existing slips by replacing rotten or missing timbers, installation of modified loading ramps, or similar modifications would cause minimal or no adverse impact. Any tug/barge induced change would not be expected to significantly effect overall port maintenance. There would be an increased potential for inadvertant spills occurring because of the increased port useage with the environmental significance of each spill dependent on size, location, and the type of material involved, as well as weather conditions.

In addition to these general concerns and impacts specific alternative impacts were assessed. The alternatives as presented do not constitute a set developed to limit the ultimate choice, but rather establish a framework for resolution of key rail transportation issues. New or adapted alternatives could result from the hearing and review process. Efforts toward adoption of a strategy to implement a restructured system will initiate further detailed study of operational issues and negotiations with the principal carriers involved.

State involvement in rail to date has been to secure time for appropriate change to occur on regional lines. Increased subsidies and capital investments have led to analysis of various alternatives which can be assessed against the implied alternatives of maintaining the status quo and the total withdrawal of State financial assistance. The historical subsidy and traffic information suggests limited change in the status quo in the short run. The alternatives presented provide a variety of examples of what a partially reduced regional system would mean in terms of financial needs and adverse impacts. The do-nothing, or total withdrawal of State subsidy, would create a maximum impact situation, which efforts to date have attempted to avoid. If a do-nothing situation resulted from either a lack or elimination of funds all of the Michigan Northern, Ann Arbor and carferry service in the region would cease. Additionally, the C&O would eventually be granted permission to cease service on its Manistee to Bay View line and most or all of its cross-lake service. The impacts resulting from a do-nothing alternative have not been definitively assessed in this study, however, partial impacts can be implied from the specific impact information by alternative which follows.

ALTERNATIVE NORTH-SOUTH 1

NORTH-SOUTH LOCAL SERVICE - - - - -
 SERVICE MILEAGE DISCONTINUED
 OTHER LINES PRESENTLY OPERATED _____



ALTERNATIVE DESCRIPTION

Alternative North-South 1 (NS-1) would provide rail service along the Michigan Northern corridor from Reed City to Bayview (near Petoskey) - Charlevoix. Kalkaska would be directly served with the Traverse City area, which includes Williamsburg, Bates and Grawn being served via the Walton Junction branch.

North-South rail links that would not continue to be operated under this alternative are: (1) north of Petoskey to Mackinaw City, (2) north of Williamsburg to south of Charlevoix, (3) north of Manistee to south of Grawn and (4) Comstock Park to Reed City.

TRAFFIC *

	1978
Total N/S regional carloads	3281
Carloads served by NS-1	2953
% of regional carloads	90.0%
Carloads utilizing stations not serviced by NS-1	328
% of regional carloads	10.0%
Carloads utilizing stations not served by NS-1 which are team tracked	299
Carloads currently receiving direct service that would not under NS-1	29
% of regional carloads	0.8%

* Regional carloads only

FINANCIAL ANALYSIS RESULTS

(EXPRESSED IN 1978 \$'s)

Revenues	\$1,861,669
Expenses	
Maintenance of Way	921,623
Maintenance of Equipment	477,300
Transportation	849,023
Administrative	111,000
General	464,200
Total Expenses	\$2,823,146
Net Operating Income (loss)	(961,477)
Lease	924,445
Total Subsidy	\$1,885,922
Rehabilitation (estimated)	\$10,733,086

**NORTH-SOUTH 1
CARLOADS ON DISCONTINUED SEGMENTS**

	1976	1977	1978	1979
<u>North of Petoskey to Mackinaw City</u>				
Pellston	24	24	40	22
Alanson	0	0	0	1
Kegomic	0	3	0	1
Total	24	27	40	24
<u>South of Charlevoix to North of Williamsburg</u>				
Ellsworth	128	120	182	
Bellaire	18	14	14	NA
Alden	10	8	9	
Total	156	142 *	205	
<u>South of Grawn to North of Manistee</u>				
Kaleva	223	164	36	
Chief Lake	0	0	2	
Norwalk Mine	23	17	19	NA
Wealthy Mine	26	12	26	
Total	272	173 *	83	
<u>South of Reed City to North of Comstock Park</u>				
Rockford	221	174	179	141
Cedar Springs	648	665	453	304
Sand Lake	6	4	0	0
Pierson	1	4	0	0
Howard City	24	18	18	66
Stanwood	6	12	11	4
Big Rapids	59	52	52	44
Morley	3	0	0	0
Total	965	929	713	559
Total all segments	1417	1288	1041	581

* 9 month carloadings only

SERVICE CHARACTERISTICS

Total north/south regional trackage	318
Miles retained by NS-1	185
% of regional trackage	58.3%
Miles of track discontinued	133
% of regional trackage	41.7%
Number of shippers (1978) provided service on region north/south track	90
Number shippers retaining service under NS-1 alternative	75
% of regional shippers	83.3%
Number of shippers that would lose direct rail service	6
% of regional shippers	6.6%
Number of shippers on discontinued track that currently do not receive direct rail service	9
% of regional shippers	10.0%

IMPACTS

Service to all major northwest regional population and rail traffic centers will be retained. Big Rapids, located immediately south of the region, is the only major population center not served.

The impact on user transportation costs and services will be minimal due to the availability of nearby alternative rail heads. Because an overwhelming proportion of traffic is currently trucked to/from team track facilities, impacts are primarily related to increases in trucking costs. Accordingly, the direct and indirect shipper-related job loss is thought to be negligible.

Over 60 percent of the carload loss is sustained outside the Northwest Region. It consists primarily of fertilizer shipments to Cedar Springs. Transportation cost increases will likely be significant for this commodity.

Approximately 80 additional truck trips per week would be required to transport freight now shipped via rail. Compared to existing levels of vehicle miles of travel on affected state highways, an increase of .0047 percent would occur.

Approximately 5,200 additional gallons of fuel would be required to truck freight to the nearest operating rail head. This will be offset to some degree by reduced rail service.

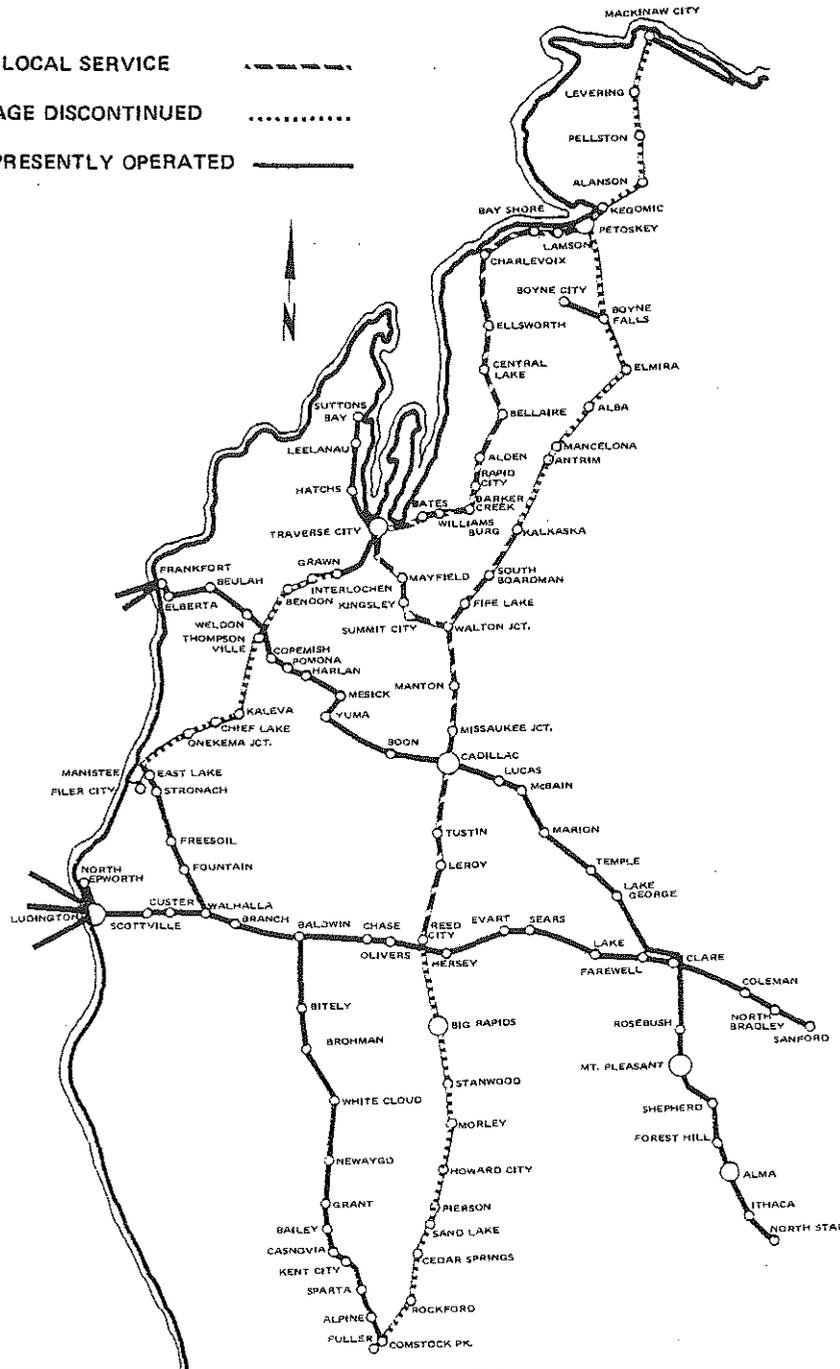
As a result of the additional miles traveled on affected state highways, less than one additional accident (0.381) can be expected to occur each year.

Passenger train potential from the Grand Rapids area to the Traverse City area would be adversely affected because of the indirect routing via Baldwin and Reed City. Service to Petoskey and Charlevoix would be unlikely because of the need for a second train north of Walton Junction.

There would be no measurable affect on the region's air or water quality as a result of this alternative.

ALTERNATIVE NORTH-SOUTH 2

NORTH-SOUTH LOCAL SERVICE - - - - -
 SERVICE MILEAGE DISCONTINUED
 OTHER LINES PRESENTLY OPERATED _____



ALTERNATIVE DESCRIPTION

Alternative North - South 2 (NS-2) provides for rail service over the existing MN corridor from Cadillac to Kalkaska. The Traverse City - Petoskey corridor would be served by C&O trackage with the two corridors connected by the Walton Junction branch.

North - south links that would not continue to be served by NS-2 are: (1) north of Kalkaska to Petoskey, (2) Petoskey to Mackinaw City and (3) north of Manistee to Grawn. Due to the elimination of MN bridge traffic and the assumed interchange of local traffic at Reed City, for this alternative, the non-regional MN trackage between Comstock Park (near Grand Rapids) and Reed City would also be discontinued.

TRAFFIC		1978
Total N/S regional carloads	.....	3281
Carloads served by NS-2	.....	3005
% of regional carloads	.....	91.6%
Carloads utilizing stations not served by NS-2	.....	276
% of regional carloads	.....	8.4%
Carloads utilizing stations not served by NS-2 which are team tracked	.....	215
Carloads currently receiving direct service that would not under NS-2	.....	61
% of regional carloads	.....	1.8%

* Regional carloads only

FINANCIAL ANALYSIS RESULTS (EXPRESSED IN 1978 \$'s)

Revenues	\$1,860,083
Expenses	
Maintenance of Way	904,722
Maintenance of Equipment	461,676
Transportation	830,700
Administrative	111,000
General	436,585
Total Expenses	2,744,683
Net Operating Income (loss)	\$ (884,600)
Lease	\$ 909,454
Total Subsidy	\$1,794,054
Rehabilitation	\$6,736,590

NORTH-SOUTH 2
CARLOADS ON DISCONTINUED SEGMENTS

	1976	1977	1978	1979
<u>North of Petoskey to Mackinaw City</u>				
Pellston	24	24	40	22
Kegomic	0	3	0	1
Alanson	0	0	0	1
Total	24	27	40	24
<u>South of Grawn to North of Manistee</u>				
Kaleva	223	164	36	
Chief Lake	0	0	2	
Norwalk Mine	23	17	19	NA
Wealthy Mine	26	12	26	
Total	272	193 *	83	
<u>South of Petoskey to North of Kalkaska</u>				
Boyne Falls	98	47	97	61
Elmira	11	4	17	22
Mancelona	13	43	19	27
Antrim	42	34	20	21
Total	154	128	153	131
<u>South of Reed City to North of Comstock Park</u>				
Rockford	221	174	179	141
Cedar Springs	648	665	453	304
Sand Lake	6	4	0	0
Pierson	1	4	0	0
Howard City	24	18	18	66
Stanwood	6	12	11	4
Big Rapids	59	52	52	44
Morley	3	0	0	0
Total	965	929	713	559
Total all segments	1415	1274	989	712

* 9 month carloadings only

SERVICE CHARACTERISTICS

Total north/south regional trackage	318
Miles retained by NS-2	182
% of regional trackage	57.2%

Miles of track discontinued	136
% of regional trackage	42.8%
Number of shippers (1978) provided service on region north/south track	90
Number shippers retaining service under NS-2 alternative	72
% of regional shippers	80%
Number of shippers that would lose direct rail service	5
% of regional shippers	5.5%
Number of shippers on discontinued track that currently do not receive direct rail service	13
% of regional shippers	14.4%

IMPACTS

Service to all major northwest regional population and rail traffic centers will be retained. Big Rapids, located immediately south of the region, is the only major population center not served.

The impact on user transportation costs and services will be minimal due to the availability of nearby alternative rail heads. Because an overwhelming proportion of traffic is currently trucked to/from team track facilities, impacts are limited to increases in trucking costs. Accordingly, the direct and indirect shipper-related job loss will be negligible.

Over 60 percent of the carload loss is sustained outside the Northwest Region. It consists primarily of shipments of fertilizer to Cedar Springs. Transportation cost increases will likely be significant for this commodity.

Approximately 76 additional truck trips per week would be required to transport freight now shipped via rail. Compared to existing levels of vehicle miles of travel on affected state highways, an increase of .0047 percent would occur.

Approximately 4,700 additional gallons of fuel would be required to team track freight to the nearest operating rail head. This will be offset to some degree by reduced fuel consumption resulting from reduced rail service.

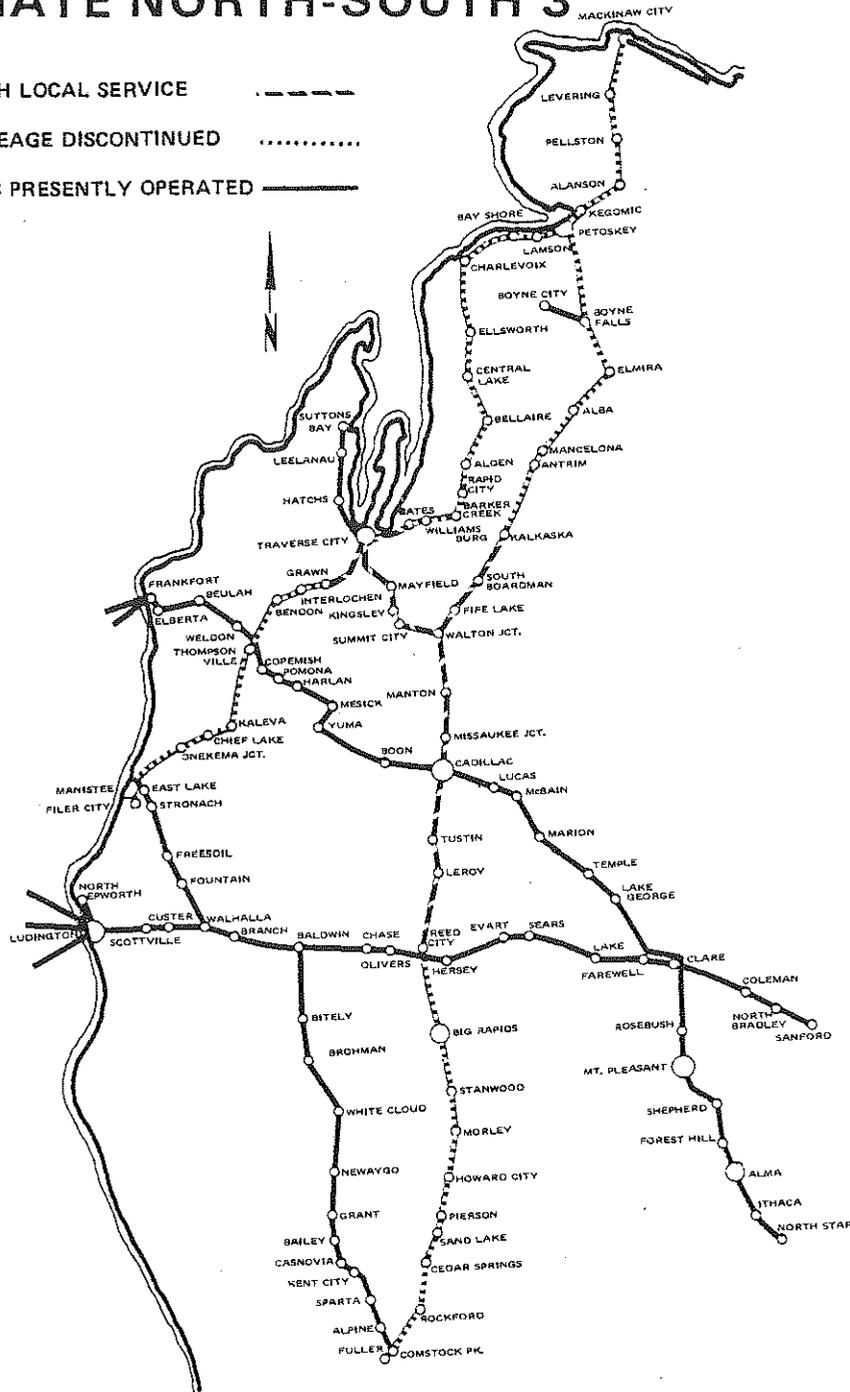
As a result of the additional miles traveled on affected state highways, less than one additional accident (0.390) can be expected to occur each year.

Passenger train potential from the Grand Rapids area to the Traverse City area would be adversely affected because of the indirect routing via Baldwin and Reed City. Service to Petoskey and Charlevoix, however, could be provided directly from Traverse City.

There would be no measurable affect on the region's air or water quality as a result of this alternative.

ALTERNATE NORTH-SOUTH 3

NORTH-SOUTH LOCAL SERVICE - - - - -
 SERVICE MILEAGE DISCONTINUED
 OTHER LINES PRESENTLY OPERATED ———



ALTERNATIVE DESCRIPTION:

Alternative North - South 3 (NS-3) provides for rail service from Reed City through Cadillac to Kalkaska along the existing MN corridor. The Traverse City area which includes Grawn to Williamsburg would be served from the MN corridor via the Walton Junction branch.

North - south links which would not continue to be served under this alternative are: (1) north of Kalkaska to Petoskey, (2) Petoskey to Mackinaw City, (3) Williamsburg to Petoskey, (4) north of Manistee to Grawn and (5) Comstock Park to Reed City.

TRAFFIC *

1978

Total N/S regional carloads	3281
Carloads served by NS-3	1913
% of regional carloads	58.3%
Carloads utilizing stations not served by NS-3	1368
% of regional carloads	41.7%
Carloads utilizing stations not served by NS-3 which are team tracked	694
Carloads currently receiving direct service that would not under NS-3	674
% of regional carloads	20.5%

* Regional carloads only

FINANCIAL ANALYSIS RESULTS

(EXPRESSED IN 1978 \$'s)

Revenues	\$1,550,031
Expenses	
Maintenance of Way	576,636
Maintenance of Equipment	364,728
Transportation	632,329
Administrative	111,000
General	360,755
Total Expenses	\$2,045,448
Net Operating Income (loss)	\$ (495,417)
Lease	\$ 579,652
Total Subsidy	\$1,075,069
Rehabilitation (estimated)	\$4,096,701

NORTH - SOUTH 3
CARLOADS ON DISCONTINUED SEGMENTS

	1976	1977	1978	1979
<u>Mackinaw City to North of Kalkaska</u>				
Pellston	24	24	40	22
Petoskey	135	140	83	87
Boyne Falls	98	47	97	61
Elmira	1	4	17	22
Mancelona	13	43	19	27
Antrim	42	34	20	21
Alanson	0	0	0	1
Total	313	292	276	240
<u>South of Big Rapids to North of Comstock Park</u>				
Rockford	221	174	179	141
Cedar Springs	648	665	453	304
Sand Lake	6	4	0	0
Pierson	1	4	0	0
Howard City	24	18	18	66
Stanwood	6	12	11	4
Big Rapids	59	52	52	44
Morley	3	0	0	0
Total	965	929	713	559
<u>Petoskey to North of Williamsburg</u>				
Petoskey	216	144	242	
Lamson	145	200	334	
Charlevoix	62	47	228	
Ellsworth	128	120	182	NA
Bellaire	18	14	14	
Alden	10	8	9	
Total	573	553 *	1009	
<u>South of Grawn to North of Manistee</u>				
Kaleva	223	164	36	
Chief Lake	0	0	2	
Norwalk Mine	23	17	19	
Wealthy Mine	26	12	26	NA
Total	272	193 *	83	
Total all segments	2123	1947	2081	799

* 9 month carloadings only

SERVICE CHARACTERISTICS

Total north/south regional trackage	318
Miles retained by NS-3	116
% of regional trackage	36%
Miles of track discontinued	202
% of regional trackage	64%
Number of shipper (1978) provided service on region north/south track	90
Number shippers retaining service under NS-3 alternative	48
% of regional shippers	53.3%
Number of shippers that would lose direct rail service	19
% of regional shippers	21.1%
Number of shippers on discontinued track that currently do not receive direct rail service	23
% of regional shippers	25.5%

IMPACTS

Service to all major northwest regional population and rail traffic centers except Petoskey will be retained. Big Rapids, a major population center located immediately south of the region, also will not be served.

Some highly but not exclusively reliant users are in the Petoskey area. Additionally, the area has many small users. The potential for direct and indirect job loss is the highest for all N/S alternatives.

Three principal commodities are not served by this alternative. Nuclear waste, from Big Rock Point, would require movement by truck. While transport needs are infrequent, and small in terms of carload volumes (5), rail movement entails less risk. The second is liquified natural gas to wholesale dealers serving the region. Team tracking is not a likely alternative in this instance because alternative storage facilities are not available.

IMPACTS (Cont'd)

It is likely, therefore, that this commodity would be trucked into the region. A third major commodity is cement shipped from Lamson. This bulk commodity typically moves via ship or rail. Loss of rail service would likely increase transportation costs by an amount sufficient to jeopardize shipper markets.

A total of 694 cars at stations not served under this alternative are currently served from team track operations. Additional truck miles to the next nearest team track is greater than for any other N/S alternative resulting in larger transportation cost increases.

Approximately 160 additional truck trips per week would be required to transport the freight now shipped by rail. This would result in 0.143 percent increase in the amount of vehicle miles of travel on affected state highways.

Approximately 15,600 additional gallons of fuel would be required to truck freight to the nearest operating rail head. This will be offset to some degree by reduced fuel consumption resulting from reduced rail service.

As a result of the additional miles traveled on affected state highways, less than one additional accident (0.78) can be expected to occur each year.

Passenger train potential from the Grand Rapids area to the Traverse City area would be adversely affected because of the indirect routing via Baldwin and Reed City. Service to Petoskey and Charlevoix would not be possible.

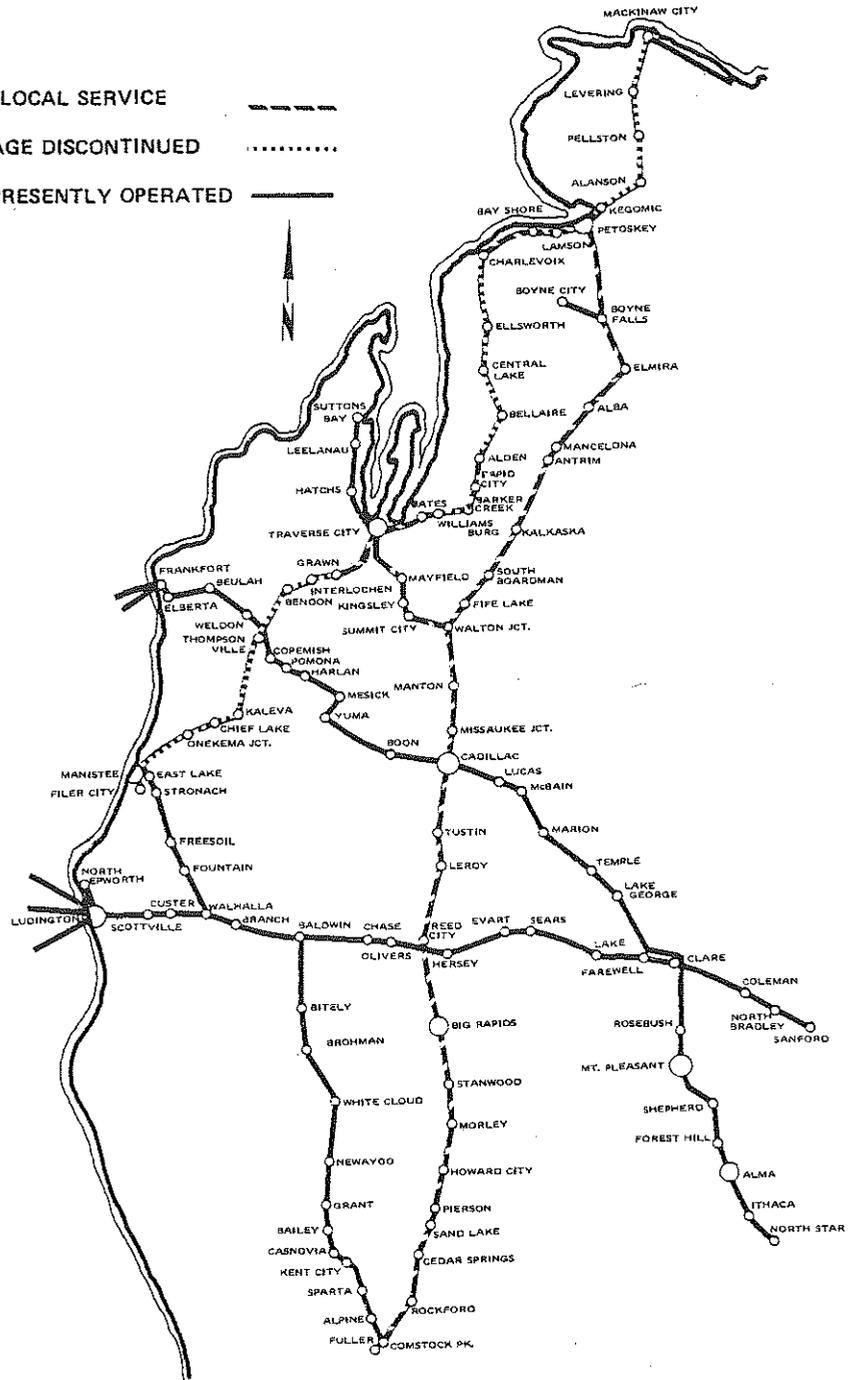
There would be no measurable affect on the region's air or water quality as a result of this alternative.

NORTH-SOUTH ALTERNATIVES 1a AND 1b

NS-1a and NS-1b differ from the preceding alternatives by providing for the continuation of Michigan Northern trackage from Comstock Park (Grand Rapids) to Reed City.

ALTERNATE NORTH-SOUTH 1(a)

NORTH-SOUTH LOCAL SERVICE 
 SERVICE MILEAGE DISCONTINUED 
 OTHER LINES PRESENTLY OPERATED 



ALTERNATIVE DESCRIPTION

Alternative north-south 1a (NS-1a) would provide for rail service over the existing Michigan Northern trackage from Comstock Park (near Grand Rapids) through Reed City, Cadillac, and Kalkaska to Petoskey. The Traverse City area would be served from the MN via the Walton Junction branch and Charlevoix from Petoskey over C&O trackage.

Rail links that would not continued to be served under NS-1a are: (1) north of Petoskey to Mackinaw City, (2) Williamsburg to Charlevoix and, (3) north of Manistee to Grawn. NS-1a differs significantly from NS-1, 2 and 3 by providing for service from Reed City to Comstock Park.

TRAFFIC*

	1978
Total N/S regional carloads	3281
Carloads served by NS-1a	2953
% of regional carloads	90.0%
Carloads utilizing stations not served by NS-1a	328
% of regional carloads	10.0%
Carloads utilizing stations not served by NS-1a which are team tracked	299
Carloads currently receiving direct service that would not under NS-1a	29
% of regional carloads .....	.8%

* All traffic south of Reed City to Comstock Park would be retained. The data below is not included in the table above. 62 miles of track, 713 carloads generated and 17 shippers served.

FINANCIAL ANALYSIS RESULTS

(Expressed in 1978 \$'s)

Revenues	\$ 2,127,479
Total Expenses	3,474,943
Net Operating Income (loss)	(1,347,464)
Lease	1,252,247
Total Subsidy	\$ 2,599,711
Rehabilitation	\$14,130,000

NORTH-SOUTH 1a
CARLOADS ON DISCONTINUED SEGMENTS

	1976	1977	1978	1979
<u>North of Petoskey to Mackinaw City</u>				
Pellston	24	24	40	22
Kegomic	0	3	0	1
Total	24	27	40	23
<u>South of Charlevoix to North of Williamsburg</u>				
Ellsworth	128	120	182	
Bellaire	18	14	14	NA
Alden	10	8	9	
Total	156	142 *	205	
<u>South of Grawn to North of Manistee</u>				
Kaleva	223	164	36	
Chief Lake	0	0	2	
Norwalk Mine	23	17	19	
Wealthy Mine	26	12	26	
Total	272	193 *	83	NA
Total all segments	452	359	328	

* 9 month carloadings only

SERVICE CHARACTERISTICS *

Total north/south regional trackage	318
Miles retained by NS-1a	185
% of regional trackage	58.3%
Miles of track discontinued	133
% of regional trackage	41.7%

Number of shipper (1978) provided service on region north/south track	90
Number of shippers retaining service under NS-1a alternative	75
% of regional shippers	83.3%
Number of shippers that would lose direct rail service	6
% of regional shippers	6.6%
Number of shippers on discontinued track that currently do not receive direct rail service	9
% of regional shippers	10%

* All traffic south of Reed City to Comstock Park would be retained. The data below is not included in the table above. 62 miles of track
713 carloads generated
17 shippers served

IMPACTS

Service to all major northwest regional population and rail traffic centers will be retained. Big Rapids, located immediately south of the region, would also retain service.

The impact on user transportation costs and services will be minimal due to the availability of nearby alternative rail heads. Because an overwhelming proportion of traffic is currently trucked to/from team track facilities, impacts are primarily related to increases in trucking costs. Accordingly, the direct and indirect shipper-related job loss is thought to be negligible.

Approximately 25 additional truck trips per week would be required to transport freight now shipped via rail. Compared to existing levels of vehicle miles of travel on affected state highways in the region, an increase of .0049 percent would occur.

Approximately 2,000 additional gallons of fuel would be required to truck freight to the nearest operating rail head. This will be offset to some degree by reduced fuel consumption resulting from less rail service.

As a result of the additional miles traveled on affected state highways in the region, less than one additional accident (0.049) can be expected to occur each year.

Passenger train potential from the Grand Rapids area to the Traverse City area would be enhanced as a result of more direct routing possible with this alternative. Service to Petoskey and Charlevoix would be unlikely because of the need for a second train north of Walton Junction.

There would not be a measurable affect on the region's air or water quality as a result of this alternative.

**NORTH-SOUTH 1b
CARLOADS ON DISCONTINUED SEGMENTS**

	1976	1977	1978	1979
<u>South of Charlevoix to North of Williamsburg</u>				
Ellsworth	128	120	182	
Bellaire	18	14	14	
Alden	10	8	9	NA
Total	156	142 *	205	
<u>South of Grawn to North of Manistee</u>				
Kaleva	223	164	36	
Chief Lake	0	0	2	
Norwalk Mine	23	17	19	
Wealthy Mine	26	12	26	
Total	272	193 *	83	NA
Total all segments	428	335 *	288	

* 9 month carloadings only

SERVICE CHARACTERISTICS

Total north/south regional trackage	318
Miles retained by NS-1b*	220
% of regional trackage	69.2%
Miles of track discontinued	98
% of regional trackage	30.8%
Number of shippers (1978) provided service on region north/south track	90
Number shippers retaining service under NS-1b alternative	76
% of regional shippers	84.4%

Number of shippers that would lose direct rail service 5
 % of regional shippers 5.5%

Number of shippers on discontinued track that currently do not receive direct rail service 9
 % of regional shippers 10%

* All traffic south of Reed City to Comstock Park would be retained. The data below is not included in the table above: 62 miles
 713 carloads generated
 17 shippers served

IMPACTS

Service to all major northwest regional population and rail traffic centers will be retained. Big Rapids, located immediately south of the region, would also retain service.

The impact on user transportation costs and services will be minimal due to the availability of nearby alternative rail heads. Because an overwhelming proportion of traffic is currently trucked to/from team track facilities, impacts are primarily related to increases in trucking costs. Accordingly, the direct and indirect shipper-related job loss is thought to be negligible.

Approximately 22 additional truck trips per week would be required to transport freight now shipped via rail. Compared to existing levels of vehicle miles of travel on affected state highways in the region, an increase of .0095 percent would occur.

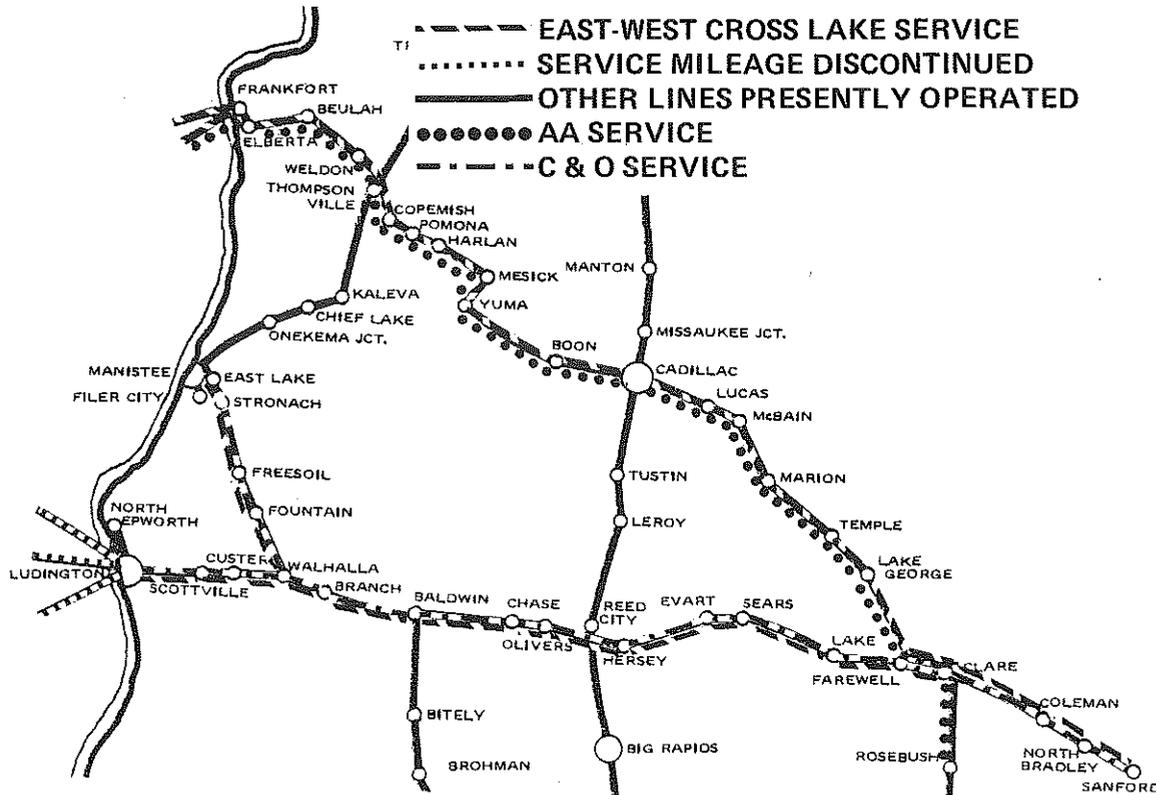
Approximately 1,750 additional gallons of fuel would be required to truck freight to the nearest operating rail head. This will be offset to some degree by reduced fuel consumption resulting from less rail service.

As a result of the additional miles traveled on affected state highways in the region, less than one additional accident (0.042) can be expected to occur each year.

Passenger train potential from the Grand Rapids area to the Traverse City area would be enhanced as a result of a more direct routing possible with this alternative. Service to Petoskey and Charlevoix would be unlikely because of the need for a second train north of Walton Junction.

There would be no measurable affect on the region's air or water quality as a result of this alternative.

ALTERNATIVE EAST-WEST 1



ALTERNATIVE DESCRIPTION

All the current east-west regional land trackage would be retained under EW-1. C&O local service to Manistee and Ludington would continue and Ann Arbor local and cross-lake service to Kewaunee and Manitowoc, Wisconsin would be retained. All cross-lake traffic would be accommodated through Frankfort utilizing either existing carferries or tug/barges. Passenger, auto and truck traffic would be accommodated with carferries either in conjunction with rail traffic or independently.

Service which is assumed to be discontinued under this alternative is all the carferry service operated from Ludington.

FINANCIAL ANALYSIS RESULTS

EAST-WEST 1 REVENUE AND COST ESTIMATES (Expressed in Millions, 1978\$)

	1978 Traffic Levels	Projected 1985 Traffic-Status Qup Service and Rates		Projected 1985 Traffic-Improved Service and Rates	
		Car-Ferries	Tug-Barge	Car-Ferries	Tug-Barge
Michigan Port	Frankfort			Frankfort	Frankfort
Cross-lake operator	AA			AA	AA
Cross-Lake carloads	25,115			43,578	63,682
Land carloads included	10,818 ¹			10,818 ¹	10,818 ¹
Revenue	9.4	15.0	15.0	22.4	22.5
Land Operating Cost	9.4	13.9	13.9	19.6	19.6
Marine Operating Cost	5.5	12.3	3.4	20.9	5.1
Total Operating Cost	14.9	26.2	17.3	40.5	24.7
Net Operating Income (Loss)	(5.5)	(11.2)	(2.3)	(18.0)	(2.2)
Marine Capital (Annual)	.16	.16	5.5	.16	7.0
Total Income (Loss) ²	(5.66)	(11.36)	(7.8)	(18.16)	(9.2)

¹Clare - Frankfort

²Does not include capital or rehabilitation charges for land facilities.

TRAFFIC

Total E/W regional carloads	42,667
Carloads served by EW-1	42,667
% of regional carloads	100%
Carloads utilizing stations not served by EW-1	0
% of regional carloads	N/A
Carloads utilizing stations not served by EW-1 which are team tracked	0
Carloads currently receiving direct service that would not under EW-1	0
% of regional carloads	N/A

SERVICE CHARACTERISTICS

Total east/west regional trackage	223
Miles retained by EW-1*	223
% of regional trackage	100%
Miles of track discontinued	0
% of regional trackage	0%
Number east/west shippers losing service under EW-1 alternative	0
Number of shippers that would lose direct rail service	0
% of regional shippers losing service	0
Number of shippers on discontinued track that currently do not receive rail service	0
% of east/west regional shippers losing service	0
* Michigan Northern trackage from Cadillac to Reed City is not included as east-west trackage	

IMPACTS

Service to all major northwest regional population and rail traffic centers will be retained. The cross-lake tourist traffic market area would be less advantageously served by Frankfort's more northerly port location because of its greater distance to the larger population concentrations in Michigan and Wisconsin.

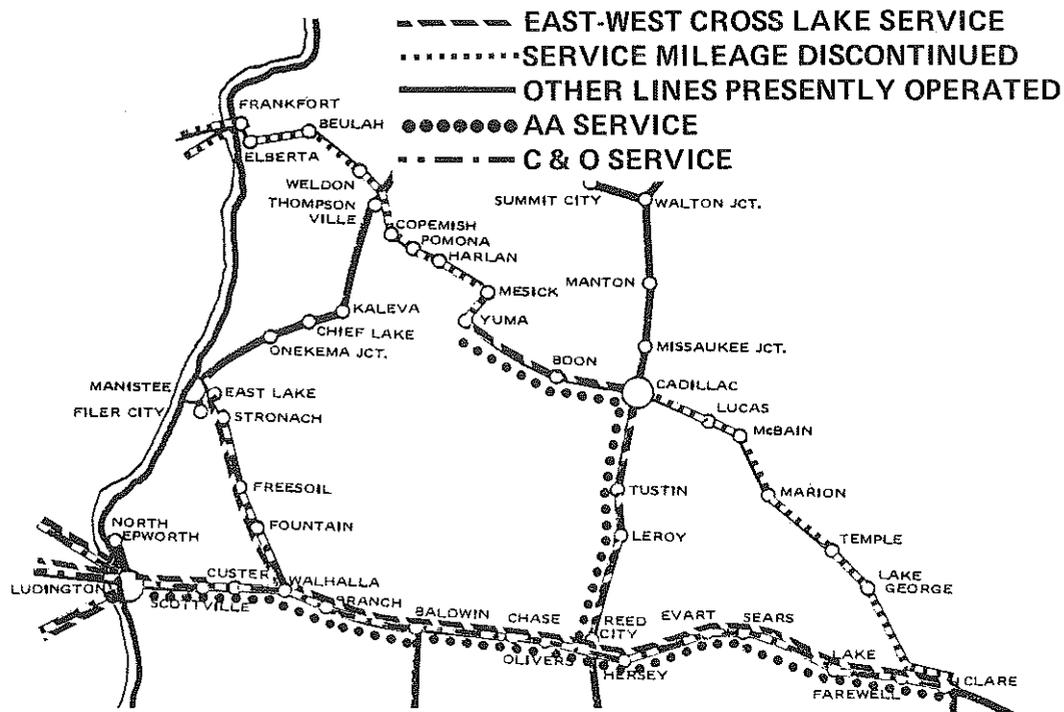
Cessation of carferry service at Ludington has the largest potential for direct and indirect job loss of all the alternatives. Some of the railroad job loss sustained in Ludington will be offset by increases in Frankfort. Likewise, some indirectly affected jobs and tourist-related jobs and expenditures will be relocated in Frankfort.

There will be no impacts to the existing road and highway system since only the discontinuance of cross-lake ferry service out of Ludington is assumed. Furthermore, it is assumed that rail freight presently crossing the Lake from Ludington will divert to Frankfort.

Passenger train potential from Southeast Michigan to the region is facilitated by this direct service alternative.

The concentration of rail freight carferry service at Frankfort will have no measurable affect on water quality. There would be no measurable affect on the region's air or water quality as a result of this alternative.

ALTERNATIVE EAST-WEST 2



ALTERNATIVE DESCRIPTION

Alternative EW-2 is characterized by east/west service being provided primarily from the Clare–Ludington corridor. The C&O would continue its local service to Ludington and Manistee while the Ann Arbor Railroad would provide all cross-lake service through the Port of Ludington by gaining access through trackage rights.

All three Wisconsin ports would be served using existing Ann Arbor carferries or tug/barges as they become available. Passenger, truck and auto traffic would be accommodated in conjunction with the movement of rail cars or independently when tug/barge is instituted.

The Ann Arbor Railroad would also continue to serve the Yuma/Harlan sand traffic via a Clare–Reed City–Cadillac–Yuma routing.

Segments of regional trackage that would not continue to be served under this alternative are: (1) Clare to Cadillac, (2) Harlan to Frankfort and, (3) cross-lake service between Frankfort and Wisconsin.

FINANCIAL ANALYSIS RESULTS EAST-WEST 2 REVENUE AND COST ESTIMATES (Expressed in Millions, 1978\$)

	1978 Traffic Levels	Projected 1985 Traffic Status Quo-Service & Rates		Projected 1985 Traffic-Improved Service & Rates	
		Car Ferries	Tug Barge	Car Ferries	Tug Barge
Michigan Port	Ludington	Ludington		Ludington	
Cross-lake operator	AA	AA		AA	
Cross-lake carloads	28,360	46,412		67,085	
Land carloads included	--	--		--	
Revenue	8.9	15.2	15.2	22.9	22.9
Land Operating Cost	6.4	9.7	9.7	15.0	15.0
Marine Operating Cost	5.5	12.3		20.9	5.1
Total Operating Cost	11.9	22.0	13.1	35.9	20.1
Net Operating Income (Loss)	(3.0)	(6.8)	(2.1)	(13.0)	2.8
Marine Capital (Annual)	.16	.16	5.5	.16	7.0
Total Income (Loss)	(3.16)	(6.96)	(3.4)	(13.16)	(4.2)

¹Does not include capital or rehabilitation charges for land facilities.

TRAFFIC		1978
Total E/W regional carloads	.....	42,934
Carloads served by EW-2	.....	42,602
% of regional carloads	.....	99.2%
Carloads utilizing stations not served by EW-2	.....	332
% of regional carloads	.....	.8%
Carloads utilizing stations not served by EW-2 which are teamed tracked	.....	148
Carloads currently receiving direct service that would not under EW-2	.....	184
% of regional carloads	.....	.4%

SERVICE CHARACTERISTICS

Total east/west regional trackage	254
Miles retained by EW-2	163
% of regional trackage	64.2%
Miles of track discontinued	91
% of regional trackage	35.8%
Number shippers losing service under EW-2 alternative	17
Number of shippers that would lose direct rail service	7
% of shippers losing service	41.2%
Number of shippers on discontinued track that currently do not receive direct rail service	10
% of shippers losing service	58.8%

EAST-WEST 2 CARLOADS ON DISCONTINUED SEGMENTS

<u>North of Clare to South of Cadillac</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Lucas	2	5	1	3
McBain	43	28	20	25
Marion	19	11	14	19
Farwell	9	3	15	16
Total	73	47	50	63
<u>North of Harlan to Frankfort</u>				
Pomona	92	81	78	63
Copemish	25	2	1	1
Thompsonville	18	14	0	0
Beulah	15	17	3	0
Elberta	55	8	45	117
Frankfort	57	80	155	122
Total	262	202	282	303
Total of all segments	335	249	332	366

IMPACTS

Service to all major northwest regional population and rail traffic centers will be retained.

The cross-lake tourist traffic market area would be more advantageously served by Ludington's more southerly port location because of its proximity to the larger population concentrations in Michigan and Wisconsin.

Cessation of carferry service at Frankfort has the second largest potential for direct and indirect job loss of all the alternatives. Some of the railroad job loss sustained in Frankfort will be offset by increases in Ludington. Likewise, some tourist-related and indirectly affected jobs and expenditures will be relocated in Ludington.

Approximately 26 additional truck trips per week would be required to transport freight now shipped via rail. Compared to existing levels of vehicle miles of travel on affected state highways, an increase of .0517 percent would occur.

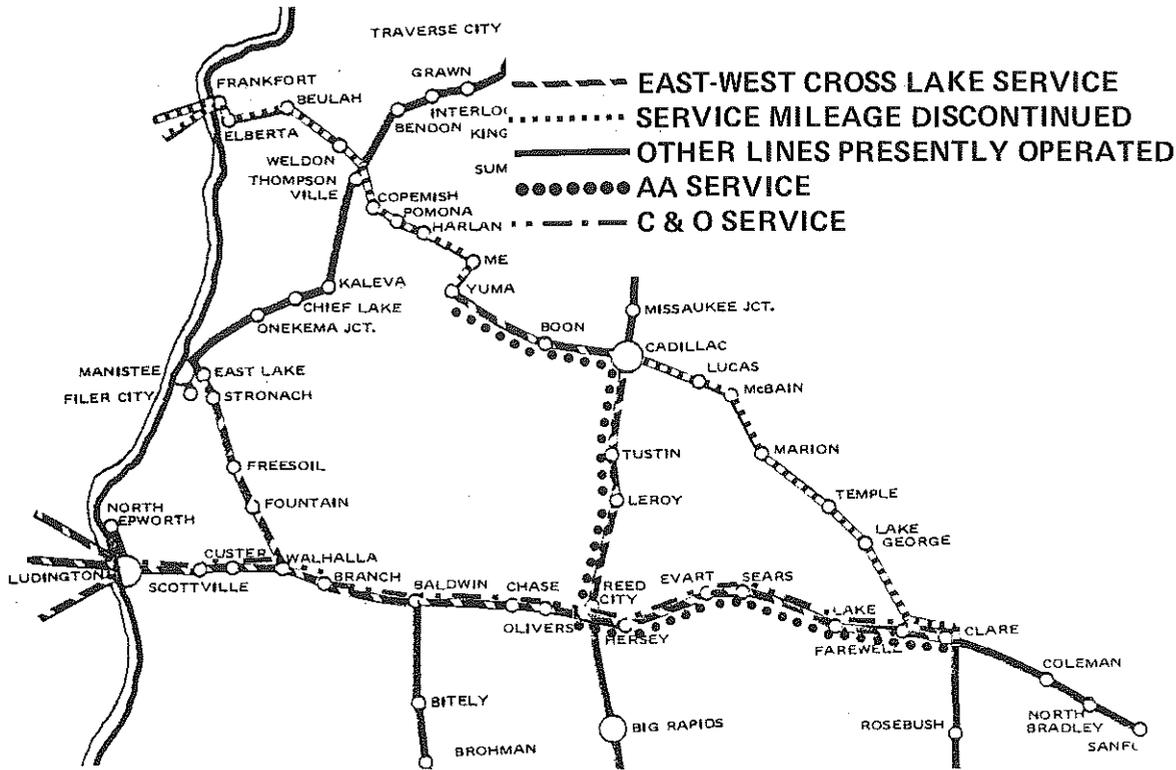
Approximately 2,400 additional gallons of fuel would be required to truck freight to the nearest operating rail head. This will be offset to some degree by reduced fuel consumption resulting from reduced rail service.

As a result of the additional miles traveled on affected state highways, less than one additional accident (0.108) can be expected to occur each year.

Passenger train potential from Southeast Michigan to the region would be preserved with this acceptable, but somewhat indirect, routing through Reed City. The Cadillac-Reed City segment could also be used for trains to and from the Grand Rapids area.

The concentration of rail freight carferry service at Ludington will have no discernable effect on water quality. Cessation of service in Frankfort may permit a shallower channel depth, which would require less dredging. This would result in a slight water quality improvement. There will be no change in overall regional air quality.

ALTERNATIVE EAST-WEST 3



ALTERNATIVE DESCRIPTION

Alternative EW-3 is characterized by east/west service being provided primarily from the Clare - Ludington corridor. The C&O would continue both its local and cross-lake services. Cross-lake movements would utilize the existing Ann Arbor vessels until the tug/barge system becomes available. Passengers, autos and trucks would be accommodated on the existing car-ferries in conjunction with or independent of rail traffic.

The Ann Arbor Railroad would continue to serve Yuma/Harlan via a Clare - Reed City - Cadillac routing. Regional rail segments that would not continue under this alternative: (1) Clare to Cadillac, (2) Harlan to Frankfort and, (3) cross-lake operations between Frankfort and Wisconsin.

FINANCIAL ANALYSIS RESULTS EAST-WEST 3 REVENUE AND COST ESTIMATES (Expressed in Millions, 1978\$)

	1978 Traffic Levels		Projected 1985 Traffic-Status Quo Service and Rates		Projected 1985 Traffic-Improved Service and Rates	
	Cross-Lake	AA Clare-Yuma)	Car-Ferries	Tug Barge	Car Ferries	Tug Barge
Michigan Port	Ludington	---	Ludington	Ludington	Ludington	Ludington
Cross-lake operator	CO	---	CO	CO	CO	CO
Cross-lake carloads	28,794	---	46,862	67,334	---	---
Land carloads included	---	10,513 ¹	---	---	---	---
Revenue	12.0	2.3	21.0	21.0	32.0	32.0
Land Operating Cost	8.5	3.3	13.3	13.3	19.9	19.9
Marine Operating Cost	5.5	---	12.3	3.4	20.9	5.1
Total Operating Cost	14.0	3.3	25.6	16.7	40.8	25.0
Net Operating Income (Loss)	(2.0)	(1.0)	(4.6)	4.3	(8.8)	7.0
Marine Capital (Annual)	.16	---	.16	5.5	.16	7.0
Total Income (Loss) ²	(2.16)	(1.64)	(4.76)	(1.2)	(8.96)	0

¹ Clare-Frankfort
² Does not include capital or rehabilitation charges for land facilities.

TRAFFIC		1978
Total E/W regional carloads	.....	42,934
Carloads served by EW-3	.....	42,602
% of regional carloads	.....	99.2%
Carloads utilizing stations not served by EW-3	.....	335
% of regional carloads	.....	.8%
Carloads utilizing stations not served by EW-3 which are team tracked	.....	148
Carloads currently receiving direct service that would not under EW-3	.....	184
% of regional carloads	.....	.4%

SERVICE CHARACTERISTICS

Total east/west regional trackage	254
Miles retained by EW-3	163
% of regional trackage	64.2%
Miles of track discontinued	91
% of regional trackage	35.8%
Number shippers losing service under EW-3 alternative	17
Number of shippers that would lose direct rail service	7
% of shippers losing direct service	41.2%
Number of shippers on discontinued track that currently do not receive direct rail service	10
% of shippers losing service	58.8%

EAST-WEST 3

CARLOADS ON DISCONTINUED SEGMENTS

	1976	1977	1978	1979
<u>North of Clare to South of Cadillac</u>				
Lucas	2	5	1	3
McBain	43	28	20	25
Marion	19	11	14	19
Farwell	9	3	15	16
Total	73	47	50	63
<u>North of Harlan to Frankfort</u>				
Pomona	92	81	78	63
Copemish	25	2	1	1
Thompsonville	18	14	0	0
Beulah	15	17	0	0
Elberta	55	8	45	117
Frankfort	57	80	155	122
Total	262	202	282	303
Total all segments	335	249	332	366

IMPACTS

For this alternative, only a change in carrier would create a difference from East-West Alternative 2. General impacts discussed under that alternative also pertain to East-West Alternative 3.

Service to all major northwest regional population and rail traffic centers will be retained.

The cross-lake tourist traffic market area would be more advantageously served by Ludington's more southerly port location because of its proximity to the larger population concentrations in Michigan and Wisconsin.

Cessation of carferry service at Frankfort has the second largest potential for direct and indirect job loss of all the alternatives. Some of the railroad job loss sustained in Frankfort will be offset by increases in Ludington. Likewise, tourist-related and indirectly affected jobs and expenditures will be relocated in Ludington.

Approximately 26 additional truck trips per week would be required to transport freight now shipped via rail. Compared to existing levels of vehicle miles of travel on affected state highways, an increase of .0517 percent would occur.

Approximately 2,400 additional gallons of fuel would be required to truck freight to the nearest operating rail head. This will be offset to some degree by reduced fuel consumption resulting from reduced rail service.

As a result of the additional miles traveled on affected state highways, less than one additional accident (0.108) can be expected to occur each year.

Passenger train potential from Southeast Michigan to the region would be preserved with this acceptable, but somewhat indirect, routing through Reed City. The Cadillac - Reed City segment could also be used for trains to and from the Grand Rapids area.

The concentration of rail freight carferry service at Ludington will have no discernable affect on water quality. Cessation of service in Frankfort may permit a shallower channel depth, which would require less dredging. This would result in a slight water quality improvement. There will be no change in overall regional air quality.