MICHIGAN RAIL SYSTEM RATIONALIZATION PLAN

TIER I REPORT

**Michigan
Department
of Transportation**

MICHIGAN DEPARTMENT OF TRANSPORTATION

MICHIGAN RAIL SYSTEM RATIONALIZATION PLAN

Tier I Report

December 17, 1981

STATE TRANSPORTATION COMMISSION

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SECTION I

INTRODUCTION

Since inception of state involvement in a rail freight assistance program in 1976, the goal has been to promote the long term stability of Michigan's rail services. To that end the Michigan Department of Transportation has been involved in providing subsidies, both capital and operating, for a number of rail lines in the state. It was initially thought that short term (5 years) operational subsidies would provide ample time for marketing of transportation services, and to recapture traffic and revenues lost as a result of poor service provided by previous owners. The inability, after five years, of operators to ensure the continuation of service without further state assistance, the continuing high program costs, and a lack of significant traffic increases on branch lines has resulted in a need to reassess the rail freight assistance program. This is rail rationalization.

National trends and recent federal actions regarding Conrail indicate railroad system mileage will continue to be reduced. Michigan can therefore expect further rail abandonment actions. These future abandonments must be evaluated along with the existing subsidized railroads to determine which lines are necessary to provide adequate rail service for Michigan. The rail rationalization process will achieve this through the identification of an essential core system which should be maintained even if long term state support is required.

Rail rationalization is a process, not an event. The Department approach involves a two tier effort to identify the essential core system and to provide a continuing procedure to evaluate future solvent carrier abandonments. Different approaches are being utilized for the Tier I and II analysis. The existing Michigan rail system is larger than is warranted for the level of service provided. The Tier I analysis uses objective criteria to develop a service index which is used to assess the contribution of individual rail segments to the overall level of service provided by the system. This level of analysis will provide for the reduction of the total demand on the state program by identifying segments which provide a minimal contribution of service. Tier II will use a line segment approach directed toward assessing the benefits relative to the costs of state support for lines placed in the questionable category in the Tier I analysis. This report discusses Tier I of the effort.

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The methodology for Tier I of the rationalization analysis provides for a review, evaluation and placement of each segment into one of three 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. No further state involvement recommended.

Categories 1 and 3 are the principal subjects of this report. Lines identified as Category 2 will be the subject of further analysis in Tier II of the rationalization process.

The following maps illustrate those rail lines which have been abandoned since 4/1/76, the lines which were subsized in 1981, the pending abandonments as of 11/24/81 and the lines which have been identified by the solvent carriers as under study for future abandonment.

MICHIGAN ABANDONMENTS
SINCE 4/1/76
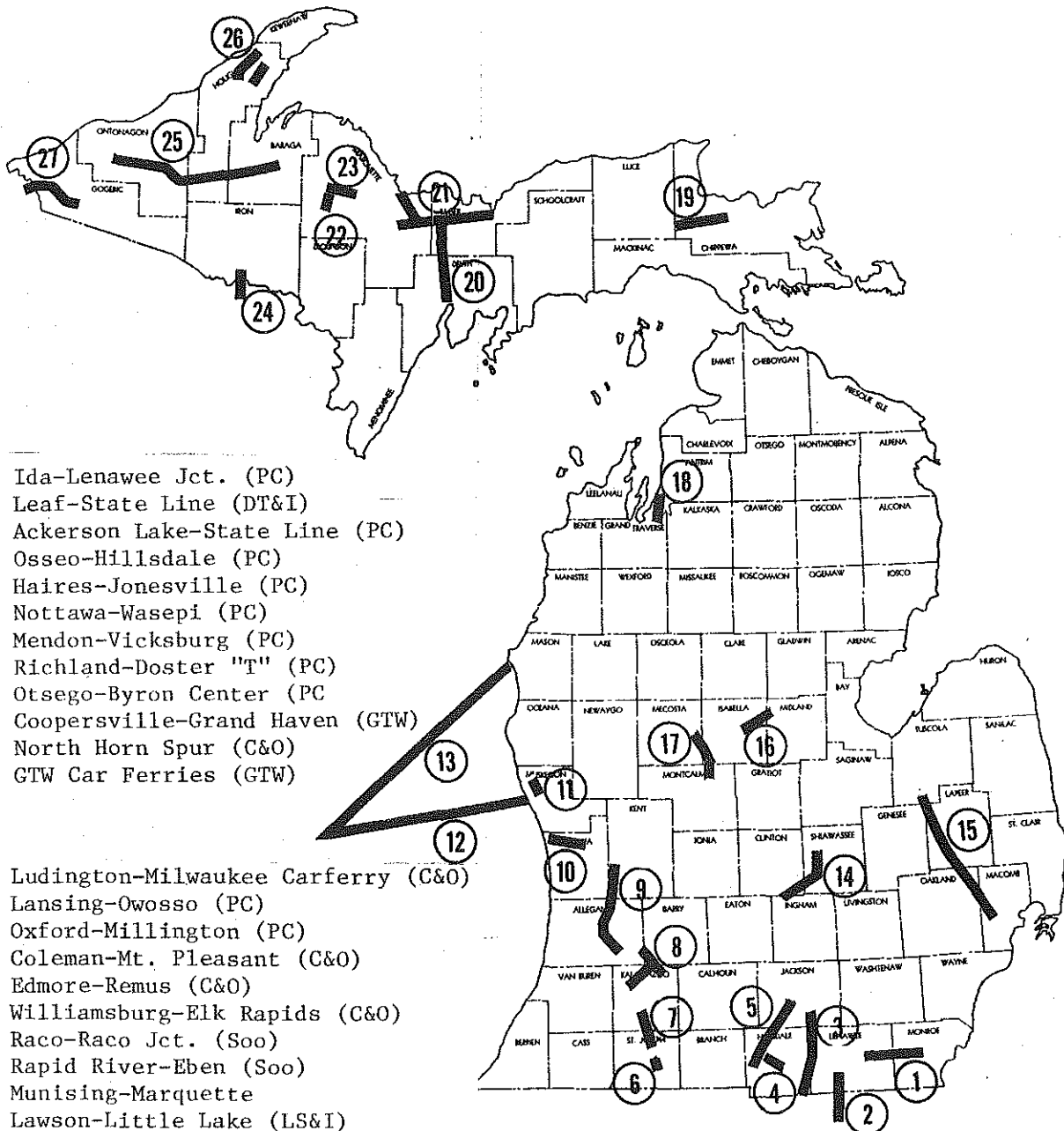
1. Ida-Lenawee Jct. (PC)
2. Leaf-State Line (DT&I)
3. Ackerson Lake-State Line (PC)
4. Osseo-Hillsdale (PC)
5. Haires-Jonesville (PC)
6. Nottawa-Wasepi (PC)
7. Mendon-Vicksburg (PC)
8. Richland-Doster "T" (PC)
9. Otsego-Byron Center (PC
10. Coopersville-Grand Haven (GTW)
11. North Horn Spur (C&O)
12. GTW Car Ferries (GTW)

13. Ludington-Milwaukee Carferry (C&O)
14. Lansing-Owosso (PC)
15. Oxford-Millington (PC)
16. Coleman-Mt. Pleasant (C&O)
17. Edmore-Remus (C&O)
18. Williamsburg-Elk Rapids (C&O)
19. Raco-Raco Jct. (Soo)
20. Rapid River-Eben (Soo)
21. Munising-Marquette
    Lawson-Little Lake (LS&I)
22. Champion-Republic (Milw)
23. Ishpeming-Martins Landing (CNW)
24. Scott Lake-State Line (CNW)
25. Nestoria-Bergland (Soo)
26. Dollar Bay-Lake Linden
    Hancock-Calumet (Soo)
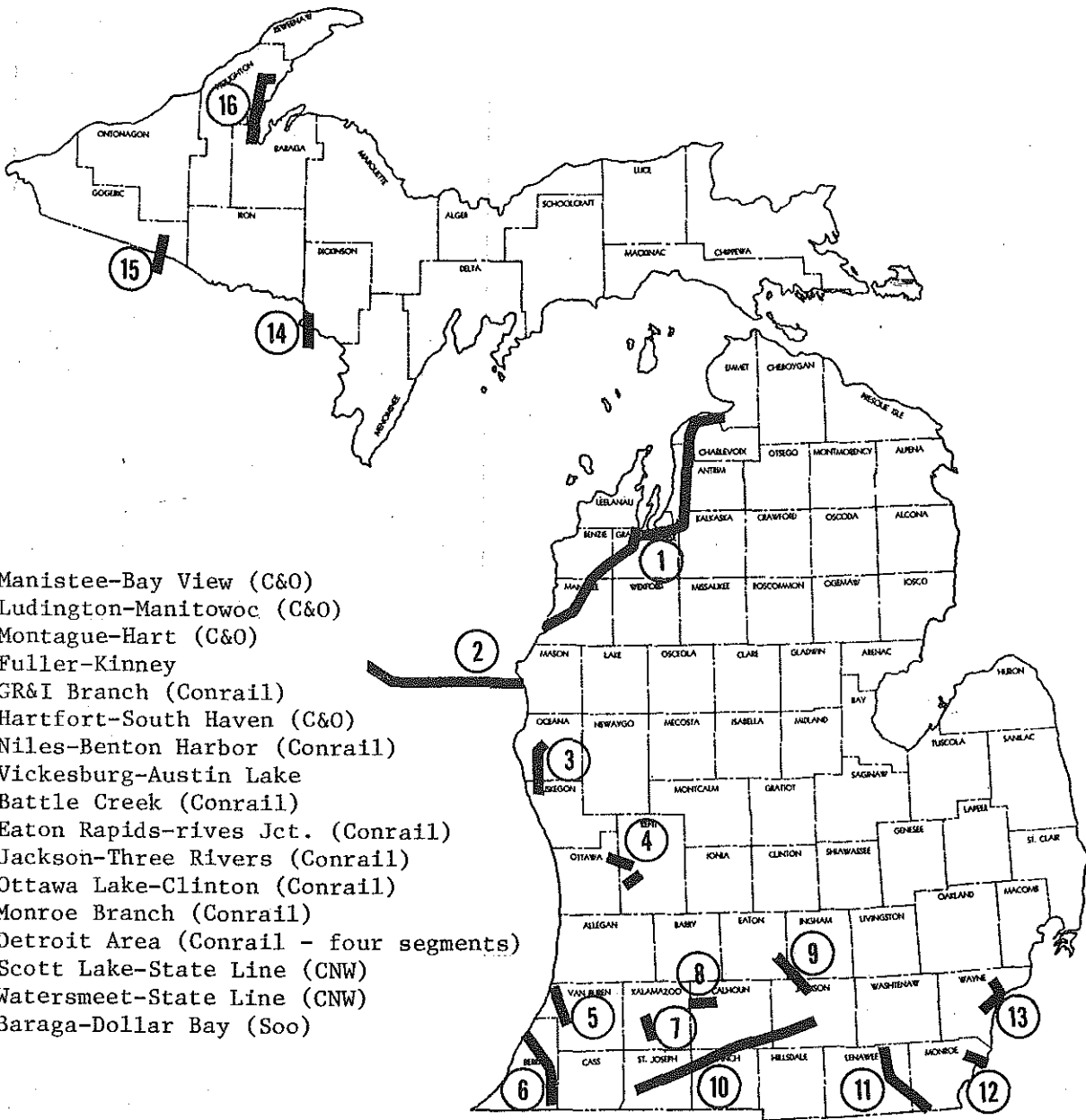27. State Line-Marenisco (CNW)

STATE SUBSIDIZED LINES
1981

1. Comstock Park–Mackinaw City
2. Toledo–Frankfort
   Frankfort–Kewaunee
   and Manitowoc
3. Straits Carferry
4. Grand Rapids–Vermontville
5. Nottawa–Sturgis
   and Wasepi–Mendon
6. Hillsdale Area
7. Lenawee Area
8. Tuscola–Saginaw Bay

PENDING ABANDONMENTS
AS OF 11/24/81

1. Manistee-Bay View (C&O)
2. Ludington-Manitowoc (C&O)
3. Montague-Hart (C&O)
4. Fuller-Kinney
   GR&I Branch (Conrail)
5. Hartfort-South Haven (C&O)
6. Niles-Benton Harbor (Conrail)
7. Vickesburg-Austin Lake
8. Battle Creek (Conrail)
9. Eaton Rapids-rives Jct. (Conrail)
10. Jackson-Three Rivers (Conrail)
11. Ottawa Lake-Clinton (Conrail)
12. Monroe Branch (Conrail)
13. Detroit Area (Conrail - four segments)
14. Scott Lake-State Line (CNW)
15. Watersmeet-State Line (CNW)
16. Baraga-Dollar Bay (Soo)

LINES IDENTIFIED BY CARRIERS
AS UNDER STUDY
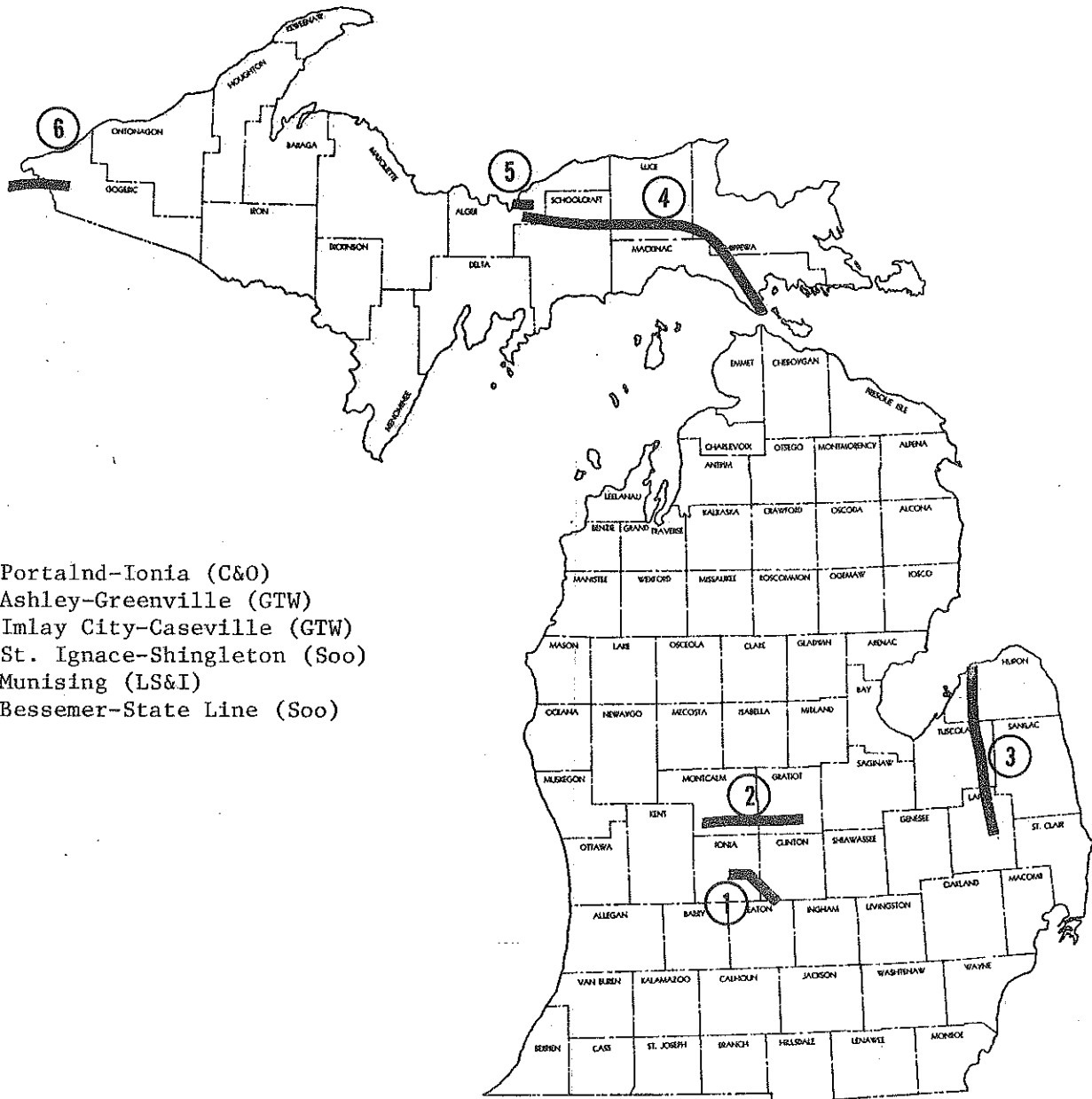
1. Portalnd-Ionia (C&O)
2. Ashley-Greenville (GTW)
3. Imlay City-Caseville (GTW)
4. St. Ignace-Shingleton (Soo)
5. Munising (LS&I)
6. Bessemer-State Line (Soo)

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SECTION II

OBJECTIVES AND METHODOLOGY

Objectives

The criteria for the Tier I analysis were selected to reflect the following rail rationalization objectives:

o   Provide regional rail service for the support of rail dependent industries, including agriculture and natural resource development;

o   Continue rail lines that can specifically enhance economic development within the state, where benefits exceed costs;

o   Assist the shift to alternate modes where it is cost effective to do so;

o   Continue a rail program based on capital investments designed to eliminate the need for long-term operational subsidy, while providing short-term operational assistance for nearly viable lines; and to,

o   Stabilize regional rail service to major production centers within the state.

The specific criteria used in the identification of the essential core system include measures of service characteristics, current and potential demand, and service effectiveness and cost characteristics, (see Table 1). These variables represent a broad range of indicators reflecting the degree of economic dependence on rail service. Data were collected or estimated for each segment identified for the Tier I analysis.

TABLE 1

LIST OF SCREENING CRITERIA

Service Characteristics

1. Number of Shippers

2. Car Loads

3. Car Loads per Mile

4. Car Loads Team Tracked

5. Rail Dependency Factor

Potential and Existing Demand

6. Agricultural Growth Potential

7. Forest Products Growth Potential

8. Extractive Products Growth Potential

9. Employment Dependency Factor

10. Production Centers Served

11. Agricultural Production

12. Forest Product Production

13. Extractive Product Production

Service Effectiveness and Cost Characteristics

14. Revenue to Operating Cost Trend

15. Revenue to Cost Ratio

16. Revenue to Operating Cost Ratio

17. Rehabilitation Costs

18. Operating Subsidy

19. Right-of-Way Costs

Methodology

The Tier I analysis is an evaluation of lines currently sub-
sidized, and other lines which are subject to immediate
abandonment or discontinuance by solvent carriers. Lines which
are profitable and owned and operated by solvent carriers; those
under study for abandonment; and those subject to potential
abandonment were not addressed in the Tier I effort. Line
segments addressed in Tier I are identified in Table 2.

Each subsidized project was divided into specific line segments
which reflect significant concentrations of traffic. A set of 63
segments was identified from lines of subsidized carriers, and
from Conrail and other solvent carrier lines currently pending
abandonment. Current data for each segment were assembled from
department files and from Conrail segment data collected during
the study. Rail specific data were augmented with socio-economic
data profiles for potentially affected counties.

The data reflect three categories of rail service indicators. The
first category, service characteristics, comprises data items 1
through 5 (see Table 1). The second category includes data that
address the potential for increased rail service demand (items 6
through 13). The last set includes measures of service effective-
ness and cost characteristics (Items 14 through 19.) The
analysis underlying the ranking of line segments is based on
selected variables indicating service characteristics and
potential.

Figure 1 identifies the principal elements of the first-tier
analysis. The procedure was designed to objectively rank the set
of segments with respect to service criteria and economic
potentials,minimize statistical bias, and to illustrate the
relative contribution to the state and regional rail systems of
specific rail segments.

A process, referred to as service indexing, was used to provide a
simple framework for the relative ranking of segments. The
primary objective of the ranking system is to develop a single
composite number, or service index, for each segment, which
represents the contribution of the segment to service and system
objectives. When segments are arranged in the order of decending
index values, the relationship between cumulative segment scores
and cumulative mileage illustrates the diminishing returns in
contribution to the service and system objectives resulting from
the addition of track mileage exhibiting low index scores (see
Figure 2). The mileage to the right of the asterix (see Figure 2)
represents candidate segments for addition to the essential core
system.

TABLE 2

Lines Under Study by Segment

ANN ARBOR SYSTEM, OPERATED BY
MICHIGAN INTERSTATE

   Toledo-Ann Arbor, including Saline Branch
   Ann Arbor-Whitmore Lake
   Whitmore Lake-Cohoctah
   Cohoctah-Durand
   Durand-Ashley (Trackage Rights over GTW)
   Ashley-Ithaca
   Ithaca-Mt. Pleasant
   Mt. Pleasant-Clare
   Clare-Cadillac
   Cadillac-Harlan
   Harlan-Frankfort
   Cross-Lake Carferries (2)
   Owosso-Swan Creek

MICHIGAN NORTHERN

   Comstock Park-Reed City
   Reed City-Cadillac
   Cadillac-Kalkaska
   Kalkaska-Charlevoix via Petoskey
   Petoskey-Mackinaw City
   Walton Junction-Traverse City

TUSCOLA & SAGINAW BAY

   Caro-Colling
   Reese-Munger
   Millington-Vassar
   Vassar-Reese
   Vassar-Caro
   Saginaw-Denmark Junction

LENAWEE COUNTY RAILROAD

   Lenawee Junction-Adrian
   Grovener-Morenci
   Leaf-Bimo

HILLSDALE COUNTY RAILROAD

   Quincy-Hillsdale
   Jonesville-Litchfield
   Hillsdale-Reading
   Reading-Montgomery

KENT, BARRY, EATON CONNECTING RAILWAY

Grand Rapids-Hastings
Hastings-Vermontville

CONRAIL

Detroit Transit Railroad
Exposition Spur at Detroit
Ottawa Lake-Lenawee Junction
DDD Industrial Track at Melvindale
Rives Junction-Eaton Rapids
Detroit Belt Line (S. of Mack Ave.)
GRI Branch-Grand Rapids
Wasepi-Mendon
Lenawee Junction-Clinton
Monroe Branch
Jackson-Wasepi
Sturgis-Nottawa
Main Line-Battle Creek
Wasepi-Three Rivers
Fuller-Kinney at Grand Rapids
Vicksburg-Austin Lake
Benton Harbor-Niles

CHESAPEAKE & OHIO

Grawn-Traverse City
Traverse City-North
Hartford-South Haven
Traverse City-Williamsburg
Hart-Montague
Williamsburg-Charlevoix
Manistee-Grawn
Ionia-Grand Ledge
Greenville-Ashley

OTHERS

ELS	Wisconsin Line-Iron Mountain
CNW	Wisconsin Line-Watersmeet
CNW	Ironwood-Hurley, WI
DC	Old Main Track-Detroit
SOO	St. Ignace-Trout Lake
SOO	Trout Lake-Forest Center
SOO	Old Main-Ishpeming
SOO	Baraga-Dollar Bay
SOO	Bessemer-Wisconsin Line
SCFC	Straits Carferry
ELS	Ontonagon-Iron Mountain
GTW	Caseville-Kings Mill

FIGURE 1

RAIL RATIONALIZATION PLAN

First Tier Flow Diagram

```
                        UNIVERSE OF SEGMENTS
                                 │
                                 ▼
  Planning           ──▶     DATA BASE      ◀──      Selected
  Objectives                 ASSEMBLY                Criteria
                                 │
                                 ▼
  Data              ──▶    DEVELOP SEGMENT   ◀──     Service
  Aggregation               PRIORITY INDEX           Scoring
                                 │
            ┌────────────────────┼────────────────────┐
            ▼                    ▼                     ▼
       IDENTIFY              SYSTEM                 IDENTIFY
        SYSTEM             CONTINUITY                 COST
     CONTRIBUTION                                 SENSITIVITY
                                 │
                                 ▼
                            PRIORITIZE
                         ESSENTIAL CORE
                             SYSTEM
                                 │
                                 ▼
  Funding           ──▶        TRIP         ◀──
  Levels
                                 │
                                 ▼
                             EVALUATE
                       FUNDING REQUIREMENTS
                                 │
                                 ▼
                        FIRST TIER REPORT
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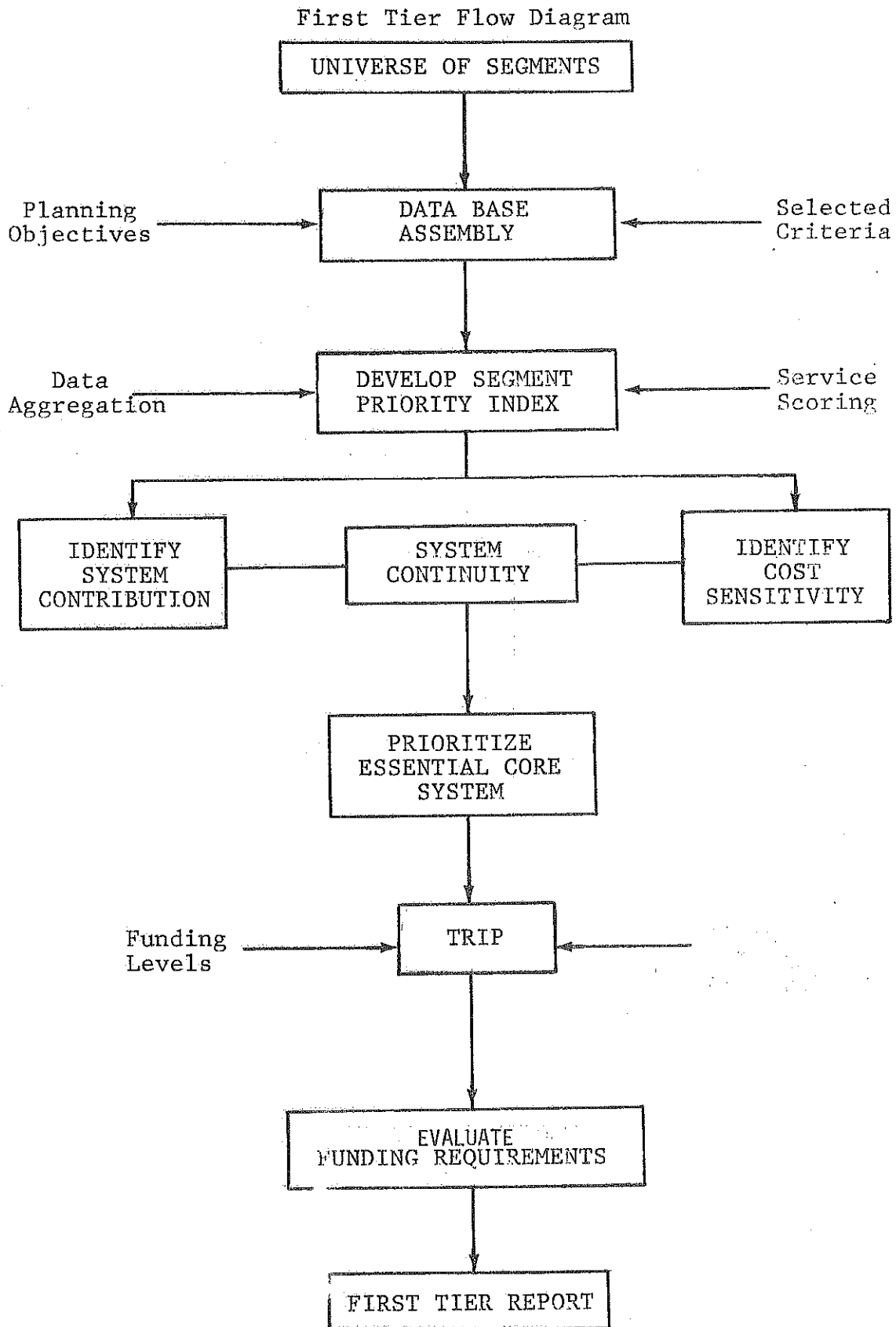
CUMULATIVE INDEX VS MILES

Figure 2

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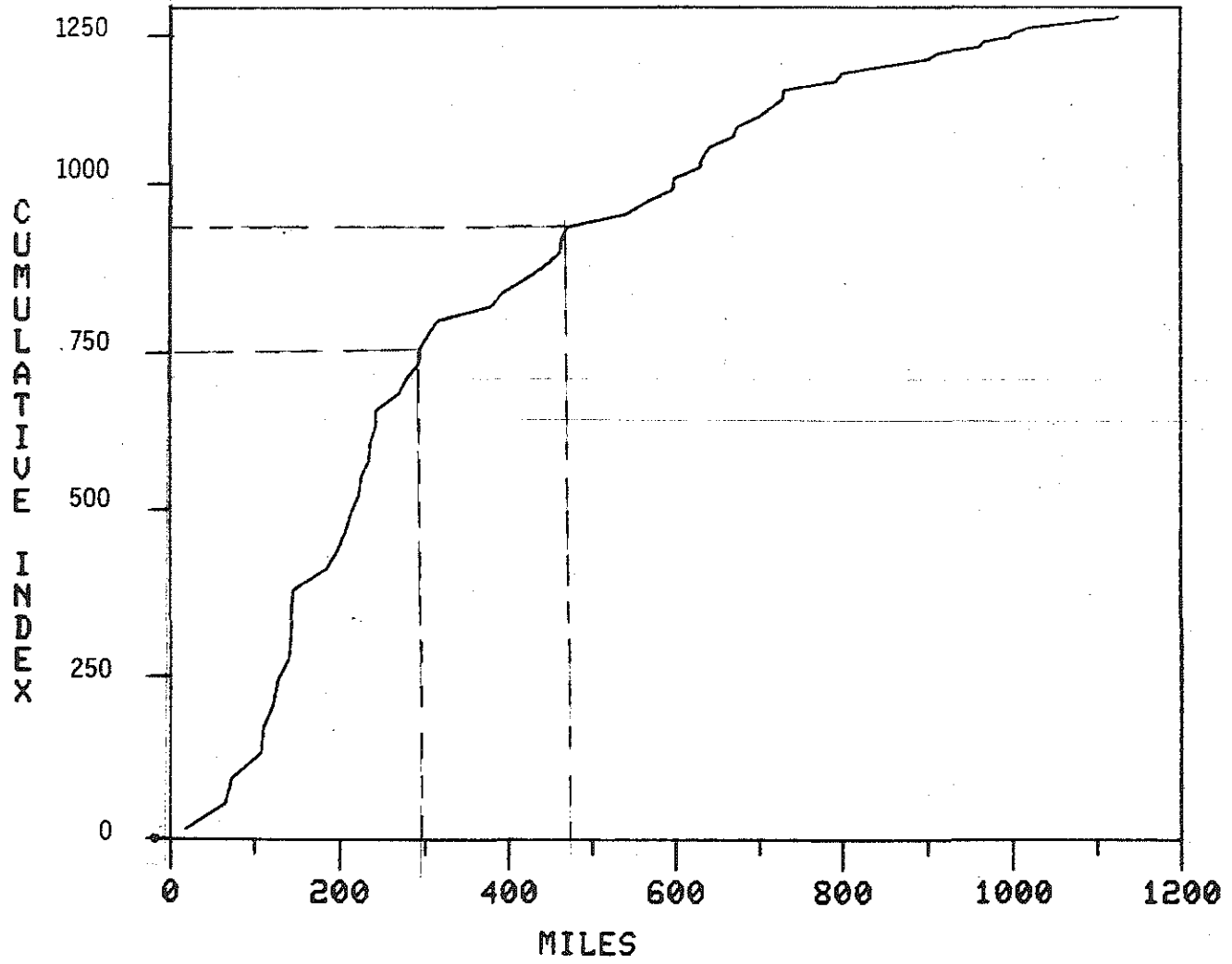
Prior to the development of the service index for each segment, the range of values for each of the variables used in the scoring was analyzed statistically. The statistical analysis provided guidance for assigning scores to the raw data values.

Factor analysis, a statistical technique, was then used to to identify interdependencies, and indicate the principal factors or dominant variables. The results were used to identify the specific weights to be assigned to each of the variables. The analysis indicated the principal criterion to be carloads-per mile of local traffic (density), which was assigned the highest weight (60 percent). Potentials for production increases were assigned 10 percent, while 30 percent was distributed over the remaining criteria.

The resulting list of segments ranked in order of decending service index scores served as objectively derived input for: 1) analysis of segment contribution to service objectives; 2) identifying system continuity requirements; 3) examination of service objectives; and, 4) projections of core system costs and financing implications.

The initial segment rankings were then evaluated relative to service characteristic criteria not included in the scoring process and criteria reflecting regional economic profiles. Carloads (excluded from the segment scoring analysis to prevent double counting with the density criterion), and the percentage of carloads served from team track operations, were evaluated for segments potentially excluded from the essential core system. This carload analysis served as a check to ensure that currently productive segments were not inadvertently excluded. The criteria reflecting regional economic profiles were used to evaluate the implications of the potential exclusion of segments from the essential core system on the quality of service within rail service regions.

The relationship between system mileage and segment contribution to the effectiveness of the state and regional rail systems, as measured by the service index, is illustrated in Figure 2. Index value ranges were assigned to define the three categories on the basis of the rate of increase in the cumulative index relative to mileage. Significant changes in the rate of increase in cumulative index values were used to segregate categories. As can be observed from Figure 2, the marginal contribution to the cumulative index declines as mileage increases.

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Regional Rail Service

Michigan's peninsular geography and position outside the major transcontinental rail corridors precludes the advantage of through traffic to support local and regional rail service (with the exception of that traffic moving across Lake Michigan and the Straits of Mackinac). The southern portion of the lower peninsula has access to major rail corridors, but most rural and northern rail lines are primarily dependent on locally generated demand. The economies of some relatively remote regions of the state, however, are dependent to varying degrees on continued rail service, both to maintain existing industry and to encourage future economic development. It is apparent that a statewide program of rail support based on service index alone could result the loss of all rail service in some areas of the state. To avoid this outcome the concept of rail service regions was developed.

Rail Service regions based on economic characteristics were identified to assess the importance of rail service and the relative importance of the lines analyzed in this study (see Figure 3). Economic and commodity production data for agriculture, extractive industries, and wood production, as well as the potential for expansion of those and other rail dependent activities, were primary considerations. Extractive and forestry production dominate the three regions in the upper peninsula and those in the northern half of the lower peninsula. Agriculture, wood production and manufacturing dominate the lower half of the lower peninsula. The rail dependence of regions has been used in assessing the relative importance of rail lines and will be also used in subsequent analyses.

Figure 3

RAIL RATIONALIZATION PLAN
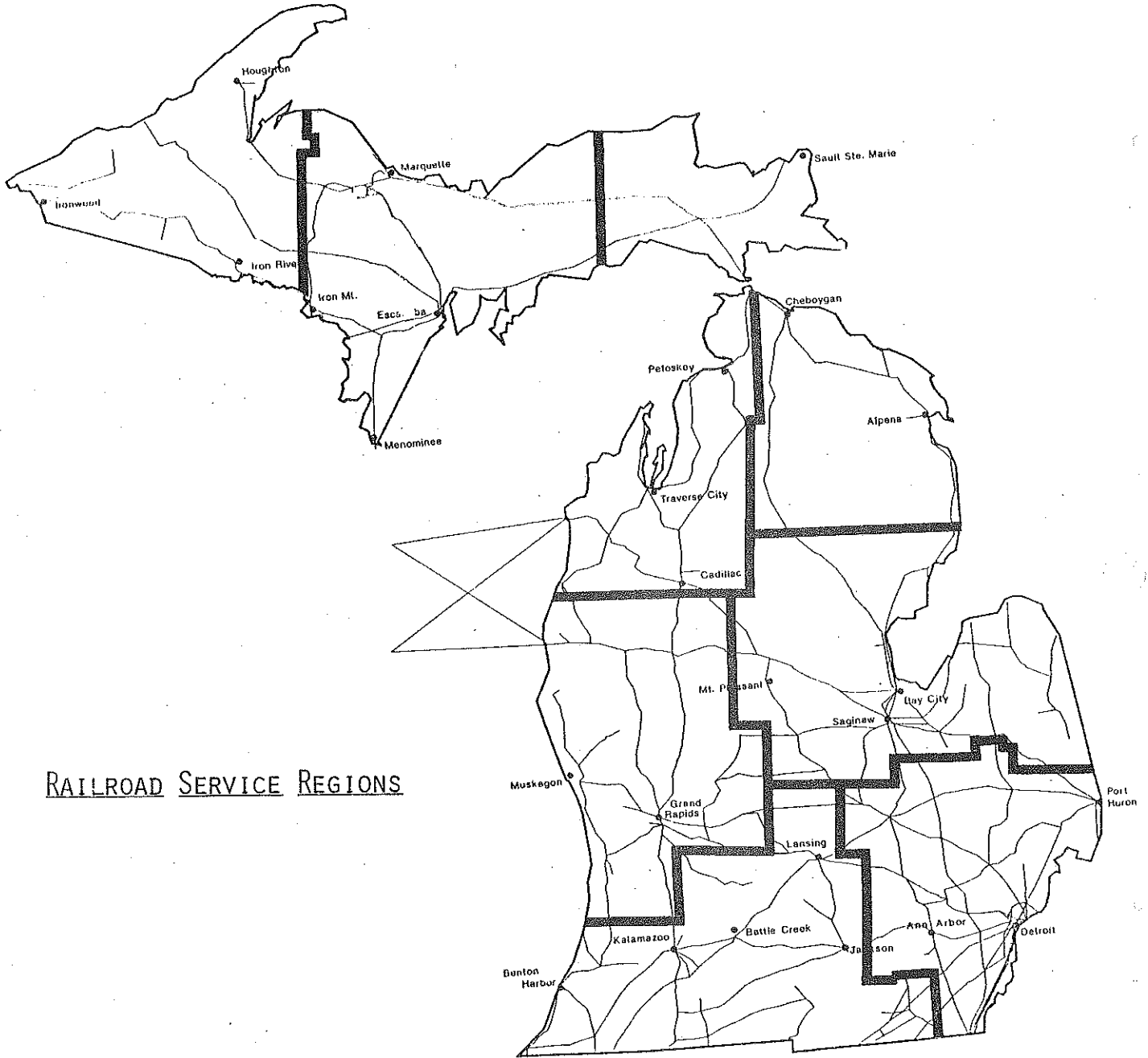
RAILROAD SERVICE REGIONS

SECTION III

ANALYSIS RESULTS

Rail rationalization should be viewed in a statewide and regional perspective. Eliminating non-essential segments provides the state with resources that can be used to stabilize the essential core system.

As an outcome of Tier I screening (using the service level index with adjustments to ensure a connected system) the segments have been arranged into three categories. Category 1 (black) segments are identified as essential components to the core system. Category 1 lines, in conjunction with the existing solvent system, comprise Michigan's essential core railroad system.

Category 2 (gray) segments are those considered questionable for any one of the following reasons:

- there is a lack of sufficient data necessary to make clear-cut decisions,

- the line is identified on a carrier system diagram map as being under study for possible abandonment,[1]

- unresolved issues will have major impact on the decisions.

In the Tier II analysis, all category 2 segments will be examined for potential assignment to Category 1 (Black).

A number of issues have an impact on the Tier II analysis of Category 2 (gray) segments, including:

- The uncertainity of through traffic, particularly as it relates to cross lake carriers. Nationwide efforts of large Class I carriers to eliminate interchanges and maintain beneficial revenue divisions will result in less likelihood of through traffic movements on Michigan railroads in the future.

- Deregulation: The 1980 Staggers Act allows the railroad industry considerable freedom in rate making, rate cancellations, and other areas which have been strictly controlled by the Interstate Commerce Commission. The impacts of deregulation are still undetermined; however potential changes in routing and pricing are a principal factor affecting the uncertainty of future through traffic levels.

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[1] The final categories include lines potentially subject to abandonment, which were placed in Category 2 for Tier II analysis. They were not scored in Tier I, as they are not in immediate jeopardy of abandonment.

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- Cross lake port selection and the introduction of the
  tug-barge system are factors which impact greatly on
  further analysis of the Ann Arbor Railroad.

- The issue of shipper and local government participation
  in the funding of operations and capital improvements for
  service which is primarily local in nature.

Category 3 (white) segments, as identified by the service index
analysis, contribute little to the statewide and regional rail
systems. Many of the segments are currently pending abandon-
ment by solvent carriers. The remainder are segments which the
state has finanically assisted, and have not shown significant
improvement in terms of carloads served. While it is recognized
that most Category 3 segments do provide some service to local
areas and shippers, these segments will not become viable, and do
not contribute a measure of service sufficient to warrant further
state involvement.

Tables 3 and 5 list Category 1 (Black) and Category 3 (White)
segments in order of their service index ranking. Table 4 lists
Category 2 (Grey) segments, which are identified for further
study in Tier II of the rationalization analysis.

The currently subsidized Conrail segment from Wasepi to Mendon
was chosen as an example to illustrate the relationships among
variables in the ranking process. The segment is 4.8 miles in
length and generated 37 carloads of local traffic during the
year from April 1980 through March 1981. Carloads per mile
per year accordingly equals 7.7, yielding a point score for
density of 9 out of a possible of 30. There is one shipper on
the line, yielding 1 of a possible 10 points. The principal
commodities were judged to be of medium rail dependency, yielding
a score of 2 out of a possible 3 points on this factor. The
county in which this service is provided has been judged to
exhibit high potential for growth in the agricultural and forest
product sectors, resulting in a score of 5 out of a possible 6
points on potential factors. The total index value of 17 points
is within the range of Category 3 segments.

An evaluation of the objective ranking for this segment took
account of the relatively insignificant traffic totals, and
the reasonable proximity of alternate rail services in St.
Joseph county to serve potential demand.

Figure 4 displays the marginal contribution of increased system
mileage as a function of cumulative carloads. This display
demonstrates that the Category 3 segments contribute a smaller
portion of carloads for each additional mile than segments in
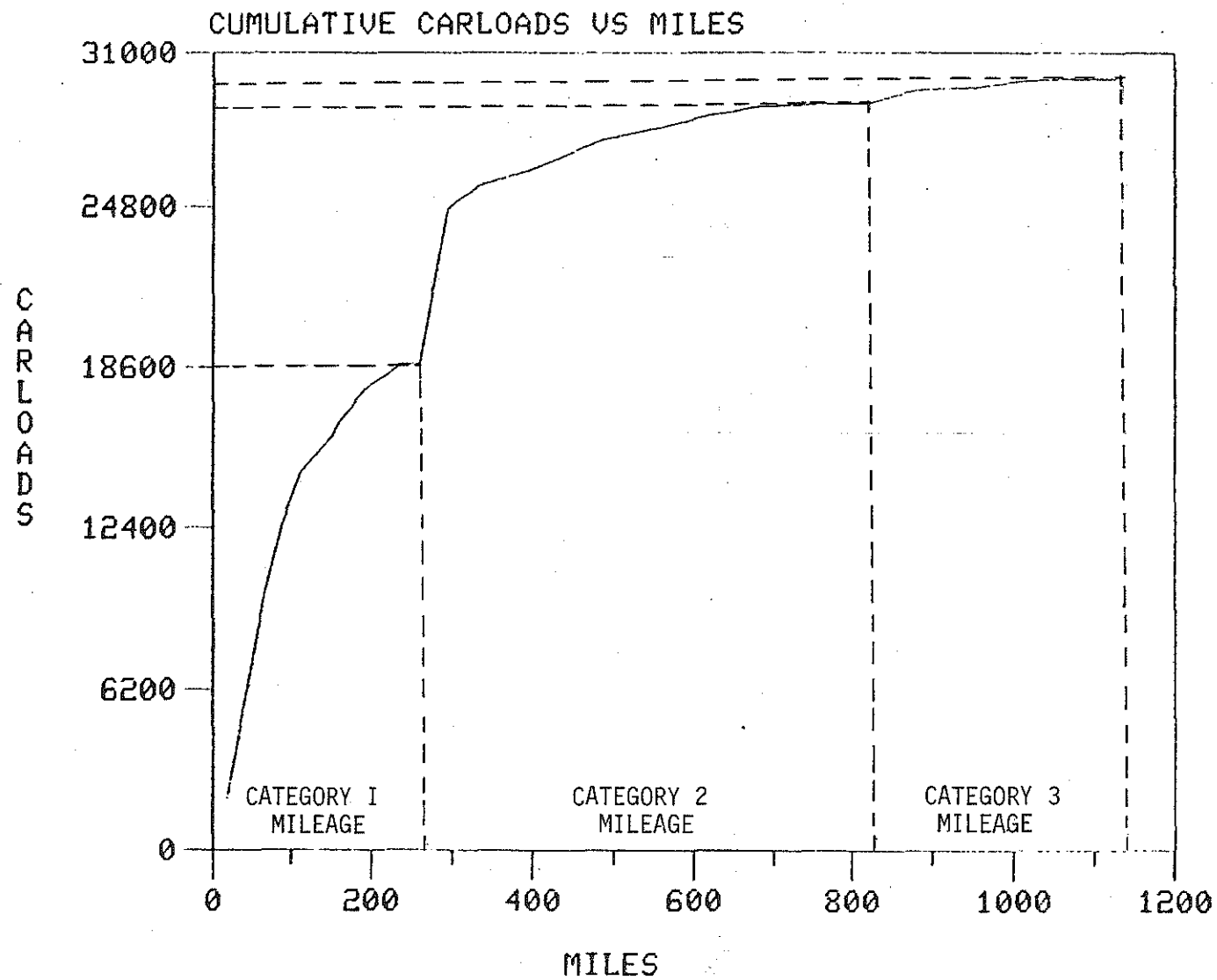the other two categories.

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CUMULATIVE CARLOADS VS MILES

FIGURE 4

TABLE 3

RAIL RATIONALIZATION SEGMENTS...   CATAGORY ONE

CARRIER	SEGMENT NAME		MILES	CARS	DENSITY	SHIPPERS	SERVICE INDEX
HCR	QUINCY	HILLSDALE	17.9	1962	109.60	17	42
AA	TOLEDO	ANN ARBOR	48.6	7889	162.30	26	41
LCR	LENAWEE JC	ADRIAN	7.3	899	123.20	18	40
CO	TRAVERSE C	NORTH	0.5	115	230.00	3	39
ELS	WISCONSIN	IRON MNT	2.0	284	142.00	4	37
AA	ANN ARBOR	WHITMORE L	12.2	1500	123.00	2	37
CR	FULLER	KINNEY	4.8	384	80.00	5	36
CR	DETROIT	TRANSIT RR	1.3	186	143.10	8	35
TSB	VASSAR	CARO	13.2	1102	83.50	6	35
CNW	IRONWOOD	HURLEY WI	2.4	158	65.80	12	35
CR	EXPOSITION	SPUR DET	2.3	198	86.10	9	34
MN	CADILLAC	KALKASKA	38.4	1363	35.50	41	32
CR	OTTAWA LK	LENAWEE JC	13.4	495	36.90	8	29
CO	GRAWN	TRAVERSE C	9.6	603	62.80	16	29
HCR	JONESVILLE	LITCHFIELD	6.3	204	32.40	10	28
TSB	VASSAR	REESE	9.2	421	45.80	3	28
TSB	MILLINGTON	VASSAR	6.9	185	26.80	3	25
HCR	HILLSDALE	READING	8.9	233	26.20	1	25
CR	BENTON HBR	NILES JCT	27.0	539	20.00	15	25
CR	DDD IND TR	DETROIT	0.8	32	40.00	1	25
DC	OLD MAIN	TRACK DET	0.3	12	40.00	2	25
MN	WALTON JCT	TRAVERSE C	25.1	2	0.10	1	4
ELS	ONTONAGON	IRON MTN	117.3	36709	312.90		

375.7

Lines with service index values below 25 were included for system continuity or other considerations. Service index values are not reported for lines not included in the scoring process.

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TABLE 4

RAIL RATIONALIZATION SEGMENTS...   CATAGORY TWO

CARRIER	SEGMENT	NAME	MILES	CARS	DENSITY	SHIPPERS	SERVICE INDEX
AA	CADILLAC	HARLAN	34.6	5980	172.80	10	40
CO	HARTFORD	S HAVEN	14.3	276	19.30	9	23
TSB	E SAGINAW	DENMARK JC	9.4	300	31.90	1	23
SOO	OLD MAIN	ISHPEMING	1.1	19	17.30	2	22
AA	ASHLEY	ITHACA	9.9	133	13.40	8	21
MN	COMSTOCK P	REED CITY	63.2	587	9.30	18	21
CO	TRAVERSE C	WILLIAMSBG	11.0	296	26.90	3	21
CR	RIVES JCT	EATON RPDS	14.3	183	12.80	2	20
LCR	GROSVENOR	MORENCI	18.8	270	14.40	7	20
AA	OWOSSO	SWAN CREEK	27.1	352	13.00	11	20
CO	MONTAGUE	HART	22.9	328	14.30	12	20
MN	KALKASKA	CHARLEVOIX	69.7	478	6.90	31	19
SOO	BARAGA	DOLLAR BAY	30.6	239	7.80	15	18
AA	HARLAN	FRANKFORT	30.5	277	9.10	9	16
AA	WHITMORE L	COHOCTAH	28.0	184	6.60	1	15
AA	ITHACA	M PLEASANT	25.4	110	4.30	12	15
LCR	LEAF	BIMO	3.8	25	6.60	4	15
AA	M PLEASANT	CLARE	15.1	40	2.60	5	10
AA	CLARE	CADILLAC	48.1	46	1.00	2	10
HCR	READING	MONTGOMERY	5.7	14	2.50	1	9
MN	REED CITY	CADILLACY	30.4	24	0.80	2	6
AA	COHOCTAH	DURAND	10.8	1	0.10	1	5
AA	DURAND	ASHLEY	32.9	0	0.00	0	4
SOO	BESSEMER	WISCONSIN	6.9	1300	188.40		
SOO	TROUT LAKE	FOREST CTR	76.1	1912	25.10		
SOO	ST IGNACE	TROUT LAKE	27.1	100	3.70		
CO	GRANDLEDGE	IONIA	26.2	800	30.50		
GTW	KINGS MILL	CASEVILLE	57.0	1200	21.10		
GTW	ASHLEY	GREENVILLE	40.4	1500	37.10		
SCF	MACKINAW C	ST IGNACE	0.0	4416	0.00		
AA	ANN ARBOR	CARFERRIES	0.0	17838	0.00		

Total 791.3

Lines with service index values below 20 were included for system continuity or other
considerations. Service index values are not reported for lines not included in the
scoring process.

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TABLE 5

RAIL RATIONALIZATION SEGMENTS...   CATAGORY THREE

CARRIER	SEGMENT	NAME	MILES	CARS	DENSITY	SHIPPERS	% TEAM TK	SERVICE INDEX
CR	DETROIT	BELT LINE	1.6	29	18.10	5	0.00	19
TSB	REESE	MUNGER	6.7	74	11.00	3	0.00	19
KBE	GRAND RPDS	HASTINGS	25.9	238	9.20	7	13.40	19
CR	GRI BRANCH	GRAND RPD	1.5	10	6.70	4	0.00	17
CR	WASEPI	MENDON	4.8	37	7.70	1	0.00	16
TSB	CARO	COLLING	8.8	84	9.50	2	0.00	16
KBE	HASTINGS	VERMONTVL	16.1	93	5.80	3	0.00	15
CR	STURGIS	NOTTAWA	7.3	30	4.10	1	0.00	13
CR	LENAWEE JC	CLINTON	13.7	64	4.70	7	62.50	13
CR	MONROE BR	AT MONROE	1.6	15	9.40	1	0.00	13
CR	JACKSON	WASEPI	61.9	61	1.00	20	49.20	13
CO	WILLIAMSBG	CHARLEVOIX	51.1	192	3.80	8	78.10	12
CO	MANISTEE	GRAWN	46.2	78	1.70	3	64.10	9
CR	WASEPI	THREE RIV	9.5	0	0.00	0	0.00	5
CR	MAIN LINE	BATTLE CRK	1.8	0	0.00	4	0.00	5
CNW	WISCONSIN	WATERSMEET	9.2	0	0.00	0	0.00	3
CR	VICKSBURG	AUSTIN LK	5.5	0	0.00	0	0.00	3
MN	PETOSKEY	MACKINAW C	34.4	1	0.00	1	0.00	3

307.6

The regional service implications of terminating non-essential segments identified in this plan are minimal. The south-central region will not be affected by any of the proposed terminations, as proximity to other lines is reasonable. Regional service to the northwestern part of the state will be affected by the proposed terminations but only in terms of direct service, as the mileages and costs incurred in maintaining service to a few small shippers is prohibitive. The other regions in the state are virtually unaffected by the recommended terminations.

SECTION IV

LINE SYNOPSIS

The following summarizes the results of Tier I analysis for rail
lines currently the subject of state operating assistance or which
are pending abandonment.

Ann Arbor System (AA)

Two segments, Toledo to Ann Arbor and Ann Arbor to Whitmore Lake,
are viewed as profitable and are part of the essential core
system. The other segments including the Swan Creek Branch, fall
into the questionable category. This is primarily because of the
unanswered questions concerning port selection, tug-barge
operation and uncertainities regarding through traffic. The port
and tug-barge issues are the subject of an upcoming con-
sultant report. The Tier II analysis will take this information
into account as it becomes available.

Michigan Northern System (MN)

Two segments of the MN line, Cadillac to Kalkaska and Grawn to
Traverse City, fall into the essential core system. Another
segment, Walton Junction to Traverse City, is essential to
provide a connection to Traverse City, and will remain in the
essential core. Three segments appear in the questionable
category: Kalkaska to Petoskey, Petoskey to Charlevoix, and
Comstock Park to Reed City. Another segment, Reed City to
Cadillac, scored low in the service index but has been placed in
the questionable category to preserve system continuity. These
questionable segments will be addressed in Tier II to determine
their recommended status in regard to the core system. The
segment between Petoskey and Mackinaw City is judged to be non-
essential to the core system and is not recommended for continued
state involvement. A very large percentage of the carloads served
north of Petoskey is artificially induced overhead traffic that
neither originates nor terminates in Michigan. This traffic
provides no discernible benefit to Michigan shippers, and has
contributed to increased subsidies for the MN and the Straits
carferry.

Hillsdale County Railroad (HCR)

All of the segments of the HCR fall into the essential core
system. The segment from Reading to Montgomery, however, was
included to preserve system continuity.

Tuscola and Saginaw Bay Railway (T&SB)

Three segments fall into the essential core system through the screening process: Caro to Vassar, Reese to Vassar, and Vassar to Millington. Additionally, the Saginaw to Denmark Junction segment is considered essential because it connects the T&SB system to solvent carriers. Two T&SB segments have been identified as non-essential and are recommended to be terminated. They are Reese to Munger and Colling to Caro.

Lenawee County Railroad (LCR)

Because of their close proximity, two segments of the Conrail system were included in the LCR analysis. The LCR segment, Adrian to Lenawee Junction, and the Conrail segment, Lenawee Junction to Ottawa Lake, are included in the essential core system. Trackage to the Morenci area, Grosvenor to Morenci, and Leaf to Bimo was determined to be questionable, while the Conrail segment from Lenawee Junction to Clinton was placed in the non-essential category.

Kent-Barry-Eaton Connecting Railway (KBE)

The KBE segments, Grand Rapids to Hastings and Hastings to Vermontville, both fall into the non-essential category using the service index screening process. It is recommended that state involvement on the entire KBE line be terminated.

Conrail (CR)

While Conrail segments should not be considered a system in the ordinary context, there are a number of segments in the abandonment process or under subsidy.

The following segments are in the essential core system category:

> Detroit Transit Railroad in Detroit
> Exposition Spur in Detroit
> Fuller to Kinney in Grand Rapids
> DDD Industrial Track in Melvindale
> Benton Harbor to Niles
> Ottawa Lake to Lenawee Junction

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One segment, Rives Junction to Eaton Rapids, falls into the questionable category and will require further study.

An additional ten Conrail segments received service index scores leading to a recommendation of no further state involvement. They are:

Detroit Belt Line in Detroit (South of Mack Ave.)
GRI Branch in Grand Rapids (Downtown Consolidation Project)
Wasepi to Mendon (Currently Subsidized)
Lenawee Junction to Clinton
Monroe Branch in Monroe
Jackson to Wasepi
Sturgis to Nottawa (Currently Subsidized)
Main Line in Battle Creek (Downtown Consolidation Project)
Wasepi to Three Rivers
Vicksburg to Austin Lake

Other Michigan Railroads

Segments assigned to the essential core system include:

ELS	Ontonagon to Iron Mountain
ELS	Wisconsin Line to Iron Mountain
CNW	Ironwood to Hurley, WI
C&O	Grawn to Traverse City
C&O	Traverse City north to the last shipper
DC	Old Main Track in Detroit

Segments placed in the questionable category for further analysis include:

C&O	Hartford to South Haven
C&O	Traverse City to Williamsburg
GTW	Caseville to Kings Mill
C&O	Ionia to Grand Ledge
C&O	Montague to Hart
SOO	Bessemer to Wisconsin Line
SOO	Old Main at Ishpeming
GTW	Greenville to Ashley
SOO	St. Ignace to Trout Lake
SOO	Trout Lake to Forest Center
SOO	Baraga to Dollar Bay

Segments falling into the non-essential category and warranting no further state involvement include:

C&O	Williamsburg to Charlevoix
C&O	Manistee to Grawn
CNW	Wisconsin Line to Watersmeet

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SECTION V

SUMMARY AND RECOMMENDATIONS

Summary

The rationalization Tier I report emphasizes the use of a process for evaluating existing and future state involvement in Michigan's rail system. This process is based on the following objectives which were adopted by the State Transportation Commission.

- Provide regional rail service for the support of rail dependent industries, including agriculture and natural resource development;

- Continue rail lines that can specifically enhance economic development within the state, where benefits exceed costs;

- Assist the shift to alternate modes where it is cost effective to do so;

- Continue a rail program based on capital investments designed to eliminate the need for long-term operational subsidy, while providing short-term operational assistance for nearly viable lines; and to,

- Stabilize regional rail service to major production centers within the state.

Based on these objectives the process was designed to:

- Establish the concept of an essential core system which provides the economy and shippers of the state with a level of rail service suitable for continuation.

- Develop a two-tier analysis process. Tier I addresses currently subsidized lines and lines pending abandonment for placement into three distinct categories:

    - lines distinctly in the essential core system,
    - lines that are questionable,
    - line segments which do not contribute sufficiently to the state or regional system.

- Identify lines that are questionable (gray) regarding future state financial involvement for Tier II analysis.

- Quantify the relative merits of the lines being analyzed, and utilizes the concept of diminishing returns to evaluate the contribution of individual segments to the essential core system.

Implemention of the report recommendaton to discontinue service on non-essential category lines will result in a reduction in potential demands on the program by $3.1 million per year in subsidy and $16.4 million in rehabilitation costs.

The rationalization process and initial recommendations are based on the following assumptions and observations.

- Market forces alone will not provide Michigan with a rail system which satisfies the Commission's objectives.

- The Commission's objectives can be met with a rail system of significantly fewer miles than the existing jeopardized system.

- State involvement in an essential core system will require a continuing funding source to ensure adequate operating, rehabilitation and capital assistance.

- Funds should be expended on the most essential segments to ensure the continuation of a stable essential core system.

Recommendations

- The state should initiate the termination of financial involvement in lines identified as non-essential (Category 3 white).

- The Department should identify and adopt a funding base that provides for the maintenance of the essential core system.

- Long term contracts should be entered into on lines or projects whose configurations are expected to remain unchanged.

- The Department should adopt a process for line segment termination.

Termination Process

The following outline describes the recommended process for
the termination of state involvement on non-essential (white)
segments.

1. For any line or segment recommended for termination, publish a
   termination notice to schedule a public hearing at the
   earliest possible date.

2. Public hearings will be conducted to:

   - Inform the local area of impending action.
   - Gather public input, which may impact on the decision
     process.
   - Explore alternate service possibilities.

3. Hearing testimony will be recorded and questions will be
   answered as a supplement to the Plan.

4. Upon completion of the public hearing and any subsequent
   analysis, a position paper will be submitted for Commission
   action.

5. If the Commission concurs with a recommendation for termin-
   ation, the Department will take steps to cancel existing
   contracts and terminate service on the line.

6. If some feasible service alternative is recommended and
   receives Commission approval the project will be referred to
   UPTRAN for implementation.

7. If the segment to be terminated does not now receive state
   assistance, no further Department action is necessary beyond
   Commission approval of a position paper recommendation.

Future Directions

Requirements for the second-tier analysis have evolved from
the initial analysis and issue identification. The Tier II effort
will employ a decision theory approach. An illustration of the
principal elements leading to the state modal plan is presented as

Figure 5. The Tier II process will emphasis the relationship of rail service decisions to regional economic stability and the potentials for economic revitalization. The steps are described as follows:

STEP I - Specific detailed segment data are required input to the Tier II analysis. These data may be categorized as operational data and economic base data. Operational data acquisition will require field surveys and interviews of current and potential shippers, as well as the collection of detailed cost data. Economic base data will be collected to support continuing analysis of the regional economies which are or may be dependent upon rail service.

STEP II - The forecasts of potential demands and future requirements for commodity transport services are essential to the evaluation of the essential core system. An investigation of alternative methods for estimating the potential for traffic changes is currently underway. This activity will provide the framework for consistent evaluation of future projections and associated probabilities.

STEP III - Current capability in cost/benefit analysis will be reviewed for updating and refinement to reflect current rail issues and analysis requirements. A refined, Michigan specific, cost/benefit model will be developed to incorporate the operational and economic data collected in the preceding steps, and permit prioritization by degree of system contribution. This model will be refined to permit: (1) an evaluation of the sensitivity of results to uncertainity inherent in the traffic projections; (2) evaluation of the potentials for service substitution; and (3) analysis of potential employment and tax base losses. In addition to refinements in the estimation of benefit categories, methods for stipulating avoidable cost by segment are being reviewed and refined.

STEP IV - During Tier I screening, it became clear that a number of future events (continued abandonments) will occur in an uncertain sequence. The sequence of these events, and resulting decisions, constrain subsequent decisions. This step provides for the development of an adaptive decision process for minimizing the potential risks, or opportunity costs, associated with alternative service continuation strategies.

The objective of the Tier II analysis will be the presentation of information in sufficient depth to enable the Commission to segregate segments in the currently identified questionable set into the essential and non-essential categories.

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FIGURE 5

RAIL RATIONALIZATION PLAN

RAIL INVESTMENT DECISION ANALYSIS MODEL

Second Tier Flow Diagram

Steps

I	ECONOMIC BASE DATA → COLLECT PRIMARY AND SECONDARY SOURCE DATA ← OPERATIONAL DATA	

II	INPUT-OUTPUT DATA → SYSTEM DEMAND FORECASTING ← MAY BILL DATA	

III	COST ANALYSIS → SEGMENT COST/BENEFIT ANALYSIS ← SENSITIVITY ANALYSIS	

IV	STRATEGY ANALYSIS → SYSTEM RAIL INVESTMENT PROGRAMMING ← RISK ANALYSIS	

PUBLISH MODAL PLAN

RAILWAY MAP

OF THE STATE OF

MICHIGAN

DEC. 1, 1981

RATIONALIZED RAILROAD SYSTEM

SOLVENT CORE LINES (PRIVATE OWNERSHIP) ——————

ESSENTIAL CORE LINES (SOME PUBLIC FUNDING REQUIRED) ▬▬▬▬

QUESTIONABLE CORE LINES (FURTHER ANALYSIS REQUIRED) ▬ ▬ ▬

NON-ESSENTIAL LINES (PUBLIC INTERVENTION SHOULD BE TERMINATED) ◆◆◆◆