Iowa Rail Plan

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Preface

The Iowa Department of Transportation was created by passage of Senate File 1141 (1974 session of the 65th Iowa General Assembly). Senate File 1141 also mandated the new DOT Commission to develop and coordinate a comprehensive transportation policy for the state by January 1, 1975 and submit it to the General Assembly for its approval.

In preparing the first transportation policy, the Iowa DOT combined public, private, and citizen's views with staff expertise. The Iowa State Association of Counties, League of Iowa Municipalities, State of Iowa Office for Planning and Programming, the sixteen regional planning agencies and the general public were solicited for input. States having departments of transportation were requested to provide an annual report or other material describing state transportation policy, goals and objectives. Combining this material with the input received, a draft transportation policy was prepared. Public hearings were then held to give all citizens and groups an opportunity to provide information and suggestions with respect to the organization, role, policy, and operation of the Department of Transportation.

Upon completion of the public hearing (held on November 23, 1974) and review of all comments and suggestions received, a final transportation policy was written and presented to the Transportation Commission. The policy was approved on December 11, 1974 and submitted to the 66th General Assembly in January, 1975. The policy was adopted by both houses in June, 1975 (House Concurrent Resolution 73).

A State Transportation policy was adopted by the Commission in 1976. The Iowa DOT has since revised the policy to read as follows:

January 11, 1977

GOAL The Transportation goal for Iowa is to provide adequate, safe, and efficient transportation services to the public.

POLICY The Iowa Department of Transportation will:

A. General

1. Promote a transportation system to satisfy user needs and maximize economic and social benefits for Iowa citizens.

2. Provide for a participatory planning process which involves public, private, and citizen interests and which encourages complementary transportation and land development patterns.

3. Encourage and support programs to provide commodity movement and mobility for all citizens.

4. Consolidate and simplify registration and regulation of common-carriers and motor vehicles.

B. Plan

1. Develop a total transportation system plan, subject to annual review, which
   - considers all transportation modes as interacting elements;
   - considers facilities and services necessary for person and commodity movement from origin to destination;

- contributes to the development and implementation of a comprehensive State plan;
- exerts a positive influence on social, economic, and aesthetic values;
- provides safe, convenient travel opportunities;
- minimizes economic, energy and environmental costs;
- coordinates available Federal, State, and local resources;
- recommends funding procedures;
- makes the best use of land resources for permanent transportation use;
- encourages more efficient use of energy resources; and
- fosters usage of technological advancements in transportation facilities.

2. Aid development of general aviation, airport facilities, and air carrier services.

3. Encourage and assist the general development and efficient use of highway transportation through improvement programs to equalize functional adequacy of roads and streets throughout Iowa.

4. Assist in developing and improving public transit systems.

5. Encourage and assist in maintaining a viable railroad system which is responsive to the needs of Iowa and the United States.

6. Encourage and assist in developing programs for proper use of river transportation.

C. Program

1. Prepare a current and long range program of capital investment, services, and regulatory practice-each year.

2. Propose and promote legislative programs to facilitate an integrated transportation system.

I. INTRODUCTION 266.9(d)(2)

The primary purpose of the Iowa rail planning effort is to identify essential rail lines to assure that complimentary and coordinated transportation is available to serve Iowa's citizens. Priorities established will provide the basis for programming rail transportation projects administered by the state. In addition, it will aid in determining the Iowa DOT position on upcoming applications for abandonment of rail service. Federal planning efforts are primarily in the area of national systems. Rail companies are primarily concerned with their own systems. Therefore, the State Department of Transportation must coordinate the localized transportation needs of the state and represent the interests of the local communities and citizens, in the development of a viable state and national rail system.

The Iowa rail system is comprised of 7,233 roadway miles of rail line (Figure 1). As of January 1, 1977, Iowa ranked fourth in the nation in rail mileage but only 25th in land area and population. The majority of Iowa's rail lines are in generally poor condition. Several railroad companies operating within the state are in marginal financial condition. These facts suggest that the Iowa economy cannot support its present rail mileage.

Companies with operating revenues over $10 million annually are defined as Class I railroads and comprise 97% of the Iowa rail system. The Iowa Class II railroads, with revenues below $10 million per year, comprise the remaining 3% of Iowa's rail system. Table 1 summarizes Iowa's rail mileage by carrier.

A. Abandonment Plans of Iowa's Rail Companies 266.9(d)(3)(iii)(iv)(v)

The Iowa rail system is currently larger than is economically justified. This is demonstrated by the fact that 750 miles have been abandoned in the last five years and an additional 114 miles are presently pending abandonment. Another 1,413 miles are being considered for abandonment by Class I rail companies. During the next three years, 1,011 miles may be subject to abandonment (Figure 2). Iowa and other states should continually evaluate their rail systems to determine which lines are necessary for providing present and future transportation services.

B. Financial Conditions of Iowa's Rail Companies

The highly profitable Norfolk and Western and Union Pacific Companies provide feeder service to Iowa. The Rock Island, Milwaukee and North Western rail companies, all of which operate in Iowa, are presently in marginal financial condition. The Rock Island Railroad filed bankruptcy in March, 1975 and is currently operating under a trustee.

The general financial condition of the rail companies is monitored by the Iowa DOT. One indicator of each company's condition is net operating income. As Table 2 indicates, net operating incomes vary greatly between rail companies on a national basis. The combined mileage of Iowa's three financially marginal carriers comprise 75% of Iowa's total roadway miles. More importantly, these three railroads presently own approximately 65% of the branchlines in Iowa.

FIGURE 1

IOWA RAIL SYSTEM

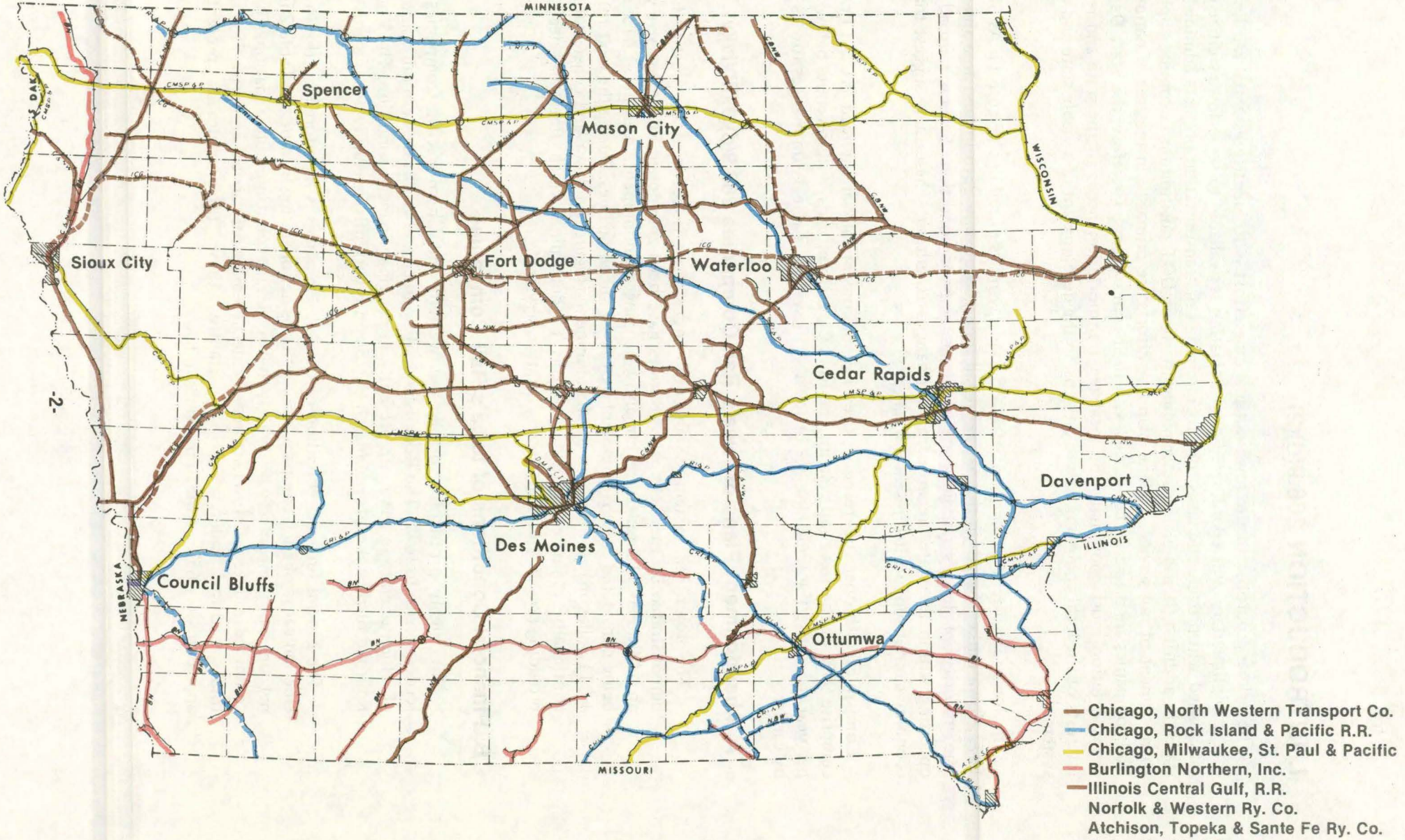


TABLE 2

TOP FIVE AND BOTTOM FIVE RAIL CARRIERS RANKED BY NET OPERATING INCOME

(1972-1976)
(Dollars in Millions)

	1972	1973	1974	1975	1976
TOP FIVE CARRIERS					
Norfolk & Western	131.4	122.7	115.0	111.4	158.2
Union Pacific	132.1	151.3	123.7	112.9	135.4
Family Lines	107.4	98.3	110.4	94.2	128.1
Southern Railway	121.5	124.4	106.4	100.8	126.2
Chessie System	93.7	95.2	108.9	89.5	117.0
BOTTOM FIVE CARRIERS [1]					
North Western	18.9	22.1	7.4	d4.0	21.0
Missouri-Kansas-Texas	d1.0	d2.0	d1.6	d4.0	d2.7
Boston & Main	d5.5	d4.5	d2.2	d10.7	d6.4
Milwaukee	d6.8	2.0	d2.0	d25.4	d15.5
Rock Island	d5.5	d18.2	d22.2	d32.1	d25.1

d - deficit

[1] Bottom Five Class I railroads with revenues in excess of $100 million, except Grand Trunk Western, Long Island and Conrail Roads

Source: 1972-1975 Association of American Railroads Property Investment and Net Income Account.
1976 Interstate Commerce Commission Quarterly Report of Revenues, Expenses and Income-Railroads.

It is hoped that as a result of Iowa DOT planning and programming efforts, policy and operational changes will occur which will improve the financial condition of Iowa's rail companies.

C. Statewide Transportation Planning 266.9(d)(7)

The Iowa Department of Transportation was created on July 1, 1974. The Iowa Legislature entrusted the new agency with all the necessary functions, including regulation, to make the organization operational. The new agency was also required by law to develop and maintain an intermodal transportation plan for the State of Iowa. The first plan entitled, "TransPlan '76, Initial Iowa Transportation Plan", was released in March 1976; "TransPlan '77" was released in May, 1977.

FIGURE 2

RAIL COMPANY ABANDONMENT PLANS

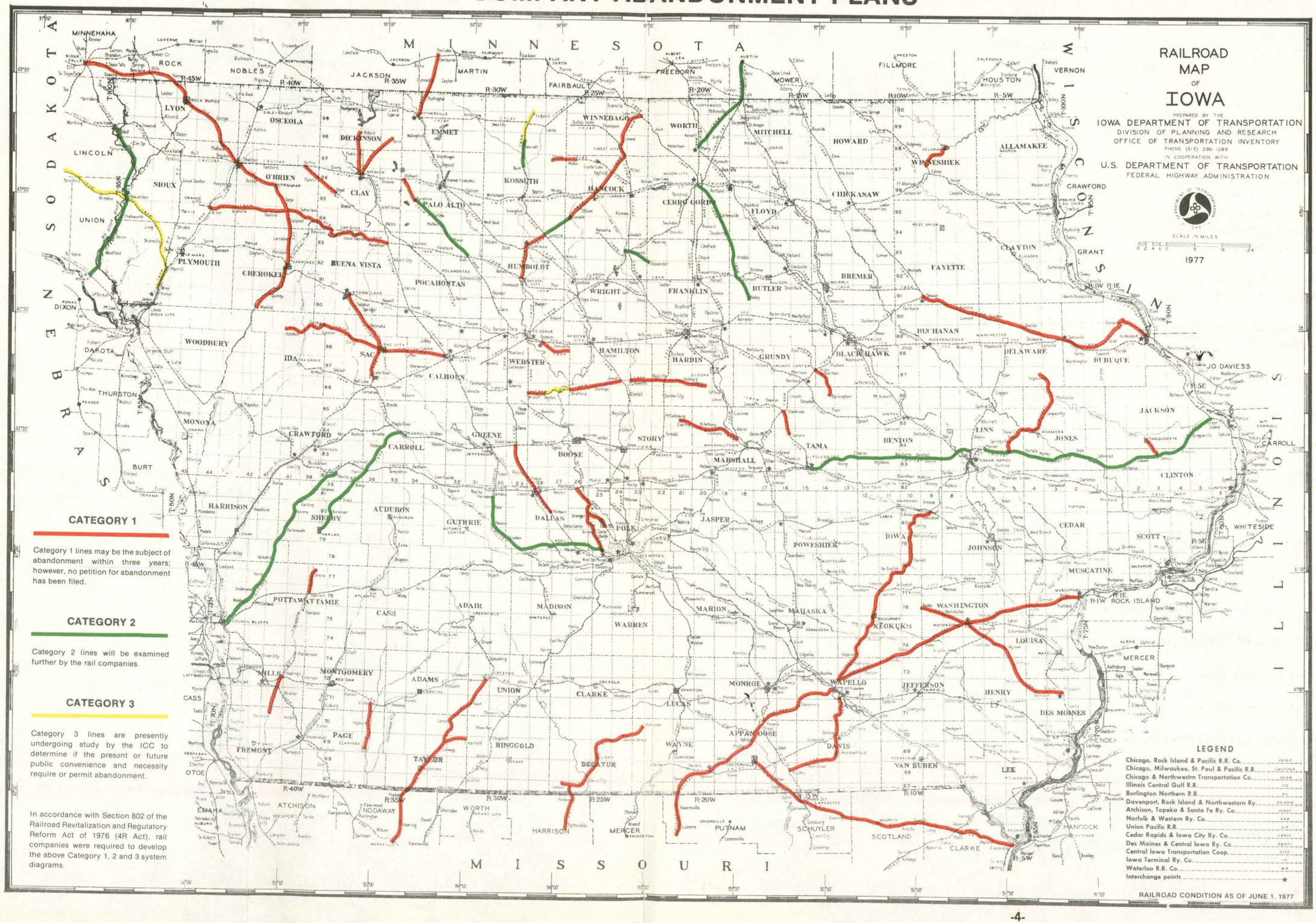


TABLE 1

IOWA RAIL MILEAGE

	Roadway Miles	% of Iowa Roadway Miles	% of Company System in Iowa
CLASS I RAILROADS			
Chicago & North Western Transportation Company (Includes Des Moines and Central Iowa Railway and Ft. Dodge, Des Moines & Southern Railways)	2300	32%	24%
Chicago, Rock Island & Pacific R.R. Company	1591	22%	27%
Chicago, Milwaukee, St. Paul and Pacific R.R.	1499	21%	17%
Burlington Northern, Inc.	805	11%	4%
Illinois Central Gulf R.R.	670	9%	8%
Norfolk & Western Ry. Co.	168	2%	3%
Atchison, Topeka & Santa Fe Ry. Co.	20	a	a
Union Pacific R.R.	2	a	a
CLASS II RAILROADS			
Central Iowa Railway	64	1%	100%
Davenport, Rock Island & Northwestern	35	a	64%
Iowa Terminal Railroad Co.	35	a	100%
Cedar Rapids & Iowa City Railway	25	a	100%
Waterloo Railroad Co.	15	a	100%
Des Moines Union Railway	4	a	100%
Iowa Transfer Railway	b	a	100%
TOTAL	7,233	100%	

a - less than 1%
b - less than 1 mile

As part of TransPlan '76 and updated with TransPlan '77, a minimum rail system was developed (Figure 3). The system was based on the following criteria:

- Provide service to Iowa's sixteen Regional Economic Centers.
- Provide service to existing unit grain train terminals.
- Provide service to major population centers.
- Link the Iowa rail network to the primary national rail system.
- Retain some minimal service levels to all geographical areas of the State.

Those lines which met these criteria included 55% of the state's rail system, January 1976. About 9% of the system mileage was classified as "not necessary" because there was duplicate rail service provided within the same rail transportation corridor. The remaining 36% of the system mileage was classified as "not sure", indicating these lines would require further study.

1. Evolution of Statewide Planning

In the past five years state governments have changed the traditional concept of preparing highway needs studies to one of preparing integrated statewide transportation plans involving all modes of inter-city and urban transportation. This effort reflects the trend toward increasing emphasis on state involvement. This trend is reinforced by the continued establishment of State Department of Transportation in the United States. So far, thirty-nine states, including Iowa, have a Department of Transportation; many of the remaining states are in the process of DOT planning and formulation (Figure 4).

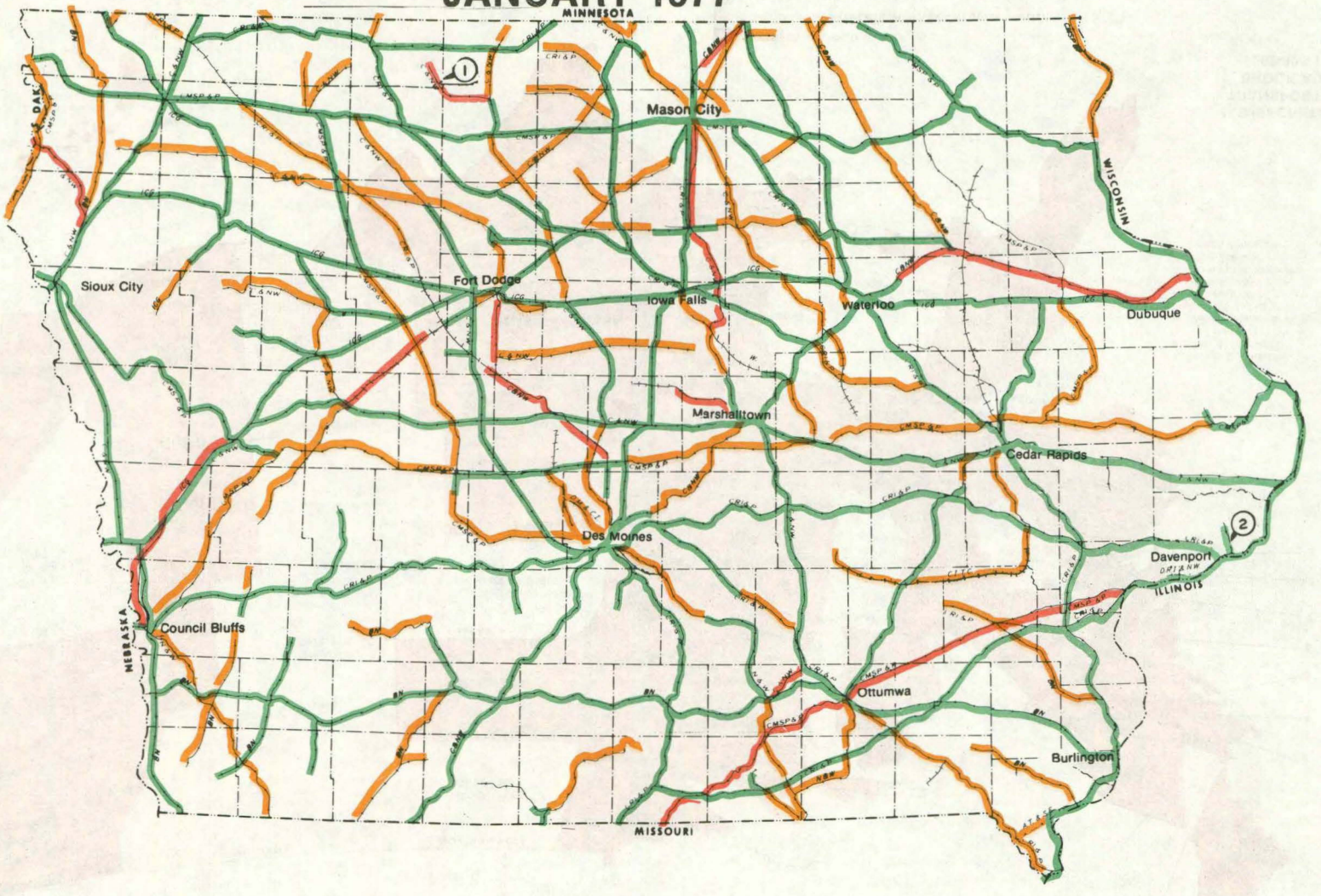
a. Needs Study Components

The Needs Study is a basic planning tool. The process is well-defined and has reached a point of maturity. The scope of a needs study includes a careful examination and evaluation of conditions which affect transportation. Needs study objectives are to determine the adequacy of Iowa's transportation system, compare it to acceptable levels of service and identify necessary improvements.

A concept in transportation planning known as functional classification forms the basis for a Needs Study. Functional classification is defined as the grouping of transportation sub-systems of classes according to the character of service they are expected to provide to the total system. Each class has unique performance standards, jurisdictional responsibilities and sources of financial funding available to it. Using established standards, it is then possible to compare the existing transportation facilities to the one desired with a resulting measurement of deficiency. Cost responsibilities for the improvements are then allocated between transportation users and the general public.

FIGURE 3

IOWA RAIL SYSTEM PLAN
JANUARY 1977



Necessary Lines

Not Sure

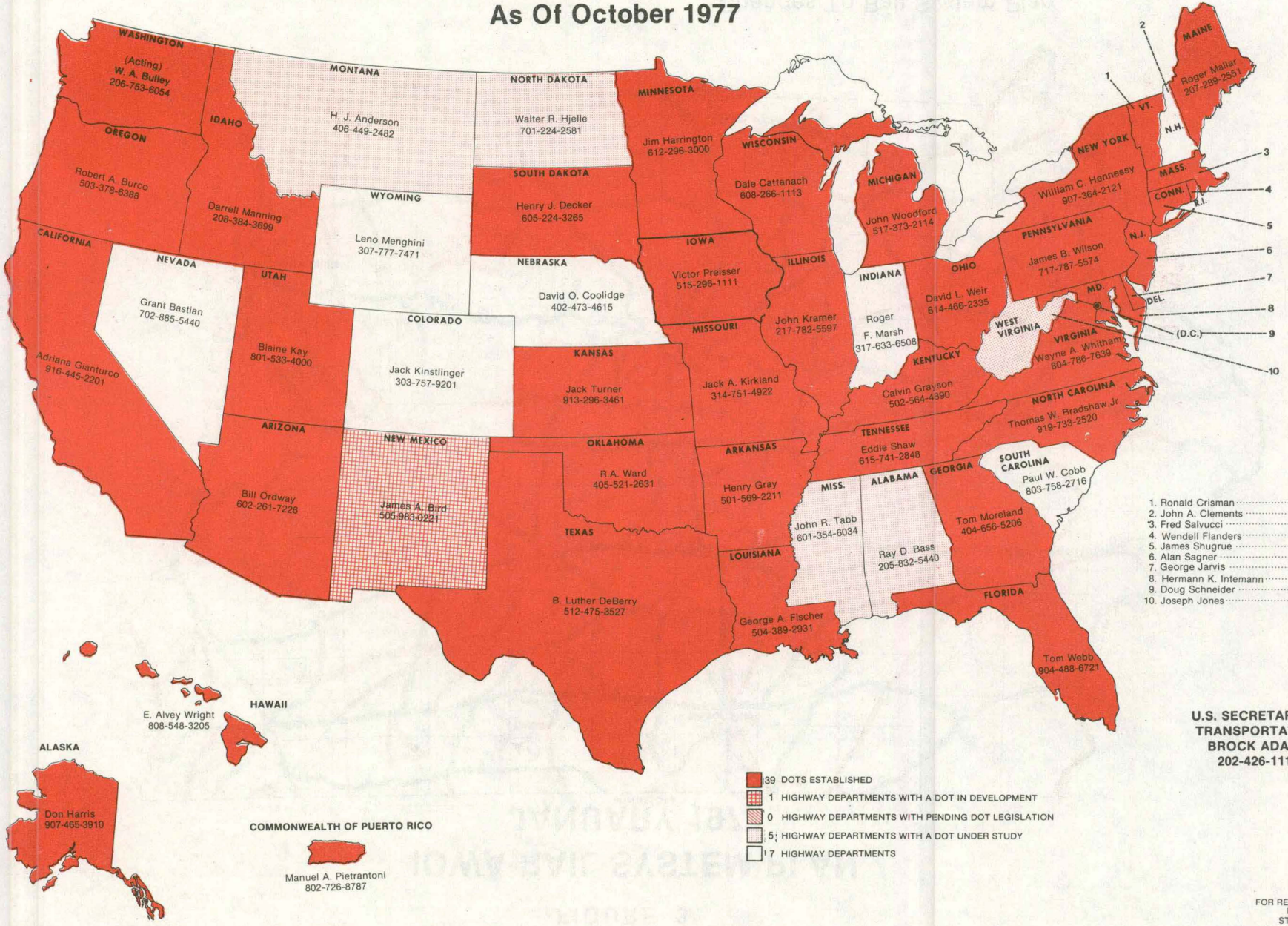
Not necessary

Changes To Rail System Plan
Since TransPlan '76

Abandoned

1 and 2 were amber

FIGURE 4
STATE DEPARTMENTS OF TRANSPORTATION
As Of October 1977



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The final output of a needs study is a program and schedule to implement the plan based on cost estimates for work items. Figure 5 is a flow diagram of the Iowa Needs Study components applied to the highways. The diagram shows a needs study is cast in the framework of planning, programming, scheduling, and monitoring.

b. Modal Needs Studies

The needs study has been examined in the context of a highway investment analysis for the past 15 years. Similar concepts are being applied to the air and rail transportation modes. Needs studies have been applied to airports with functional classification on the national, regional, and state levels. This estimation of improvement costs are based on the designated functional classification of each airport. Comparisons of forecasted demand with capacity reveal measureable deficiencies, and this, "needs".

The current State Airport System Plan (SASP) is based on economic cost-benefit entry criteria:

Entry Criteria

1. Positive Net present value of benefits minus costs over twenty years.

2. Additional area coverage limited by the local system having economic benefits greater than costs.

3. Those airports included in the National Airport System Plan, but not included in 1 or 2 above.

These airports were then categorized into four priority classes:

Airport Categories

Category I - Air carrier airports and associated relievers

Category II - Airports which were economically justified

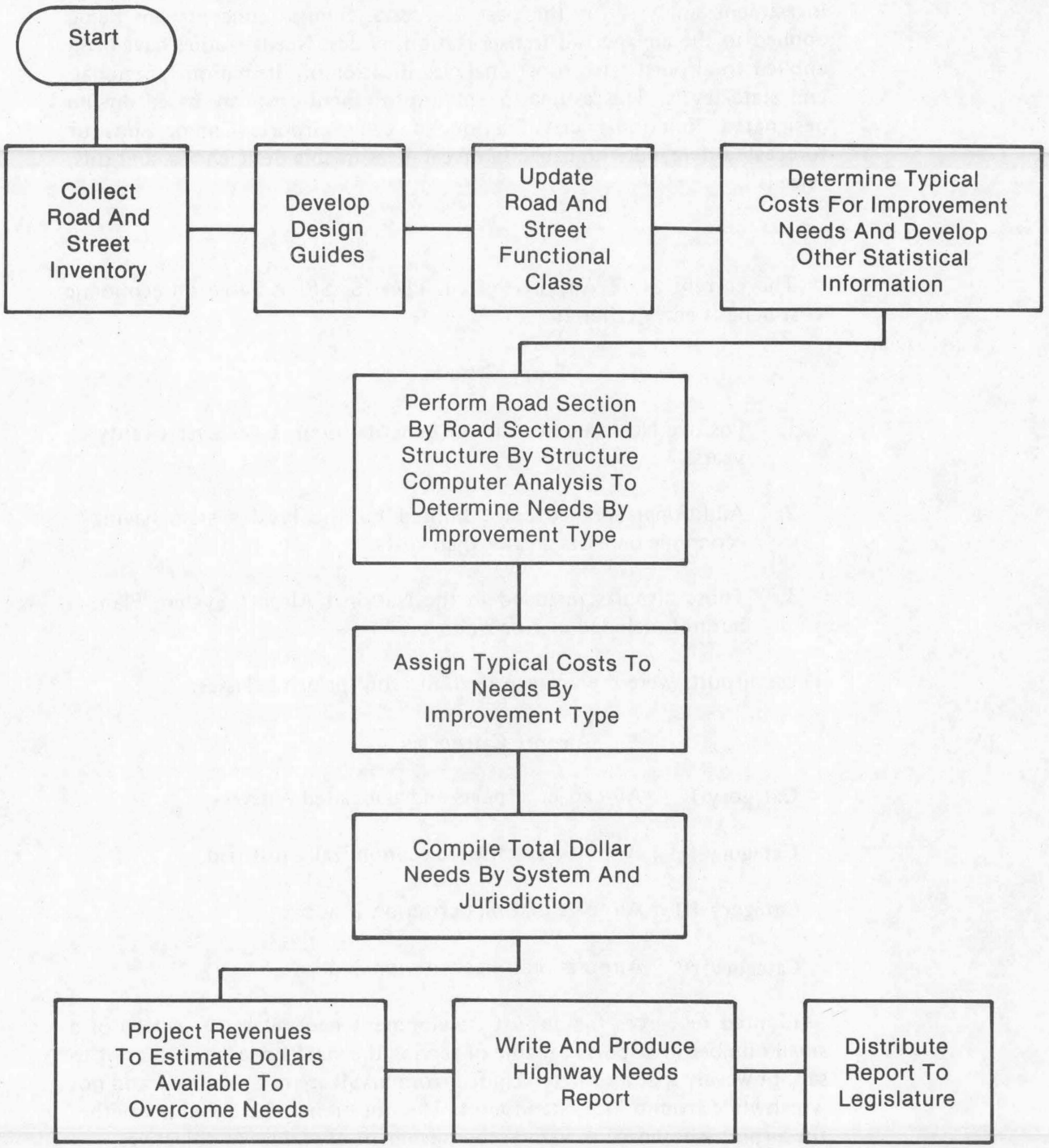
Category III - Airports that met criterion 2. above

Category IV - Airports that met criterion 3. above

Limited resources for airport development necessitated selection of a small number of airports capable of serving the state's needs. This is not to say, however, that airports excluded from SASP are not necessary and not worthwhile from a local standpoint. The question to be asked is whether the airport is essential toward accomplishment of statewide objectives.

FIGURE 5

IOWA NEEDS STUDY COMPONENTS



Similar needs study procedures are being applied to rail planning. A complete statewide functional classification of all railroad companies in Iowa has not been previously attempted although railroad companies have traditionally used a limited application of functional classification in the designation of mainline and branchline routes. Upon conducting extensive research and holding discussions with individuals familar with Iowa rail operations, an initial Iowa functional classification of railroads was established in 1975.

The continuing Iowa rail planning process will build on the needs study components and will further incorporate an intermodal approach for goods movement planning.

2. Multi Modal Statewide Planning

While the railroads share of the total intercity freight moves has been declining, the need for large carrying capacities, energy efficiencies and long haul economics provided by the railroads has been increasing. Coordinated and complimentary freight movements must be evaluated in order to establish a total transportation network which will meet the future needs of the state.

The Iowa DOT will work toward a multi-modal needs study to provide recommendations concerning transportation investment programs. Deviating from traditional needs studies, the new approach will establish a broad array of goals involving user and non-user concerns to guide the direction and content of the planning process. Such an approach can also identify the socio-economic and environmental ramifications of alternative investment decisions.

With an intermodal approach, better efficiency might be realized in terms of energy and equipment utilization. One good example of intermodal transportation services presently in use, is the trailer-on-flatcar (Piggyback, TOFC) service. The cost per ton-mile to transport most goods by rail in the long haul is significantly lower than by truck. However, a significant portion of commodities shipped by rail must be taken to or from the rail head by another mode of transportation. Also, the Road-railer, a trailer with interchangeable road and rail wheels at the rear end, has been claimed to have the potential to double the rail-highway service markets.[2] The concept is forecasted to reduce freight costs by 40 percent and fuel consumption by 75 percent over all-highway operation are the result of doing away with the rail flat car and improving terminal operations.

A single tariff is in effect for a combination rail/barge movement of Iowa corn and soybeans for Gulf export. This tariff encourages a coordinated transportation movement which utilizes the inherent advantages of both the rail and water modes.

2"Road Railer: An Idea Whose Time Has Come?", Railway Age, July 11, 1977.

D. Federal Legislation

The Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act) authorized, under Title V, $1.6 billion of government funds for the rehabilitation of railroad facilities and equipment; Title VIII authorized $360 million for rail service continuation assistance. The 4R Act, also a milestone in regulatory history, is more than a source of funds. It engages not only the federal government but the railroads, states and local interests in the processes of rail planning and rehabilitation.

1. Ratemaking

Title II of the 4R Act provides for ratemaking regulation reform. Among the changes in the Interstate Commerce Commission ratemaking for railroads are the following:

- Rail rates can be based on seasonal, regional or peak period demand.
- New standards will be developed to determine adequate revenue levels for railroads.
- New standards for determining "just and reasonable" rates will be developed.
- A general 7% per year rail rate increase during the next two years could be allowed without prior ICC approval.
- Rail carrier related services are exempted from regulation if regulation would serve no public purpose.
- ICC has authority to settle intrastate rate cases if a state doesn't act within 120 days after a carrier files a rate change.

These provisions will have a profound effect on rail service. Iowa has participated in development of regulations for Title II. The Iowa DOT will continue to study the effects of rail ratemaking as proposed in the 4R Act. In consideration of state and regional policy development, an associated study by the Iowa DOT and other Midwest states will address the subject of rail rate regulation in detail.

2. Mergers

Title IV of the 4R Act deals with mergers and consolidation of rail lines. Merger application procedures are under the sole decision authority of the Interstate Commerce Commission. The merger procedures include the following:

- An expedited merger procedure is provided through 1981 if all railroads involved consent to its use and work with the Federal Railroad Administration (FRA) in planning the merger proposal.

- The ICC is required to make a final decision on mergers within two years after a petition is filed with the ICC.

Iowa presently has five rail lines which are in the Chicago-Omaha corridor: Illinois Central Gulf, Burlington Northern, Milwaukee, Rock Island, and NorthWestern. The merger provisions of Title IV allow the U.S. DOT to develop and negotiate plans for mergers or unification which would result in a more efficient rail system. Iowa in this case may be a prime example of how unification of several parallel lines could strengthen the system as a whole. The Midwest rail service study will examine the proper role of the state in merger proceedings and the impacts which might occur. Guidelines will be developed to assist in policy formulation in the event of midwest region rail company mergers, consolidations, or joint trackage agreements.

3. Financial Assistance to Rail Companies

Title V of the 4R Act creates the Railroad Rehabilitation and Improvement Fund, which provides $1.6 billion of government funds for improvement of rail facilities and equipment. These funds are made available in the form of low interest loans and loan guarantees. Title V also requires that all railroads submit a capital needs study based on estimated deferred maintenance and delayed capital expenditures through 1985.

The effect of creating this fund and financing a system of redeemable preference shares and guarantee of obligations is to make available to the railroads the needed capital for improvement of their systems. Iowa intends to assist rail companies in use of these financial mechanisms to help preserve economically viable service. Section 504 of the 4R Act calls for development of a framework for classifying U.S. Class I railroads into categories of mainlines and branchlines. It also stipulates that each segment of the Class I system must be assigned to its appropriate category (Table 3) within the framework.

This report and classification, published June, 1977 will assist in guiding FRA officials in determining priority projects for funding under Title V of the 4R Act. Figure 6 depicts the current classification of Iowa's rail system.

4. Branchline Freight Service Continuation Assistance

Title VIII of the 4R Act describes the eligibility requirements of both the state and its rail lines in order to receive local rail service continuation funding.

For a state to be eligible:

1. It must establish a statewide plan for rail service which is a part of its overall planning process which must include public participation and a suitable process for updating such a plan.

2. The Plan must be administered by a designated state agency which has the authority and expertise to adequately do the job. The designated state agency is the Iowa DOT.

3. It must comply with the Secretary's regulations and give assurances that it will maintain procedures to keep financial control, accounting and performance evaluation in order to assure the proper use of federal funds.

TABLE 3

4R ACT TITLE V
FEDERAL RAILROAD CATEGORIES

A Mainlines	Green	20 million or more gross tons annually [1] major Transportation Zone connection needed for through movements of defense-related shipments
B Mainlines	Purple	at least five, but less than 20 million, gross tons annually
CCP Lines	Patterned	through routes located in Corridors of Consolidation Potential [2]
A Branchlines	Brown	at least one, but less than five million, gross tons annually
B Branchlines	Blue	less than one million, gross tons annually
Non-designated	Orange	urban lines, Class II lines, and reported line abandonments

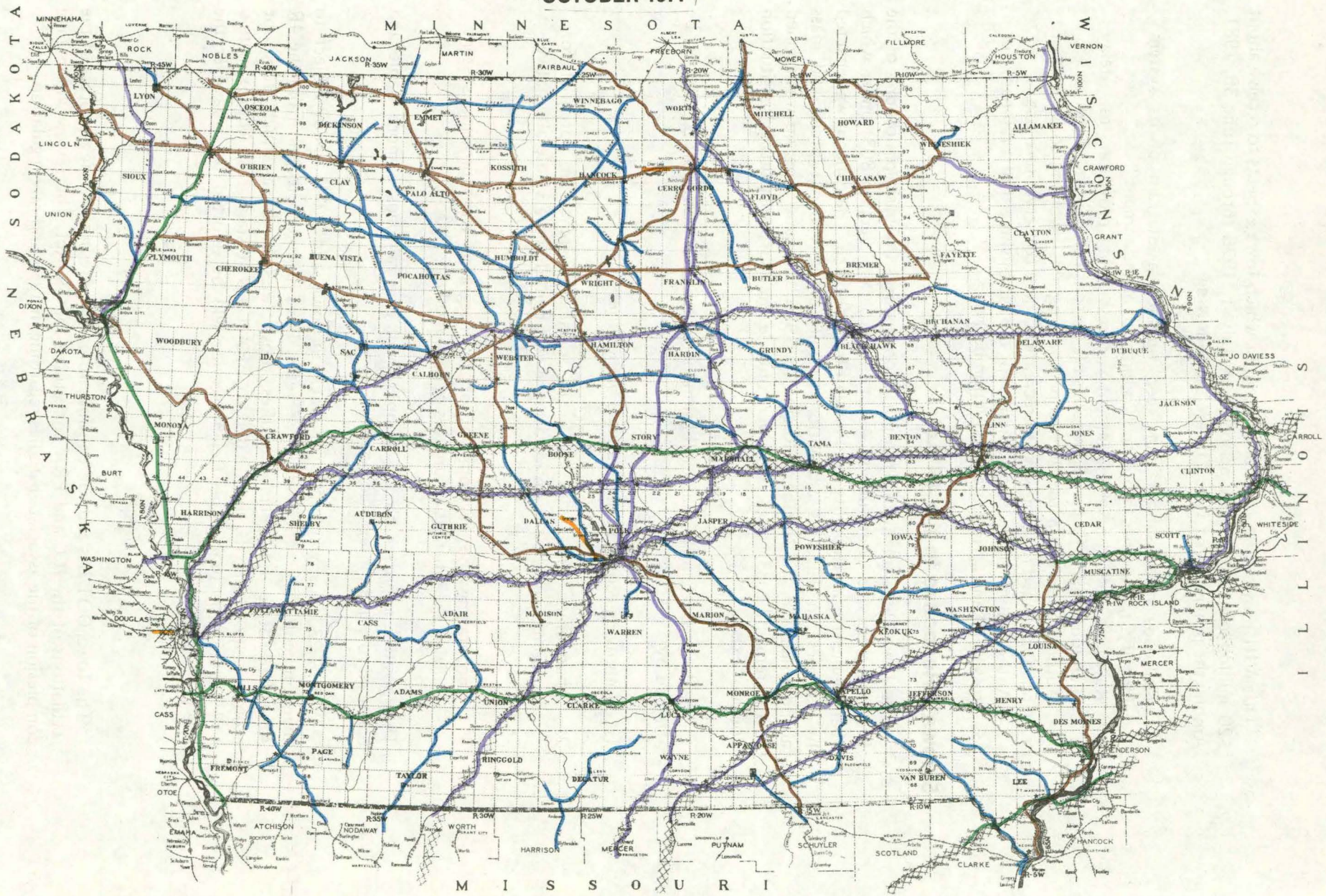
[1] A hopper car, weighing 30 tons and carrying 100 tons of cargo, will generate 130 gross ton-miles each mile it travels.

[2] A Corridor of Consolidation Potential (CCP) is a corridor whose end points are major markets connected by three or more parallel through routes operated by three or more carriers. The practical traffic handling capacity of these combined routes exceeds the actual traffic density (in gross tons of the combined lines) by 50% or more. In such a corridor, all through rail lines between major markets, without regard to their actual density or any other designation are assigned as Category CCP Lines.

FIGURE 6

FEDERAL RAIL CLASSIFICATION

OCTOBER 1977



-A Mainlines

-A Branchlines

-Non-Designated

-B Mainlines

-B Branchlines

-Corridors of Potential Consolidation

Title VIII provides up to $360 million, of which Iowa expects to receive about $20 million over a five-year period from July 1, 1976 through June 30, 1981. Among the provisions of Title VIII are the following:

- Railroads must submit and keep updated a diagram of its system identifying any lines "potentially subject to abandonment".
- Revisions of the abandonment process and provision for delay abandonments if financially responsible persons offer financial aid.
- Authorization of up to $20 million for programs involving conversion of rail abandoned right-of-ways to recreational and conservational use.
- Authorization of up to $6 million for the establishment of a rail bank for fossil fuel and agricultural production purposes.

5. Iowa's Response to the 4R Act

The Iowa Department of Transportation opposes the basic philosophy of the Branchline Service Continuation Assistance Program (Section 803) under which abandonment is an eligibility requirement for assistance. The concept was enacted by Congress in 1973 as a reaction to rail company bankruptcies and mass abandonments in the Northeast Region. In 1976, the same program was applied to the remaining 33 states. However, outside the Northeast this crisis situation does not exist.

The Iowa DOT feels that establishment of a viable rail network can best be attained by:

1. Improving economically marginal branchlines

2. Abandoning lines with no major social importance or potential for economic viability - subsidization is not considered a viable alternative - and

3. Encouraging the development of an integrated transportation system utilizing the inherent advantages of each mode.

This positive approach to rail planning will give railroads a more viable and balanced role in an integrated system.

With 7,233 roadway miles of track in Iowa and 1,011 miles subject to abandonment within the next three years, Iowa has much to gain from the 4R Act. This State Rail Plan identifies those lines in Iowa which could be economically viable if rehabilitated to FRA Class II standards. Approximately $18 million for branchline freight service will be allotted to Iowa over the five-year program.

The Iowa DOT has and will continue to participate in the review process of the regulations of the ICC and FRA concerning the 4R Act. This review will include completion of the associated studies regarding mergers and rate regulation.

In addition, Iowa will continue to participate in the National Conference of State Railway Officials (NCSRO) a standing committee of the American Association of State Highway and Transportation Officials. NSCRO was formed subsequent to the 4R Act but has since expanded its activities to include all rail issues. NSCRO activities include:

1. Acting as a liaison between State officials and Congress,

2. Acting as a liaison between State officials and the Federal Railroad Administration,

3. Aiding States in developing rail plans and programs,

4. Developing appropriate legislation,

5. Coordinating States response to proposed regulations,

6. Coordinating State response to proposed legislation.

II. IOWA FREIGHT TRANSPORTATION SYSTEM 266.9(d)(2)

Iowa's freight transportation system has taken 140 years to evolve into its present form, from Iowa's beginning as a territory in 1838. At that time the prominent modes of transporting freight were boats along the rivers and wagons on paths and roads. Within a decade after Iowa obtained its statehood, 1846, the construction of a state railroad network began.

Iowa's first railroad tracks, from Davenport to Muscatine, were opened on November 29, 1855. The Rock Island line from Chicago through Davenport, Des Moines, and ending in Omaha was the first rail line to be completed across Iowa and was opened in 1867. The railroad communities were stimulated to grow and prosper because of their railroad access to eastern markets. Cheap, efficient, alternative forms of long distance transportation were not available prior to that time.

In 1860 the General Assembly created the County Board of Supervisors which had the power to build and repair roads and bridges. As a result, public roads opened along section lines to provide an interconnected public way with minimum interference with agriculture. These local farm to market roads still provide the means by which farm products are moved to elevators and subterminals.

In the mid 1800's railroad expansion was promoted by the advent of the Federal Land Grant program; 4,711,000 acres of Iowa land were purchased for rail development. As an area grew the railroad was extended. Transfer points where local farm products were loaded onto rail cars were just a horse-and-wagon distance from each farm. Rail mileage skyrocketed and peaked in 1914 with 9,994 miles in Iowa. Disregarding the competition the automotive age posed, the rail industry expanded beyond the point of providing economical rail service.

A. Shift in Modal Roles

Rail mileage owned in Iowa has dropped as other forms of freight movement were developed and became practicable. With the development of pipeline, water, air and highway transportation, freight has a multitude of combined movements it can make. Comparison in the amount of freight transported by mode during the 1900's is shown in Table 4. This shift in freight movement continues today as government financial assistance (Table 5), new regulation and technological advances created inherent advantages for one mode over another.

TABLE 4

U.S. MODAL FREIGHT TRAFFIC TRENDS

Agency	1940	1950	1960	1970	1976
Railroads	61.3	58.7	43.5	40.0	36.7
Highways (Common carriers)	7.9	12.4	22.5	21.4	22.6
Inland Waterways	19.1	16.2	16.8	16.0	16.3
Pipelines (oil)	11.6	12.7	17.2	22.4	24.2
Airways	a	a	a	0.2	a

Source: AAR, CAB, Corps of Engineers and TAA, 1976 data is preliminary

a - less than 0.1 percent.

TABLE 5

FEDERAL AND STATE EXPENDITURES FOR TRANSPORT FACILITIES

(Government Expenditures in Millions of Dollars)

	1950	1960	1970	1975
Amtrak	--	--	--	281
Highways	4,155	10,160	19,502	25,505
Rivers and Harbors	325	524	820	1,268
Air	260	850	2,045	3,442
Total	4,740	11,534	22,367	30,496

Source: Transportation Facts and Trends, TAA, April 1977, page 26.
Finance Dept., Amtrak, federal operating and capital expenditures.

A significant measure of the importance of the different modes of freight transport is on the basis of total U.S. traffic carried (Table 6). The rail mode carries the largest volume of freight on a ton-mile basis.

TABLE 6

U.S. MODAL FREIGHT TRAFFIC, 1976

	Ton Miles	Percent of Freight Moved
Railroads	796 billion	36.7
Trucks (common carriers)	490 billion	22.6
Inland Waterways	352 billion	16.3
Oil Pipelines	525 billion	24.2
Air	4 billion	0.2
TOTAL	2,167 billion	100.0

Another comparison of modes of freight transport can also be made on the basis of mileage in Iowa (Table 7).

TABLE 7

IOWA TRANSPORTATION FACILITIES MILEAGE

Agency	Mileage
Railroads	7,300
Improved Waterways	489
Roads and Streets	113,000
Pipelines (oil)	3,974
TOTAL	124,763 miles

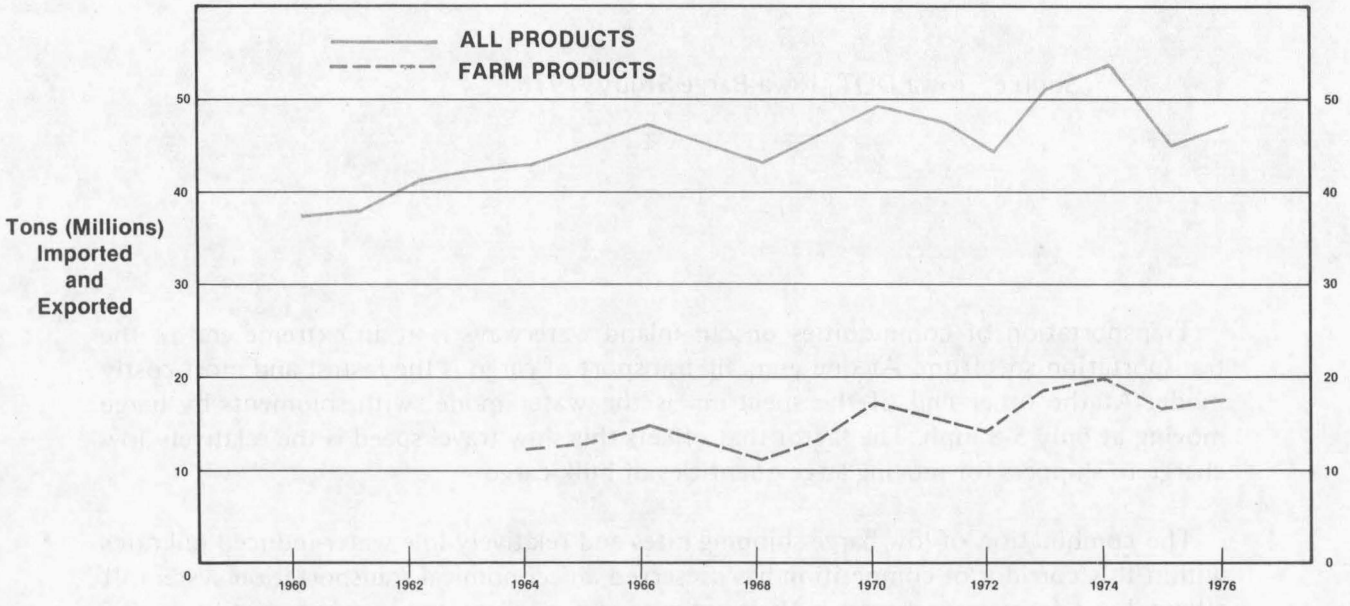
Source: Iowa DOT TransPlan '76.

B. Railroads in Iowa

In 1976, 25.9 million tons of products originated on Iowa rail lines and 22.5 million tons terminated in Iowa (Figure 7). The major export items transported by rail included

FIGURE 7

IOWA RAIL FREIGHT TRENDS



Iowa Commerce Commission thru 1972 & TRB

11.2 million tons of farm products and 7.6 million tons of food and kindred products. The major import items were 5.4 million tons of farm products, 5.4 million tons of coal and 3.4 million tons of chemical and allied products.

C. Water

Iowa is in a good position as it relates to the transport of cargo by water since it is bordered on two sides by navigable waterways - the Mississippi and Missouri Rivers.

The principal commodities contributing to traffic on the Upper Mississippi River (Minneapolis to the mouth of the Missouri River) are grain (40%) petroleum (21%), coal and coke (12%), sand, stone and gravel (4%), and iron and steel (5%). This cargo moves along inland waters in barges ranging from open or covered dry-commodity hopper barges to tank barges designed to haul liquid products. A standard barge is about 195 feet long by 35 feet wide, with a cargo capacity of 1,500 tons.

In contrast to the Upper Mississippi River, which is navigable nine months each year, the Missouri River is navigable only seven and one-half months each year. The freight volumes in Table 8 reflects this difference.

TABLE 8

IOWA RIVER TERMINALS FREIGHT VOLUMES

	Terminals	Tons (millions)
Mississippi River	58	9
Missouri River	7	.4

Source: Iowa DOT, Iowa Barge Study, 1976.

Transportation of commodities on our inland waterways is at an extreme end of the transportation spectrum. At one end, air transport of cargo is the fastest and most costly mode. At the other end of the spectrum is the water mode, with shipments by barge moving at only 5-8 mph. The factor that offsets this slow travel speed is the relatively low charge to shippers for moving large quantities of bulk cargo.

The combination of low barge shipping rates and relatively low water-induced rail rates within this corridor of competition has preserved an economical transportation system. It allows Iowa farmers to broaden their grain export markets and purchase fertilizers and

petroleum at a cheaper cost. Similarly this intermodal competition has preserved an economical transportation rate for the imported coal that feeds many of the state's power plants, this affects the price Iowans pay for electricity. Navigable waterways have been extremely instrumental in the industrial development of river cities by making their products more competitive.

D. Highways

There are approximately 113,000 miles of roads and streets throughout Iowa. About 3% of the total state land area is in highway rights-of-way.

Iowa's road system is a flexible modal interface necessary in the first and last movements of goods and people. Over the past thirty-five years in Iowa, the ton-miles of commodities hauled by trucks in the United States leaped from 58 to 441 billion. While percentages of total ton-miles of freight for rail traffic have declined from 61.3% to 36.7%, truck traffic has increased from 7.9% to 22.6%. Commodity movements statistics are not available for exempt agricultural truck traffic, but sufficient data is available to permit some assessment of the situation. Based on data on farm sales and grain hauled by rail and water, an estimate of grain hauled by truck was made (Table 9).

TABLE 9

ESTIMATE OF TOTAL GRAIN HAULED BY TRUCK
U.S. STATISTICS

(Tons in Thousands)

	1966	1971	1972	1973	1975
Farm Sales [1]	151,332	199,000	201,000	223,901	239,276
Grain Hauled by Rail [2]	111,714	97,023	105,635	131,968	152,904
Grain Hauled by Water [3]	23,430	27,555	35,254	34,592	41,436
Total Grain Hauled by Rail & Water	135,144	124,578	140,889	166,560	194,340
Estimated Total Grain Hauled by Truck (Difference in Farm Sales and Total Grain Hauled by Rail and Water)	16,188 (11%)	74,422 (37%)	60,111 (30%)	57,341 (26%)	44,936 (19%)

[1] U.S. Department of Agriculture.
[2] Interstate Commerce Commission.
[3] U.S. Corps of Engineers.

These conservative estimates of grain truck movements are affected by changes in the quantities of grain hauled intermodally. For example, grain hauled truck-rail or truck-barge would be accounted for either in the rail-haul or the barge-haul of the intermodal movements.

In 1966, 15% more grain was sold than was hauled by rail and water; moving most likely by truck. By 1971, five years later, that figure had increased to 37%; declining to 30% in 1972, 26% in 1973 and 19% in 1975.

The reversal of this trend between 1971 and 1972 is significant. The change corresponds with the availability of lower multi-car and unit train rates offered by the Iowa railroads.

E. Air

Iowa currently has 355 public and private airports; 88 have all-weather runways and 133 have runway lights. Airports are classified according to air carrier and general aviation uses. The air carrier airports are served by first and second level air carriers. The General Aviation Classification is subdivided into Basic Transport, General Utility or Basic Utility categories according to the volume of annual operations (total landings and takeoffs). These categories usually dictate the minimum airport facility required to accommodate the existing or forecast level of enplaned passengers or aircraft operations.

Few commodities are transported in bulk by air, since air is the most expensive of the modes. The speed of delivery, however, permits the incurrance of high shipping charges for goods such as vital medicines, and fresh flowers for which rapid delivery is crucial.

Table 10 shows the projected increase of tons of enplaned cargo between 1972 and 1992. Even assuming the rise in air transportation of freight it is doubtful whether the rise will include the transportation of commodities carried by rail, barge, truck and pipeline.

TABLE 10

FORECAST OF AIR CARRIER ENPLANNED CARGO IN IOWA

	1972 Actual Volume	1982 Estimated Volume	1992 Estimated Volume
Tons of Enplaned Cargo	5,900	22,800	59,300
Enplaned Passengers	1,700,000	4,270,000	4,500,000

F. Pipelines

There are three functional categories of pipeline in the state: 1) the natural gas pipelines (7,150 miles; 11,000 miles of distribution miles); 2) the pipelines that transport such products as liquid fertilizer or sulfur (600 miles) and 3) crude oil and petroleum

products pipelines which carry crude oil, gasoline, diesel fuels, heating oils, and liquified petroleum gas, (3,974 miles).

Pipelines transport a major portion of goods in the United States. During 1976, pipelines carried 24.4% of the total ton-miles transported nationally.

Control of cost escalation is a major asset of the pipeline. A rate analysis for rail v.s. pipeline transportation of coal shows that rail rates have been increasing from 3.5% to 5% per year, while pipelines rates have increased at 1.1% per year. It was found that 75% of the rail rate covered operating costs and 25% covered capital costs.[1] The reverse is true of pipelines; 25% operating costs and 75% capital costs. Once the initial investment in a pipeline has been made there is less chance for inflation to drive rates up.

G. Intermodal Commodity Flows

Few commodities begin and end their transportation journey via the same mode. A farmer may transport his grain by truck to a local elevator to await rail shipment or the farmer may continue his truck trip to a barge terminal for transportation via the water system. Numerous combinations are possible: the least cost combination is the usual choice of shippers.

Current Iowa rail-barge and truck barge volumes are displayed in Figure 8. Rate combinations are still being studied. The truck-barge grain shipment volumes decrease as barge rates (tariffs) increase (Figure 9). Barge rates vary throughout the year since they are not regulated.

Figure 9 also shows the areas of competitive advantage between a truck-barge shipping combination, compared, for example, to a 50-car train to the Gulf. If a barge rate of 130 percent of tariff is obtained, the area east of Cedar Rapids can truck to the Mississippi River and ship by barge at costs lower than the 50-car train rates to the Gulf. If the barge rate falls to 119 percent of tariff, that saving would enable shippers about 20 miles further west to ship to the river at competitive costs. If barge rates are available at 100 percent of published tariff, it becomes feasible to truck grain from as far west as Mason City to the river for barge shipment. Conversely, decreased rates for multi-car grain shipments in excess of 50-car unit trains makes rail transportation more competitive in relation to truck-barge shipment.

Eighty-eight percent of the commodities passing through the Missouri River barge terminals are hauled by truck and the remaining 12% by rail; for Mississippi terminals, 80% by truck and 20% by rail.[2] Six of the seven Missouri River terminals are served by both rail and road while only thirty-two of the fifty-eight Mississippi terminals have this dual service.

[1] Gandhi, R.L., and Weston, M.D., "Status of Slurry Pipelines in the Americas", speech presented at the International Symposium on Freight Pipeline, Bechtel Incorporated, December 6, 1976.

[2] Iowa DOT, Iowa Barge Study, 1975.

FIGURE 8

MISSISSIPPI RIVER RAIL-BARGE AND TRUCK-BARGE TONNAGES ORIGIN AND DESTINATION: ALL COMMODITIES

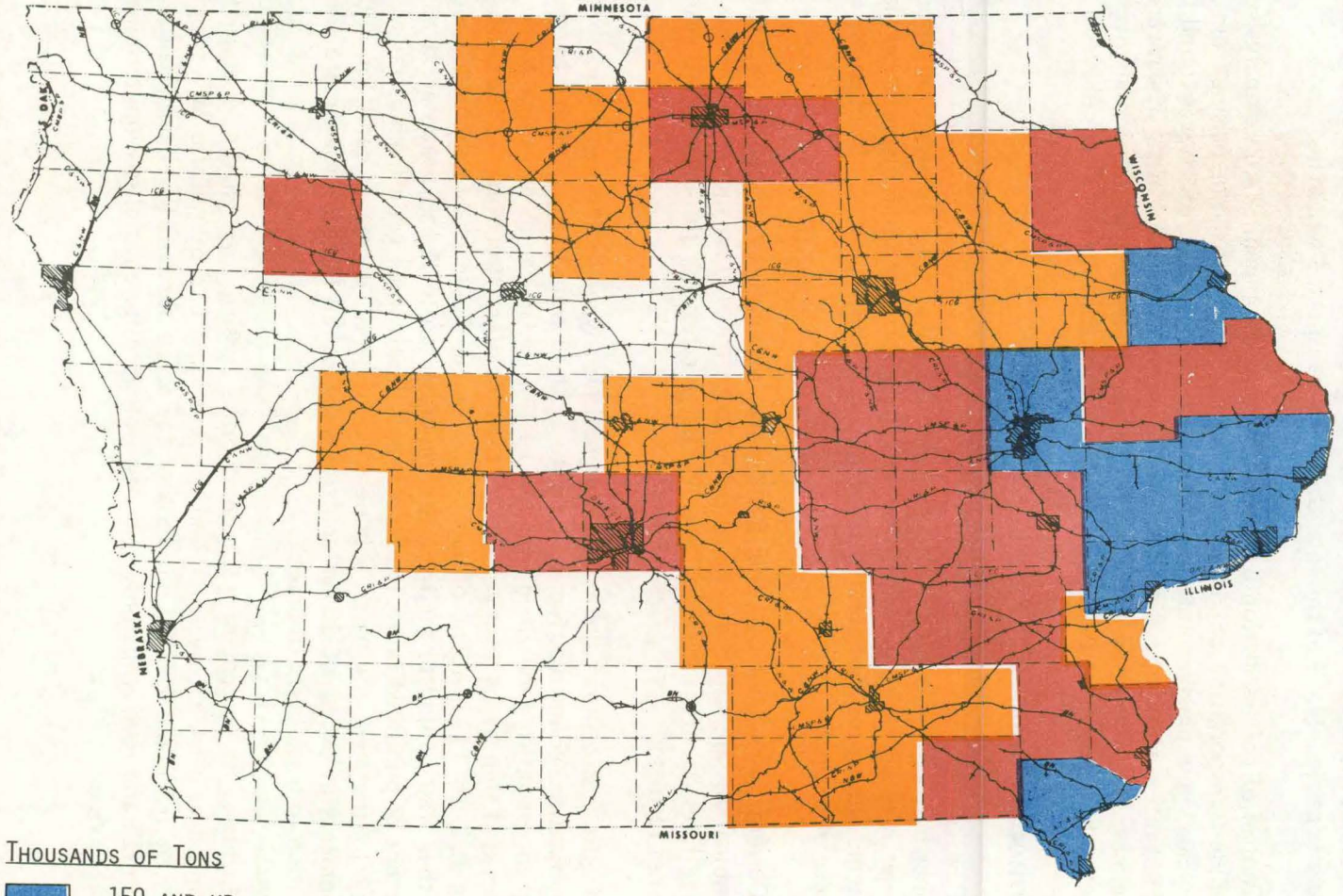
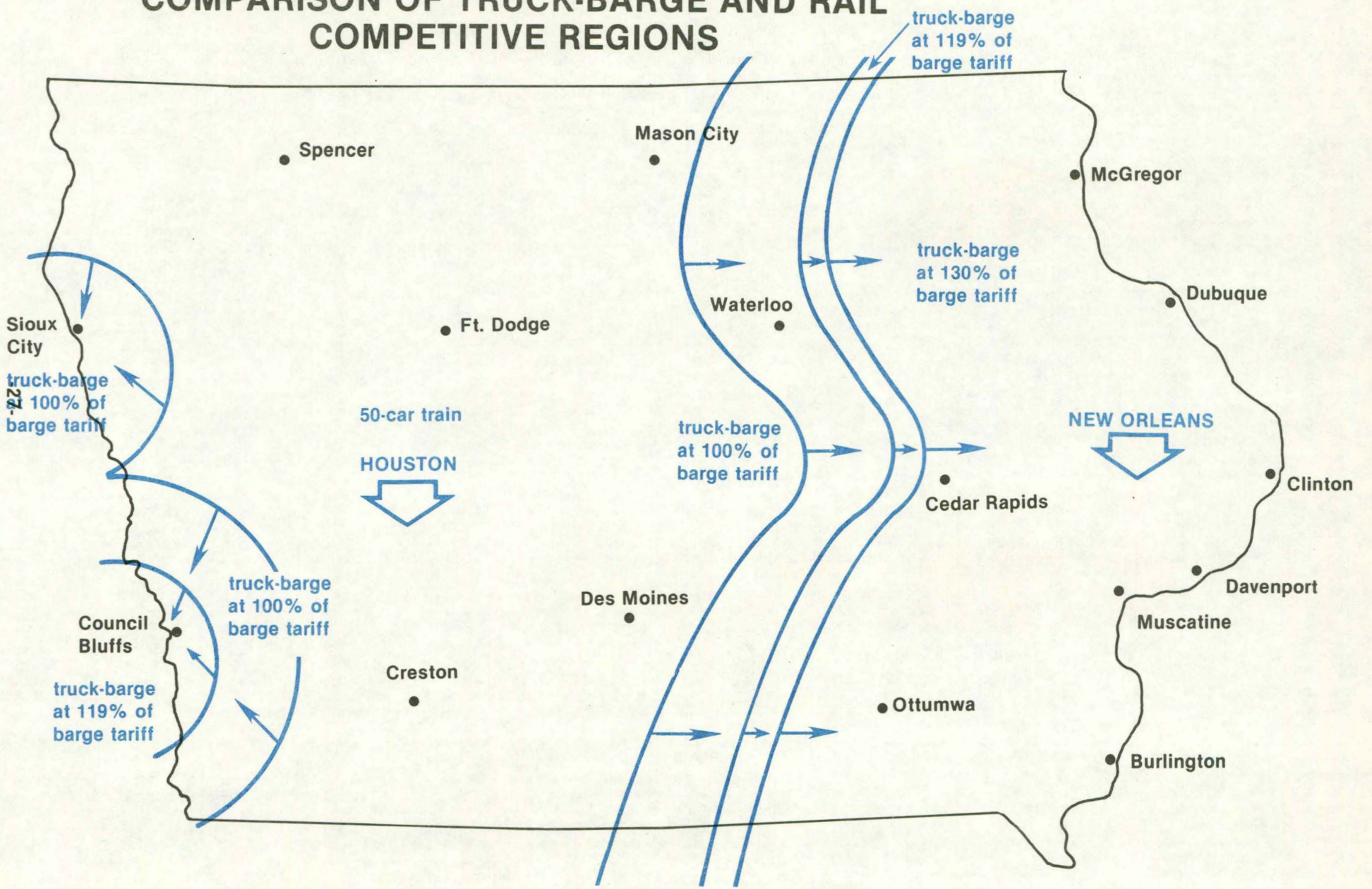


FIGURE 9

COMPARISON OF TRUCK-BARGE AND RAIL COMPETITIVE REGIONS



III. STATE RAIL PROGRAMS

A. State Rail Transportation Goals/Policies

In consideration of Iowa's statewide transportation goals, transportation policies were developed to address specific goals/policies for each transportation mode. The following Iowa DOT rail transportation goals/policies are consistent with both the 4R Act and Iowa's continuing rail programs:

- Iowa will maintain the capability to implement its State Rail Plan through appropriate legislation and funding programs.

- Iowa will provide for a continuing transportation planning process which involves public, private and citizen interest and encourages complimentary transportation and land development patterns.

- Iowa will consider all complimentary and supplementary modes in determining its State Rail Plan so that safe, efficient, dependable transportation can be provided for the entire State. It will encourage the development of multi-modal transportation arrangements for those communities who lose rail service so they can remain economically competitive and viable.

- Iowa will integrate its rail system with those of neighboring states and with the national system to facilitate interstate and nationwide movements and to facilitate the continued exportation of Iowa commodities to national and worldwide markets.

- Iowa will work toward operationally efficient rail service by identifying and providing financial assistance to those lines which can become self-supporting.

- Iowa will encourage improved mainline service within its borders in order to promote safer and more efficient freight movements.

- Iowa will work toward a viable rail system for the State which maximizes the benefits to the people of Iowa and yet reduces non-essential line mileage which is a financial drain on the railroads.

- Iowa will work toward minimizing detrimental social, economic and environmental impacts caused by a change or abandonment of rail service in the State.

- Iowa will promote increased use of rail service where it is the best suited mode and is the most energy efficient solution.

- Iowa encourages restrained regulation of railroads with provision for flexibility and experimentation at the State level and responsiveness to changing shipper demands.

- Iowa will work toward a program to preserve rail rights-of-way for future transportation use in consideration of the geographic location of natural resources, changing energy demands, and future commodity movements.

B. Iowa Rail Abandonment Procedures

The Iowa DOT will review and analyze each railroad abandonment application on an individual basis in a manner which will ensure consideration of all significant social, economic and environmental effects.

During September, 1977 the Iowa DOT held a series of eight public meetings to inform all interested parties of the revised ICC abandonment procedures and upcoming Iowa DOT involvement throughout the abandonment process.

For each abandonment application which is filed in the State, the DOT will conduct two local meetings to gather and examine pertinent information regarding the particular line. The first meeting will serve to gather data regarding present and potential traffic, potential impacts of the abandonment, condition of the rail facility and local interest in preserving the facility. DOT staff will then thoroughly evaluate the line and develop a recommendation to support or oppose the proposed abandonment. A second meeting will then be held to discuss this recommendation with shippers and government and rail company officials.

Following this meeting, a final recommendation will be submitted to the DOT Commission for their review and approval. Depending on the DOT Commission decision, the DOT will file appropriate legal papers with the ICC. It should be noted that throughout the entire process, DOT staff will be available to provide information and answer any and all questions concerning the abandonment application.

Complete DOT policy regarding the above procedures are contained in Appendix A.

C. Branchline Assistance Programs 266.9(d)(3)(vi)(vii)

Since 1974, the State of Iowa, Iowa shippers, and the railroads have negotiated contracts for the upgrading of 704 miles of the 4,100 miles of branchlines--representing a total investment of $21 million in the Iowa program (Table 11).

Several years ago a culmination of factors surfaced which prompted the Iowa legislature to pass the Iowa Rail Assistance Act. Grain production in the State had greatly increased primarily in response to foreign demand. Also, because of inadequate rail service--specifically the inability of railroads to provide cars to ship grain in 1972 and 1973 and because of the condition of the track--the shippers and agricultural producers were unable to take full advantage of the potential benefits of the export market. The final factor was the emergence of the energy shortage.

A number of potential programs were considered, including state ownership of railroad. Following considerable discussion, the legislature appropriated $3 million from the general fund for the purpose of branchline upgrading--not railroad acquisition and ownership.

The new legislation was very general and gave the DOT necessary flexibility and latitude to develop a program. It calls for the state providing approximately 1/3 of the

TABLE 11

BRANCHLINE RAILROAD UPGRADING PROJECTS

Negotiated Projects

Branchline	Miles	Total Cost	State	Shipper (000 omitted)	Railroad
1. Ida Grove-Maple River	38	$ 176,000	$ 80	$ 80	$ 16
2. Indianola-Carlisle	11	600,000	400	200	0
3. Spencer-Herndon	101	2,083,000	1,598	385	100
4. Creston-Orient	12	441,000	291	0	150
5. Humboldt-Eagle Grove	26	1,800,000	800	500	500
6. Mona Jct.-Minn. Border	83	557,000	191	178	188
7. Orient-Fontanelle	22	750,000	250	250	250
8. Atlantic-Audubon	26	1,008,000	356	380	272
9. Iowa Falls Gateway	302	8,960,000	3,971	3,950	1,039
10. Alden-Eldora	20	1,239,000	826	413	0
11. Milwaukee North Line	32	1,521,000	553	554	414
12. Kanawha-Belmond-Clarion	24	1,073,000	713	360	0
13. Cedar Falls Jct.-Cedar Falls	7	952,000	623	329	0
Total	704	$21,160,000	$10,652	$7,579	$2,929

SUMMARY

Negotiated Projects

No. of Projects	Miles	Avg. Cost Per Mile	Total Cost	State (50%)	Shippers (36%)	Railroads (14%)
13	704	$30,100	$21.2M	$10.7M	$7.6M	$2.9M

Potential Projects [1]

No. of Potential Projects [2]	Miles	Avg. Cost Per Mile	Total Est. Cost	State (13.7%)	Shippers (13.7%)	Railroads (13.7%)	Federal (58.9%)
24	855 [3]	x $35,900 =	$30.7M	$4.2M	$4.2M	$4.2M	$18.1M

[1] Under the State and Federal Assistance Programs combined.

[2] Those projects with a benefit/cost of .50 or greater which have not been upgraded.

[3] Includes 180 miles of completed projects requiring relay of rail.

cost of the project, the shippers 1/3, and the railroads 1/3 of the rehabilitation costs. The railroads in turn repay the shippers and the state based on the amount of traffic generated by the line. At the outset the railroads were reluctant to participate in the program, fearing that it would lead to rehabilitation of branchlines and could not be economically viable. This problem was so resolved that we have been able to obtain the railroad's participation.

The Iowa Department of Transportation determined that for effective administration of the program, a priority rating system is essential. A system was developed for the purpose of rating the many branchline assistance projects proposed. Six different criteria were incorporated in the priority rating:

1. Historic viability -- the average cars per mile over the line, based on the previous three years of traffic.

2. Potential viability -- the projected increase in traffic over the line if the line was upgraded.

3. Track Structure -- including the condition of the rails, ties, ballast and current load limit.

4. Safety -- the history of accidents and derailments on the line over the previous three years.

5/6. Shipper and rail company participation -- the amount of financial participation or inkind benefits provided by the railroad. (The greater the amount of participation by the railroad or shippers, the higher the priority.)

The six-factor formula assigned percentage points to each criteria equaling 100 points. Projects showing less than 50 points were not considered viable candidates for state funding.

With the development of the benefit/cost ratios and branchline analysis included in this State Rail Plan, the "six-factor formula" has been discontinued as the criteria used in prioritizing potential upgrading projects. Shipper and railroad participation will continue to play an important role in the final determination of project priorities in negotiating contracts for state and/or federal funding.

How does a line become a candidate for rail assistance? The requests for assistance of upgrading a line are made by the shippers or railroads interested in pursuing a project. Necessary information is obtained from the shippers and the railroads and the candidate project is then prioritized and compared to all other projects under consideration.

During the course of obtaining the preliminary data, the Railroad Division staff meets with the shippers to outline their responsibilities and requirements as set out in the law. Shippers are urged to consider forming an association or nonprofit corporation. Forming an association or nonprofit corporation has a two-fold benefit. It makes it easier to deal and negotiate with a small group of association officers instead of a large number of separate shippers. Also, if the shippers find it necessary to secure a loan for their portion of the upgrading costs, it is much simpler as a group to borrow funds.

Once the preliminary terms are agreed upon, the Railroad Division staff begins negotiations with the railroad and shipper officials. During the negotiations, it is the state's objective to get the best possible terms for the state and the shippers. After final terms have been agreed upon, a contract is prepared and submitted to both the shippers and the railroads for their review and approval. The state's approval must be obtained from the seven member DOT Commission.

The main provisions of the contract spell out the FRA Classification to which the line is to be upgraded and maintained and the terms by which the state and the shippers will be repaid. In most instances, the shippers are repaid in full according to a specified amount for each car originating and terminating on the line. The state is repaid a specified amount for each car originating and terminating over and above the previous three year average after completion of the project. In addition, most contracts provide for the upgrading of all at grade rail-highway crossings during the rehabilitation process.

The complete Iowa Policy and Procedures for the administration of State and/or Federal Funds for the rehabilitation of branchlines can be found in Appendix B.

Figures 10 and 11 show the current Iowa Branchline Assistance Program projects and the potential assistance projects currently being negotiated for the federal and state assistance programs.

The Iowa program has been effective. Many elevators, for example, are able to move grain to market that otherwise would have been shifted to trucks or other more costly transportation modes. In addition to the lines that have already been contracted, we are currently reviewing and negotiating additional lines totaling over 675 miles. The Iowa program stretches a limited amount of state appropriations into a significant track improvement activity and helps preserve a vital transportation service.

The key to the success of the program is the participation of the shippers who must use the line in order to get their investment back.

The Branchline Assistance Program is very simple to administer, it involves a minimum of red tape and it's workable.

Complete details of the Branchline Assistance Program are available in a Council of State Governments January 1976 publication entitled, "Railroad Rehabilitation: A Program to Upgrade Selected Branchlines in Iowa".

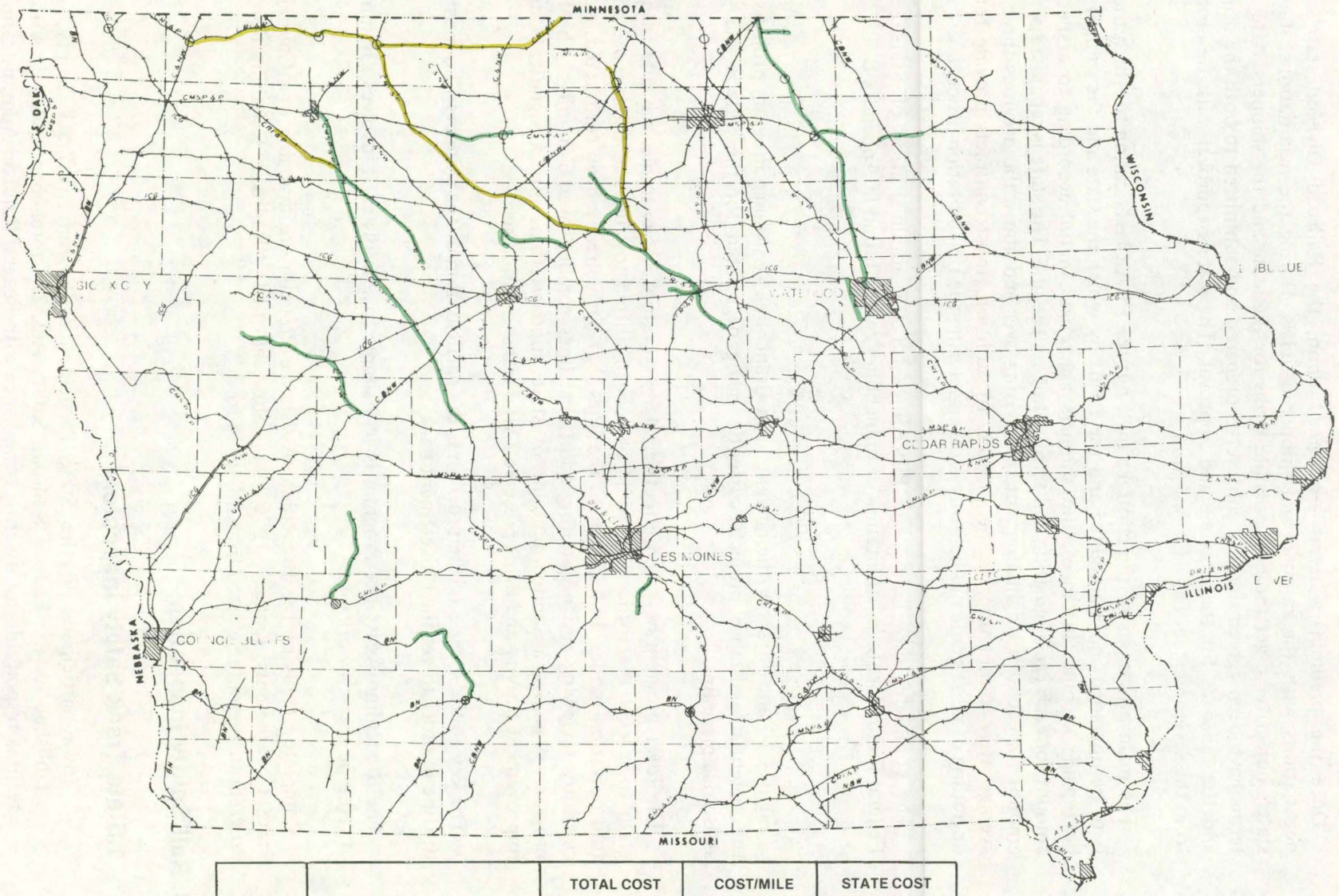
D. Rail Safety Inspection

1.State Track Safety Inspectors

Iowa participates in the State Participation Program of Track Safety, as established by the Federal Railroad Safety Act. The three-man Iowa inspection team is responsible for assuring compliance with Federal Railroad Administration Track Safety Standards. The team monitors all road mileage and approximately 3,000 miles of yard and miscellaneous track, to assure compliance.

FIGURE 10

IOWA BRANCH LINE ASSISTANCE PROGRAM
OCTOBER 1977

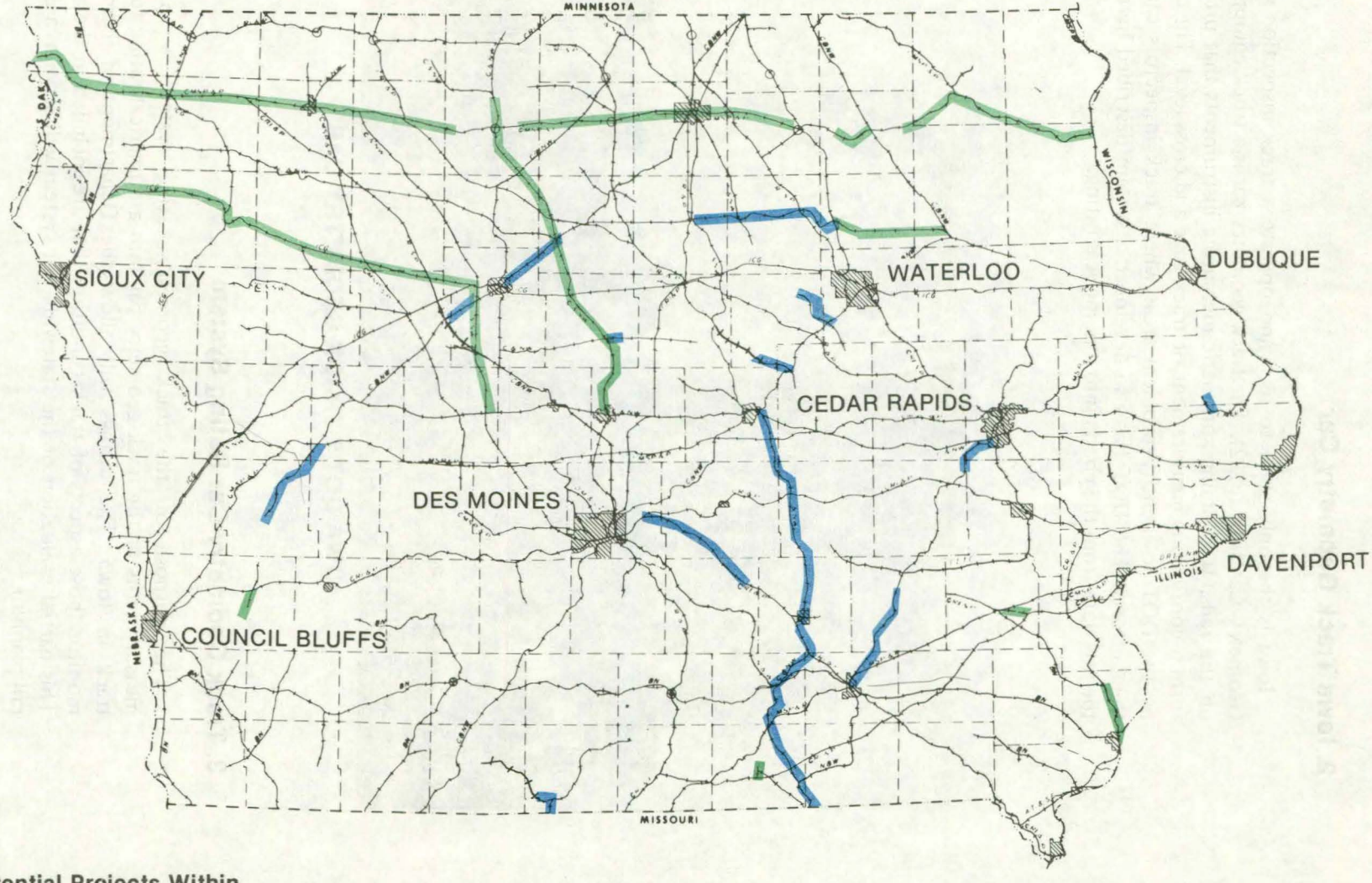


		TOTAL COST	COST/MILE	STATE COST
459 Miles	Completed	$12,200,000	$26,580 ✓	$6,681,000
244 Miles	Work in Progress	$8,960,000	$36,721	$3,971,000
703 Miles	Total	$21,160,000		$10,652,000

✓How cost due to relay of used 90 # rail.

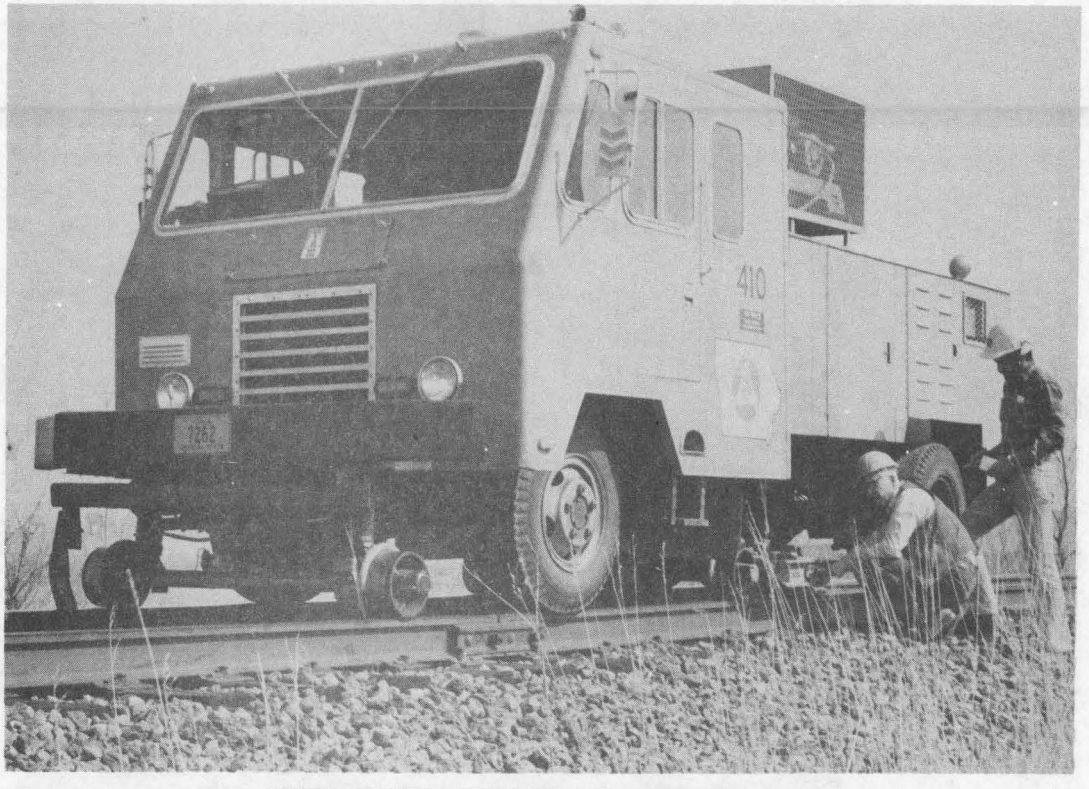
FIGURE 11

POTENTIAL BRANCHLINE ASSISTANCE PROJECTS
STATE AND FEDERAL PROGRAMS



2. Iowa Track Geometry Car

Iowa is the only state to own and operate a track inspection vehicle—Track Geometry Car (Figure 12). The track geometry car is a truck equipped to operate on the rails. It contains automatic measuring instruments that produce in chart form a continuous measurement of track gage and cross level. The car is operated by the DOT to identify problem areas where track inspectors can concentrate their efforts. The DOT has also developed a system described herein to convert the raw data from the charts into a numerical rating.



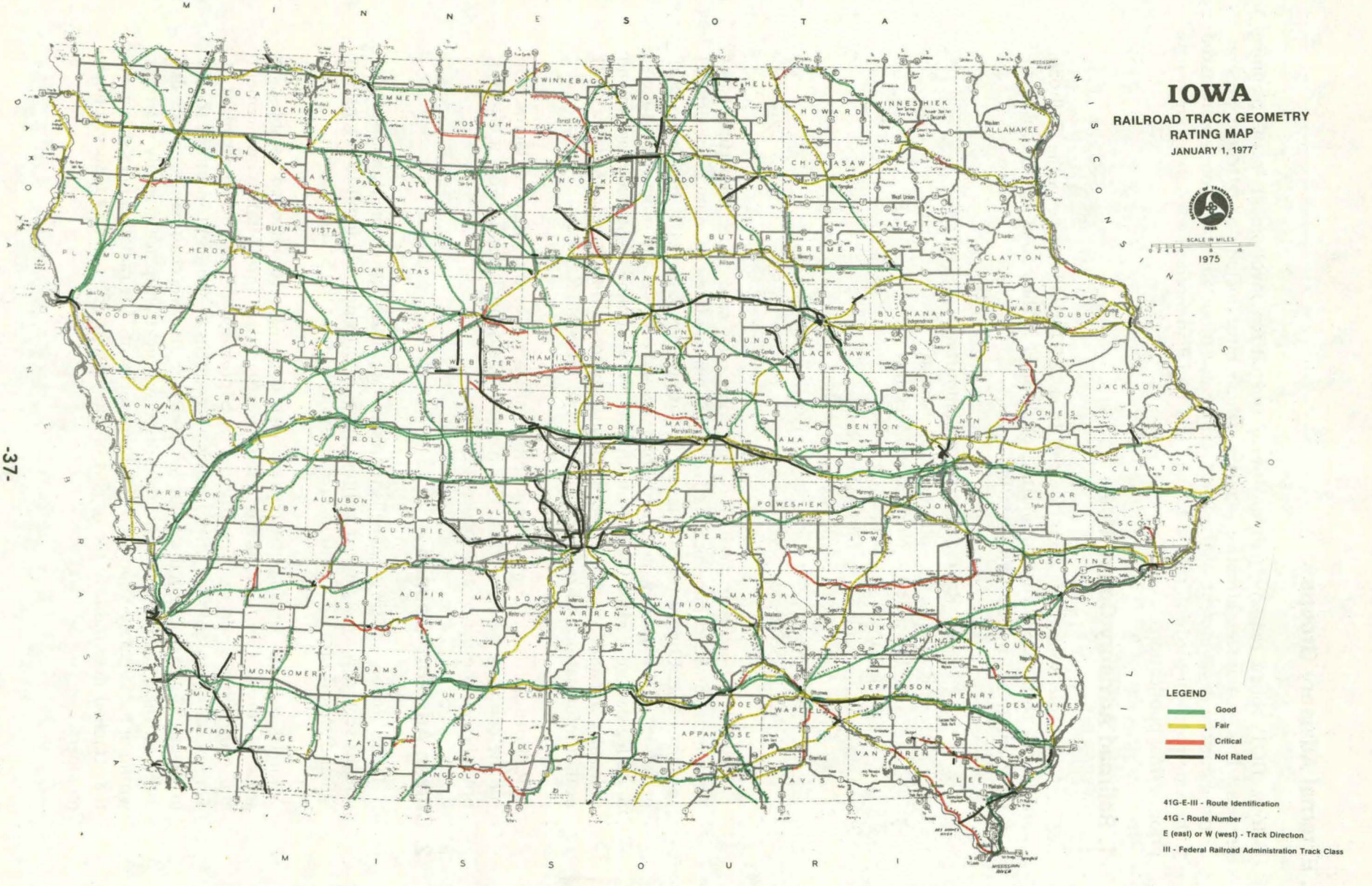
IOWA DOT'S TRACK GEOMETRY CAR

3. Track Geometry Car Rating System

The purpose of the track geometry rating system is to convert the measurements of the track geometry car into a numerical rating for each mile of track in Iowa. The ratings will allow the Department of Transportation to monitor those aspects of track condition that are included in the rating process. This partial evaluation of the statewide rail system will serve as a data source for rail planning.

Current Track Geometry ratings are summarized in Figure 13. Complete details of the rating system and results are contained in Iowa Railroad Track Geometry Ratings, Iowa DOT, July 1977.

FIGURE 13



Note: The track geometry rating depends on the Federal Railroad Administration Track class determined by the opening railroad. Thus a Class I track with a Good rating might have worse track geometry than a Class III track with a Fair rating.

E. External Advisory Groups

Iowa DOT policy requires public, private and citizen involvement in the planning process. This guarantees effective planning which must include all affected persons. Throughout the development of the Iowa Rail Plan, various advisory groups were asked to provide much needed information. The Iowa Rail Plan received advisory group review prior to final publication.

1. Railroad Advisory Committee

A valuable source of input for the Iowa DOT staff has been the Railroad Advisory committee. This Committee, established in the Fall of 1976, consists of representatives from carriers operating in Iowa.

Railroad Advisory Committee

A. R. Boyce	Burlington Northern
J. F. Bruckner	Norfolk and Western
R. J. Lane	Rock Island
L. E. Long	Milwaukee Road
R. A. Navin	Illinois Central Gulf
M. S. Reid	Chicago and North Western
O. F. Sonefeld	Santa Fe

There is a growing need for rail companies and State Departments of Transportation to communicate effectively on many items of mutual interest and concern. The Committee meets on an as-needed basis with the Iowa DOT personnel to discuss new proposed programs and projects and other items such as State legislation, Federal legislation, the DOT's branchline assistance program and railroad company concerns. The Railroad Advisory Committee provided a great deal of information utilized in development of the State Rail Plan.

Railroad Advisory Committee members also serve as the single contact person for the company he represents. This has eliminated much duplication of effort in both the rail companies and the Iowa DOT.

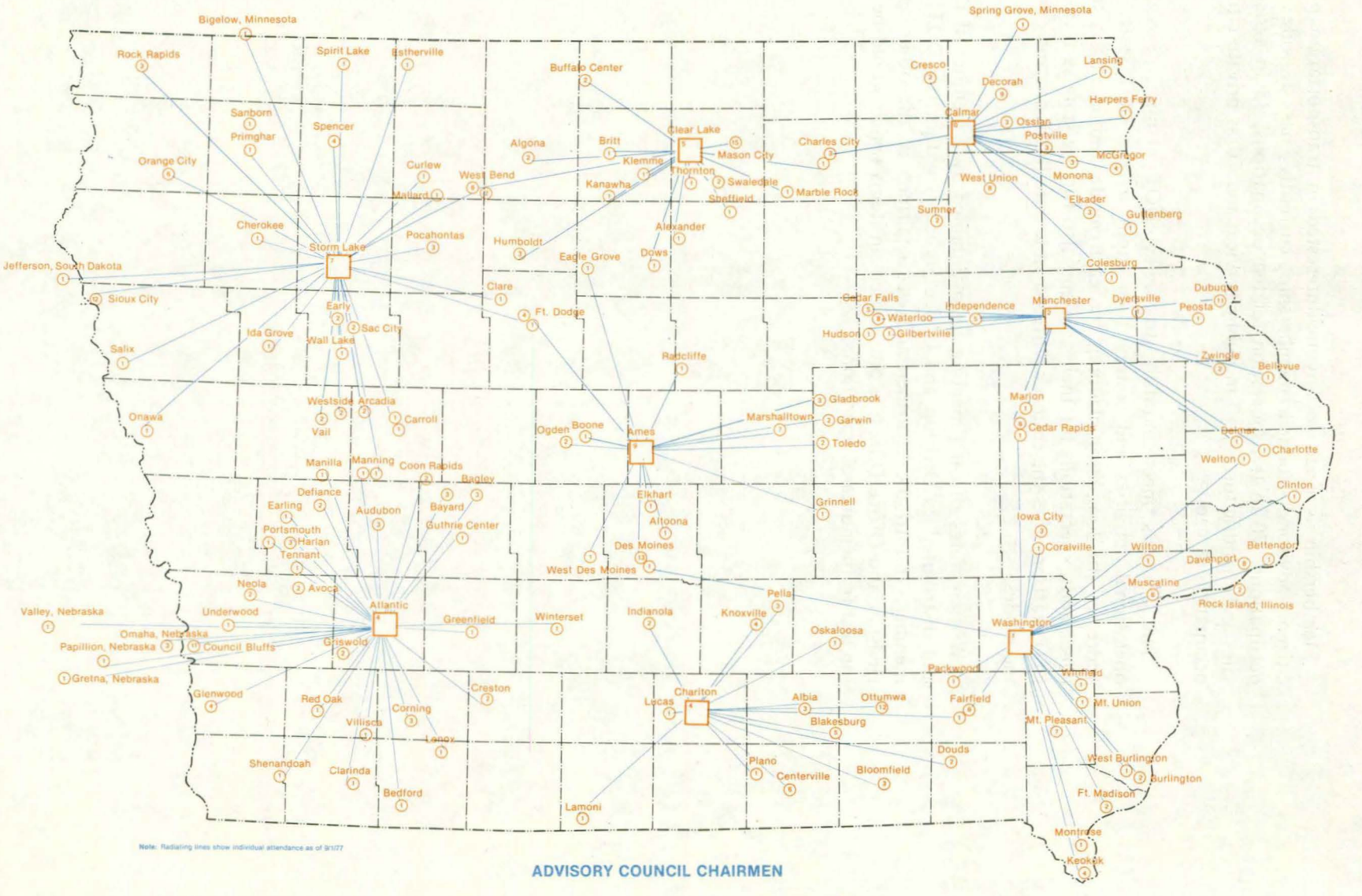
2. Citizen Advisory Council

Three citizen advisory councils representing private, government, and specific interest sectors were organized in June, 1975, to provide early input for TransPlan '76 and identify transportation issues and priorities for the State of Iowa.

In 1976 these original citizen advisory councils recommended establishing advisory councils throughout the state to achieve more representative involvement and geographic coverage. Accordingly, in September, 1976, the Department of Transportation established citizen advisory councils at the eight locations shown in Figure 14. Each council membership selected its own chairman, who are also listed on the attached map. The eight dispersed locations place monthly meetings within approximately 50 miles from any participant. The radiating lines shown on the attached map indicate the origins of the present 250 citizen advisory council members.

FIGURE 14

CITIZEN ADVISORY COUNCIL MEETING LOCATIONS



Note: Radiating lines show individual attendance as of 9/1/77

ADVISORY COUNCIL CHAIRMEN

Location	Chairman	Phone	Location	Chairman	Phone
Ames	Jerry Sawyer	515-754-4454	Clear lake	Steven Polito	515-423-0491
Atlantic	Alan Ball	712-323-5555	Manchester	John Casey	319-234-5538
Calmar	Ralph Fitzgerald	319-547-2940	Storm Lake	George Cole	712-277-1030
Chariton	C. Budd Curtright	515-682-7555	Washington	Ernest Hayes	319-385-2223

Membership is open to anyone interested in transportation planning. The citizen advisory council membership currently has a wide diversity of occupations: 70 in transportation related occupations; 35 in agriculture; 35 in sales and manufacturing; 40 in public service; and 70 as private citizens with no occupation category.

The councils meet monthly to review DOT planning, programming and operational activities and convey their input to the DOT staff. Each council addresses the long-term planning for each mode and identifies transportation needs and expectations for their area and also for the state as a whole. The Iowa DOT staff provides the councils with available data (both pro and con) for each of the modes.

Written notes of each meeting are maintained by a member of the DOT staff and distributed to Division and Office Directors within the DOT, each council member, and to the chairmen and vice chairmen of the other seven councils. Division and Office Directors are advised on items which would be of particular interest to their area of operation.

IV.BRANCHLINE ANALYSIS 266.9(d)(1)

Many transportation officials feel that Iowa's rail system is overbuilt for today's transportation needs. It is claimed that these excessive lines hinder the railroad in adjusting to the changing transportation needs of rural America by draining funds from rail companies already short of capital.

In contrast to these feelings is the position taken by some shippers and communities located on branchlines. They argue that loss of branchlines would substantially increase their costs, putting elevators and farmers at a competitive disadvantage. They further maintain that the growth of local communities will be threatened.

Therefore, there is a need for an in-depth analysis to evaluate the economic and social implications of alternative branchline rail systems. With the development of highway and water modes, alternative shipping and physical distribution systems should also be analyzed. Specifically, the analysis should address such things as future commodity flow patterns, differing rate structures, modal cost comparisons, transportation, and handling cost minimization and existing conditions.

The Iowa Department of Transportation branchline analysis methodology was developed at Iowa State University and utilized in report No. FRA-OPPD-76-3, entitled "An Economic Analysis of Upgrading Rail Branchlines: A Study of 71 Lines in Iowa," (the ISU Study). The Federal Railroad Administration, railroad companies and many shippers in Iowa have participated in and expressed confidence in this methodology.

A. Methodology 266.9(d)(4)(xi)

The Iowa DOT contracted Iowa State University to analyze specific branchlines utilizing the methodology employed in the ISU Study.

The analysis:

1. Inventories the present size and location of grain and facilities on each branch rail line in Iowa.
2. Measures the present number of cars and quantity of each product moving on each branchline and projects these to 1980.
3. Obtains an inventory of the present condition of each rail line and the estimated cost of upgrading each line to Federal Railroad Administration Class II standards.
4. Collects the rail and barge rates for grain from each station in Iowa to major grain markets and for fertilizer from each supply point to each retail outlet in Iowa.
5. Estimates the cost of transporting grain, fertilizer, and all other products by mode.
6. Estimates the net income effect of abandoning each branchline in Iowa and estimates the effect on farmers, shippers, receivers, and railroads.
7. Computes a benefit/cost ratio which is defined as "the total annual transportation and handling cost savings to grain shippers, fertilizer receivers, and shippers and receivers of products if the line is upgraded rather than abandoned divided by the annualized costs of upgrading and maintenance of the line."

For a branchline to produce a favorable benefit/cost ratio in this study the line must:

1. Carry a sizable volume of grain to produce transportation savings;

2. Must have at least one sizable or several smaller non-agricultural shippers to sustain a large volume;

3. Must be in rather good condition now so that upgrading costs are kept to a minimum; or

4. Must be one of the few remaining branchlines in service, thus picking up additional volume from surrounding abandoned lines.

The basis of the branchline analysis is the identification of five separate rail system levels comprised of approximately equal mileages. Initially, Iowa's interstate, mainline system was developed with the aid of the Railroad Advisory Committee (RAC) and Citizen Advisory Councils (CAC). This initial designation accounted for 44% of Iowa's rail mileage. With the establishment of this base system, subsequent systems were established in order of their priority. That is, the first priority category added to the base system is comprised of those lines that would best serve the needs of the public in the most efficient and economical manner. Subsequent priority categories were added until all branchlines were rated. Each branchline category or priority group, contains approximately 10% of Iowa's total rail mileage.

1st priority	=	44% base system + 11%	=	55% system
2nd priority	=	55% system + 10%	=	65% system
3rd priority	=	65% system + 10%	=	75% system
4th priority	=	75% system + 10%	=	85% system
5th priority	=	85% system + 15%	=	100% system

However, strictly economic analysis is not the only concern in establishing branchline priorities. If the rail system was based solely on a benefit/cost analysis some areas of the State might have all of their lines assisted, leaving another area virtually without service. Therefore, in establishing the priority system, consideration was given to providing rail service to all major population centers, providing at least minimal rail service to all economic and geographic regions of the State and providing system continuity.

Also, knowledge of local shipping patterns must be used to interpret results and be considered in the final decision. Certain short segments of some branchlines with high benefits and high costs may require further study. Heavy industry may locate along a previously little used rail line or coal movements may be forthcoming thus creating huge benefits to the respective rail lines. Branchlines that are substantially upgraded would subsequently receive higher benefit/cost ratios. These types of "unknowns" will be realized through various channels including: railroads, Citizen Advisory Councils, shippers and receivers and any other concerned party or individual. Therefore, the Iowa Branchline Analysis is by no means the last look at the State's rail system. Information will be continually updated to reflect these various changes.

Details of the methodology are contained in Appendix C.

B. Sample Analysis

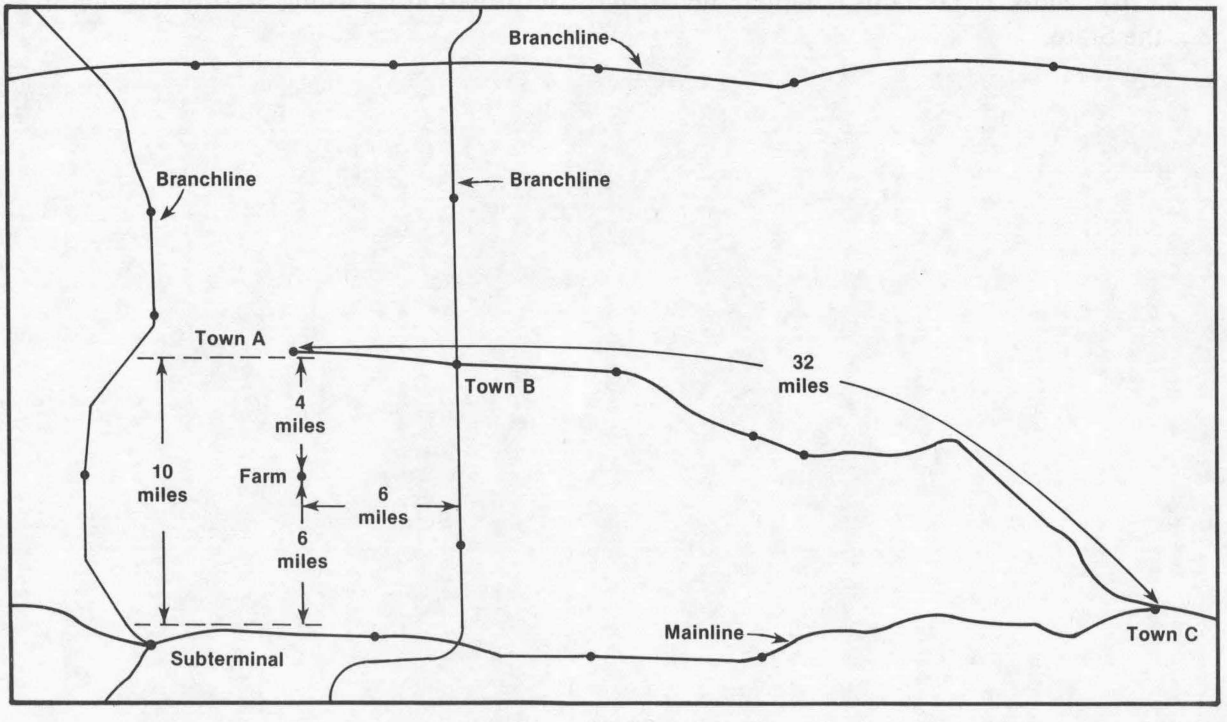
Public discussions of the expected impact of rail abandonment assume that product flows must remain as they have in the past and that all products must move from the same origin to the same destination, even if a given rail line is abandoned. This is not true. For example, consider analysis of the branchline between Town A and Town C (Figure 15). Traditional studies would assume that products must continue to move between Towns A and C by truck at considerable increase in cost should the branchline be abandoned. Such an analysis ignores other alternatives which may be less costly.

For instance, Town A is six miles west of a branchline intersection at Town B. Products leaving Town A could be moved by truck to Town B and then to final destination by rail. Road miles would then constitute only a small fraction of the total miles required to move material from Town A to the final destination. Thus, an optional flow pattern may suggest that it would be less costly to truck six miles than to maintain 32 miles of branchlines.

For grain, changes needed to obtain the optimal flow pattern may be even more dramatic. For instance, a farmer four miles south of Town A could take his grain to the subterminal on a Class I Railroad mainline by traveling an additional two miles rather than going to the elevator at Town A. Since a large portion of the total cost of transportating grain from farm to market is fixed cost for the tractor, wagon, or truck and for the loading and unloading time, regardless of where the grain is moved, the additional time and cost of the additional two miles of movement is minimal.

FIGURE 15

ALTERNATIVE COMMODITY FLOWS



The fixed trucking cost used in this study is 4.7 cents per bushel. The variable costs of fuel, and all other variable costs to run a truck are approximately 0.13 cents per bushel per mile. Thus the additional cost of trucking two extra miles is about one-forth cent per bushel. This additional cost appears to be rather small when compared to the cost of upgrading and maintaining the 32 miles of branchline.

C. Benefit/Cost Rankings 266.9(d)(4)(5)

The 44% Base Rail System (Figure 16) is the mainline system from which the branchline analysis was conducted.

The 55% Rail System (Figure 17) is comprised of the mainline system plus the 10% most viable branchline mileage.

The 65% Rail System (Figure 18) is comprised of the 55% Rail System which is now the base system plus the next 10% most viable branchline miles.

The 75%, 85% and 100% Rail Systems (Figures 19, 20 and 21) were also determined utilizing the same "base plus" methodology.

Following each Rail System map is a list of branchlines included in that particular system. Note the Base Rail System from which the branchline is analyzed. The percentage listed refers to the amount of total rail mileage that is assumed to exist in Iowa before the branchline in question is placed in this system.

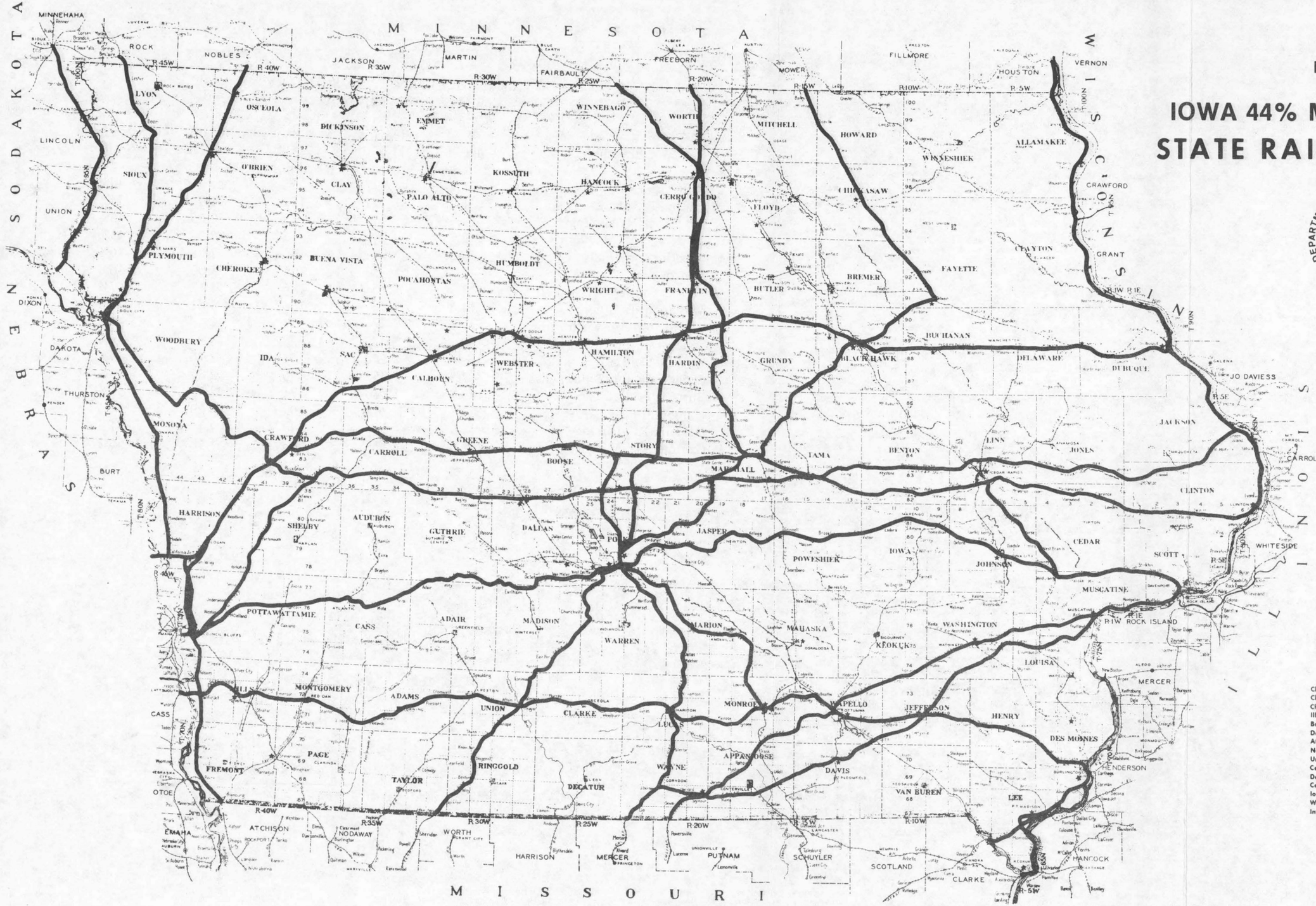
Also note on each analysis sheet a list of the existing or proposed optimal locations of multiple-car grain subterminals and fixed conveyor fertilizer unloading sites selected by the computer to handle the 1980 demand projections.

Appendix D contains complete benefit/cost information regarding each branchline in the State.

FIGURE 16

IOWA 44% MAINLINE SYSTEM
STATE RAIL SYSTEM PLAN

DEPARTMENT OF TRANSPORTATION
IOWA



Chicago, Rock Island & Pacific R.R. Co. ..... CRIP
Chicago, Milwaukee, St. Paul & Pacific R.R. ..... CMSTPAP
Chicago & Northwestrn Transportation Co. ..... CNW
Illinois Central Gulf R.R. ..... ICG
Burlington Northern R.R. ..... BN
Davenport, Rock Island & Northwestern Ry. ..... DR&NW
Atchison, Topeka & Santa Fe Ry. Co. ..... ATSF
Norfolk & Western Ry. Co. ..... NW
Union Pacific R.R. ..... UP
Cedar Rapids & Iowa City Ry. Co. ..... CRIC
Des Moines & Central Iowa Ry. Co. ..... DMIC
Central Iowa Transportation, Coop. ..... CITC
Iowa Terminal Ry. Co. ..... IT
Waterloo R.R. Co. ..... WRR
Interchange points ..... ★

BRANCHLINE ANALYSIS SUMMARY
44% to 55% Rail System

Branchline	Mileage	Benefits ($1,000)	Cost ($1,000)	Benefit/ Cost Ratio	Base Rail System
Rolfe-Tara	25.1	4,497	212	21.21	44%
Clinton-Davenport	31.95	1,462	122	11.98	44%
Winterset-RI Mainline	14.4	946	88	10.75	45%
Centerville-RI Mainline	2.5	143	15	9.53	45%
Superior-Iowa Falls	120.5	4,575	646	7.08	46%
Hancock-RI Mainline	0.75	30	6	5.00	46%
Tara-Grand Junction	32.5	767	186	4.12	47%
Mediapolis-Burlington	14.4	381	100	3.81	47%
Washington-Ainsworth	8.0	271	74	3.66	47%
Seney-Tara	101	2,016	628	3.21	49%
Waverly-Oelwein	29.47	542	201	2.70	49%
Cedar Falls Jct.-Cedar Falls	7.5	252	96	2.62	49%
Burt-Ames	95.05	1,830	731	2.50	50%
Humboldt-Eagle Grove	25.4	315	102	3.09	51%
Oakland-RI Mainline	4.95	103	48	2.15	51%
Canton, S.D.-Marquette	292.4	2,134	1,933	1.10	55%

FIGURE 18

IOWA 65% RAIL SYSTEM
STATE RAIL SYSTEM PLAN

DEPARTMENT OF TRANSPORTATION
IOWA

MINNESOTA

SOUTH DAKOTA

NEBRASKA

MISSOURI

ILLINOIS

WISCONSIN

Chicago, Rock Island & Pacific R.R. Co. ..... CRIP
Chicago, Milwaukee, St. Paul & Pacific R.R. ..... CMSTPAP
Chicago & Northwestrn Transportation Co. ..... CNW
Illinois Central Gulf R.R. IC
Burlington Northern R.R. ..... BN
Davenport, Rock Island & Northwestern Ry. ..... DRIW
Atchison, Topeka & Santa Fe Ry. Co. ..... ATSF
Norfolk & Western Ry. Co. ..... NW
Union Pacific R.R. ..... UP
Cedar Rapids & Iowa City Ry. Co. ..... CRIC
Des Moines & Central Iowa Ry. Co. ..... DMIC
Central Iowa Transportation Coop. ..... CITC
Iowa Terminal Ry. Co. ..... IT
Waterloo R.R. Co. ..... WR
Interchange points ..... ★

BRANCHLINE ANALYSIS SUMMARY
66% to 75% Rail System

Branchline	Mileage	Benefits ($1,000)	Cost ($1,000)	Benefit/ Cost Ratio	Base Rail System
Eldridge-Davenport	11.5	57	117	0.49	66%
Mason City-Kesley	35.6	71	144	0.49	66%
Herndon-Des Moines	54.34	288	631	0.46	66%
Granger-Des Moines	12.3	37	80	0.46	67%
Orange City-Alton	3.5	18	42	0.43	67%
Audubon-Atlantic	24.6	58	145	0.40	67%
Perry-Des Moines	29.5	74	184	0.40	67%
Farragut-Shenandoah	7.6	16	41	0.39	68%
Griswold-Red Oak	18.1	41	107	0.38	68%
Milford-Spencer	9.9	39	103	0.38	68%
Carnarvon-Maple River	12.9	26	71	0.37	68%
Garwin-Tama	11.5	25	70	0.36	68%
Clarinda-Villisca	15.24	67	193	0.35	69%
Lyle-Waterloo	76.01	165	373	0.44	69%
Alleman-Ankeny	6.2	20	61	0.33	75%
Granger-Camp Dodge-Des Moines	17.1	80	243	0.33	70%
Keota-Washington	15.0	46	138	0.33	71%
Luverne-Corwith	8.65	22	72	0.31	71%
Hancock-Avoca	6.05	16	53	0.30	71%
Clarion-Hampton	26.5	29	103	0.28	71%
Stacyville Jct. Stacyville	8.99	30	110	0.27	71%
Burt-Bancroft	6.5	17	67	0.25	71%
Grand Jct.-Perry	15.15	38	153	0.25	72%
Ellsworth-Hubbard	14.25	36	150	0.24	72%
Harcourt-Jewell	29.5	91	391	0.23	72%
Rockwell City-Herndon	43.1	69	310	0.22	73%
Iowa Falls-Cedar Rapids	94.7	176	804	0.22	74%
Mason City-Lyle, Minn.	28.2	47	218	0.22	75%

FIGURE 19

IOWA 75% RAIL SYSTEM
STATE RAIL SYSTEM PLAN

DEPARTMENT OF TRANSPORTATION
IOWA

MINNESOTA

SOUTH DAKOTA

NEBRASKA

MISSOURI

ILLINOIS

WISCONSIN

Chicago, Rock Island & Pacific R.R. Co. ..... CRIP
Chicago, Milwaukee, St. Paul & Pacific R.R. ..... MSTP
Chicago & Northwestrn Transportation Co. ..... CNW
Illinois Central Gulf R.R. ..... ICG
Burlington Northern R.R. ..... BN
Davenport, Rock Island & Northwestern Ry. ..... DRIW
Atchison, Topeka & Santa Fe Ry. Co. ..... ATSF
Norfolk & Western Ry. Co. ..... NW
Union Pacific R.R. ..... UP
Cedar Rapids & Iowa City Ry. Co. ..... CRIC
Des Moines & Central Iowa Ry. Co. ..... DMIC
Central Iowa Transportatiar. Coop. ..... CITC
Iowa Terminal Ry. Co. ..... IT
Waterloo R.R. Co. ..... IT
Interchange points ..... ★

BRANCHLINE ANALYSIS SUMMARY
76% to 85% Rail System

Branchline	Mileage	Benefits ($1,000)	Cost ($1,000)	Benefit/ Cost Ratio	Base Rail System
Little Rock-Sibley	7.6	10	48	0.21	76%
Holstein-Carnarvon	44.3	98	470	0.21	76%
Washta-Cherokee	12.1	29	142	0.20	76%
Woden-North of Garner	18.1	28	143	0.20	76%
Woden-Titonka	6.6	15	52	0.29	76%
Humboldt-Ft. Dodge	19.0	27	141	0.19	77%
Hopkinton-Milwaukee Mainline	32.6	80	428	0.19	77%
Belmond-Mason City	30.96	58	327	0.18	77%
Belmond-Alexander	7.7	12	70	0.17	78%
Manly-Cedar Falls	79.52	66	379	0.17	79%
Carroll-Manning	16.6	11	66	0.17	79%
Fontanelle-Creston	28.6	46	293	0.16	79%
Kanawha-Clarion	23.31	15	94	0.16	79%
Albert City-Rockwell City	31.7	34	228	0.15	80%
LeRoy-Calmar	40.9	73	480	0.15	81%
Zearing-Marshalltown	18.8	38	259	0.15	81%
Waterloo-Vinton	26.76	18	130	0.14	81%
Laurens-Rolfe	17.1	29	204	0.14	82%
Rolfe-Dakota City	17.6	27	208	0.13	82%
Hubbard-Lawn Hill	6.35	9	67	0.13	82%
Hopkins-Creston	49.3	90	703	0.13	83%
Calmar-Decorah	10.0	13	107	0.12	83%
Sheldon-Cherokee	38.5	35	284	0.12	83%
Alleman-Ft. Dodge	61.6	73	647	0.11	84%
Rockwell City-Storm Lake	38.3	48	423	0.11	84%
Alton-Laurens	66.0	70	649	0.11	85%

FIGURE 17

IOWA 55% RAIL SYSTEM
STATE RAIL SYSTEM PLAN

DEPARTMENT OF TRANSPORTATION
IOWA

MINNESOTA

SOUTH DAKOTA

NEBRASKA

MISSOURI

ILLINOIS

WISCONSIN

MINNEHAHA · ROCK · NOBLES · JACKSON · MARTIN · FAIRBAULT · FREEBORN · MOWER · FILLMORE · HOUSTON · VERNON

R 45W · R 40W · R 35W · R 30W · R 25W · R 20W · R 15W · R 10W · R 5W

LYON · OSCEOLA · DICKINSON · EMMET · WINNEBAGO · WORTH · MITCHELL · HOWARD · WINNESHIEK · ALLAMAKEE

LINCOLN · SIOUX · O'BRIEN · CLAY · PALO ALTO · KOSSUTH · HANCOCK · CERRO GORDO · FLOYD · CHICKASAW · CRAWFORD

UNION · PLYMOUTH · CHEROKEE · BUENA VISTA · POCAHONTAS · HUMBOLDT · WRIGHT · FRANKLIN · BUTLER · BREMER · FAYETTE · CLAYTON · GRANT

DIXON · DAKOTA · WOODBURY · IDA · SAC · CALHOUN · WEBSTER · HAMILTON · HARDIN · GRUNDY · BLACK HAWK · BUCHANAN · DELAWARE · DUBUQUE · JO DAVIESS

THURSTON · MONONA · CRAWFORD · GREENE · CARROLL · STORY · BOONE · TAMA · BENTON · LINN · JONES · JACKSON · CARROLL

BURT · HARRISON · SHELBY · AUDUBON · GUTHRIE · DALLAS · POLK · JASPER · POWESHIEK · IOWA · JOHNSON · CEDAR · SCOTT · CLINTON · WHITESIDE

MUSCATINE · R I E · R I W ROCK ISLAND

POTTAWATTAMIE · CASS · ADAIR · MADISON · WARREN · MARION · MAHASKA · WASHINGTON · KEOKUK · LOUISA · MERCER

MONTGOMERY · ADAMS · UNION · CLARKE · LUCAS · MONROE · WAPELLO · JEFFERSON · HENRY · DES MOINES · HENDERSON

CASS · PAGE · RINGGOLD · TAYLOR · DECATUR · WAYNE · APPANOOSE · DAVIS · VAN BUREN · LEE

FREMONT · OTOE · EMAHA · ATCHISON · NODAWAY · WORTH · HARRISON · MERCER · PUTNAM · SCHUYLER · SCOTLAND · CLARK · HANCOCK

R 40W · R 35W · R 30W · R 25W · R 20W · R 15W · R 10W · R 5W

Chicago, Rock Island & Pacific R.R. Co.	CRIP
Chicago, Milwaukee, St. Paul & Pacific R.R.	MILWAY
Chicago & Northwestrn Transportation Co.	CNW
Illinois Central Gulf R.R.	IC
Burlington Northern R.R.	BN
Davenport, Rock Island & Northwestern Ry.	DRAW
Atchison, Topeka & Santa Fe Ry. Co.	ATSF
Norfolk & Western Ry. Co.	NW
Union Pacific R.R.	UP
Cedar Rapids & Iowa City Ry. Co.	CRIC
Des Moines & Central Iowa Ry. Co.	DMIC
Central Iowa Transportatio. Coop.	CITC
Iowa Terminal Ry. Co.	IT
Waterloo R.R. Co.	WR
Interchange points	★

BRANCHLINE ANALYSIS SUMMARY
56% to 65% Rail System

Branchline	Mileage	Benefits ($1,000)	Cost ($1,000)	Benefit/ Cost Ratio	Base Rail System
Alden-Eldora Jct.	21.0	151	85	1.78	56%
Ft. Dodge-Eagle Grove	17.75	316	185	1.71	56%
Sibley-Superior	40.0	244	176	1.39	57%
Estherville-Dows	107.05	1,295	1,014	1.28	58%
Somers-Moorland	7.9	55	43	1.28	58%
Altoona-Pella	35.9	368	290	1.27	59%
Spencer-Albert City	26.35	400	251	1.14	59%
Royal-Webb	16.5	197	64	3.08	59%
Webb-Palmer	30.2	126	117	1.08	59%
Ida Grove-Carnarvon	24.9	165	161	1.02	60%
Indianola-Carlisle	11.3	38	40	0.95	60%
Marshalltown-Albia	84.3	567	632	0.90	61%
Jewell-Ellsworth	3.5	33	38	0.87	61%
Lakota-Rake	11.5	104	127	0.82	62%
Council Bluffs-Blanchard	66.2	230	308	0.75	63%
Cedar Rapids-Amana	18.56	111	150	0.74	63%
Maquoketa-Selmar	6.8	49	67	0.73	63%
Manning-Harlan	23.7	68	94	0.72	63%
Hampton-Waverly	41.4	106	161	0.66	64%
Lamoni-Mo. State Line	5.6	46	79	0.58	64%
Dike-Hicks	9.7	23	42	0.55	64%
Conrad-Gladbrook	9.0	50	97	0.52	64%
Albia-Mo. State Line	36.1	88	171	0.51	65%
Ottumwa-Sigourney	26.8	107	213	0.50	65%

FIGURE 20

IOWA 85% RAIL SYSTEM
STATE RAIL SYSTEM PLAN

DEPARTMENT OF TRANSPORTATION
IOWA

MINNESOTA

MISSOURI

NEBRASKA

SOUTH DAKOTA

ILLINOIS

WISCONSIN

Chicago, Rock Island & Pacific R.R. Co. ..... CRIP
Chicago, Milwaukee, St. Paul & Pacific R.R. ..... MILW
Chicago & Northwestrn Transportation Co. ..... CNW
Illinois Central Gulf R.R. ..... ICG
Burlington Northern R.R. ..... BN
Davenport, Rock Island & Northwestern Ry. ..... DRIW
Atchison, Topeka & Santa Fe Ry. Co. ..... ATSF
Norfolk & Western Ry. Co. ..... NW
Union Pacific R.R. ..... UPRR
Cedar Rapids & Iowa City Ry. Co. ..... CRIC
Des Moines & Central Iowa Ry. Co. ..... DMC
Central Iowa Transportation Coop. ..... CITC
Iowa Terminal Ry. Co. ..... IT
Waterloo R.R. Co. ..... WC
Interchange points ..... ★

BRANCHLINE ANALYSIS SUMMARY
86% to 100% Rail System

Branchline	Mileage	Benefits ($1,000)	Costs ($1,000)	Benefit Cost Ratio
Manchester-Cedar Rapids	38.4	32	307	0.10
Rolfe-Mallard	11.4	12	134	0.09
Spencer-Terrill	14.5	15	158	0.09
Ruthven-Mallard	18.3	17	191	0.09
Red Oak-Shenandoah	17.5	8	94	0.09
Wapello County-Ottumwa	16.4	12	128	0.09
Blakesburg-Ottumwa	12.0	8	93	0.09
West Liberty-Mediapolis	47.5	29	331	0.09
Sigourney-Amana	41.4	36	387	0.09
Oelwein-Dubuque	73.1	43	547	0.08
Lamoni Jct.-Humeston	32.3	33	396	0.08
Gypsum-End of track	11.7	9	121	0.07
Buckingham-Hicks	9.4	3	41	0.07
Ft. Madison-Stockport	38.7	34	483	0.07
Minn. State Line-Sheldon	31.6	22	363	0.06
Henderson-Hastings	9.3	6	129	0.05
Mediapolis-Washington	37.1	27	519	0.05
Lake Mills-Corwith	39.8	13	318	0.04
Estherville-Minn. St. Line	7.9	3	77	0.04
Fontanelle-Cumberland	18.0	11	278	0.04
Hastings-Randolf	11.4	7	170	0.04
Pella-Oskaloosa	15.6	4	105	0.04
Ottumwa-Keokuk	81.9	14	625	0.02
Hawarden-Wren	31.1	1	301	0.01
Luverne-Humboldt	15.4	1	180	0.01
Moulton-Ottumwa	35.8	1	254	0.01
Gladbrook-Garwin	7.2	0	44	0.00
Centerville-Missouri State Line	16.5	0	271	0.00
Eddyville-Ottumwa	15.6	0	104	0.00
Royal-Hartley	12.4	0	147	0.00
Eagle Grove-Clarion	10.2	0	88	0.00
Manly-Lyle	19.9	0	123	0.00
Ft. Dodge-Moorland	6.5	0	82	0.00
Bancroft-Ledyard	9.4	0		0.00

FIGURE 21

IOWA 100% RAIL SYSTEM
STATE RAIL SYSTEM PLAN

DEPARTMENT OF TRANSPORTATION
IOWA

Chicago, Rock Island & Pacific R.R. Co.
Chicago, Milwaukee, St. Paul & Pacific R.R.
Chicago & Northwestrn Transportation Co.
Illinois Central Gulf R.R.
Burlington Northern R.R.
Davenport, Rock Island & Northwestern Ry.
Atchison, Topeka & Santa Fe Ry. Co.
Norfolk & Western Ry. Co.
Union Pacific R.R.
Cedar Rapids & Iowa City Ry. Co.
Des Moines & Central Iowa Ry. Co.
Central Iowa Transportation Coop.
Iowa Terminal Ry. Co.
Waterloo R.R. Co.
Interchange points ★

XXXX Class II Rail Lines not analyzed.

Benefit/Cost Curve

The benefit/cost curve shown in Figure 22 was established from the benefit/cost ratios calculated for those branchlines analyzed. The curve indicates reduced benefit/cost ratios as mileage increases. This also indicates the amount of branchline mileage the State of Iowa can support.

Consistent with the Green-Amber-Red concept of the 1975 Iowa Rail System Plan, Figure 22 indicates those branchline miles which will be considered for rehabilitation assistance according to the following guidelines:

Green System

These lines have been divided into two groups, lines whose benefit/cost ratio is greater than or equal to 2.0 and those lines whose benefit/cost ratio is less than 2.0 but greater than or equal to 0.75.

$$B/C \geq 2.0$$

As the B/C ratios indicate, substantial rates of return can be expected for improvements on these lines. Recognizing that rail companies may not have the financial resources immediately available to rehabilitate many miles of branchlines, the DOT may make funds available generally on a loan basis rather than through a grant program. These loans will utilize Iowa Branchline Assistance Program funds and will be paid back to the state by various methods. The DOT is confident that carriers and shippers will be able to reach equitable agreements on many project proposals which will not utilize Federal grant funds.

$$2.0 > B/C \geq 0.75$$

Lines in this category will qualify for funding through two programs - the Iowa Branchline Assistance Program and the Local Rail Service Assistance (4R Act) program.

Amber System - $0.75 > B/C \geq 0.50$

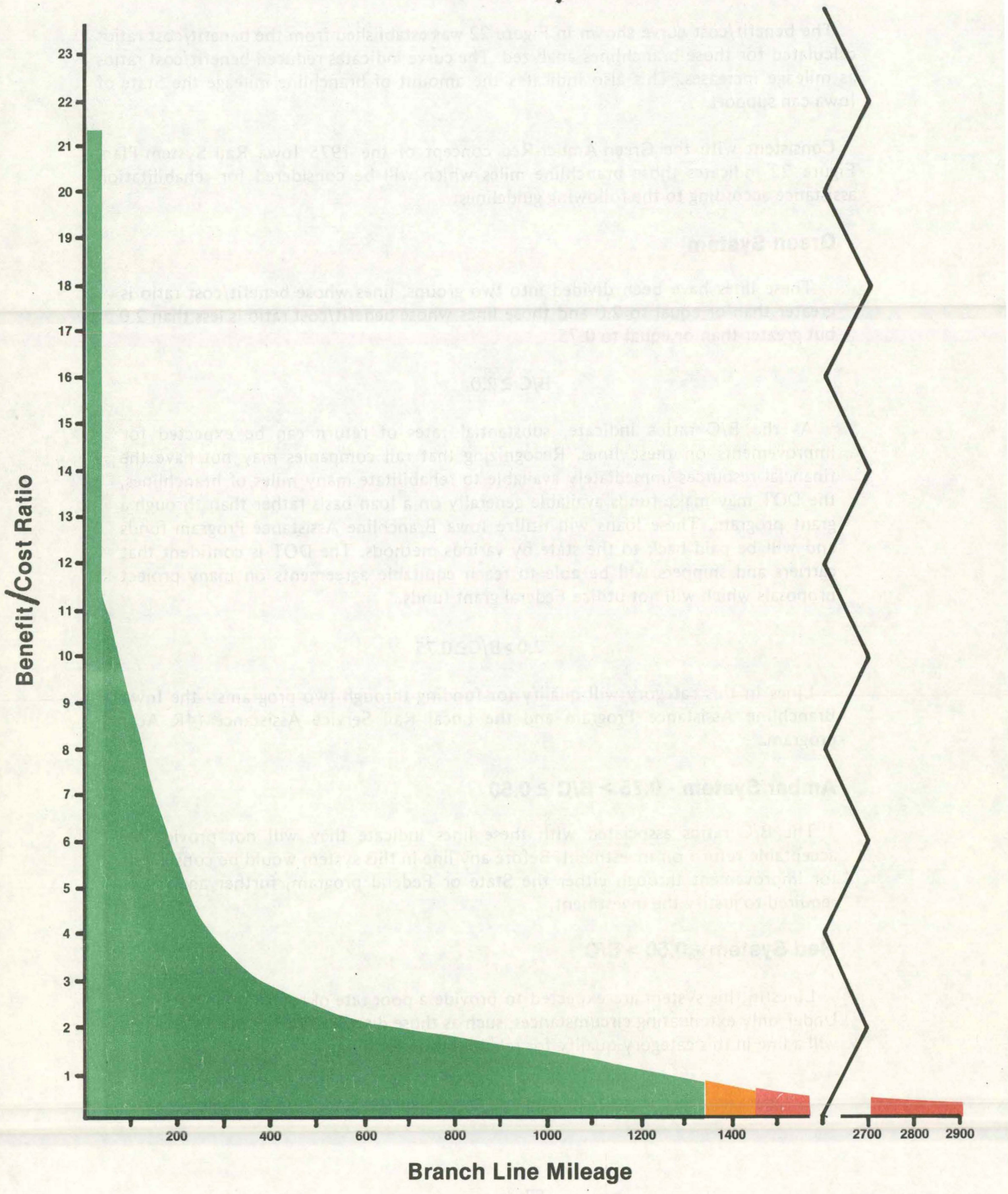
The B/C ratios associated with these lines indicate they will not provide an acceptable return on investment. Before any line in this system would be considered for improvement through either the State or Federal program, further analysis is required to justify the investment.

Red System - $0.50 > B/C$

Lines in this system are expected to provide a poor rate of return on investment. Under only extenuating circumstances, such as those discussed earlier in this section, will a line in this category qualify for rehabilitation funding.

FIGURE 22

BRANCH LINE BENEFIT/COST CURVE



V. ASSOCIATED STUDIES (266.9(e)

To provide a continuing, comprehensive rail planning effort, several associated studies must complement the branchline analysis. Accomplishment of the following studies will ensure that all important aspects of a total, statewide rail system have been examined for potential utilization and impact.

A. Keokuk Terminal Study

Proposal

It was suggested that an improved diagonal rail route from Northwest Iowa to Keokuk in Southeast Iowa would provide greater service to the branchlines of Iowa. For example, this line would provide a more direct connection to year-round barge service, facilitate better turn-around times and possibly provide a catalyst to further coordinate rail service between railroad companies. The proposed rail service involved the Milwaukee Road branchline track from Spencer to Des Moines and the Rock Island branch from Altoona (near Des Moines) to Keokuk, a generally ice-free port. It was thought that improved rail efficiency would decrease shipping costs, thus increasing profits to Iowa's agricultural community.

Existing Facilities and Traffic

Track Condition

Track from Spencer to Herndon (101 miles) was upgraded as a part of the Iowa Branchline Assistance Program contract of November 1974 and supplemented August 1975. This assistance project was completed at a cost of $2.1 million. The present track condition from Herndon to Keokuk (203 miles) is considered very poor and needs complete rehabilitation. Service is not presently continuous along the line because of a bridge washout at Eldon in Southeast Iowa.

Rail Traffic

Traffic originating or terminating along the Spencer to Keokuk route in 1974 varied by segment.

Branchline Segment	1974 Volume Mileage	Cars/Mile
Spencer to Herndon	101	106
Yale to Adel	26	78
Adel to Clive	15	35
Altoona to Pella	36	71
Pella to Ottumwa	40	18
Ottumwa to Eldon	12	103
Eldon to Keokuk	63	77

Unit grain train facilities along the route which have capacity to load out twenty-five or more covered hopper cars are located at Spencer, Albert City, Rockwell City, Jefferson, Yale and Avon.

River Service Access

Keokuk is the only river community in the state which normally provides water transportation on a year-round basis:

- Two barge terminal companies are presently located at Keokuk in the Lock and Dam No. 20 pool. These companies handle manganese ore and grain.
- Rail service to water facilities at Keokuk is provided by the Rock Island, Burlington Northern, Norfolk and Western and Toledo, Peoria, and Western Railroads.
- Highway access is provided by U.S. Highway 61, 136 and 218.

Findings:

The cost of upgrading the rail line is estimated to be $16.2 million (Table 12); this amount must be recovered through reduced shipping costs to be considered a wise investment. The Keokuk Terminal Study indicates that existing rail, barge, and motor carrier rate structures do not promote usage of the improved facilities:

1. Shippers near the Mississippi River can move grain more cheaply by trucking grain to the nearest barge facility.
2. Shippers in central and northwest Iowa get more favorable rates--especially unit-car rates--by shipping to Houston and/or using the rail-barge rates from a given location are those which utilize the shortest distance by rail, thus promoting use of the northern Iowa barge loading facilities.
3. New unit train rates and favorable export market price premiums are increasingly expanding the market share of grain sold through commercial markets to Houston, with rail as the favorable mode.

Also, the Mississippi River at Burlington is ice free for nearly the same period each year as is the River at Keokuk. With Burlington already being served by rail lines in good condition and barge rates identical at both Burlington and Keokuk has little advantage over Burlington in any respect.

TABLE 12

KEOKUK TERMINAL FEASIBILITY REVIEW

	Spencer to Keokuk	Des Moines to Keokuk
Cost to Upgrade	$16,243,000	$9,656,000
Annual Cost	2,644,000	1,621,000
Cost Advantage (1)	2.13¢/bu.	2.13¢/bu.
Required Volume of Shipment (2)	120,000,000 bu./yr.	76,000,000 bu./yr.
Potential Maximum Shipments (3)	20,287,000 bu./yr.	9,075,000 bu./yr.

(1) Cost advantage in comparison to shipments from Seneca, Illinois which provides the greatest year-round competition to Keokuk.
(2) Annual volume at cost saving to yield saving equivalent to annual cost of line.
(3) Maximum potential volume to be moved with improved Keokuk line and terminal.

Conclusion:

The study concludes that development of the Keokuk Terminal proposal is not an economically feasible course of action. The final write-up of the study is not available at this time.

B. Urban Area Rail Studies

Study Objectives

A comprehensive state rail planning effort must include an examination of urban area rail functions. Switching, classification, stub-line, side-track and branchline operations occur in most urban areas. These operations affect service levels, turn-around times, shipper demand and occasionally, shipper location/relocation on branchlines.

The Iowa DOT staff developed a two-phase approach to the study of urban area rail systems. Phase One is a short-range evaluation and program. In Phase Two, a long-range plan will be developed based on an assessment of this short-range program and an examination of various potential developments. It is recognized that there is uncertainty in transport demand, investment an; impact forecasting. Uncertainty about actual construction and operation costs, about the systems' environmental side effects on property values and their compatability with existing transportation networks call for a two-phase study.

The short-range plan involves organizing parties for work together toward common goals. Involved in looking at the situation is an inventory of the present urban transportation system and the current levels of service. These discussions will promote identification of the problems and negotiation of short-range, low-cost solutions.

The long-range plan will build on the urban area special interest group participation. The group will identify their individual future needs and potential development plans.

Essential to this phase is a commitment toward common goals and the ability of the group to work toward these goals. A consultant hired to study problems and suggest implementation alternatives must have the complete confidence of the group.

Study Approach

The following guidelines will direct all urban area rail studies conducted by the Iowa DOT.

Phase I - Short-Range Planning

Task 1 - Organization of parties

Organization of all interested parties into a central group. This group should include area railroads, area rail users (shippers), city officials, county and/or regional officials, state officials, rail-related labor unions, and any other parties interested in the urban area rail system. Such a group should meet regularly, and should include those individuals

which have effective decision-making authority for the area. Consolidation of these parties into a single group facilitates communication, allowing for more efficient collection, review and dissemination of information.

Task 2 - Inventory of present system

This Task involves a complete inventory of the area's present rail system, and involves the identification of all interline interchange facilities, intermodal connections and conflicts, and rail car movement patterns.

Task 3 - Levels of Service

This Task involves the identification of the levels of rail service which exist for the rail users of the area as well as the levels of rail service which are desired by those users. This identification would include such service areas as rail car availability, interline transfers, intracity car movements, seasonal volume fluctuations, and notification procedures. This task will also include an honest and frank appraisal by the rail users of any impending variation in their normal rail service requirements which are due to changes in their operations and which are significant to short-range planning for the area.

Task 4 - Problem areas

This Task involves the systematic identification of the short-range problem areas associated with the rail system. It is important that this task is approached objectively and professionally. This identification process may involve individual and collective interviews with the interested parties, with special effort being made to solicit the input of the rail companies and rail users.

Task 5 - Short-range solutions

This Task involves the identification and implementation of those short-range solutions to the needs and problem areas indicated by Tasks 2-4 above. These solutions are generally those which are within the collective decision-making capabilities of the group (Task 1), and are characterized by relatively low capital requirements, relatively minor operational changes, and slight modification of the existing rail system physical structure. These solutions should also include provisions for some form of systems oversight committee. This would allow the rail system to be continually monitored so that potential problem areas might be identified and addressed.

Phase II - Long-Range Planning

Once existing problems have been examined and resolved to the extent possible, long-range planning should begin. This planning process would include the following major tasks:

Task 1 - Identify future plans and potential development

a. Each participating shipper in the affected area should identify all long-range future plans as to expansion or elimination of existing physical facilities,

proposed new facilities, volume of shipment both out and in, a general description of the type of commodities to be moved, the type of transportation mode required for these shipments, and the level of transportation service desired.

b. Local government and civic representatives should document future plans for the affected area with particular emphasis on transportation facilities, land use, and present or future problem areas or conflict points betwen modes of transportation.

c. Railroad representatives should document future plans they may have under consideration for the affected area and also be prepared to assess their potential for providing service adequate to satisfy the plans presented under a and b above.

d. Based on the information developed under a, b and c above and any other overriding considerations, the involved groups should collectively prepare a list of very descriptive goals and objectives to be addressed in a comprehensive planning study. It is important that this list be approved by all interested parties to assure unanimity of agreement.

Task 2 - Commitment to study

Once the provisions of Task 1 (above) have been completed, but before any long-range planning study is initiated, the interested parties will be required to make three commitments to the study:

a. A study which is of interest to a specific area and which is not state-wide in scope will not be funded by the state at the 100-percent level. Instead, there must be a financial commitment on the part of the individual interested parties--including the city or regional area governments, the rail users, and the railroads--to provide significant portions of the study costs. The exact share of each party, including the state, is flexible and will be decided by the collective body.

b. All interested parties must commit their full cooperation to the timely progress of the study. This cooperation must include access to all available data as well as needed in-kind services.

c. All interested parties must commit themselves to implement any study recommendations which are feasible and intrinsic to the area's rail needs. While all of the study recommendations may not be reasonably practical, all participants must be willing to objectively consider the suggestions outlined in the study, and agree to implement all which are essential to meeting the goals and objectives outlined in Task 1.

Task 3 - Implementation of study

Once Tasks 1 and 2 have been satisfactorily completed, the Iowa Department of Transportation will assist in obtaining the services of a consultant qualified to carry out

the study process. The consultant shall utilize the goals and objectives developed in Task 1, and shall make recommendations addressing the long-range rail needs of the areas. These recommendations shall include, but not be limited to:

a. Feasible modifications in the rail system utilization methods of the rail users.

b. Feasible modifications in the rail system utilization methods of the railroads.

c. Feasible modifications in the existing rail system physical structure to reduce, to the extent possible, major intermodal conflicts as well as facilitate improved rail movements in the area.

Task 4 - Study review and implementation of findings

Once the consultant completes the study and comprehensively reviews its content and conclusions with the interested parties, it shall be the responsibility of the collective group to develop a plan for implementation of all feasible recommendations.

Urban Areas To Be Studied

The Iowa DOT has received study proposals from the Siouxland Interstate Metropolitan Planning Council and the Linn County Regional Planning Commission.

Sioux City

The Sioux City study will develop a plan and strategy to improve the rail service in Iowa, Nebraska and South Dakota which is centered in Sioux City, Iowa.

There are over 300 at-grade railroad/street intersections in the urban area of Sioux City. Many crossings occur at high volume streets, resulting in numerous accidents, injuries and deaths. These crossings add cost and delay to the railroad companies and motorists alike. The study will provide for rating each crossing and establishing a method to indicate improvement/elimination priorities.

The Port Neal area and Bridgeport area are two industrial development tracts located south of Sioux City. These areas, although having unique problems, represent a potential area for joint governmental, shipper and railroad cooperation that would result in a transportation system of benefit to all. With the increased amount of development expected to occur, it is important to note the relationship of existing and future railroad facilities with that of alternate land use and highway patterns.

At the present time, coal moves into the Port Neal area via the Chicago and North Western Railroad. The circuity of this movement, crossing airport access roads, requires an extra distance of approximately ten miles per round trip, and time delays for both the train and the airport patrons. Time loss, safety, flights missed and the inability of emergency vehicles to reach the airport dictate this problem be solved.

The potential of this area to serve as a model total multi-modal transportation center should be determined. At the present time, the Port Neal/Bridgeport area has all modes of transportation located there, including barge, pipeline, railroad, highway and airport facilities.

The railroad companies, at the present time, are developing plans for improvements to the switching yards in the Floyd Valley area. This study will develop recommendations for coordinating these activities to insure that both the railroad, city and industrial activities are compatible.

Cedar Rapids

A Rail Study Advisory Committee has been formed to direct the Cedar Rapids urban rail study. A final study proposal is being developed at this time.

C. Midwest Rail Servicve Study

Study Objectives

The Iowa Department of Transportation is coordinating with other midwestern states to develop a rail service study which will address the direct and indirect impacts of railroad mergers, consolidations, coordination projects and bankruptcies (Figure 23). Specifically, the DOT is concerned with the changes in service which might result from such railroad reorganization and how the state should participate in the various proceedings.

Impacts of mergers, consolidations, coordinations and bankruptcies are both local and regional in nature. It is felt that a regional study is necessary in order to realistically predict local impacts. A regional study will take into consideration the reaction of other states to specific types of proposals; this is necessary to evaluate the potential local impacts on Iowa's local communities and branchlines.

Study Approach

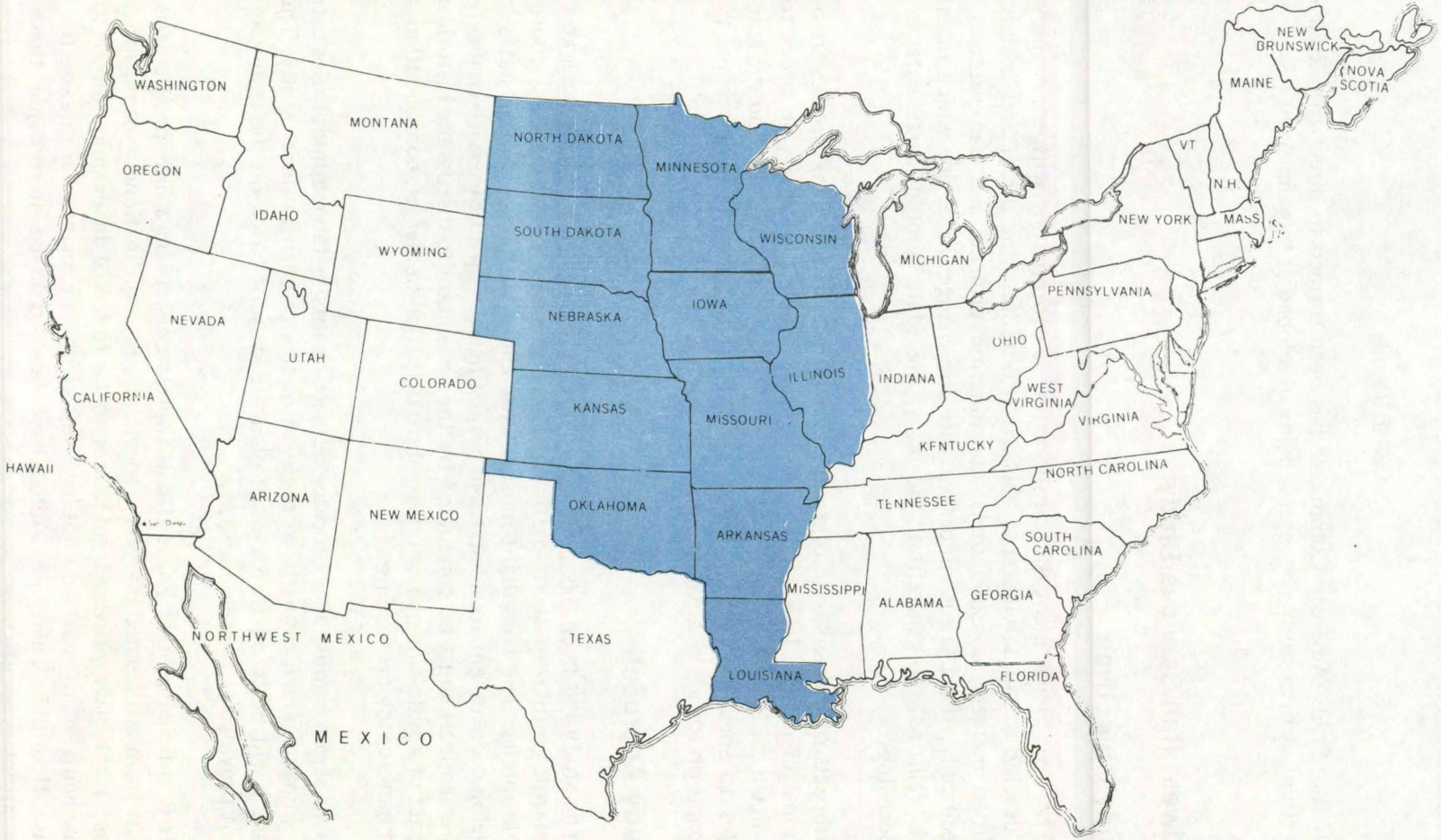
The study has been designed in two phases. Phase I will address the states' historic and legal role with respect to participation in mergers, consolidations, coordinations and bankruptcies. The consultant must discuss and evaluate the various states' concerns and develop a document to aid states in evaluating the impact of service changes. Also, one or more seminars must be conducted by the consultant to discuss the historic and potential impact of a state's formal or informal participation in merger, consolidation, coordination and bankruptcy proceedings.

This seminar must also educate the participants in the methodologies used to evaluate the impacts which result from the type of service changes under study. The last task in Phase I will be to develop a work plan for Phase II based on the results of Phase I and input provided at the seminars.

It is anticipated that Phase II will address impacts on a line-specific basis which could result from anticipated mergers, consolidations, coordinations or bankrupticies. Although Phase I will have provided guidelines to be followed in examination of various service agreements, many states do not have sufficient time, manpower or expertise to conduct a Phase II study. Therefore, funds have been reserved to provide these line-specific evaluations as needed.

FIGURE 23

MIDWEST STATES RAIL SERVICE STUDY AREA



Background

Approximately 35% of Iowa's roadway miles of track have been classified by the FRA as corridors of consolidation potential. This classification suggests more track exists than is needed for current and potential traffic.

The financial condition of several midwest railroads suggests that major restructuring (either planned or precipitated by the cessation of operations) is very likely.

Merger proposals coming before the Commission are likely to provide solutions to the problems of weaker carriers which, despite their financial condition, perform essential services. For example, had the merger talks between the Southern and Missouri Pacific Rail Companies come to fruitation, the problems of the Rock Island would have been compounded rather than abated. The study will confront the issue of protecting essential services provided by the weaker carriers and offer possible solutions.

When merger applications are filed with the Commission, affected carriers are likely to polarize their positions thus minimizing the opportunity for candid disucssion of alternative approaches. Omitted carriers will seek inclusion or conditions to protect themselves against advantages they perceive will accrue to the merger applicants. The formulation of firm policy guidelines in advance of various rail service agreements will assist the states in resolving these potential difficulties. The study will seek to propose such guidelines.

If acceptable rail service policy guidelines are developed, it will place rail carriers in the position of knowing in advance of filing what the states require to protect the public interest. Railroads will be able to evaluate their proposals in light of the guidelines before they file.

The time frame for processing merger applications has been restricted by the 4R Act. If this study is completed before most merger applications are filed, several issues requiring time to evaluate will have been identified and dealt with, and, as a result, the states will be in a better position to evaluate merger cases expeditiously.

There should be a public forum in which to explore restructuring issues, to consider available alternatives, and to offer potential solutions. The rail service study will aid the state policy decision makers by developing the necessary expertise and background to act expeditiously in the face of the time and public interest pressures which are likely to arise if a major rail carrier fails.

Study Timetable

A steering committee of the participating states interviewed several consultants and selected Ernst & Ernst to conduct the study. Work will begin in November, 1977 with completion of the study scheduled for March, 1978.

D. Midwest Rate Regulation Study

Study Objectives

The Iowa Department of Transportation will coordinate with other midwestern states in their rail planning programs to develop a study which will evaluate the rail regulatory climate and its impact on Iowa and the Midwest region. Specifically, the study will address current rate-making procedures and develop a working knowledge of the issues involved in these procedures:

1. To assess the impact of these regulations on rail users and rail carriers.

2. To recommend regulatory changes:
   a. For State DOT participation in national regulatory proceedings; e.g., ICC ExParte rulemaking proceedings.
   b. For Congressional delegations in the legislative process.
   c. For a possible petition to the ICC to institute regulatory reviews.

3. To assist rail users and rail carriers in interpreting and negotiating rail freight rates under changing regulatory conditions.

The costs and benefits of rate regulations have been assessed on the national level, but the actual impacts of rate regulatory changes are local and regional in nature. Local service decisions are dependent on decisions made in the midwest region level by rail carriers and rail users. The understanding of issues at the local level, as well as the regional and national levels, will prepare Iowa to better evaluate impacts on its branchlines and guide policy changes.

Study Approach

It is expected that the consultant will coordinate with applicable on-going studies such as work being done by the U.S. DOT, ICC, USDA and other federal agencies, the AAR Labor Management Task Force, as well as the research community at the state level. This work would also compliment work by the ICC, e.g., the Small Business Assistance Office, as well as various traffic clubs.

The regulations to be examined are those pertaining to grains, fertilizer, coal and major manufactured goods.

Background

The financial condition of several midwest railroads suggests that major restructuring (either planned or precipitated by the cessation of operations) is very likely. Predetermined policies will form the basis for public action to assist carriers, shippers and receivers.

There should be a public forum in which to explore ratemaking issues, to consider alternatives, and to offer potential solutions. The rate study will help state governments in developing the necessary expertise to act expeditiously in the face of time and public

interest pressures which do arise. Several issues which require time to evaluate will have been identified and dealt with, and as a result, regulatory decisions will be expedited.

The response of other modes to changes in rail rates and the impact on the viability of the rail carrier and rail users will be assessed.

If traffic on a branchline loses money, service is often impacted. It might be preferable to raise rates rather than change service (i.e., abandonment).

Collective ratemaking for joint rates is accepted in the industry. A proposal is to reduce the extent to those carriers participating in a single through route. This would promote a competition for separate routes between pairs of points.

Study Timetable

It is anticipated the study will be completed by mid 1978.

VI. FUTURE DIRECTIONS 266.9(d)(1)

1. Annual update of State Rail Plan. The investigation and research in support of the rail program will be part of a continuing intermodal planning process.

2. Continue to administer a financial assistance program for branchline improvements, supplementing the efforts of the individual rail companies. Iowa will encourage the upgrading of rail facilities within its borders in order to promote more efficient commodity movements.

3. Analyze urban area rail service of patterns and provide assistance for resolving operational difficulties. The urban area studies will be part of a continuous effort to coordinate special interest groups in meeting their goals for improved urban transportation systems.

4. Develop a railroad base record collection and storage system. Planning must be based on accurate, uniform and consistent information pertaining to physical condition, traffic and services on Iowa's rail lines.

5. Develop a sufficiency rating procedure for rail lines. A sufficiency rating system will provide a comparison of statewide service levels, adequacy of maintenance, and funding directions.

6. With guidelines developed as a part of the Rate Regulation Study, an evaluation of policies will be carried out and Iowa's position on rate regulation will be presented to the ICC through the request for rulemaking or similar judicial proceedings.

7. With guidelines from the Midwest Rail Service Study, an evaluation of all rail company trackage coordination, consolidation and merger proposals will be undertaken.

8. Develop and administer a Rail Banking Program. If no local group or individual is willing to match the continuation costs for a proposed-to-abandon branchline, the line will be evaluated as a candidate for railbanking.

9. Evaluate all abandonment proposals. Advisory assistance will be provided to rail users based on this evaluation.

10. Promotion of increased rail service where it is the most efficient mode available.

APPENDIX A
Iowa DOT Rail Abandonment
Policies and Procedures

Iowa Department of Transportation

POLICIES AND PROCEDURES MANUAL

SUBJECT	POLICY NO.
Railroad Abandonments	
RESPONSIBLE DIVISION(S), OFFICE(S)	RELATED POLICIES & PROCEDURES
Railroad Transportation, Planning and Research, Transportation Regulation Board	
EFFECTIVE / REVISION DATE	APPROVAL(S)

I. Affected Division(s): Railroad Transportation Division (RTD), Planning and Research Division (PRD), Transportation Regulation Board (TRB)

II. Policy Statement and Purpose: It is the policy of the Iowa Department of Transportation (Department) to review and analyze each railroad abandonment application on an individual basis, to prepare a report and recommendation for the Transportation Commission, and where appropriate, prepare pleadings before the Interstate Commerce Commission (ICC) to assure the development of a viable rail network for essential service to the State of Iowa. This policy shall be implemented in a manner consistent with the approved Action Plan of the Department for the evaluation of social, economic, and environmental effects and public participation.

III. Authority: This policy is established by the authority of the Railroad Transportation Division Director and the Transportation Regulation Board in accordance with the authority of the Iowa Department of Transportation.

IV. Definitions:

Category 1 line - A rail line designated by a railroad company which may be the subject of abandonment within three years for which, however, no petition for abandonment has been filed.

Rail Banking - Preserving the right-of-way of an abandoned rail line for future transportation uses.

Notice of Intent - A notice filed by a railroad company within 30 days prior to the filing of an abandonment application, wherein the railroad company notifies the ICC, the Department, the Governor, and shippers of its intention to file an abandonment application.

Action Plan - Guidelines designed to assure that social, economic and environmental effects of transportation decisions are fully considered.

V. & VI. Summary of Responsibilities and Procedures:

General Comments

To aid in the understanding of the reponsibilities and procedures of the Department in the ICC rail abandonment process, the abandonment process has been divided into the following steps:

Step 1: Advance Notice
Step 2: Pleadings and Comments
Step 3: Investigation
Step 4: Final Decision

A brief outline of the ICC Abandonment Procedures under the Interstate Commerce Act is attached as Appendix A. The ICC has exclusive jurisdiction in railroad abandonment cases. The Department can enter the proceedings in support of or in opposition to an application. The RTD, PRD, and TRB, in cooperation with regional planning agencies, shall hold local informational meetings to review and discuss the issue of railroad abandonments.

A. Advance Notice

1. After a line has been filed by the railroad as a Category 1 line:

-The RTD and PRD, shall contact local shippers and officials to gather information concerning the current and potential traffic, local impacts, and interest in preserving rail service (including financial assistance).

-The RTD shall review the condition of rail facilities, including a visual inspection by division track inspectors, and prepare estimates of upgrading costs and salvage values.

-The PRD shall analyze the effect of the abandonment on the Iowa rail system, as developed in the Iowa State Rail Plan and other associated studies, to determine if the line is needed for maintaining essential service.

-The PRD shall review the potential for rail banking.

-The PRD shall contact the Office for Planning and Programming, the Iowa Conservation Commission, regional planning agencies, and other governmental agencies as they deem appropriate concerning the potential availability of an abandoned rail line for other public uses.

-The RTD shall provide notice of the local meeting which shall be published in newspapers of general circulation and sent by mail to known shippers along the affected rail line, the mayor of each city and the chairperson of the county boards of supervisors along the affected rail line.

-A local public meeting shall be held to provide assistance and guidance in understanding ICC abandonment procedures. At this meeting, the Department may request current and pertinent information which will aid in the development of the Department position with respect to the abandonment application.

2. When public notice or a "Notice of Intent" is received from a railroad company:

-The RTD and PRD shall jointly review all information developed and update if necessary.

-A staff report on the abandonment application based on current available data shall be developed no later than seven (7) days prior to the proposed date for filing the application.

-The RTD shall provide copies of the staff report to known shippers along the affected rail line, the mayor of cities and chairpersons of county boards of supervisors along the affected rail line, regional planning agencies, the affected railroad company, and all interested parties who request a copy of the report.

B. Pleadings and Comments

-After an application is received, a public meeting shall be held to review the information which will be presented to the Transportation Commission for their consideration and final decision.

-The RTD Director shall present a staff report and recommendation to the Transportation Commission no later than 30 days after application is filed, at which time the Commission shall determine the Department position and action to be taken. The recommendation of the staff shall be followed unless modified by the Commission. Persons wishing to make presentations to the Commission should notify the DOT Director's office one week prior to the Transportation Commission meeting.

-The TRB Counsel shall file with the Interstate Commerce Commission appropriate legal papers in the pending abandonment proceeding on behalf of the Department.

-The TRB Counsel, upon request, shall provide information as to ICC procedures and ICC rules of practice. When the Department opposes abandonment, the TRB Counsel may assist local individuals or groups in the preparation and filing of legal papers in abandonment proceedings.

C. Investigation

-The PRD and RTD shall assist the TRB Counsel in preparation of information needed to develop a case before the ICC.

D. Final Decision

1. When a "Conditional Certificate" is issued by the ICC:

-The RTD and PRD shall determine the eligibility of a line for financial assistance in accordance with the Department policy and procedures for administration of Federal and State funds.

-The PRD shall prepare a report on the use of the abandoned right-of-way, which shall include rail banking and other public purposes.

ABANDONMENT PROCEDURES UNDER THE
INTERSTATE COMMERCE ACT AND ICC REGULATIONS

1. The railroad's system diagrams.

   A. Each railroad must file a system diagram showing--

      1. Lines the railroad anticipates will be abandoned within 3 years of the date of filing the diagram.

      2. Lines railroad has under study as candidates for possible future abandonment.

      3. Lines for which abandonment application is pending.

      4. Lines being operated under subsidy.

      5. All other lines in the railroad's system.

   B. Initial diagrams must be updated annually if changes in the line categories have occurred.

   C. Diagram must be

      1. Served on governors, state regulatory commissions, state "designated agencies" (usually DOT's), and ICC.

      2. Published in local newspapers in areas where lines in categories 1-3 are located.

      3. Posted in stations on lines in categories 1-3.

   D. ICC cannot grant Certificate of Abandonment unless line has been listed in category 1 for 4 months if abandonment is opposed by a state or political subdivision in which line is located or by a significant user of the line.

1. Pre-filing procedures: Before filing an abandonment application the railroad must--

   A. Prepare a notice which shall include an "accurate and understandable" summary and explanation of the proposal and of the reasons for seeking abandonment authority, and the proposed date for filing the application.

   B. Serve the notice on the governors of the affected states (by certified mail), on state regulatory commissions, state designated agencies, the ICC, and the significant users of the line.

C. Post the notice in each terminal and station on the line.

D. Publish the notice in local newspapers for 3 weeks.

III. The first 60 days after the application is filed.

A. Within 35 days of the filing of the application, interested persons may file either--

1. Comments, which may be informal, need not be verified, but which must be served on the railroad; or

2. Petitions to investigate, which must be verified and served on the railroad.

B. If a petition to investigate is filed, the ICC must institute an investigation, and it may institute an investigation on its own motion whether or not comments or petitions are received.

C. If the ICC institutes an investigation, it must determine its nature and scope (e.g., whether oral hearings are to be held) and notify the railroad by the 55th day following the filing of the application.

D. All abandonment applications will be the subject of an environmental review by the ICC which will be begun as soon as possible after the filing of the application.

E. If no investigation is instituted, the certificate of abandonment must be issued on the 60th day following the filing of the application.

IV. Processing an investigation of an abandonment application.

A. The evidentiary record must be completed within 180 days after hearing or processing on modified procedure begins.

B. An initial decision must be issued within 120 days after the record is closed.

C. Appeals from the initial decision must be filed within a 20-day period, which can be extended by the ICC for an additional 20 days only.

D. A decision on appeal must be issued within 180 days after the appeal is filed.

E. Appeal from this decision can be made only if the ICC finds that an issue of general transportation importance is involved, that clear and convincing new evidence has been presented, or that changed circumstances exist. The appeal must be filed within a 20-day period, which can be extended for an additional 20 days only.

F. A decision on a second appeal must be issued within 120 days after the appeal is filed.

V. Conditions normally imposed in the certificate of abandonment.

A. If the ICC finds that the railroad property involved is suitable for public use, it will require that the railroad tender it for sale, upon reasonable terms, for public purposes for 180 days.

B. Conditions will be imposed for the protection of railroad employees.

C. Effectiveness of the certificate of abandonment will be postponed until interested persons have had an opportunity to offer financial assistance for the purpose of preserving the service.

VI. Financial assistance procedures.

A. The ICC will publish a notice that an abandonment has been authorized in the Federal Register informing interested persons that they may offer financial assistance.

B. Offers of financial assistance, which may be in the form of operating subsidy or purchase of the line, must be made within 15 days of the date of publication.

C. Within 30 days of the date of publication the ICC must either find that a financially responsible person has made an adequate offer of financial assistance, or allow the abandonment to take place.

D. If an offer of financial assistance is made, the ICC must postpone the effective date of the abandonment for a period not to exceed 6 months to permit negotiations.

E. An offeror is entitled to inspect the railroad's records of the costs and revenues of the line, and may obtain from the railroad an estimated subsidy payment based on standards adopted by the ICC.

F. When an offer of subsidy is made, the ICC must determine the amount of the required subsidy payment.

APPENDIX B
Branchline Rehabilitation Funding

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Iowa Department of Transportation

POLICIES AND PROCEDURES MANUAL

DRAFT

Date 10/13/77

SUBJECT	POLICY NO.
State and Federal Branch Line Rehabilitation Funding	
RESPONSIBLE DIVISION(S), OFFICE(S)	RELATED POLICIES & PROCEDURES
Railroad Transportation Division	
EFFECTIVE / REVISION DATE	APPROVAL(S)

I. Affected Division(s), Office(s): Railroad Transportation Division (RTD); Planning and Research Division (PRD); Office of Accounting

II. Policy Statement and Purpose: It is the policy of the Iowa Department of Transportation (Department) to:

1. Make application for and to use available federal funds allocated to Iowa under Section 803 of the Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act) for rail freight assistance programs as identified in the Iowa State Rail Plan, and

2. Administer available state funds, including but not limited to the State Railroad Assistance Fund, for improving railroad transportation services in the state.

3. Obtain maximum local user and owner participation.

4. Vary contracts according to the particular situation but always providing maximum incentives for rail use and service.

This policy shall be implemented in a manner consistent with the approved Action Plan of the Department for the evaluation of social, economic, and environmental effects and public participation.

Policy Purpose: To provide general guidelines and procedures for the administration of federal and/or state funds for rail freight assistance programs, including upgrading eligible branch line tracks, roadbeds, other rail properties and alternate services if appropriate.

III. Authority: This policy is established by authority of the Director of the Railroad Transportation Division.

IV. Definitions:

A. FRA: U.S. Department of Transportation, Federal Railroad Administration.

B. Branch Line: A line which is not classified as a main line, and excludes sidings, spurs, industrial track, terminals.

C. Railroad Assistance Fund: A state statutory fund established in Chapter 327H, Code of Iowa, 1977, to rehabilitate railroad branch lines.

D. Eligible Project: Proposed railroad construction or reconstruction project which may be considered for state and/or federal funding. Eligible branch line projects will be categorized in conjunction with the State Rail Plan which prioritizes lines based on an economic benefit/cost ratio.

E. "Roll-Over" Account or "Memorandum" Account: An account maintained by the railroad company into which the railroad records portions of revenue in accordance with applicable contracts, derived from increased traffic on rehabilitated projects. Said accounts shall be used for future rehabilitation projects.

F. Rail Property: Track, roadbed, and related structures; terminal and yard facilities; or any other property used in rail freight transportation services, excluding rolling stock.

G. Alternate Services: Transportation services which may be required in substitution if a branch line is abandoned.

H. In-kind Benefits: Non-cash contributions provided as "financial assistance" in a rehabilitation project, which may include, materials, forgiveness of taxes, donation or use of land, project improvement already incurred or personal services.

V. Summary of Responsibilities: The Railroad Transportation Division and the Planning and Research Division shall be responsible for prioritizing and recommending eligible projects; and the Railroad Transportation Division shall be responsible for recommending projects, negotiating project agreements and administering available state and/or federal funds. The Iowa Department of Transportation Commission shall review all projects and authorize execution of contract if they so approve.

VI. Procedures:

A. Pre-Contract Phase

1. Railroad Transportation Division and Planning and Research Division identifies eligible rehabilitation projects. Shippers, railroads, or other financially responsible persons indicate their interest in pursuing improvement of a particular project(s).

2. Railroad Transportation Division and Planning and Research Division conduct a program review with FRA as necessary.

3. Railroad Transportation Division contacts shipper groups on potential, eligible projects.

4. The Railroad Transportation Division negotiates with railroad companies regarding individual eligible projects.

5. Railroad Transportation Division prepares a proposed contract.

6. Shippers and railroads review contract and propose changes.

7. Railroad Transportation Division Director approves contract, obtains FRA concurrence, if appropriate, and presents to Transportation Commission.

8. Transportation Commission reviews contract. Railroad Transportation Division Director executes contract, subject to Transportation Commission approval.

9. Contract is executed by shippers and railroad company.

B. Rehabilitation and Follow-up Phase

1. Railroad begins rehabilitation work and submits periodic progress reports and itemized statement to Railroad Transportation Division and shippers group, pursuant to the contract.

2. The Railroad Transportation Division monitors rail improvement work through on-site inspections and notifies shipper groups of acceptance prior to payment of invoices.

3. Itemized billing statements are reviewed and approved by Railroad Transportation Division and submitted to Accounting Office.

4. Accounting Office reviews and forwards voucher to State Comptroller for payment.

5. After the completion of the project, the Railroad Transportation Division continues to monitor railroad projects to ensure that (1) rehabilitated branch lines are maintained at standards provided for in contract, (2) railroad paybacks to shippers are timely and accurate, and (3) proper accounts are maintained by the railroad in accordance with the negotiated agreement.

C. Federal Fund Matching Requirements

1. The Railroad Transportation Division will request financial assistance from the FRA for eligible projects.

2. The required non-federal funding including eligible in-kind benefits may be shared between the Railroad Assistance Fund and financially responsible persons (including government entities, cooperatives, shipper organizations, etc.)

3. Where applicable, provisions will be negotiated by the Railroad Transportation Division for repayment by the railroad of the state and local share based on volume of traffic originating and/or terminating on the line.

4. All federal funds involved in an eligible project will be a grant to the railroad company.

D. State Fund Matching Requirements

1. Railroad Assistance Funds may be available for selected branch line rehabilitation projects.

2. Railroad Assistance Funds may be used under a general matching basis with Railroad Transportation Division, railroad, and financially responsible persons participating.

3. In connection with the Railroad Assistance Fund project as described in paragraph D-1, the Railroad Transportation Division will negotiate with the railroad company, repayment provision to the financially responsible participating person based on their originating and/or terminating traffic on the line, not to exceed the local share provided by the responsible participating person.

4. Provisions will be negotiated by the Railroad Transportation Division for repayment by the railroad of the Railroad Assistance Funds based on increases in traffic which originates and/or terminates on the line. The repayment to the Department may be in the form of direct payment, "roll-over" payment or "memorandum" account payments.

APPENDIX C
Branchline Benefit/Cost Methodology

APPENDIX C

Branchline Benefit/Cost Methodology

Assumptions

Certain assumptions were made in the ISU Study and consequently in the Iowa Branchline Analysis. These were necessary to insure an objective but yet realistic view of Iowa's future commodity flows. These assumptions are as follows:

* That the 100-ton jumbo covered hopper cars will be the major mode of rail transportation for grain in the future.
* Farmers and shippers will continue to use the modes of transportation and sell their grain to markets that will yield them the highest net returns.
* Gasoline and diesel fuel prices will increase more rapidly than other transportation and handling costs.
* Grain production and grain exports will continue to increase in the future.
* Fertilizer usage will continue to increase.
* All corn and soybean processors in Iowa will require enough corn or soybeans to equal at least ninety percent of their projected 1980 annual processing capacity.

Benefit/Cost Analysis

The means utilized to evaluate the economics of establishing the priority levels was the benefit/cost analysis used in the ISU Study.

The benefit/cost analysis uses a series of computer programs to analyze the benefits from upgrading each rail line. The benefits from upgrading a line are defined as: the total annual transportation and handling cost savings to grain shippers, fertilizer receivers, and shippers and receivers of other products if the line is upgraded rather than abandoned. The benefits of upgrading are estimated in two steps. First, the flow of products from origin to destination is optimized over all markets, all rail lines, and all modes of transportation to obtain the maximum net revenue to shippers in the area, under the assumption that a given rail line is upgraded. Secondly, the flow of products was reoptimized to obtain the maximum net revenue to shippers under the assumption that the rail line is abandoned. The difference between the maximum net revenue with the rail line upgraded and the maximum net revenue with the rail line abandoned is the savings to the shippers from upgrading a line.

These transportation and handling cost savings from upgrading a given line are then divided by the annualized costs of upgrading, and the annual maintenance cost to obtain a benefit/cost ratio.

If the benefit/cost ratio is greater than 1.00, then the annual benefits exceed the annual costs of upgrading. If the ratio is less than 1.00, the costs of upgrading exceed the benefits. With this approach the analysis will evaluate each line or combination of lines from an objective economic standpoint.

The volumes of grain, fertilizer and other products were projected to 1980 and the optimal flow of these commodities was determined for each line as a whole.[1] All markets and modes of transportation were considered in this flow. All elevators were filled with grain during the harvest quarter because the storage facilities of all elevators would be needed. In addition, all Iowa processors received sufficient grain to operate at their projected 1980 capacity. The net revenue to shippers on the line was then determined for the projected volume of grain to be transported in 1980.

Solutions were run for each commodity independently. With grain, the objective was to produce the greatest revenue--moving grain to the markets producing the highest price net of transportation, variable storage, handling and drying costs, and the annual costs of additional grain storage and subterminal facilities required to support the optimal system.

The benefits to fertilizer receivers were estimated in essentially the same manner as for grain shippers. For the projected 1980 requirements, the flow was determined to obtain delivery to retail locations at the least possible cost under the rail situation.

The benefits to shippers and receivers of other products were estimated by calculating the additional costs that would be incurred by trucking and handling the projected 1980 quantities between the rail-abandoned town and the nearest town with a railroad. Benefits to grain shippers, fertilizer receivers, and other product shippers and receivers were added to obtain an estimate of the total transportation and handling cost savings from upgrading the line.

For this analysis, the State was divided into eight districts, primarily to reduce the number of possible rail line combinations. A reduced number of combinations was necessary to keep computer costs within the project budget and to reduce the analysis to a workable size for researchers. Eight districts (Figure C-1) were selected to minimize border effects and to maintain rail line continuity.

Also to minimize combinations, the branchlines within each district were analyzed and ranked one by one according to the following criteria: 1) the ratio of hundredweight per mile carried on each line segment with the highest ratio line being analyzed first, 2) Citizen Advisory Councils' input and 3) staff input from the Iowa DOT and Iowa State University. The hundredweight and mileages were obtained from rail records submitted by railroad companies to Iowa State University for their computer use only.

Data Considerations

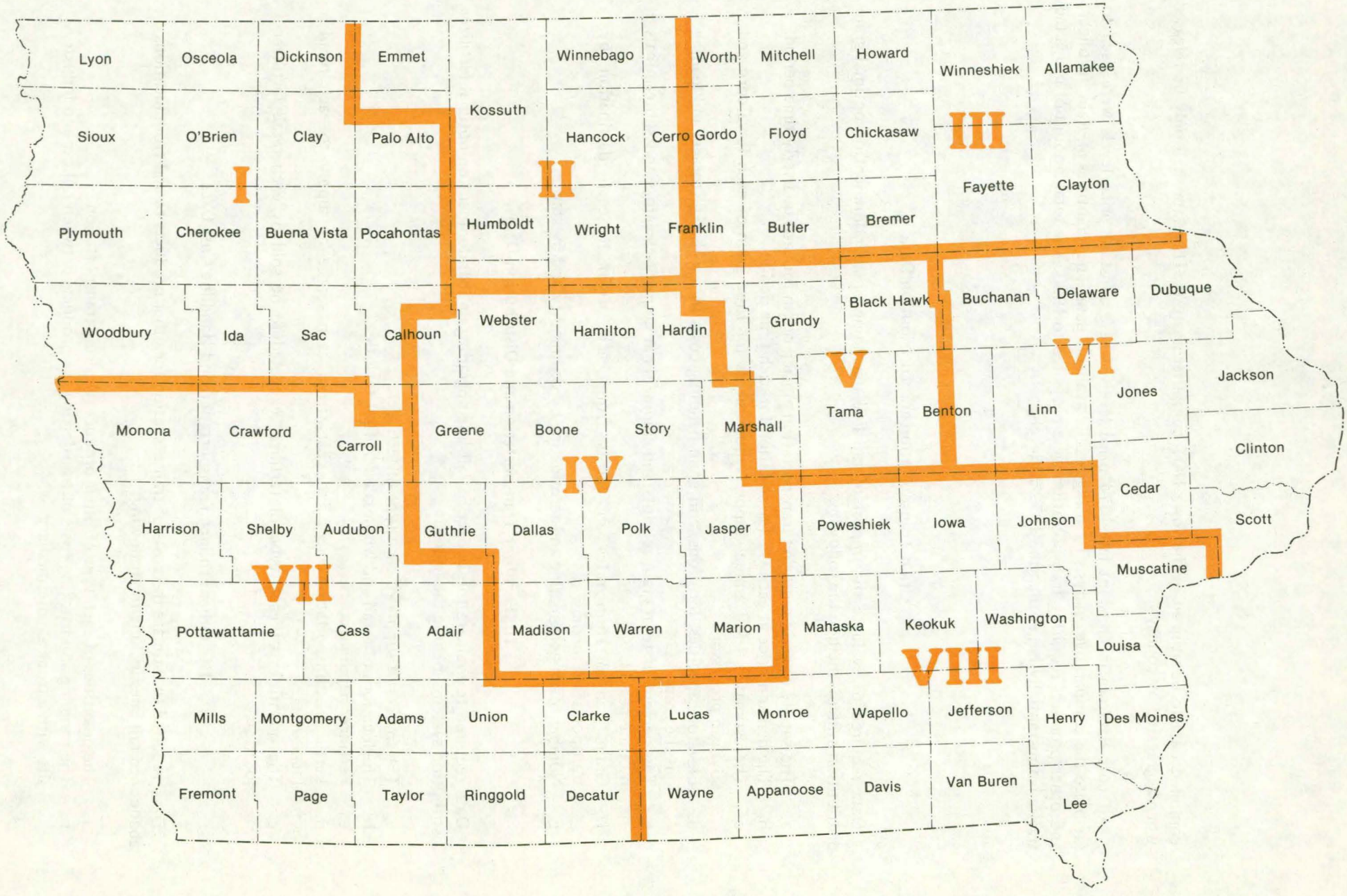
The economic computer model used in this analysis required an abundance of specific operational data. The main source of data was the ISU Study which had data compiled for all branchlines.

Through the joint cooperation of the Railroad Advisory Committee, railroad companies, the Iowa State University staff and the Iowa DOT staff, an agreement was reached to allow this

[1] Baumel, C. Phillip, Robert N. Wisner, Thomas E. Fenton, Dennis R. Lifferth, and John J. Miller, Projected Quantities of Grain and Fertilizer Requiring Transportation Services in Iowa in 1979-80 and 1984-85, by Counties, CARD Report 51, Center for Agricultural and Rural Development, Iowa State University, Ames, Iowa, November 1974.

FIGURE C-1

IOWA BRANCHLINE ANALYSIS DISTRICTS



compiled data to be utilized in the Iowa DOT computer analysis. This data shall only be released when aggregated by county.

All cost data are in constant late-1974 price levels. These constant price levels were used to facilitate the comparative analysis by using readily available data. The quantities of grain, fertilizer, and other products requiring transportation were projected to 1980. The total amount of projected traffic is substantially larger than the 1972-74 levels.

I. Grain Transportation and Distribution Data

Data required to evaluate the impact of rail line upgrading or abandonment on optimal grain distribution systems include the following:

a. The supply of grain requiring transportation at each origin for each quarterly time period.
b. The demand price at each final destination for each time period.
c. The estimated 1980 annual supply requirements for Iowa grain of each Iowa corn and soybean processor.
d. Elevator capacities, locations, and grain handling costs for receiving, storage, and loading out the grain.
e. The percent of total grain receipts and shipments at country elevators and subterminals by time period.
f. Grain transportation rates and costs from each origin to each destination by transportation mode.
g. Number of cars originating and terminating by commodity and by station.

II. Fertilizer Transportation and Distribution Data

Data required to evaluate the impact of rail line upgrading or abandonment on optimal fertilizer distribution systems include the following:

a. The sources of supply of each type of fertilizer.
b. The locations of retail and wholesale fertilizer facilities.
c. Fertilizer handling costs.
d. Fertilizer transportation rates and costs from each source of supply to each retail location.
e. The quantities of each type of fertilizer expected to be sold by each retail fertilizer location.

III. Other Product Transportation and Handling Cost Data

Data required to estimate the costs of transportation for other products to and from locations on abandoned rail lines include the following:

a. The quantities of each type of other product requiring transportation.
b. The handling and trucking costs of transferring the products between rail car and industry site with a truck as intermediary.

IV. Railroad Upgrading and Maintenance Cost Data

The cost of upgrading depends on the level to which the line is upgraded as well as on the present condition of the track. The assumed level of upgrading in this study is to 263,000-pound carrying capacity, and to the FRA Class II standard with 25 mile-per-hour speed limit. Ninety-pound rail is adequate to handle the 100-ton jumbo hopper cars.

The data required to estimate such costs include the following:

a. Present track condition
b. Price and quantity of upgrading materials
c. Rail line maintenance cost
d. Salvage values.

V. Highway Construction and Maintenance Cost Data

The rural road construction and maintenance cost resulting from additional trucking due to railroad abandonment was estimated in the ISU Study and compared with the estimated additional tax revenue paid from license and fuel taxes. The basic assumption underlying the cost determinations is that construction and maintenance costs for a road surface vary directly with the number of axle loadings sustained of a given magnitude. The Iowa Department of Transportation provided cost estimate information for the ISU study based on one vehicle-pass over one mile of each type of rural road for the various axle weights of the various types of trucks.

Three case studies of the impact of rail abandonment were completed in the ISU Study. It was found that the benefit/cost ratio changed less than one-tenth of a point when considering the highway costs vs. tax revenues issue. Therefore, this issue was not pursued further in the Iowa Branchline Analysis.

Similarly, the rural bridge situation is in dire need of upgrading right now in order to handle day-to-day traffic. Therefore, rail abandonment evidently will have little or no impact on secondary bridge upgrading requirements.

VI. Energy Data

The following information is needed for energy impact evaluations:

a. Switching fuel consumption
b. Fuel consumption by line haul
c. Estimate of fuel consumed for trucking grain from farm to elevator and from farm elevator to market
d. Estimated fuel consumption for trucking fertilizer and other products within the district
e. Estimates of main line rail fuel consumption for single car and unit train movement

VII. Social Data

One of the concerns in rail line abandonment is the impact upon communities. Community and business leaders on rail lines being considered for abandonment generally express concern that loss of the railroad would halt further growth and development of the community in addition to

damaging already existing firms. Therefore, the following items were considered in the ISU Study regarding possible railroad abandonment. It should be noted that these items were not included in the benefit/cost analysis.

a. Employment
b. Population
c. Retail sales
d. Bank loans and discounts
e. Bank surpluses, reserves, and undivided profits
f. Bank demand deposits
g. Cooperative elevators

The ISU Study compared towns on abandoned lines to those having rail service in consideration of the above items.

The ISU Study shows there is comparatively little effect upon local communities when rail lines are abandoned. Population change appears to be more influenced by town size, location, and general economic conditions of the area than by availability of a railroad. Essentially, there are only slight differences in population trends, retail sales, bank deposits, and bank earnings of Iowa communities of similar size that have been abandoned in the past and those communities located on the ISU Study lines. Generally, towns continue to grow.

The Iowa DOT has petitioned citizen advisory councils for input and will continue to do so whenever a particular line is identified in pre-abandonment Iowa DOT proceedings (refer to IV B in Rail Plan). Special cases may call for a reexamination of some or all of the above items.

Concerned parties such as shippers, receivers, communities and/or any other concerned group or individual should be prepared to make a financial commitment toward the upgrading of any particular deficient branchline. This action could conceivably increase the benefit/cost ratio of that branchline which may consequently increase the priority of that particular branchline.

Data Sources

I. Grain Transportation and Distribution

This information was obtained from an updated version of the ISU Study. The data sources used in the ISU Study are consequently the same sources used in the Iowa DOT Branchline Analysis.

In this study, the grain requiring transportation was defined as the difference between production within a county and the amount consumed by livestock in that county. The 1980 grain supply was derived from a study which projected county grain production and the grain consumed by livestock in each county.[2]

The major markets for Iowa corn and soybeans were identified through discussions with corn and soybean processors and with private and cooperative grain merchandisers. In this study, the 1980 demand requirements of Iowa corn and soybean processors will be met.

[2] Ibid.

Prices were obtained from published bid cards prepared by the Farmers Grain Dealers Association of Iowa (Cooperative). Some Iowa processor bids, missing from these cards, were obtained directly from the Iowa processors.

Elevator locations were identified from the 1974 directories of the Farmers Grain Dealers Association of Iowa (Cooperative) and the Iowa Grain and Feed Association. Elevator capacities and grain movements were determined by use of questionnaires and follow-up phone calls to the elevator operators. This elevator information was updated by contacting local railroad representatives, through Citizen Advisory Councils' input, and from staff review by Iowa State University and the Rail Division of the Iowa DOT.

The estimated variable receiving and load-out costs used in this study for each type of facility were obtained from a USDA report.[3]

Minimum capacities required to receive, dry, and load-out grain at subterminals were specified by elevator managers and elevator engineering consultants.

Rates from each elevator location to the major markets for Iowa grain were obtained from the Farmers Grain Dealers Association of Iowa (Cooperative) and from other grain companies. The rates used were determined from the X-Parte 336 Rate structure, effective January 7, 1977, in deflated 1974 dollars. Along with the published rates, the costs of transportating grain by rail in various size shipments were estimated in this study. These costs were estimated by adjusting and inflating the 1972 ICC Cost Scales to reflect Iowa grain transportation conditions. These estimated costs were based on late 1974 prices of new covered hopper cars.

The Waterways Freight Bureau published barge rates for the Upper Mississippi and Missouri Rivers until approximately two years ago. Today, actual rates under which grain moves in barges are quoted as a percentage of the old published tariffs and are the result of day-to-day negotiations between shippers and barge companies. This occurs because grain hauled in bulk by water carriers is exempt from rate regulation under the Interstate Commerce Commission Act. In this study actual rates, or "percent of tariff", were compiled for a 24-month period. Barge company executives confidence that this compilation of rates would be representative of future "percents of tariffs."

Barge costs of transportating grain were determined from communications with executives and accountants of small, medium and large barge firms on both Rivers.

Estimated trucking costs were used in place of trucking rates in this study because: (a) most grain is hauled from farm to elevators in farmer-owned wagons and trucks and there is no existing rate for this movement; (b) increasing amounts of grain are hauled from elevator to market in elevator-owned trucks with no existing rate; and (c) the geographic and organizational dispersion of a large number of independent and private grain truckers and the lack of regulation and uniformity of grain rates makes it impossible to collect meaningful rates for trucking grain and fertilizer.

[3] Schienbein, Allen, "Cost of Storing and Handling Grain in Commercial Elevators; Projections for 1974/75," U.S. Department of Agriculture, Commodity Economics Division, Fds-252, February 1974.

The cost of hauling grain from farms to elevators was estimated for each type of vehicle used by farmers and truckers. The model used in this study requires a single cost function. This function utilizes a weighted average cost of hauling grain in each type of vehicle. The weight of grain hauled and the types of trucks used together with the percentages of these trucks used to haul grain were determined by examining approximately fifteen-thousand scale tickets and by talking with the subterminal operator.

II. Fertilizer Transportation and Distribution

This information was obtained from an upgraded version of the ISU Study. The data sources used in the ISU Study are consequently the same sources used in the Iowa DOT branchline analysis.

The sources of fertilizer supplies used in Iowa vary by type of fertilizer. For example, almost all phosphate fertilizer used in Iowa originates in central Florida at a phosphate mining area. Therefore, in this study, central Florida was selected as the origin of all phosphate fertilizer used in Iowa. A similar process was used to determine origins of potash, urea and ammonium nitrate.

Fertilizer facility locations were identified from a published list of Iowa fertilizer licensees.[4] Total fertilizer quantities terminating in Iowa were checked to determine possible new facility locations.

Fertilizer receiving, storage, and blending capacities as well as tons sold and mode of transport delivering each ingredient was determined through questionnaires and follow-up phone calls to each Iowa dealer.

Fertilizer handling costs were estimated for retail fertilizer delivery and spreading, for handling fertilizer at large warehouses, and for transferring fertilizer by conveyor from railcar to truck. The estimated costs are based on mid-1974 data which is the constant price level used in the branchline analysis.

Operating and investment cost data were obtained from companies which own and operate large warehouses in Iowa.

Rail rates from the sources of fertilizer supply to each retail fertilizer outlet were determined from the X-Parte 336 Rate structure, effective January 7, 1977, in deflated 1974 dollars. These rates were obtained from a major Midwest cooperative fertilizer supplier. Intrastate rates were obtained from regional cooperatives operating in Iowa.

Railroad costs of transporting fertilizer in Iowa were estimated by adjusting and inflating the 1972 ICC cost scales to reflect Iowa fertilizer transportation conditions.

There are no published barge rates on fertilizer movements. However, data were obtained from a large regional cooperative on negotiated rates paid during July to September in 1974. Rates to other river warehouses were estimated from these actual rates. Costs were estimated for barging fertilizer using the basic assumption that fertilizer is generally an upbound backhaul movement for downbound grain movements.

[4] State of Iowa, Department of Agriculture, Iowa Fertilizer Licensees, Des Moines, Iowa.

Trucking costs for fertilizer are generally the same as in grain trucking.

Fertilizer sales from July 1, 1971 to June 30, 1974 were obtained for those retail fertilizer locations which completed a questionnaire, thus giving an average turnover rate by county. Shipping data was also obtained from the Iowa railroads. The projected 1980 fertilizer sales of individual counties were obtained from a study which estimated the amount of fertilizer requiring transportation in 1980.[5] Projected 1980 fertilizer sales at retail locations were obtained by multiplying projected 1980 county fertilizer sales by the retail locations' proportion of the 1973-74 county sales.

III. Other Product Handling and Transportation

This information was obtained from an updated version of the ISU Study. The data sources used in the ISU Study are consequently the same sources used in the Iowa DOT branchline analysis.

Each railroad operating in Iowa provided updated information on the quantity and type of each product movement. The larger shippers and/or receivers of other products were also contacted for possible updating of information.

The annual average hundredweight of inbound and outbound shipments was computed for each product. This annual average was projected to 1980 using a published national forecast of railroad traffic and revenues.[6]

A small sample of products moving into and out of Iowa during the January 1972 to August 1974 period was checked to verify the assumption that all products other than grain and fertilizer, considering communities without rail service, would be transferred to or from a rail car at the nearest rail station, and also that the rates would be the same at the nearby station as those at the abandoned community if it had rail service. Thus, the additional costs of abandonment to the shippers and receivers would be the cost of loading into and out of truck and the trucking costs to or from the nearest rail station. Average trucking costs per mile and trucking cost functions were estimated for each standard transportation commodity group.

IV. Railroad Upgrading and Maintenance

The main sources of cost information were the railroad companies. The rail data package they had submitted for the ISU Study included cost data for those branchlines analyzed in the ISU Study. Cost data was also received by the Iowa DOT from various railroad companies covering the branchlines not analyzed in the ISU Study. The Rail Division of the Iowa DOT assisted in developing upgrading costs and provided a list of the Iowa Branchline Assistance projects that have been completed or will be in the near future.

V. Energy

Available data taken from various intermodal comparisons of energy intensiveness were used in

[5] Ibid:

[6] Temple, Barker, and Sloane, Inc., Forecast of Traffic and Revenues, 1975-1980, 1985, Prepared for United States Railway Association, Wellesley Hills, Massachusetts, April 1975.

the ISU Study, and consequently in the Iowa Branchline Analysis, to estimate the impact of rail abandonment on fuel consumption on one branch rail line.

The computer solutions of this study provide estimates of the additional trucking and rail transportation required for moving grain, fertilizer, and other products to and from the area served by a line if this line were abandoned.

Fuel consumption was based on the averages of the various types of trucks used in hauling grain, fertilizer and other products.

Estimates of main line rail fuel consumption for single-car and unit train movements used in this study are the averages of the results of several studies compiled by a U.S. Department of Transportation report.

APPENDIX D
Analysis Data Summary Sheets

D-1A

APPENDIX D

Branchline Analysis Summary Sheets

Existing Grain Subterminals Common to all Solutions

District 1

Worthington

District 2

Northwood
Bradford

District 3

Northwood
Charles City (Common to 1004-1330 and 1252-1596 only)

District 4

Buckeye
Ralston
Roland-Nevada
Beaver
Jefferson
Woodward
Bradford

District 5

Bradford
Pickering
Buckeye

District 6 - None

District 7

Denison
Onawa
Ralston
Creston

District 8

Pickering

Analysis Data Summary Sheet

Rail Line Analyzed	Rolfe-Tara
Miles of Track	25.1
District Location	1, 4
Base Rail System from which Line is Analyzed	44%
Annual Benefits from:	($1,000)
Grain	3,838
Fertilizer	73
Other Products	586
Total 1 Annual Benefits	4,497
Total 2 Annual Cost	212
1 ÷ 2 = Benefit/Cost Ratio	21.21

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Superior* Hartley* Cylinder* West Bend* Albert City* Alta* Whittemore* Clare* Grattinger* Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Pomeroy Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Clinton - Davenport
Miles of Track	31.95
District Location	6
Base Rail System from which Line is Analyzed	44%
Annual Benefits from:	($1,000)
Grain	1
Fertilizer	5
Other Products	1,456
Total 1 Annual Benefits	1,462
Total 2 Annual Cost	122
1 ÷ 2 = Benefit/Cost Ratio	11.98

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 6	District	District
Clarence		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District	District
Jesup Lost Nation Epworth		

Analysis Data Summary Sheet

Rail Line Analyzed	Winterset - RI Mainline
Miles of Track	14.4
District Location	4
Base Rail System from which Line is Analyzed	45%
Annual Benefits from:	($1,000)
Grain	13
Fertilizer	20
Other Products	913
Total 1 Annual Benefits	946
Total 2 Annual Cost	88
1 ÷ 2 = Benefit/Cost Ratio	10.75

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
Pickering* Fort Dodge Blairsburg		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Knierm Garden City Grand Jct. Perry Knoxville		

Analysis Data Summary Sheet

Rail Line Analyzed	Centerville - RI Mainline
Miles of Track	2.5
District Location	8
Base Rail System from which Line is Analyzed	45%
Annual Benefits from:	($1,000)
Grain	10
Fertilizer	17
Other Products	116
Total 1 Annual Benefits	143
Total 2 Annual Cost	15
1 ÷ 2 = Benefit/Cost Ratio	9.53

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Brooklyn West Liberty Lovilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Superior - Iowa Falls
Miles of Track	120.5
District Location	1, 2
Base Rail System from which Line is Analyzed	46%
Annual Benefits from:	($1,000)
Grain	3,716
Fertilizer	301
Other Products	558
Total 1 Annual Benefits	4,575
Total 2 Annual Cost	646
1 ÷ 2 = Benefit/Cost Ratio	7.08

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District 2	District
Superior*	Graettinger*	
West Bend*	West Bend*	
Rolfe*	Goldfield*	
Clare*	Dows*	
Graettinger*	Clare*	
Sheldon	Rolfe*	
Sioux City*	Superior*	
Yetter	Bode*	
Le Mars	Clarion*	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District 2	District
Superior	Wallingford	
Ashton	Livermore	
Sheldon	Clare	
West Bend	Worthwood	
Sioux City	Chapin	
Yetter	Webster City	

Analysis Data Summary Sheet

Rail Line Analyzed	Hancock - RI Mainline
Miles of Track	0.75
District Location	7
Base Rail System from which Line is Analyzed	46%
Annual Benefits from:	($1,000)
Grain	16
Fertilizer	13
Other Products	1
Total 1 Annual Benefits	30
Total 2 Annual Cost	6
1 ÷ 2 = Benefit/Cost Ratio	5

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Malvern Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Tara - Grand Junction
Miles of Track	32.5
District Location	4
Base Rail System from which Line is Analyzed	47%
Annual Benefits from:	($1,000)
Grain	710
Fertilizer	50
Other Products	7
Total 1 Annual Benefits	767
Total 2 Annual Cost	186
1 ÷ 2 = Benefit/Cost Ratio	4.12

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Pickering* Blairsburg		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry Knoxville		

Analysis Data Summary Sheet

Rail Line Analyzed	Mediapolis - Burlington
Miles of Track	14.4
District Location	8
Base Rail System from which Line is Analyzed	47%
Annual Benefits from:	($1,000)
Grain	10
Fertilizer	12
Other Products	359
Total 1 Annual Benefits	381
Total 2 Annual Cost	100
1 ÷ 2 = Benefit/Cost Ratio	3.81

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom West Liberty Livilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Washington - Ainsworth
Miles of Track	8.0
District Location	8
Base Rail System from which Line is Analyzed	47%
Annual Benefits from:	($1,000)
Grain	3
Fertilizer	6
Other Products	262
Total 1 Annual Benefits	271
Total 2 Annual Cost	74
1 ÷ 2 = Benefit/Cost Ratio	3.66

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Brooklyn West Liberty Lovilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Seney Tara
Miles of Track	101
District Location	1, 4
Base Rail System from which Line is Analyzed	49%
Annual Benefits from:	($1,000)
Grain	1,306
Fertilizer	169
Other Products	541
Total 1 Annual Benefits	2,016
Total 2 Annual Cost	628
1 ÷ 2 = Benefit/Cost Ratio	3.21

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District 4	District
Superior* West Bend* Rolfe* Alta* Clare* Graettinger* Sheldon Sioux City* Yetter LeMars	Pickering* Fort Dodge Blairsburg	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District 4	District
Superior Ashton Sheldon Storm Lake Pomeroy Sioux City Yetter	Knierim Garden City Grand Jct. Perry Knoxville	

Analysis Data Summary Sheet

Rail Line Analyzed	Waverly to Oelwein
Miles of Track	29.47
District Location	3, 5
Base Rail System from which Line is Analyzed	49%
Annual Benefits from:	($1,000)
Grain	160
Fertilizer	30
Other Products	352
Total 1 Annual Benefits	$542
Total 2 Annual Cost	$201
1 ÷ 2 = Benefit/Cost Ratio	2.70

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 3	District 5	District
Rockwell New Hampton	Readlyn* Waterloo*	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District 5	District
Riceville New Hampton Chapin Oelwein Parkersburg	New Hartford Steamboat Rock Gladbrook	

Analysis Data Summary Sheet

		Computer Selected Locations of 50-Car Grain Loading Facilities * existing		
Rail Line Analyzed	Cedar Falls Jct.-Cedar Falls	District 5	District	District
Miles of Track	7.5	---		
District Location	5			
Base Rail System from which Line is Analyzed	49%			
Annual Benefits from:	($1,000)			
Grain	0	Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities		
Fertilizer	0			
Other Products	252	District	District	District
Total 1 Annual Benefits	252	---		
Total 2 Annual Cost	96			
1 ÷ 2 = Benefit/Cost Ratio	2.62			

Analysis Data Summary Sheet

Rail Line Analyzed	Burt - Ames
Miles of Track	95.05
District Location	2, 4
Base Rail System from which Line is Analyzed	50%
Annual Benefits from:	($1,000)
Grain	1,046
Fertilizer	192
Other Products	592
Total 1 Annual Benefits	1,830
Total 2 Annual Cost	731
1 ÷ 2 = Benefit/Cost Ratio	2.50

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 2	District 4	District
Burt (sbt)* Graettinger* Algona* West Bend* Goldfield* Dows* Eagle Grove* Clare* Rolfe* Superior* Bode* Clarion*	East Gowrie* Farnhamville* Clare* Pickering* Blairsburg	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District 4	District
Wallingford Burt Irvington Clare Northwood Chapin Webster City	Garden City Farnhamville Perry Knoxville	

Analysis Data Summary Sheet

Rail Line Analyzed	Humboldt Eagle Grove
Miles of Track	25.4
District Location	2
Base Rail System from which Line is Analyzed	51%
Annual Benefits from:	($1,000)
Grain	36
Fertilizer	11
Other Products	268
Total 1 Annual Benefits	315
Total 2 Annual Cost	102
1 ÷ 2 = Benefit/Cost Ratio	3.09

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Burt (sbt)* Graettinger* Britt* Britt (sbt)* Algona* Whittemore* West Bend* Goldfield* Dows* Eagle Grove* Clare* Rolfe* Cylinder* Superior* Bode* Clarion*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Duncan Wesley Thor Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Oakland - RI Mainline
Miles of Track	4.95
District Location	7
Base Rail System from which Line is Analyzed	51%
Annual Benefits from:	($1,000)
Grain	7
Fertilizer	2
Other Products	94
Total 1 Annual Benefits	103
Total 2 Annual Cost	48
1 ÷ 2 = Benefit/Cost Ratio	2.15

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Malvern Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Canton, S.D. - Marquette
Miles of Track	292.4
District Location	1, 2, 3
Base Rail System from which Line is Analyzed	55%
Annual Benefits from:	($1,000)
Grain	971
Fertilizer	316
Other Products	847
Total 1 Annual Benefits	2,134
Total 2 Annual Cost	1,933
1 ÷ 2 = Benefit/Cost Ratio	1.10

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District 2	District 3
Superior*	Burt (sbt)*	Readlyn*
Hartley*	Graettinger*	Rockwell
Cylinder*	Britt*	New Hampton
West Bend*	Britt (sbt)*	
Albert City*	Algona*	
Alta*	Whittemore*	
Whittemore*	Goldfield*	
Clare*	Dows*	
Graettinger*	Eagle Grove*	
Sioux City*	Clare*	
Yetter	Rolfe*	
LeMars	Cylinder*	
	Superior*	
	Bode*	
	Clarion*	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District 2	District 3
Ashton	Burt	Riceville
Dickens	Duncan	New Hampton
Storm Lake	Wesley	Oelwein
Pomeroy	Chapin	Parkersburg
Sioux City		
Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Alden - Eldora Jct.
Miles of Track	21.0
District Location	4
Base Rail System from which Line is Analyzed	56%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	8
Other Products	143
Total 1 Annual Benefits	151
Total 2 Annual Cost	85
1 ÷ 2 = Benefit/Cost Ratio	1.78

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry Knoxville		

Analysis Data Summary Sheet

Rail Line Analyzed	Ft. Dodge - Eagle Grove
Miles of Track	17.75
District Location	2, 4
Base Rail System from which Line is Analyzed	56%
Annual Benefits from:	($1,000)
Grain	305
Fertilizer	10
Other Products	1
Total 1 Annual Benefits	316
Total 2 Annual Cost	185
1 ÷ 2 = Benefit/Cost Ratio	1.71

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District 4	District
Burt (sbt)* Graettinger* Britt* Britt (sbt)* Algona* Whittemore* West Bend* Goldfield* Dows* Eagle Grove* Vincent* Clare* Rolfe* Cylinder* Superior* Bode* Clarion*	East Gowrie Farnhamville Vincent Clare Pickering	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Wesley Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Sibley - Superior
Miles of Track	40.0
District Location	1
Base Rail System from which Line is Analyzed	57%
Annual Benefits from:	($1,000)
Grain	202
Fertilizer	30
Other Products	12
Total 1 Annual Benefits	244
Total 2 Annual Cost	176
1 ÷ 2 = Benefit/Cost Ratio	1.39

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Superior* Lake Park* Hartley* Cylinder* West Bend* Rolfe* Alta* Whittemore* Clare* Graettinger* Ocheyedan* Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Pomeroy Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Estherville - Dows
Miles of Track	107.05
District Location	2
Base Rail System from which Line is Analyzed	58%
Annual Benefits from:	($1,000)
Grain	602
Fertilizer	136
Other Products	557
Total 1 Annual Benefits	1,295
Total 2 Annual Cost	1,014
1 ÷ 2 = Benefit/Cost Ratio	1.28

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 2	District 2(cont'd)	District
Lakota* Swea City* Burt (sbt)* Graettinger* Britt* Britt (sbt)* Klemme* Algona* Whittemore* West Bend* Goldfield* Dows* Eagle Grove* Vincent*	Clare* Rolfe* Cylinder* Superior* Bode* Clarion*	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Somers - Moorland
Miles of Track	7.9
District Location	4
Base Rail System from which Line is Analyzed	58%
Annual Benefits from:	($1,000)
Grain	49
Fertilizer	5
Other Products	1
Total 1 Annual Benefits	55
Total 2 Annual Cost	43
1 ÷ 2 = Benefit/Cost Ratio	1.28

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry Knoxville		

Analysis Data Summary Sheet

		Computer Selected Locations of 50-Car Grain Loading Facilities		* existing
Rail Line Analyzed	Altoona - Pella	District 4	District	District
Miles of Track	35.9	Pickering*		
District Location	4	Fort Dodge		
Base Rail System from which Line is Analyzed	59%	Blairsburg		
Annual Benefits from:	($1,000)			
Grain	5	Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities		
Fertilizer	20			
Other Products	343	District 4	District	District
Total 1 Annual Benefits	368	Knierm		
Total 2 Annual Cost	290	Garden City		
1 ÷ 2 = Benefit/Cost Ratio	1.27	Grand Jct.		
		Perry		
		Knoxville		

Analysis Data Summary Sheet

Rail Line Analyzed	Spencer - Albert City
Miles of Track	26.35
District Location	1
Base Rail System from which Line is Analyzed	59%
Annual Benefits from:	($1,000)
Grain	379
Fertilizer	15
Other Products	6
Total 1 Annual Benefits	400
Total 2 Annual Cost	351
1 ÷ 2 = Benefit/Cost Ratio	1.14

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Superior* Lake Park* Hartley* Cylinder* West Bend* Rolfe* Albert City* Alta* Ida Grove* Whittemore* Clare* Graettinger* Ocheyedan* Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Royal - Webb
Miles of Track	16.5
District Location	1
Base Rail System from which Line is Analyzed	59%
Annual Benefits from:	($1,000)
Grain	189
Fertilizer	3
Other Products	5
Total 1 Annual Benefits	197
Total 2 Annual Cost	64
1 ÷ 2 = Benefit/Cost Ratio	3.08

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District 1 (cont'd)	District
Superior*	Yetter	
Lake Park*	Le Mars	
Hartley*		
Cylinder*		
Royal*		
West Bend*		
Rolfe*		
Albert City*		
Alta*		
Ida Grove*		
Whittemore*		
Clare*		
Graettinger*		
Ocheyedan*		
Sioux City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton		
Dickens		
Storm Lake		
Sioux City		
Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Webb - Palmer
Miles of Track	30.2
District Location	1
Base Rail System from which Line is Analyzed	59%
Annual Benefits from:	($1,000)
Grain	54
Fertilizer	28
Other Products	44
Total 1 Annual Benefits	126
Total 2 Annual Cost	117
1 ÷ 2 = Benefit/Cost Ratio	1.08

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District 1 (cont'd)	District
Superior*	Yetter	
Lake Park*	Le Mars	
Hartley*		
Cylinder*		
Royal*		
West Bend*		
Rolfe*		
Albert City*		
Alta*		
Ida Grove*		
Whittemore*		
Clare*		
Graettinger*		
Ocheyedan*		
Sioux City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton		
Dickens		
Storm Lake		
Sioux City		
Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Ida Grove - Carnarvon
Miles of Track	24.9
District Location	1
Base Rail System from which Line is Analyzed	60%
Annual Benefits from:	($1,000)
Grain	109
Fertilizer	35
Other Products	21
Total 1 Annual Benefits	165
Total 2 Annual Cost	161
1 ÷ 2 = Benefit/Cost Ratio	1.02

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District	District
Superior* Hartley* Cylinder* West Bend* Rolfe* Alta* Ida Grove* Whittemore* Clare* Graettinger* Sioux City* Yetter* Le Mars*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Pomeroy Sioux City Yetter Ida Grove		

Analysis Data Summary Sheet

Rail Line Analyzed	Indianola - Carlisle
Miles of Track	11.3
District Location	4
Base Rail System from which Line is Analyzed	60%
Annual Benefits from:	($1,000)
Grain	6
Fertilizer	20
Other Products	12
Total 1 Annual Benefits	38
Total 2 Annual Cost	40
1 ÷ 2 = Benefit/Cost Ratio	0.95

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Marshalltown - Albia
Miles of Track	84.3
District Location	5, 8
Base Rail System from which Line is Analyzed	61%
Annual Benefits from:	($1,000)
Grain	53
Fertilizer	34
Other Products	480
Total 1 Annual Benefits	567
Total 2 Annual Cost	632
1 ÷ 2 = Benefit/Cost Ratio	0.90

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 5	District 8	District
Waterloo*	Fairfield	

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 5	District 8	District
New Hartford Steamboat Rock Gladbrook	Malcom Lockridge	

Analysis Data Summary Sheet

Rail Line Analyzed	Jewell - Ellsworth
Miles of Track	3.5
District Location	4
Base Rail System from which Line is Analyzed	61%
Annual Benefits from:	($1,000)
Grain	20
Fertilizer	7
Other Products	6
Total 1 Annual Benefits	33
Total 2 Annual Cost	38
1 ÷ 2 = Benefit/Cost Ratio	0.87

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Lakota - Rake
Miles of Track	11.5
District Location	2
Base Rail System from which Line is Analyzed	62%
Annual Benefits from:	($1,000)
Grain	95
Fertilizer	8
Other Products	1
Total 1 Annual Benefits	104
Total 2 Annual Cost	127
1 ÷ 2 = Benefit/Cost Ratio	0.82

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District 2(cont'd)	District
Rake*	Clare*	
Lakota*	Rolfe*	
Swea City*	Cylinder*	
Burt (sbt)*	Superior*	
Graettinger*	Bode*	
Britt*	Clarion*	
Britt (sbt)*		
Klemme*		
Algona*		
Whittemore*		
West Bend*		
Goldfield*		
Dows*		
Eagle Grove*		
Vincent*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt		
Klemme		
Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Council Bluffs - Blanchard
Miles of Track	66.2
District Location	7
Base Rail System from which Line is Analyzed	63%
Annual Benefits from:	($1,000)
Grain	129
Fertilizer	29
Other Products	72
Total 1 Annual Benefits	230
Total 2 Annual Cost	308
1 ÷ 2 = Benefit/Cost Ratio	0.75

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District

Analysis Data Summary Sheet

Rail Line Analyzed	Cedar Rapids - Amana
Miles of Track	18.56
District Location	6, 8
Base Rail System from which Line is Analyzed	63%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	111
Total 1 Annual Benefits	111
Total 2 Annual Cost	150
1 ÷ 2 = Benefit/Cost Ratio	0.74

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 6	District 8	District
Readlyn* Clarence	Fairfield	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District 8	District
Jesup Lost Nation Epworth	Malcom West Liberty Lovilla Lockridge	

Analysis Data Summary Sheet

Rail Line Analyzed	Maquoketa - Delmar
Miles of Track	6.8
District Location	6
Base Rail System from which Line is Analyzed	63%
Annual Benefits from:	($1,000)
Grain	18
Fertilizer	8
Other Products	23
Total 1 Annual Benefits	49
Total 2 Annual Cost	67
1 ÷ 2 = Benefit/Cost Ratio	0.73

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 6	District	District
Readlyn		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District	District
Jesup Lost Nation Epworth		

Analysis Data Summary Sheet

Rail Line Analyzed	Manning - Harlan
Miles of Track	23.7
District Location	7
Base Rail System from which Line is Analyzed	63%
Annual Benefits from:	($1,000)
Grain	12
Fertilizer	14
Other Products	42
Total 1 Annual Benefits	68
Total 2 Annual Cost	94
1 ÷ 2 = Benefit/Cost Ratio	0.72

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Hampton - Waverly
Miles of Track	41.4
District Location	3
Base Rail System from which Line is Analyzed	64%
Annual Benefits from:	($1,000)
Grain	71
Fertilizer	27
Other Products	8
Total 1 Annual Benefits	106
Total 2 Annual Cost	161
1 ÷ 2 = Benefit/Cost Ratio	0.66

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City * Readlyn* Rockwell		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville New Hampton Hansell Oelwein		

Analysis Data Summary Sheet

Rail Line Analyzed	Lamoni - Mo. State Line
Miles of Track	5.6
District Location	7
Base Rail System from which Line is Analyzed	64%
Annual Benefits from:	($1,000)
Grain	29
Fertilizer	15
Other Products	2
Total 1 Annual Benefits	46
Total 2 Annual Cost	79
1 ÷ 2 = Benefit/Cost Ratio	0.58

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Dike - Hicks
Miles of Track	9.7
District Location	5
Base Rail System from which Line is Analyzed	64%
Annual Benefits from:	($1,000)
Grain	9
Fertilizer	11
Other Products	3
Total 1 Annual Benefits	23
Total 2 Annual Cost	42
1 ÷ 2 = Benefit/Cost Ratio	0.55

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 5	District	District
Readlyn* Waterloo*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 5	District	District
Dike Gladbrook		

Analysis Data Summary Sheet

Rail Line Analyzed	Conrad - Gladbrook
Miles of Track	9.0
District Location	5
Base Rail System from which Line is Analyzed	64%
Annual Benefits from:	($1,000)
Grain	29
Fertilizer	18
Other Products	3
Total 1 Annual Benefits	50
Total 2 Annual Cost	97
1 ÷ 2 = Benefit/Cost Ratio	0.52

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 5	District	District
Waterloo		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 5	District	District
New Hartford Gladbrook		

Analysis Data Summary Sheet

Rail Line Analyzed	Albia - Mo. State Line
Miles of Track	36.1
District Location	8
Base Rail System from which Line is Analyzed	65%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	5
Other Products	83
Total 1 Annual Benefits	88
Total 2 Annual Cost	171
1 ÷ 2 = Benefit/Cost Ratio	0.51

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Ottumwa - Sigourney
Miles of Track	26.8
District Location	8
Base Rail System from which Line is Analyzed	65%
Annual Benefits from:	($1,000)
Grain	1
Fertilizer	7
Other Products	99
Total 1 Annual Benefits	107
Total 2 Annual Cost	213
1 ÷ 2 = Benefit/Cost Ratio	0.50

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Eldridge - Davenport
Miles of Track	11.5
District Location	6
Base Rail System from which Line is Analyzed	65%
Annual Benefits from:	($1,000)
Grain	20
Fertilizer	15
Other Products	22
Total 1 Annual Benefits	57
Total 2 Annual Cost	117
1 ÷ 2 = Benefit/Cost Ratio	0.49

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 6	District	District
Readlyn		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District	District
Jesup Lost Nation Epworth		

Analysis Data Summary Sheet

Rail Line Analyzed	Mason City - Kesley
Miles of Track	35.6
District Location	3
Base Rail System from which Line is Analyzed	66%
Annual Benefits from:	($1,000)
Grain	31
Fertilizer	40
Other Products	0
Total 1 Annual Benefits	71
Total 2 Annual Cost	144
1 ÷ 2 = Benefit/Cost Ratio	0.49

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City Readlyn		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville New Hampton Oelwein Parkersburg		

Analysis Data Summary Sheet

Rail Line Analyzed	Herdon - Des Moines
Miles of Track	54.34
District Location	4
Base Rail System from which Line is Analyzed	66%
Annual Benefits from:	($1,000)
Grain	70
Fertilizer	41
Other Products	177
Total 1 Annual Benefits	288
Total 2 Annual Cost	631
1 ÷ 2 = Benefit/Cost Ratio	0.46

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Granger Des Moines
Miles of Track	12.3
District Location	4
Base Rail System from which Line is Analyzed	67%
Annual Benefits from:	($1,000)
Grain	13
Fertilizer	0
Other Products	24
Total 1 Annual Benefits	37
Total 2 Annual Cost	80
1 ÷ 2 = Benefit/Cost Ratio	0.46

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Orange City Alton
Miles of Track	3.5
District Location	1
Base Rail System from which Line is Analyzed	67%
Annual Benefits from:	($1,000)
Grain	2
Fertilizer	2
Other Products	14
Total 1 Annual Benefits	18
Total 2 Annual Cost	42
1 ÷ 2 = Benefit/Cost Ratio	0.43

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Superior* Lake Park* Hartley* Cylinder* West Bend* Rolfe* Albert City* Alta* Ida Grove* Whittemore* Clare* Graettinger* Ocheyedan Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Audubon Atlantic
Miles of Track	24.6
District Location	7
Base Rail System from which Line is Analyzed	67%
Annual Benefits from:	($1,000)
Grain	6
Fertilizer	40
Other Products	12
Total 1 Annual Benefits	58
Total 2 Annual Cost	145
1 ÷ 2 = Benefit/Cost Ratio	0.40

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Perry - Des Moines
Miles of Track	29.5
District Location	4
Base Rail System from which Line is Analyzed	67%
Annual Benefits from:	($1,000)
Grain	58
Fertilizer	15
Other Products	1
Total 1 Annual Benefits	74
Total 2 Annual Cost	184
1 ÷ 2 = Benefit/Cost Ratio	0.40

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Farragut - Shenandoah
Miles of Track	7.6
District Location	7
Base Rail System from which Line is Analyzed	68%
Annual Benefits from:	($1,000)
Grain	5
Fertilizer	8
Other Products	3
Total 1 Annual Benefits	16
Total 2 Annual Cost	41
1 ÷ 2 = Benefit/Cost Ratio	0.39

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Griswold - Red Oak
Miles of Track	18.1
District Location	7
Base Rail System from which Line is Analyzed	68%
Annual Benefits from:	($1,000)
Grain	7
Fertilizer	26
Other Products	8
Total 1 Annual Benefits	41
Total 2 Annual Cost	107
1 ÷ 2 = Benefit/Cost Ratio	0.38

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Milford - Spencer
Miles of Track	9.9
District Location	1
Base Rail System from which Line is Analyzed	68%
Annual Benefits from:	($1,000)
Grain	22
Fertilizer	13
Other Products	4
Total 1 Annual Benefits	39
Total 2 Annual Cost	103
1 ÷ 2 = Benefit/Cost Ratio	0.38

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Carnarvon - Maple River
Miles of Track	12.9
District Location	7
Base Rail System from which Line is Analyzed	68%
Annual Benefits from:	($1,000)
Grain	3
Fertilizer	22
Other Products	1
Total 1 Annual Benefits	26
Total 2 Annual Cost	71
1 ÷ 2 = Benefit/Cost Ratio	0.37

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Garwin - Tama
Miles of Track	11.5
District Location	5
Base Rail System from which Line is Analyzed	68%
Annual Benefits from:	($1,000)
Grain	6
Fertilizer	13
Other Products	6
Total 1 Annual Benefits	25
Total 2 Annual Cost	70
1 ÷ 2 = Benefit/Cost Ratio	0.36

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 5	District	District
Readlyn* Waterloo*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 5	District	District
Dike Gladbrook		

Analysis Data Summary Sheet

Rail Line Analyzed	Clarinda - Villisca
Miles of Track	15.24
District Location	7
Base Rail System from which Line is Analyzed	69%
Annual Benefits from:	($1,000)
Grain	30
Fertilizer	10
Other Products	27
Total 1 Annual Benefits	67
Total 2 Annual Cost	193
1 ÷ 2 = Benefit/Cost Ratio	0.35

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Lyle - Waterloo
Miles of Track	76.01
District Location	3
Base Rail System from which Line is Analyzed	69%
Annual Benefits from:	($1,000)
Grain	20
Fertilizer	63
Other Products	82
Total 1 Annual Benefits	165
Total 2 Annual Cost	373
1 ÷ 2 = Benefit/Cost Ratio	0.44

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City* Readlyn* Rockwell *Existing Facilities		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville New Hampton Oelwein Parkersburg		

Analysis Data Summary Sheet

Rail Line Analyzed	Alleman - Ankeny
Miles of Track	6.2
District Location	4
Base Rail System from which Line is Analyzed	70%
Annual Benefits from:	($1,000)
Grain	10
Fertilizer	10
Other Products	0
Total 1 Annual Benefits	20
Total 2 Annual Cost	61
1 ÷ 2 = Benefit/Cost Ratio	0.33

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Granger - Camp Dodge - Des Moines
Miles of Track	17.1
District Location	4
Base Rail System from which Line is Analyzed	70%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	80
Total 1 Annual Benefits	80
Total 2 Annual Cost	243
1 ÷ 2 = Benefit/Cost Ratio	0.33

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Keota - Washington
Miles of Track	15.0
District Location	8
Base Rail System from which Line is Analyzed	71%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	18
Other Products	24
Total 1 Annual Benefits	46
Total 2 Annual Cost	138
1 ÷ 2 = Benefit/Cost Ratio	0.33

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Luverne - Corwith
Miles of Track	8.65
District Location	2
Base Rail System from which Line is Analyzed	71%
Annual Benefits from:	($1,000)
Grain	10
Fertilizer	11
Other Products	1
Total 1 Annual Benefits	22
Total 2 Annual Cost	72
1 ÷ 2 = Benefit/Cost Ratio	0.31

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 2	District	District
Bode* Clarion*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Hancock - Avoca
Miles of Track	6.05
District Location	7
Base Rail System from which Line is Analyzed	71%
Annual Benefits from:	($1,000)
Grain	6
Fertilizer	6
Other Products	4
Total 1 Annual Benefits	16
Total 2 Annual Cost	53
1 ÷ 2 = Benefit/Cost Ratio	0.30

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Red Oak Malvern		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Clarion - Hampton
Miles of Track	26.5
District Location	2
Base Rail System from which Line is Analyzed	71%
Annual Benefits from:	($1,000)
Grain	14
Fertilizer	14
Other Products	1
Total 1 Annual Benefits	29
Total 2 Annual Cost	103
1 ÷ 2 = Benefit/Cost Ratio	0.28

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Bode* Clarion*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme		

Analysis Data Summary Sheet

Rail Line Analyzed	Stacyville Jct. - Stacyville
Miles of Track	8.99
District Location	3
Base Rail System from which Line is Analyzed	71%
Annual Benefits from:	($1,000)
Grain	6
Fertilizer	11
Other Products	13
Total 1 Annual Benefits	30
Total 2 Annual Cost	110
1 ÷ 2 = Benefit/Cost Ratio	0.27

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City* Readlyn*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville New Hampton Oelwein		

Analysis Data Summary Sheet

Rail Line Analyzed	Burt - Bancroft
Miles of Track	6.5
District Location	2
Base Rail System from which Line is Analyzed	71%
Annual Benefits from:	($1,000)
Grain	2
Fertilizer	9
Other Products	6
Total 1 Annual Benefits	17
Total 2 Annual Cost	67
1 ÷ 2 = Benefit/Cost Ratio	0.25

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 2	District	District
Bode* Clarion*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Grand Jct. - Perry
Miles of Track	15.15
District Location	4
Base Rail System from which Line is Analyzed	72%
Annual Benefits from:	($1,000)
Grain	10
Fertilizer	28
Other Products	0
Total 1 Annual Benefits	38
Total 2 Annual Cost	153
1 ÷ 2 = Benefit/Cost Ratio	0.25

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville		

Analysis Data Summary Sheet

Rail Line Analyzed	Ellsworth - Hubbard
Miles of Track	14.25
District Location	4
Base Rail System from which Line is Analyzed	72%
Annual Benefits from:	($1,000)
Grain	13
Fertilizer	21
Other Products	2
Total 1 Annual Benefits	36
Total 2 Annual Cost	150
1 ÷ 2 = Benefit/Cost Ratio	0.24

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Harcourt - Jewell
Miles of Track	29.5
District Location	4
Base Rail System from which Line is Analyzed	72%
Annual Benefits from:	($1,000)
Grain	62
Fertilizer	26
Other Products	3
Total 1 Annual Benefits	91
Total 2 Annual Cost	391
1 ÷ 2 = Benefit/Cost Ratio	0.23

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of
Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Rockwell City - Herndon
Miles of Track	43.1
District Location	4
Base Rail System from which Line is Analyzed	73%
Annual Benefits from:	($1,000)
Grain	51
Fertilizer	18
Other Products	0
Total 1 Annual Benefits	69
Total 2 Annual Cost	310
1 ÷ 2 = Benefit/Cost Ratio	0.22

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
E. Gowrie* Farnhamville* Vincent* Clare* Pickering*		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Iowa Falls - Cedar Rapids
Miles of Track	94.7
District Location	5, 6
Base Rail System from which Line is Analyzed	74%
Annual Benefits from:	($1,000)
Grain	63
Fertilizer	67
Other Products	46
Total 1 Annual Benefits	176
Total 2 Annual Cost	804
1 ÷ 2 = Benefit/Cost Ratio	0.22

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 5	District 6	District
Readlyn* Waterloo*	Readlyn* Clarence	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 5	District 6	District
Dike Gladbrook	Jesup Lost Nation Epworth	

Analysis Data Summary Sheet

Rail Line Analyzed	Mason City - Lyle, Minn.
Miles of Track	28.2
District Location	3
Base Rail System from which Line is Analyzed	75%
Annual Benefits from:	($1,000)
Grain	23
Fertilizer	23
Other Products	1
Total 1 Annual Benefits	47
Total 2 Annual Cost	218
1 ÷ 2 = Benefit/Cost Ratio	0.22

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City* Readlyn*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville or New Hampton Oelwein		

Analysis Data Summary Sheet

Rail Line Analyzed	Little Rock - Sibley
Miles of Track	7.6
District Location	1
Base Rail System from which Line is Analyzed	76%
Annual Benefits from:	($1,000)
Grain	7
Fertilizer	1
Other Products	2
Total 1 Annual Benefits	10
Total 2 Annual Cost	48
1 ÷ 2 = Benefit/Cost Ratio	0.21

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Sheldon Sioux City* Rockwell City Yetter Knierim Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Sheldon Sioux City Yetter Knierim		

Analysis Data Summary Sheet

Rail Line Analyzed	Holstein - Carnarvon
Miles of Track	44.3
District Location	1
Base Rail System from which Line is Analyzed	76%
Annual Benefits from:	($1,000)
Grain	10
Fertilizer	63
Other Products	25
Total 1 Annual Benefits	98
Total 2 Annual Cost	470
1 ÷ 2 = Benefit/Cost Ratio	0.21

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Washta - Cherokee
Miles of Track	12.1
District Location	1
Base Rail System from which Line is Analyzed	76%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	21
Other Products	8
Total 1 Annual Benefits	29
Total 2 Annual Cost	142
1 ÷ 2 = Benefit/Cost Ratio	0.20

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Clare* Ocheyedan* Ruthven		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Woden - North of Garner
Miles of Track	18.1
District Location	2
Base Rail System from which Line is Analyzed	76%
Annual Benefits from:	($1,000)
Grain	15
Fertilizer	11
Other Products	2
Total 1 Annual Benefits	28
Total 2 Annual Cost	143
1 ÷ 2 = Benefit/Cost Ratio	0.20

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 2	District	District
Bode* Clarion*		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Woden - Titonka
Miles of Track	6.6
District Location	2
Base Rail System from which Line is Analyzed	76%
Annual Benefits from:	($1,000)
Grain	7
Fertilizer	8
Other Products	0
Total 1 Annual Benefits	15
Total 2 Annual Cost	52
1 ÷ 2 = Benefit/Cost Ratio	0.29

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Lakota* Swea City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme		

Analysis Data Summary Sheet

Rail Line Analyzed	Humboldt - Ft. Dodge
Miles of Track	19.0
District Location	2
Base Rail System from which Line is Analyzed	77%
Annual Benefits from:	($1,000)
Grain	16
Fertilizer	10
Other Products	1
Total 1 Annual Benefits	27
Total 2 Annual Cost	141
1 ÷ 2 = Benefit/Cost Ratio	0.19

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Lakota* Swea City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme		

Analysis Data Summary Sheet

Rail Line Analyzed	Hopkinton - Milw. Mainline
Miles of Track	32.6
District Location	6
Base Rail System from which Line is Analyzed	77%
Annual Benefits from:	($1,000)
Grain	2
Fertilizer	25
Other Products	53
Total 1 Annual Benefits	80
Total 2 Annual Cost	428
1 ÷ 2 = Benefit/Cost Ratio	0.19

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 6	District	District
Readlyn* Clarence		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District	District
Jesup Lost Nation Epworth		

Analysis Data Summary Sheet

Rail Line Analyzed	Belmond - Mason City
Miles of Track	30.96
District Location	2, 3
Base Rail System from which Line is Analyzed	77%
Annual Benefits from:	($1,000)
Grain	26
Fertilizer	27
Other Products	5
Total 1 Annual Benefits	58
Total 2 Annual Cost	327
1 ÷ 2 = Benefit/Cost Ratio	0.18

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 2	District 3	District
Lakota* Swea City*	Charles City* Readlyn*	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme		

Analysis Data Summary Sheet

Rail Line Analyzed	Belmond - Alexander
Miles of Track	7.7
District Location	2
Base Rail System from which Line is Analyzed	78%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	12
Other Products	0
Total 1 Annual Benefits	12
Total 2 Annual Cost	70
1 ÷ 2 = Benefit/Cost Ratio	0.17

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Lakota* Swea City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme		

Analysis Data Summary Sheet

Rail Line Analyzed	Manly - Cedar Falls
Miles of Track	79.52
District Location	3
Base Rail System from which Line is Analyzed	79%
Annual Benefits from:	($1,000)
Grain	26
Fertilizer	27
Other Products	13
Total 1 Annual Benefits	66
Total 2 Annual Cost	379
1 ÷ 2 = Benefit/Cost Ratio	0.17

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City* Readlyn*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville Oelwein		

Analysis Data Summary Sheet

Rail Line Analyzed	Carroll - Manning
Miles of Track	16.6
District Location	7
Base Rail System from which Line is Analyzed	79%
Annual Benefits from:	($1,000)
Grain	7
Fertilizer	3
Other Products	1
Total 1 Annual Benefits	11
Total 2 Annual Cost	66
1 ÷ 2 = Benefit/Cost Ratio	0.17

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Fontanelle - Creston
Miles of Track	28.6
District Location	7
Base Rail System from which Line is Analyzed	79%
Annual Benefits from:	($1,000)
Grain	9
Fertilizer	18
Other Products	19
Total 1 Annual Benefits	46
Total 2 Annual Cost	293
1 ÷ 2 = Benefit/Cost Ratio	0.16

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Kanawha - Clarion
Miles of Track	23.31
District Location	2
Base Rail System from which Line is Analyzed	79%
Annual Benefits from:	($1,000)
Grain	6
Fertilizer	9
Other Products	0
Total 1 Annual Benefits	15
Total 2 Annual Cost	94
1 ÷ 2 = Benefit/Cost Ratio	0.16

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District 2 (cont'd)	District
Lakota* Swea City* Burt (sbt)* Graettinger* Britt* Britt (sbt)* Klemme* Algona* Whittemore* West Bend* Goldfield* Dows* Eagle Grove*	Vincent* Clare* Rolfe* Cylinder* Superior* Bode* Clarion*	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Duncan Wesley Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Albert City - Rockwell City
Miles of Track	31.7
District Location	1
Base Rail System from which Line is Analyzed	80%
Annual Benefits from:	($1,000)
Grain	24
Fertilizer	9
Other Products	1
Total 1 Annual Benefits	34
Total 2 Annual Cost	228
1 ÷ 2 = Benefit/Cost Ratio	0.15

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	LeRoy - Calmar
Miles of Track	40.9
District Location	3
Base Rail System from which Line is Analyzed	81%
Annual Benefits from:	($1,000)
Grain	21
Fertilizer	33
Other Products	19
Total 1 Annual Benefits	73
Total 2 Annual Cost	480
1 ÷ 2 = Benefit/Cost Ratio	0.15

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City* Readlyn*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville Oelwein		

Analysis Data Summary Sheet

Rail Line Analyzed	Zearing - Marshalltown
Miles of Track	18.8
District Location	4
Base Rail System from which Line is Analyzed	81%
Annual Benefits from:	($1,000)
Grain	29
Fertilizer	9
Other Products	0
Total 1 Annual Benefits	38
Total 2 Annual Cost	259
1 ÷ 2 = Benefit/Cost Ratio	0.15

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Waterloo - Vinton
Miles of Track	26.76
District Location	5
Base Rail System from which Line is Analyzed	81%
Annual Benefits from:	($1,000)
Grain	3
Fertilizer	15
Other Products	0
Total 1 Annual Benefits	18
Total 2 Annual Cost	130
1 ÷ 2 = Benefit/Cost Ratio	0.14

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 5	District	District
Readlyn* Waterloo*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 5	District	District
Dike Gladbrook		

Analysis Data Summary Sheet

Rail Line Analyzed	Laurens - Rolfe
Miles of Track	17.1
District Location	1
Base Rail System from which Line is Analyzed	82%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	24
Other Products	1
Total 1 Annual Benefits	29
Total 2 Annual Cost	204
1 ÷ 2 = Benefit/Cost Ratio	0.14

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Rolfe - Dakota City
Miles of Track	17.6
District Location	2
Base Rail System from which Line is Analyzed	82%
Annual Benefits from:	($1,000)
Grain	13
Fertilizer	13
Other Products	1
Total 1 Annual Benefits	27
Total 2 Annual Cost	208
1 ÷ 2 = Benefit/Cost Ratio	0.13

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Bode* Clarion*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme Chapin		

Analysis Data Summary Sheet

Rail Line Analyzed	Hubbard - Lawn Hill
Miles of Track	6.35
District Location	4
Base Rail System from which Line is Analyzed	82%
Annual Benefits from:	($1,000)
Grain	3
Fertilizer	6
Other Products	0
Total 1 Annual Benefits	9
Total 2 Annual Cost	67
1 ÷ 2 = Benefit/Cost Ratio	0.13

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Hopkins - Creston
Miles of Track	49.3
District Location	7
Base Rail System from which Line is Analyzed	83%
Annual Benefits from:	($1,000)
Grain	55
Fertilizer	16
Other Products	19
Total 1 Annual Benefits	90
Total 2 Annual Cost	703
1 ÷ 2 = Benefit/Cost Ratio	0.13

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Calmar - Decorah
Miles of Track	10.0
District Location	3
Base Rail System from which Line is Analyzed	83%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	7
Other Products	6
Total 1 Annual Benefits	13
Total 2 Annual Cost	107
1 ÷ 2 = Benefit/Cost Ratio	0.12

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 3	District	District
Charles City* Readlyn*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 3	District	District
Riceville Oelwein		

Analysis Data Summary Sheet

Rail Line Analyzed	Sheldon - Cherokee
Miles of Track	38.5
District Location	1
Base Rail System from which Line is Analyzed	83%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	20
Other Products	15
Total 1 Annual Benefits	35
Total 2 Annual Cost	284
1 ÷ 2 = Benefit/Cost Ratio	0.12

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Alleman - Fort Dodge
Miles of Track	61.6
District Location	4
Base Rail System from which Line is Analyzed	84%
Annual Benefits from:	($1,000)
Grain	59
Fertilizer	13
Other Products	1
Total 1 Annual Benefits	73
Total 2 Annual Cost	647
1 ÷ 2 = Benefit/Cost Ratio	0.11

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 4	District	District
E. Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville		

Analysis Data Summary Sheet

Rail Line Analyzed	Rockwell City - Storm Lake
Miles of Track	38.3
District Location	1
Base Rail System from which Line is Analyzed	84%
Annual Benefits from:	($1,000)
Grain	35
Fertilizer	7
Other Products	6
Total 1 Annual Benefits	48
Total 2 Annual Cost	423
1 ÷ 2 = Benefit/Cost Ratio	0.11

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Le Mars Yetter Sioux City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Alton - Laurens
Miles of Track	66.0
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	12
Fertilizer	39
Other Products	19
Total 1 Annual Benefits	70
Total 2 Annual Cost	649
1 ÷ 2 = Benefit/Cost Ratio	0.11

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Clare* Ocheyedan* Ruthven		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Manchester - Cedar Rapids
Miles of Track	38.4
District Location	6
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	8
Fertilizer	12
Other Products	12
Total 1 Annual Benefits	32
Total 2 Annual Cost	307
1 ÷ 2 = Benefit/Cost Ratio	0.10

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 6	District	District
Readlyn		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District	District
Jesup Lost Nation Epworth		

Analysis Data Summary Sheet

Rail Line Analyzed	Rolfe - Mallard
Miles of Track	11.4
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	5
Fertilizer	6
Other Products	1
Total 1 Annual Benefits	12
Total 2 Annual Cost	134
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Dickens Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Spencer - Terrill
Miles of Track	14.5
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	10
Other Products	1
Total 1 Annual Benefits	15
Total 2 Annual Cost	158
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Sioux City* Yetter Le Mars		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Ruthven - Mallard
Miles of Track	18.3
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	5
Fertilizer	11
Other Products	1
Total 1 Annual Benefits	17
Total 2 Annual Cost	191
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Clare* Ocheyedan* Ruthven		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Red Oak - Shenandoah
Miles of Track	17.5
District Location	7
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	3
Other Products	1
Total 1 Annual Benefits	8
Total 2 Annual Cost	94
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Wapello County - Ottumwa
Miles of Track	16.35
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	0
Other Products	8
Total 1 Annual Benefits	12
Total 2 Annual Cost	128
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Brooklyn West Liberty Lovilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Blakesburg - Ottumwa
Miles of Track	11.95
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	2
Fertilizer	5
Other Products	1
Total 1 Annual Benefits	8
Total 2 Annual Cost	93
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Brooklyn West Liberty Lovilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	West Liberty - Mediapolis
Miles of Track	47.5
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	8
Fertilizer	14
Other Products	7
Total 1 Annual Benefits	29
Total 2 Annual Cost	331
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Sigourney - Amana
Miles of Track	41.36
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	15
Fertilizer	11
Other Products	10
Total 1 Annual Benefits	36
Total 2 Annual Cost	387
1 ÷ 2 = Benefit/Cost Ratio	0.09

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 8	District	District

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District

Analysis Data Summary Sheet

Rail Line Analyzed	Oelwein - Dubuque
Miles of Track	73.1
District Location	6
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	32
Other Products	7
Total 1 Annual Benefits	43
Total 2 Annual Cost	547
1 ÷ 2 = Benefit/Cost Ratio	0.08

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 6	District	District
Readlyn* Clarence		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 6	District	District
Jesup Lost Nation Epworth		

Analysis Data Summary Sheet

Rail Line Analyzed	Lamoni Jct. - Humeston
Miles of Track	32.3
District Location	7, 8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	13
Fertilizer	13
Other Products	7
Total 1 Annual Benefits	33
Total 2 Annual Cost	396
1 ÷ 2 = Benefit/Cost Ratio	0.08

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 7	District 8	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak	Fairfield	

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 7	District 8	District
Portsmouth Corning	Malcom West Liberty Lovilla Lockridge	

Analysis Data Summary Sheet

Rail Line Analyzed	Gypsum - End of track
Miles of Track	11.7
District Location	4
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	9
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	9
Total 2 Annual Cost	121
1 ÷ 2 = Benefit/Cost Ratio	0.07

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 4	District	District
East Gowrie* Farnhamville* Yale* Vincent* Clare* Pickering*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 4	District	District
Garden City Farnhamville Perry		

Analysis Data Summary Sheet

Rail Line Analyzed	Buckingham - Hicks
Miles of Track	9.4
District Location	5
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	3
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	3
Total 2 Annual Cost	41
1 ÷ 2 = Benefit/Cost Ratio	0.07

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 5	District	District
Readlyn* Waterloo*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 5	District	District
Dike Gladbrook		

Analysis Data Summary Sheet

Rail Line Analyzed	Ft. Madison - Stockport
Miles of Track	38.7
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	25
Other Products	9
Total 1 Annual Benefits	34
Total 2 Annual Cost	483
1 ÷ 2 = Benefit/Cost Ratio	0.07

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom West Liberty Lovilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Minn. St. Line - Sheldon
Miles of Track	31.59
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	1
Fertilizer	8
Other Products	13
Total 1 Annual Benefits	22
Total 2 Annual Cost	363
1 ÷ 2 = Benefit/Cost Ratio	0.06

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 1	District	District
Clare* Ocheyedan* Ruthven		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Henderson - Hastings
Miles of Track	9.32
District Location	7
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	4
Fertilizer	1
Other Products	1
Total 1 Annual Benefits	6
Total 2 Annual Cost	129
1 ÷ 2 = Benefit/Cost Ratio	0.05

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Mediapolis - Washington
Miles of Track	37.13
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	15
Other Products	12
Total 1 Annual Benefits	27
Total 2 Annual Cost	519
1 ÷ 2 = Benefit/Cost Ratio	0.05

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom Lockridge		

Analysis Data Summary Sheet

		Computer Selected Locations of 50-Car Grain Loading Facilities * existing		
Rail Line Analyzed	Lake Mills - Corwith	District 2	District	District
Miles of Track	39.8	Lakota* Swea City*		
District Location	2			
Base Rail System from which Line is Analyzed	85%			
Annual Benefits from:	($1,000)			
Grain	10	Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities		
Fertilizer	3			
Other Products	0			
Total 1 Annual Benefits	13	District 2	District	District
Total 2 Annual Cost	318	Burt Klemme		
1 ÷ 2 = Benefit/Cost Ratio	0.04			

Analysis Data Summary Sheet

Rail Line Analyzed	Estherville - Minn. St. line
Miles of Track	7.9
District Location	2
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	2
Fertilizer	0
Other Products	1
Total 1 Annual Benefits	3
Total 2 Annual Cost	77
1 ÷ 2 = Benefit/Cost Ratio	0.04

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 2	District	District
Lakota* Swea City*		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 2	District	District
Burt Klemme		

Analysis Data Summary Sheet

Rail Line Analyzed	Fontanelle - Cumberland
Miles of Track	18.01
District Location	7
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	7
Fertilizer	1
Other Products	3
Total 1 Annual Benefits	11
Total 2 Annual Cost	278
1 ÷ 2 = Benefit/Cost Ratio	0.04

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Hastings - Randolph
Miles of Track	11.44
District Location	7
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	5
Fertilizer	0
Other Products	2
Total 1 Annual Benefits	7
Total 2 Annual Cost	170
1 ÷ 2 = Benefit/Cost Ratio	0.04

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 7	District	District
Missouri Valley Atlantic Council Bluffs* Hamburg Red Oak		

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District 7	District	District
Dedham Portsmouth Corning Arispe		

Analysis Data Summary Sheet

Rail Line Analyzed	Pella - Oskaloosa
Miles of Track	15.6
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	1
Fertilizer	2
Other Products	1
Total 1 Annual Benefits	4
Total 2 Annual Cost	105
1 ÷ 2 = Benefit/Cost Ratio	0.04

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Malcom Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Ottumwa - Keokuk
Miles of Track	81.91
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	1
Fertilizer	5
Other Products	8
Total 1 Annual Benefits	14
Total 2 Annual Cost	625
1 ÷ 2 = Benefit/Cost Ratio	0.02

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District 8	District	District
Fairfield		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 8	District	District
Brooklyn West Liberty Lovilla Lockridge		

Analysis Data Summary Sheet

Rail Line Analyzed	Hawarden - Wren
Miles of Track	31.1
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	1
Total 1 Annual Benefits	1
Total 2 Annual Cost	301.162
1 ÷ 2 = Benefit/Cost Ratio	0.01

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District 1	District	District
Clare* Ocheyedan* Ruthven		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District 1	District	District
Ashton Storm Lake Sioux City Yetter		

Analysis Data Summary Sheet

Rail Line Analyzed	Luverne - Humboldt
Miles of Track	15.4
District Location	2
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	1
Other Products	0
Total 1 Annual Benefits	1
Total 2 Annual Cost	180
1 ÷ 2 = Benefit/Cost Ratio	0.01

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District	District	District
--		

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District	District	District
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Analysis Data Summary Sheet

		Computer Selected Locations of 50-Car Grain Loading Facilities * existing		
Rail Line Analyzed	Moulton - Ottumwa	District 8	District	District
Miles of Track	35.8	Fairfield		
District Location	8			
Base Rail System from which Line is Analyzed	85%			
Annual Benefits from:	($1,000)			
Grain	0	Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities		
Fertilizer	1			
Other Products	0	District 8	District	District
Total 1 Annual Benefits	1	Malcom Lockridge		
Total 2 Annual Cost	254			
1 ÷ 2 = Benefit/Cost Ratio	0.01			

Analysis Data Summary Sheet

Rail Line Analyzed	Gladbrook - Garwin
Miles of Track	7.2
District Location	5
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	0
Total 2 Annual Cost	44
1 ÷ 2 = Benefit/Cost Ratio	0.00

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District	District	District

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District	District	District

Analysis Data Summary Sheet

Rail Line Analyzed	Centerville - Mo. State Line
Miles of Track	16.5
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	0
Total 2 Annual Cost	271
1 ÷ 2 = Benefit/Cost Ratio	0.00

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District	District	District

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District	District	District

Analysis Data Summary Sheet

Rail Line Analyzed	Eddyville - Ottumwa
Miles of Track	15.61
District Location	8
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	0
Total 2 Annual Cost	104
1 ÷ 2 = Benefit/Cost Ratio	0.00

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District	District	District

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District	District	District

Analysis Data Summary Sheet

Rail Line Analyzed	Royal - Hartley
Miles of Track	12.4
District Location	1
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	0
Total 2 Annual Cost	147
1 ÷ 2 = Benefit/Cost Ratio	0.00

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District	District	District

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District	District	District

Analysis Data Summary Sheet

		Computer Selected Locations of 50-Car Grain Loading Facilities * existing		
Rail Line Analyzed	Eagle Grove - Clarion	District	District	District
Miles of Track	10.2			
District Location	2			
Base Rail System from which Line is Analyzed	85%			
Annual Benefits from:	($1,000)			
Grain	0	Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities		
Fertilizer	0			
Other Products	0			
Total 1 Annual Benefits	0	District	District	District
Total 2 Annual Cost	88			
1 ÷ 2 = Benefit/Cost Ratio	0.00			

Analysis Data Summary Sheet

Rail Line Analyzed	Manly - Lyle
Miles of Track	19.85
District Location	3
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	(128)
Total 1 Annual Benefits	0
Total 2 Annual Cost	123
1 ÷ 2 = Benefit/Cost Ratio	0.00

Computer Selected Locations of
50-Car Grain Loading Facilities

* existing

District	District	District

Computer Selected Locations of

Fixed Conveyor Fertilizer Unloading Facilities

District	District	District

Analysis Data Summary Sheet

Rail Line Analyzed	Ft. Dodge - Moorland
Miles of Track	6.5
District Location	4
Base Rail System from which Line is Analyzed	85%
Annual Benefits from:	($1,000)
Grain	0
Fertilizer	0
Other Products	0
Total 1 Annual Benefits	0
Total 2 Annual Cost	82
1 ÷ 2 = Benefit/Cost Ratio	0.00

Computer Selected Locations of 50-Car Grain Loading Facilities

* existing

District	District	District

Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities

District	District	District

Analysis Data Summary Sheet

		Computer Selected Locations of 50-Car Grain Loading Facilities * existing		
Rail Line Analyzed	Bancroft - Ledyard	District 2	District	District
Miles of Track	9.40	---		
District Location	2			
Base Rail System from which Line is Analyzed	85%			
Annual Benefits from:	($1,000)			
Grain	0	Computer Selected Locations of Fixed Conveyor Fertilizer Unloading Facilities		
Fertilizer	0			
Other Products	0			
Total 1 Annual Benefits	0	District 2	District	District
Total 2 Annual Cost	0	---		
1 ÷ 2 = Benefit/Cost Ratio	0.00			