For additional copies, contact:

Office of Systems Planning
800 Lincoln Way
Ames, IA 50010

Phone: 515-239-1664
Fax: 515-233-7857

The plan is also available on our Web site at:
http://www.dot.state.ia.us

Rail System Plan

Implementing Iowa's State Transportation Plan

Adopted by the Iowa Transportation Commission
February 8, 2000

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Introduction

Purpose of the Plan

The primary purpose of this document is to specify how the Iowa Department of Transportation intends to implement the investment actions identified in Iowa's State Transportation Plan. These rail investment actions include:

- Invest in the rehabilitation of branchlines.
- Invest in building or improving spur tracks.
- Invest in rail/highway at-grade crossings.
- Continue efforts to analyze rail passenger service.

The State Transportation Plan was developed through an extensive planning effort known as *Iowa in Motion.* It was the first time a transportation plan considered investments in aviation, bicycle and pedestrian, highways, intermodal, rail, transit and waterways in one plan.

The Rail System Plan builds on the State Transportation Plan by identifying how each investment action will be addressed by the department. It establishes specific program guidelines, including program eligibility, criteria, and priorities for each action. The Rail System Plan also addresses the department's administrative programs and the funding source and level of each program.

The Iowa Rail System Plan details the state's role in providing and preserving adequate, safe, and efficient rail transportation services to Iowans. It is intended to serve as a guide for decision-makers. The plan provides a basis for future department policy, funding priorities, and programming decisions that affect rail transportation service in Iowa.

Brief History of Rail Service in Iowa

Freight

Iowa's freight transportation system has taken more than 160 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 in 1846, the construction of a state railroad network began. Railroads have played a crucial role in the history and economic development of this country and Iowa.

Iowa's first railroad tracks, from Davenport to Muscatine, were opened in November 1855. The first rail line completed across Iowa from Chicago through Clinton, Cedar Rapids, and Ames, and ending in Omaha was opened in 1867. During the 10-year period from 1859 to 1869, the total mileage of railroads in Iowa more than tripled as early settlers quickly saw the advantages of rail service. In the following decade, the mileage nearly doubled, with 4,770 miles operating by 1879. Railroad companies crisscrossed the state with track until nearly everyone lived within seven miles of a rail line. In 1911 total rail mileage peaked at 10,500.

After 1911, Iowa rail mileage dropped as railroads struggled to earn an adequate return due to overbuilding of the system beyond the point of providing economical service. Competition from other modes, mergers, bankruptcies, trackage rights, and haulage agreements also contributed to fewer rail miles being operated.

Iowa rail struggles culminated in the late 1970s and early 1980s as Iowa's rail system underwent a period of great change. This rapid change was largely brought on by the depressed economic state of the railroad industry, including the Rock Island liquidation and the reorganization of the Milwaukee Road. Congress passed the Staggers Rail Act of 1980 as part of a continuing effort to reduce unnecessary regulation and improve railroad financial conditions. It gave the railroads substantially more freedom in rate, merger, marketing and entry decisions. During this time period Iowa experienced both a significant loss of rail mileage and a significant increase in the number of short-line operations, those typically earning less than $20 million in revenues per year.

In the late 1980s and 1990s, rail line abandonments and new short-line creations slowed considerably. However, railroad service in Iowa continues to change as railroads seek to lower transportation costs and improve efficiencies through mergers. Today, Iowa is served by 17 railroads operating 4,275 miles.

Passenger

At the beginning of the 20th Century passenger trains were the dominant mode of intercity transportation in the country. As early as 1915, the increasing availability of the automobile began to affect the railroad's market share. Rail's share of travel continued its downward trend throughout the period between 1929 and 1950, abated only during World War II--a time of curtailed auto production, gas rationing, and large-scale troop movement by train.

With few exceptions, railroads lost money on rail passenger service after World War II. This period was also characterized by serious deterioration of the railroad infrastructure and of the railroads' financial strength. This decrease in train travel was accelerated by continued growth in automobile travel and highway system development. Later, rapid development of the airlines and general aviation contributed to further decline in the use of rail passenger service.

By 1970 it became evident that intercity rail passenger services in the U.S. would virtually disappear in the absence of some form of government intervention. The Rail Passenger Service Act was passed in 1970, creating Amtrak. Amtrak has encountered a steadily increasing financial squeeze, especially since the early 1990s. In 1995 Amtrak approved reduction of train frequencies, elimination of some routes and route segments, and lower staffing levels to reduce costs. Amtrak also developed a six-year plan to reduce federal operating subsidies to zero. These reductions have not seriously impacted service in Iowa. Currently, Iowa is served by two transcontinental routes--the California Zephyr and the Southwest Chief.

Overview of Rail Planning in Iowa

State rail planning in Iowa began in 1974 prior to the passage of the Railroad Revitalization and Regulatory Reform (4R) Act of 1976. The 4R Act included arrangements to assist railroads in financing needed improvements, including funds for states to assist local rail freight transportation. To be eligible for federal rail assistance funds, states were required to establish an adequate plan for rail service as part of the continuing overall planning process for all transportation services within the state.

The first Iowa rail plan, completed in 1978, analyzed Iowa's entire branchline network. A branchline is defined as a line that serves local shippers and carries less than five million gross ton-miles per mile on an annual basis. Subsequent rail plan updates in 1980, 1982, 1986 and 1995 are products of Iowa's integrated and continuing transportation planning process. Each update provided current information about Iowa's rail infrastructure and service, reviewed rail issues, state rail policy and program accomplishments, and evaluated new candidates for state and federal assistance. The 1995 Iowa Rail Plan was used to help develop Iowa's State Transportation Plan through the *Iowa in Motion* process.

The responsibility for state rail planning efforts in Iowa rests with the Office of Systems Planning, Planning and Programming Division of the Iowa Department of Transportation. The office's continuing multimodal transportation planning is closely coordinated with the rail programming and regulatory activities of the department. The department actively involves public, private and citizen input in planning Iowa's role in developing the future rail transportation system.

Iowa's rail planning effort will not stop with the completion of this document. Future rail planning issues and trends have been identified in the Future Rail Issues Section. The department's effort to maintain a viable rail system in Iowa will continue to evolve in response to the changing rail and transportation industries.

Summary of Rail System Plan Initiatives

The Iowa Rail System Plan has been developed to serve as the basis for rail-related decision making. The state's role in providing rail transportation services to Iowans is presented in the Program Guidance Section of this plan. The following summarizes the future directions the department will focus on:

- Provide current rail information.
- Upgrade branchlines to handle heavier cars.
- Review the grade crossing programs.
- Research alternative funding sources for rail improvements.
- Foster the development of rail passenger service.
- Monitor trends that may impact Iowa rail service.

Iowa's Rail Environment

Iowa's rail transportation system provides both freight and passenger service. Rail serves a variety of trips, including those within Iowa and those to other states as well as to foreign markets. While rail competes with other modes, it also cooperates with those modes to provide intermodal services to Iowans. In 1998 Iowa's rail transportation system could be described as follows:

- 4,275 miles of track
- 17 railroads
- 35.5 million tons shipped
- 41.2 million tons received
- 54,192 passenger rides

Freight

Iowa's 130,000-mile freight transportation system includes an extensive railroad network, a well-developed highway system, two bordering navigable waterways, and a pipeline network as well as air cargo facilities. While rail accounts for only 3 percent of the freight network, it carries 37 percent of Iowa's freight tonnage. A great variety of commodities ranging from fresh fish to textiles to optical products are moved by rail. However, most of the Iowa rail shipments consist of bulk commodities, including grain, grain products, coal and fertilizers. The railroad network performs an important role in moving bulk commodities produced and consumed in the state to local processors, livestock feeders, river terminals and ports for foreign export. The railroad's ability to haul large volumes, long distances at low costs will continue to be a major factor in moving freight and improving the economy of Iowa.

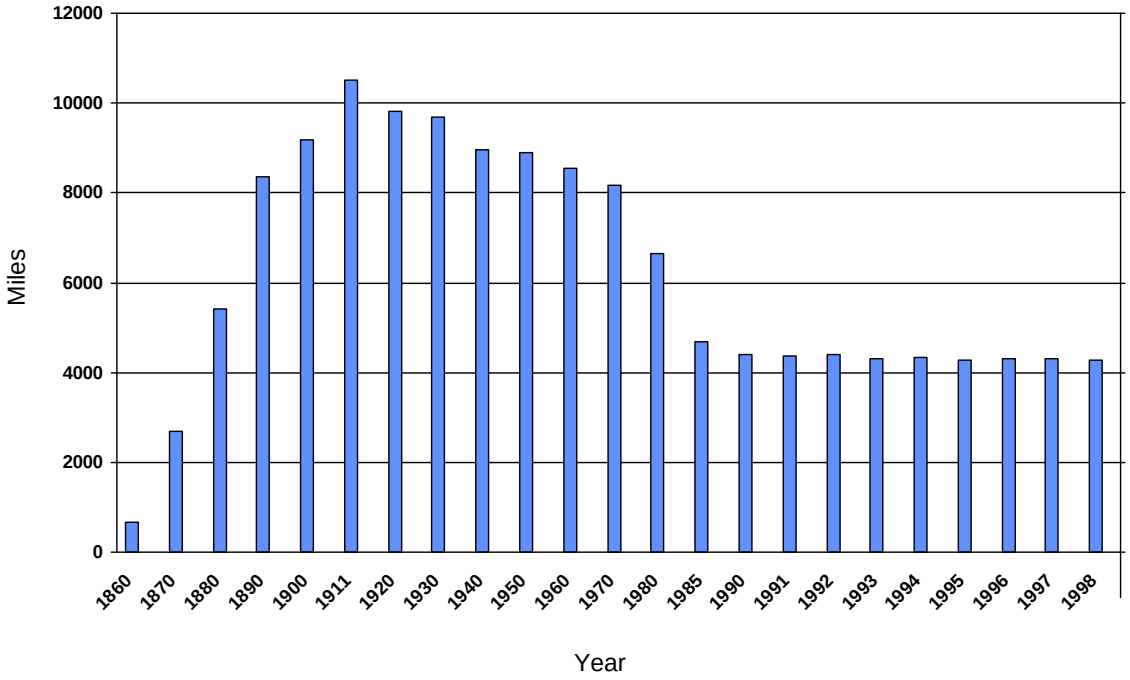
Iowa's rail system and service has been evolving over time relative to its size, financial conditions, and competition from other modes. Changes in Iowa's freight transportation system and service over the last 10 years can be characterized as follows:

- slightly fewer miles being operated;
- better track conditions;
- safer train operations and rail/highway crossings;
- more rail freight traffic;
- more tons hauled per car;
- fewer major carriers serving Iowa, but more regional and short-line carriers; and
- lower average rail rates per ton-mile.

Size

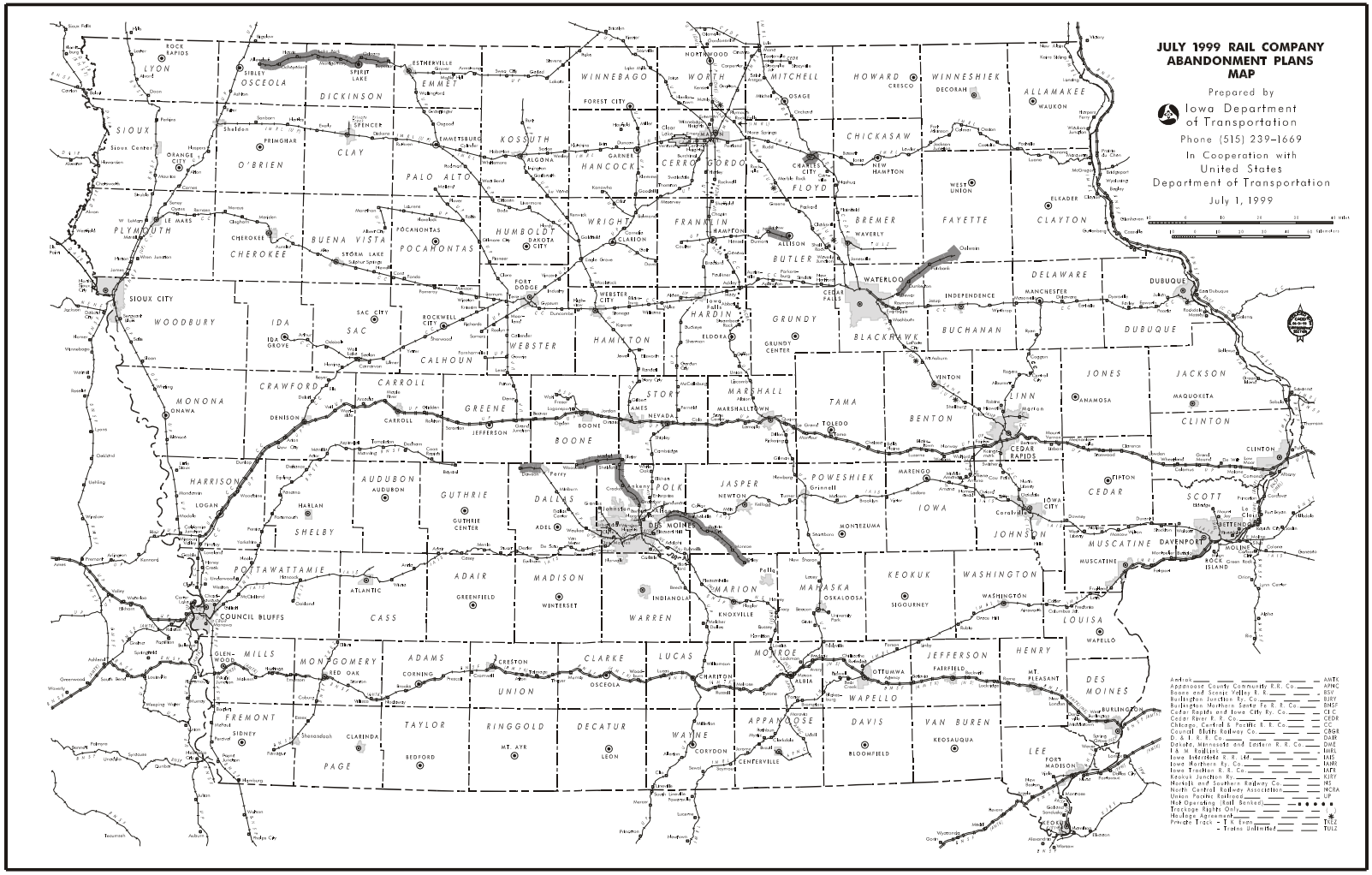
Iowa railroad mileage peaked in 1911 at approximately 10,500 miles. Today, Iowa has 4,275 miles, which is 41 percent of the peak mileage (See Figure 1). The current rail system evolved from massive restructuring in the early 1980s, partly as a result of the financial failures of the Rock Island and Milwaukee Road.

Figure 1
Iowa Railway Mileage
1860-1998



Since 1990 Iowa's rail system has stabilized at about 4,300 miles. During the 1990s, fewer miles were considered for abandonment due to sales of rail lines to other operators. As of July 1999, a total of 125 miles are being considered for abandonment as shown in Figure 2.

Figure 2
Railroad Abandonment Plans
July 1, 1999



Rail/Highway Crossings

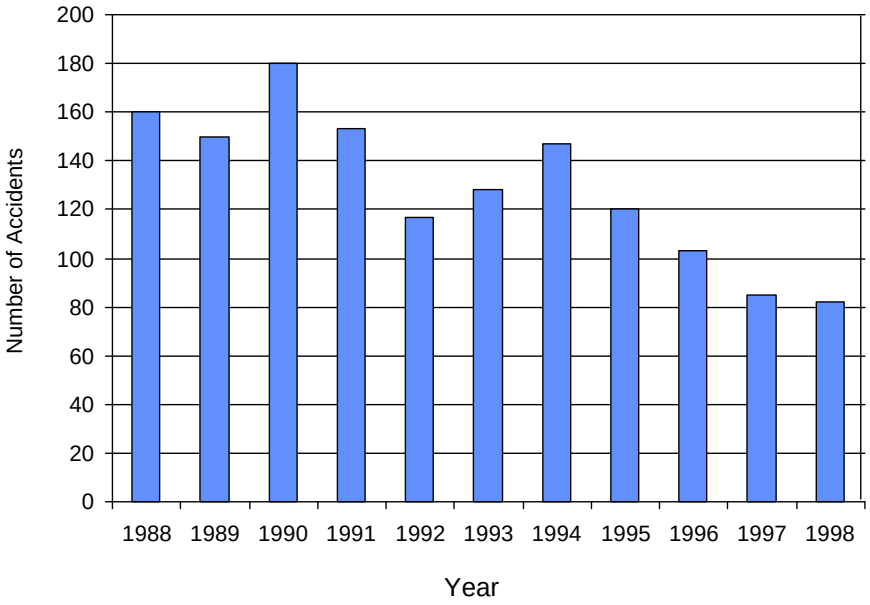
With the decrease in operating mileage, the number of rail/highway crossings in Iowa has declined by 9 percent during the last 10 years to 5,753 (See Table 1). Currently, Iowa's crossings have better warning and protection devices than in the past. Those with signals and gates increased by 24 percent as a result of investments made by railroads, local jurisdictions and the state to improve crossing safety.

Table 1
Number of Crossings by Warning Device

Warning Type	1988 Crossings	1988 % of Total	1998 Crossings	1998 % of Total	1988-1998 % Change
Separated	809	13	761	13	-6
Signals & Gates	541	8	670	12	+24
Signals Only	1,015	16	1,018	18	+0
Crossbucks/Other	3,967	63	3,304	57	-17
Total	6,332	100	5,753	100	-9

As a result of the investments made to improve the crossings and through education awareness programs, the number of crossing accidents has decreased significantly as shown in Figure 3. Since 1988, total accidents have declined by 49 percent while rail traffic measured in ton-miles has increased by 77 percent, and non-interstate vehicle miles of travel has increased by 31 percent. The majority of the accidents involve property damage, followed next by injury accidents, and then those with a fatality.

Figure 3
Iowa Rail/Highway Crossing Accidents
1988-1998



Condition

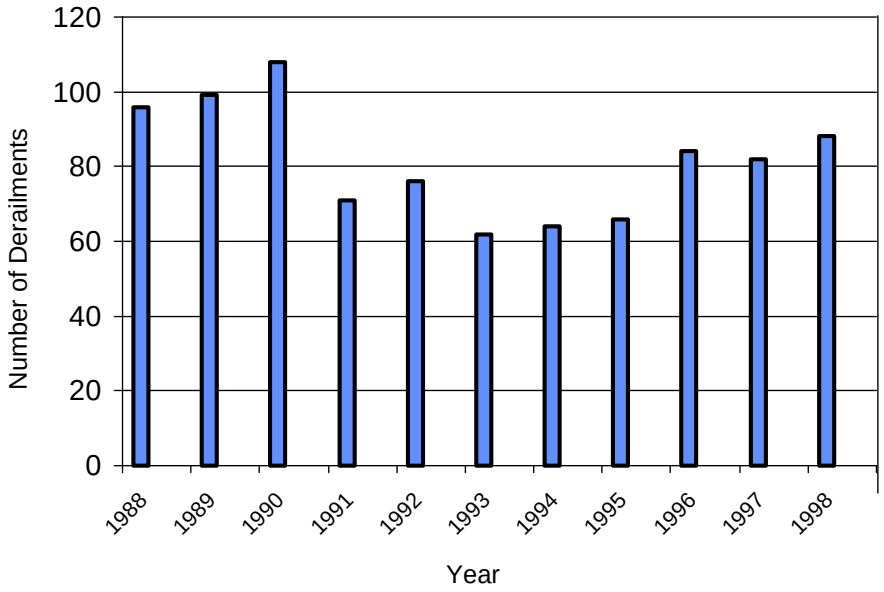
The condition of Iowa's rail network has improved substantially since the 1980s as a result of infrastructure investments and abandonment of inadequate rail lines. Before the 1980s, Iowa was plagued by rail lines that could not handle cars weighing 263,000 pounds, slow operating speeds, and rail weights of less than 90 pounds per yard. Today's rail network is typified by heavier rail weights that can safely handle larger and heavier cars and locomotives at faster speeds (See Table 2). With today's rail equipment, railroads have placed an increased importance on the condition and clearances associated with their tracks and bridges.

Table 2
Condition of Iowa Rail Network

Condition Indicator		**1985**		**1994**		**1985-1994**
		Miles	**% of Total**	**Miles**	**% of Total**	**% Change**
Weight Limits	< 263,000 lbs	217	4	19	<1	-91
	263,000 lbs	3,840	79	3,571	83	-7
	> 263,000 lbs	811	17	723	17	-11
	Total	**4,868**	**100**	**4,313**	**100**	**-11**
Operating Speeds	10 mph or less	860	18	732	17	-15
	11 mph to 25 mph	604	12	525	12	-13
	26 mph to 40 mph	2,146	44	2,012	47	-6
	41 mph to 60 mph	1,258	26	1,044	24	-17
	Total	**4,868**	**100**	**4,313**	**100**	**-11**
Rail Weight	0 to 89 lbs	593	12	389	9	-34
	90 to 99 lbs	1,122	23	734	17	-35
	100 to 120 lbs	2,666	55	2,511	58	-6
	over 120 lbs	487	10	679	16	+39
	Total	**4,868**	**100**	**4,313**	**100**	**-11**

The improvement of Iowa's rail network is evidenced by a reduction in the number of train derailments (See Figure 4). While part of this reduction is due to fewer miles being operated, car miles have increased by 66 percent from 691 million miles in 1988 to 1,147 million in 1998. As a result, one derailment occurred every 13.0 million car miles in 1998, compared to one every 7.2 million car miles in 1988.

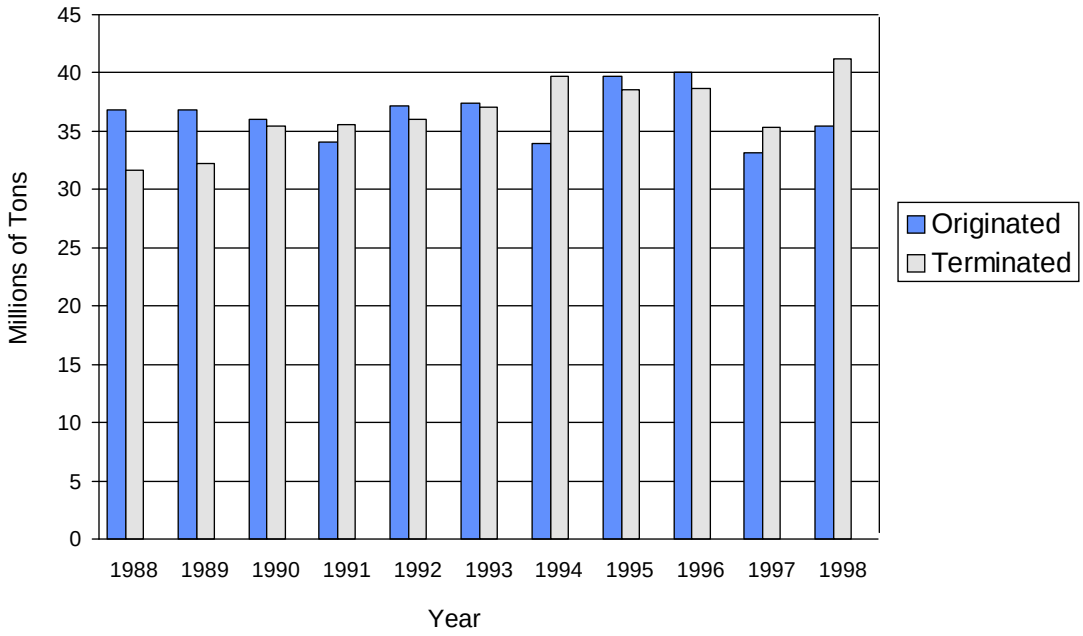
Figure 4
Train Derailments in Iowa
1988-1998



Use

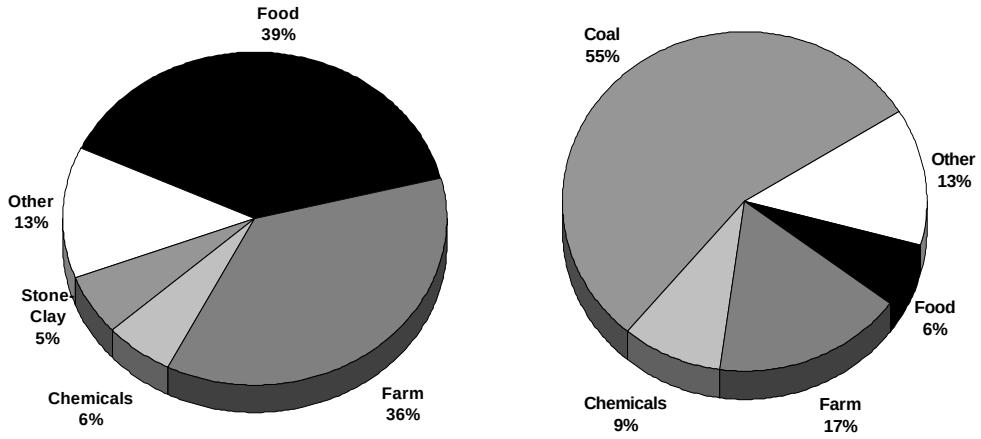
While rail mileage in Iowa has slowly declined during the last 10 years, Iowa rail traffic levels have generally continued to increase slightly over time (See Figure 5). In 1998, railroads originated 35.5 million tons and terminated 41.2 million tons in Iowa, compared to 36.8 million and 31.7 million, respectively, in 1988. The lower levels of traffic for both 1997 and 1998 are mostly attributed to weak demand for grain shipments. In addition to what originated and terminated in Iowa, another 189 million tons of rail freight merely passed through Iowa in 1998. Through traffic during the last 10 years has increased 67 percent from 113 million tons in 1988.

Figure 5
Iowa Rail Movements
1988-1998



A great variety of freight commodities are moved by rail, ranging from mail, textiles and furniture to lumber, plastic pellets and automobiles. However, more than three-fourths of all Iowa rail traffic involves bulk commodities, primarily coal, grain and grain products (food and fertilizer). Four commodity groups--farm products; food products; chemicals including fertilizers; and stone, clay and glass products--comprised 87 percent of all 1998 freight originating in Iowa (See Figure 6). Four commodities--coal, farm products, chemicals, and food products--comprised 87 percent of all 1998 freight terminating in Iowa (See Figure 6).

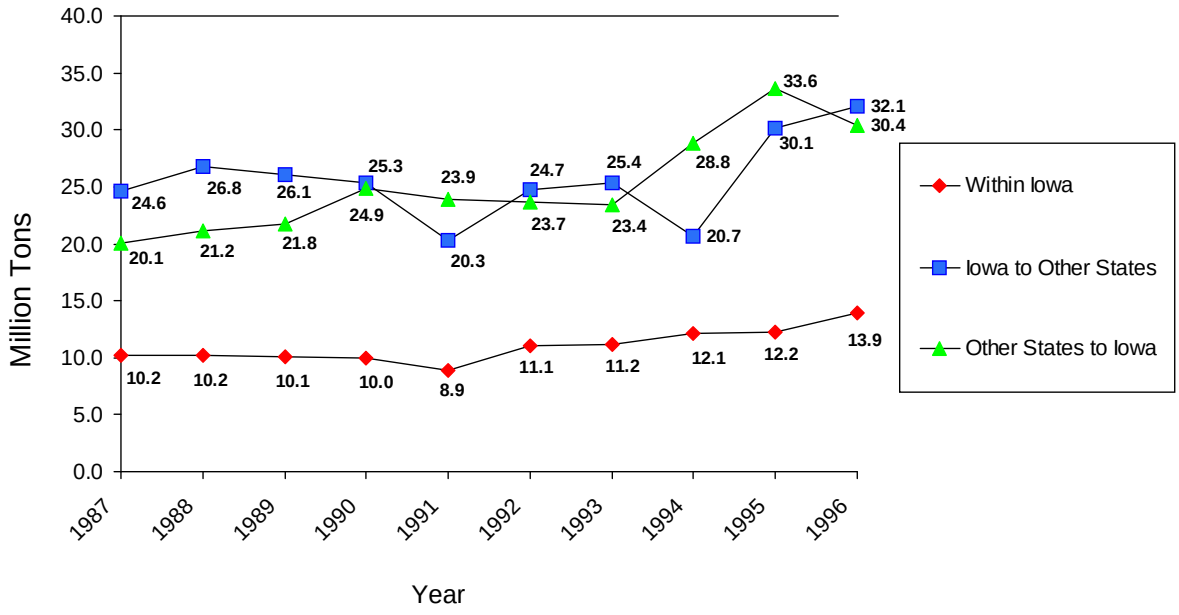
Figure 6
Type of Commodities Moved by Rail in 1998



Originating Terminating

The total freight shipped and received by Iowa rail users in 1996 was about 76.4 million tons based on the most recent waybill sample. Of this total, 13.9 million tons (18 percent) involved intrastate shipments (transported between points within the state). The remaining 62.5 million tons were shipped between Iowa and other states. While the tons of freight moved over Iowa's rail network have increased from 54.9 million tons in 1987 to 76.4 million in 1996, the relative proportion of intrastate movements has remained relatively stable during that time at about 20 percent (See Figure 7).

Figure 7
Intrastate versus Interstate Rail Movements
1987-1996



Of the rail shipments into Iowa, most of the tonnage comes from Wyoming, followed by states around Iowa including Minnesota, Missouri, Illinois and Indiana (See Figure 8). Freight traffic originating in Iowa has more widespread destinations, with Illinois receiving the largest amount followed by Missouri, Texas, Washington, California, Minnesota, Louisiana, Wisconsin and Arkansas (See Figure 9). Intrastate traffic within Iowa is also a major movement of freight that consists principally of moving farm and food products to Iowa processors and barge terminals.

Figure 8
Rail Freight Shipments in Tons
From Other States to Iowa
1996

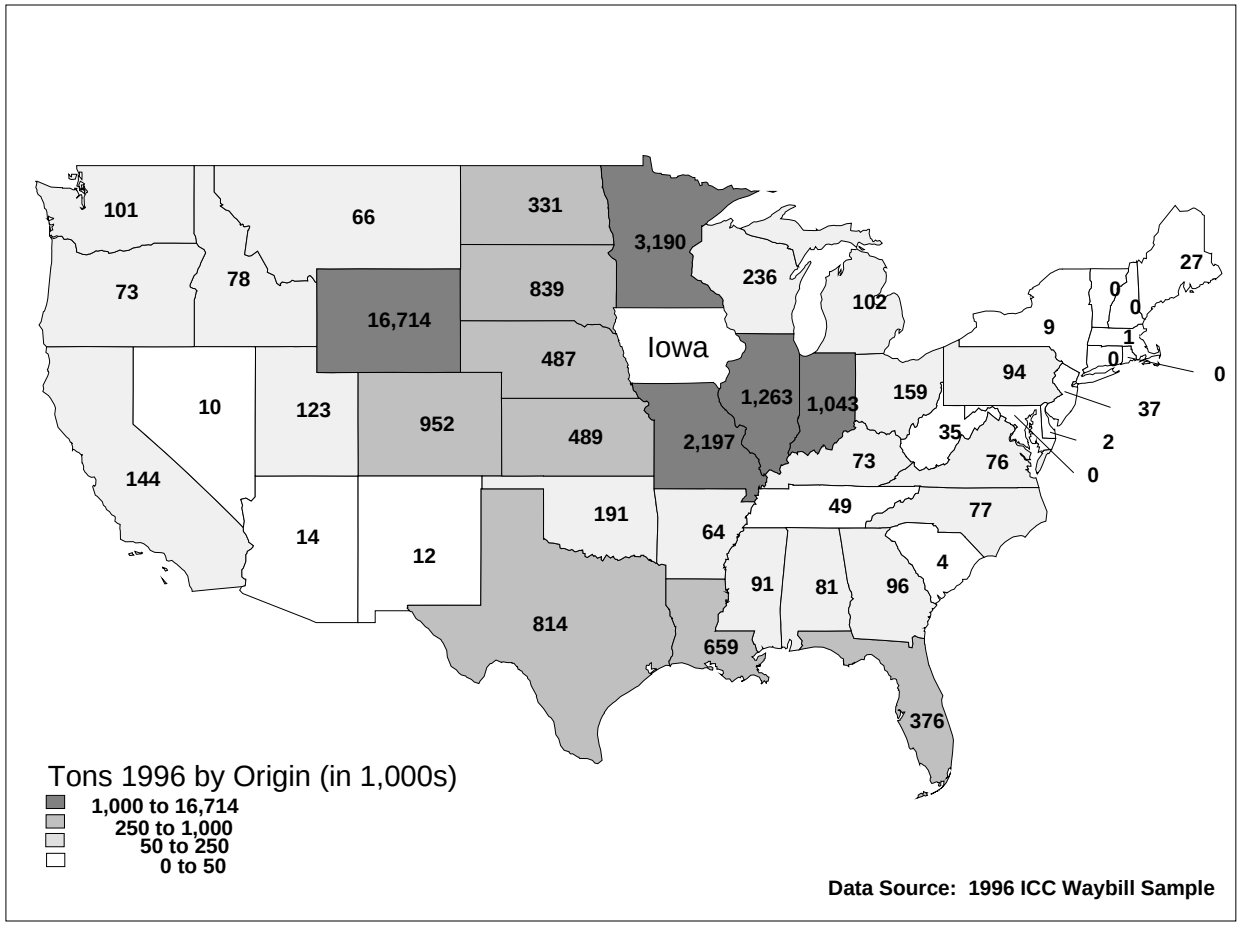
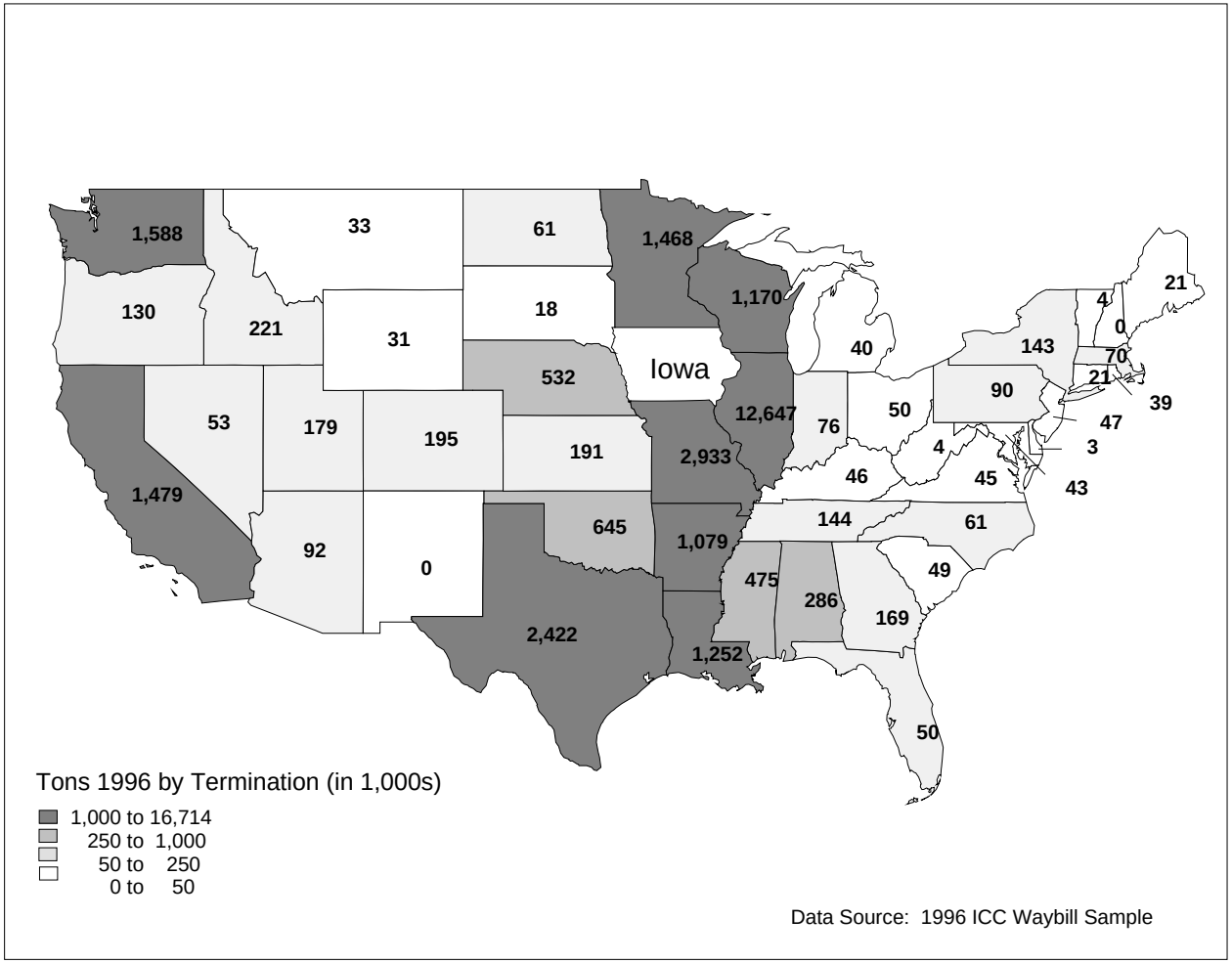
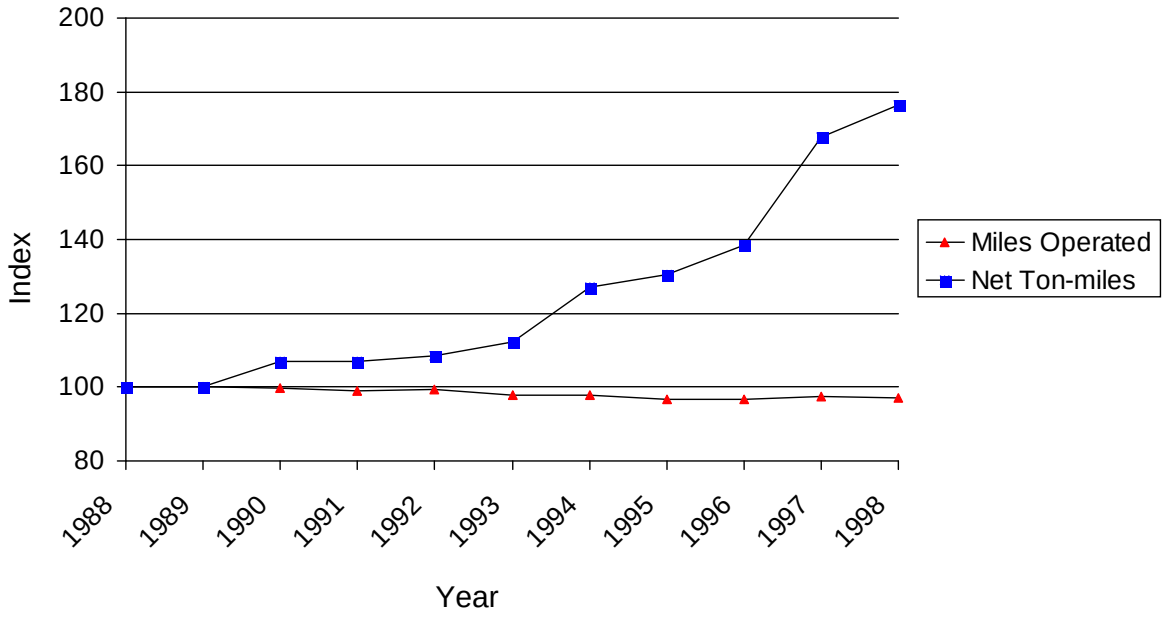


Figure 9
Rail Freight Shipments in Tons
From Iowa to Other States
1996



While Iowa's rail miles have remained stable, the amount of tonnage moving over the Iowa network has been increasing (See Figure 10). Between 1988 and 1998, ton-miles increased 77 percent while rail miles fell by 3 percent. This translates into Iowa's rail system being used more on a ton-mile basis.

Figure 10
Comparison of Miles Operated versus Net Ton-miles
1988-1998



The activity on individual rail lines is measured in terms of density or gross ton-miles per mile (gtm/m). Density reveals the relative use of each component of the state rail system: the higher the density, the more heavily the line is used. Lines that carry more than five million gtm/m are classified by the Federal Railroad Administration as main lines while those carrying less than five million gtm/m are considered branchlines (See Table 3).

Table 3

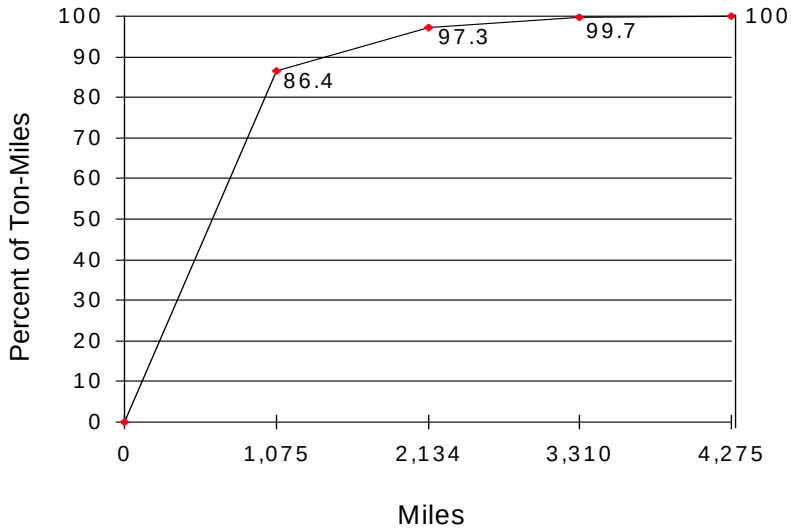
Federal Railroad Administration Density Classification

Category	Density (gtm/m)
A Main Line	over 20 million
B Main Line	5 million to 20 million
A Branchline	1 million to 5 million
B Branchline	less than 1 million

One-fourth of Iowa's rail miles carried a majority of the rail traffic in 1998. As shown in Figure 11, only 1,075 miles (25 percent) carried 86 percent of the ton-miles hauled in

the state in 1998. Conversely, the remaining 3,200 miles (75 percent) accounted for the other 14 percent of the ton-miles. The miles shown in Figure 11 are based on the density categories from Table 3.

Figure 11
1998 Rail System Utilization



Traffic density for individual line segments in Iowa is shown in Figure 12. Densities on individual segments range from 0.01 million gtm/m to more than 100.0 million gtm/m per year. The higher-density lines carry through traffic in longer trains between major rail terminals such as Chicago, Kansas City, Twin Cities and Omaha. Lines with low densities are primarily branchlines serving local industry and grain elevators. Middle-density lines usually carry some mixture of both through and local traffic. Between 1988 and 1998, average density increased by 79 percent statewide.

Providers

Rail service in Iowa is privately owned and operated by 17 railroad companies operating 4,275 miles of track (See Figure 13). Three of these railroads are major national companies and operate 55 percent of Iowa's total miles. The remaining 14 railroads consist of regional linehaul carriers and local switching companies. Of the 14 smaller railroads serving Iowa, seven operate only within Iowa.

Figure 13
Rail Miles Operated in Iowa by Railroad
December 31, 1998

	Railroad Companies		Total Miles Owned/Leased	Percent of Total	Miles Operated Under Trackage Rights*
Class I	BNSF	Burlington Northern Santa Fe Railroad	672	15.7	38
	NS	Norfolk & Southern Railway	7	0.2	37
	UP	Union Pacific Railroad	1,675	9.2	77
		Subtotal	2,354	55.1	152
Class II	CC	Chicago Central & Pacific Railroad	558	13.1	0
	DME	Dakota, Minnesota & Eastern Railroad	0	0.0	24
	IMRL	I&M Rail Link	655	15.3	33
	IAIS	Iowa Interstate Railroad	349	8.2	9
		Subtotal	1,562	36.5	66
Class III	APNC	Appanoose County Community Railroad	35	0.8	0
	BJRY	Burlington Junction Railway	4	0.1	0
	CBEC	CBEC Railway	6	0.1	0
	CIC	Cedar Rapids & Iowa City Railway	60	1.4	0
	CEDR	Cedar River Railroad	83	1.9	0
	CBGR	Council Bluffs Railway **	0	0.0	0
	DAIR	D & I Railroad***	0	0.0	39
	IANR	Iowa Northern Railway	118	2.8	29
	IATR	Iowa Traction Railroad	13	0.3	0
	KJRY	Keokuk Junction Railway	1	0.0	0
		Subtotal	320	7.5	68
Other		State of South Dakota***	39	0.9	0
		Total	**4,275**	**100.0**	**286**

Note: Totals may vary due to rounding.
* Rights obtained by one carrier to operate over the tracks of another carrier.
** Yard track only.
*** The State of South Dakota owns the track that DAIR operates under trackage rights.

Class I railroads earn $256.4 million or more in annual operating revenues, Class II railroads earn between $20.5 million and $256.4 million, and Class III railroads earn less than $20.5 million.

Rail service in Iowa is dominated by the three Class I carriers. In 1998, they operated 55 percent of Iowa's mileage and generated 90 percent of the ton-miles and 82 percent of the freight revenues. The Class II and III railroads often provide feeder service to the Class I carriers. In fact, many of them were created when the Class I railroads downsized in the 1970s and 1980s by selling off their unprofitable and light-density lines. Because of lower operating costs, these smaller carriers have been able to create profitable, more customer-oriented operations. The Class II railroads operated 37 percent of the mileage and generated 9 percent of the ton-miles and 14 percent of the freight revenues in 1998. Class III railroads consist of two separate operating categories--linehaul and switching. Switching railroads operate in urban areas, facilitating the interchange of rail shipments among the railroads, usually Class I railroads. The 10 Class III carriers operated only 8 percent of the mileage and generated 1 percent of the ton-miles and 4 percent of the freight revenues in 1998 (See Table 4).

Table 4
1998 Share of Rail Operations in Iowa

	Class I	**Class II**	**Class III**
Number of Carriers	18%	23%	59%
Miles Operated	55%	37%	8%
Tons Originated	62%	27%	11%
Tons Terminated	70%	27%	3%
Ton-miles	90%	9%	1%
Revenues Earned In Iowa	82%	14%	4%

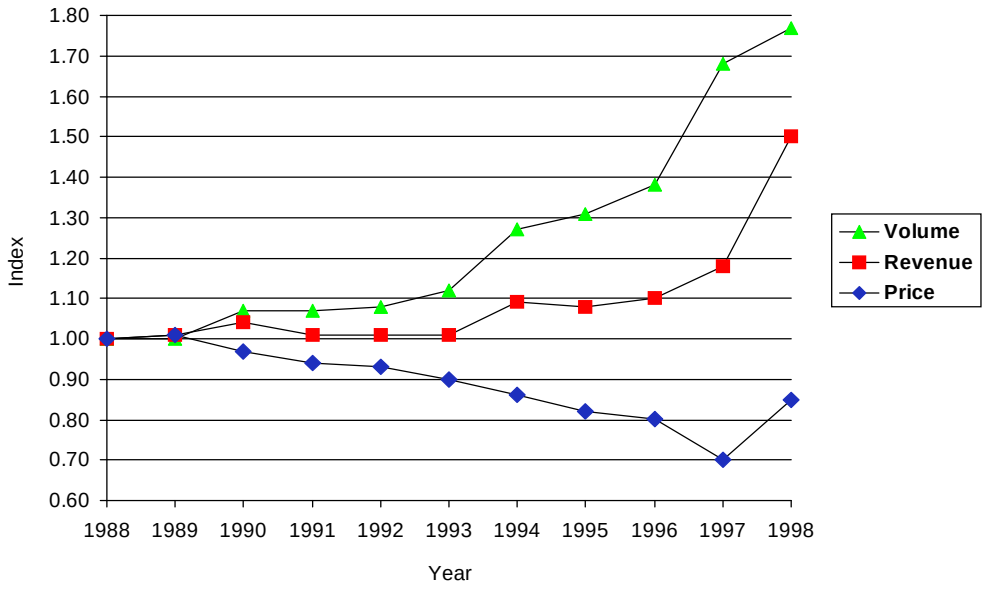
Table 5
1998 Profile of Railroads Serving Iowa

Railroad	Class	Type of Service	States	System Miles	Iowa Miles	System Revenue (millions)	Iowa Revenue (millions)	System Net Ton-miles (millions)	Iowa Net Ton-miles (millions)	System Tons (millions)	Iowa Tons (millions)	System Employees	Iowa Employees
BNSF	I	Linehaul	28	33,353	710	$ 8,936.2	$ 220.5	473,897.6	19,861.1	498.6	127.5	42,887	NA
NS	I	Linehaul	22	14,423	44	4,221.2	0.9	133,727.2	2.3	306.2	0.1	24,668	NA
UP	I	Linehaul	24	33,706	1,752	9,198.4	573.3	436,687.5	27,843.4	508.3	107.1	52,897	1,941
Subtotal				81,482	2,506	$22,355.8	$79476	1,044,312.3	47,706.8	1,313.1	234.7	120,452	1,941
CC	II	Linehaul	3	736	558	$ 69.3	$ 36.5	2,792.4	1,617.4	19.3	5.1	290	218
DME	II	Linehaul	5	1,118	24	56.9	0.9	1,736.7	21.3	5.2	0.4	320	0
IMRL	II	Linehaul	5	1,404	688	136.4	81.0	4,696.0	2,788.9	16.6	13.4	688	350
IAIS	II	Linehaul	2	643	358	29.4	16.4	964.1	536.9	5.0	4.6	176	136
Subtotal				3,901	1,628	$ 292.0	$134.8	10,189.2	4,964.5	46.1	23.5	1,474	704
APNC	III	Switching	1	35	35	$ 0.7	$ 0.7	1.0	1.0	NA	NA	5	5
BJRY	III	Switching	1	4	4	0.8	0.8	NA	NA	NA	NA	5	5
CBEC	III	Switching	1	6	6	2.1	2.1	NA	NA	NA	NA	0	0
CIC	III	Linehaul	1	60	60	18.8	18.8	63.8	63.8	3.8	3.8	90	90
CEDR	III	Linehaul	2	103	83	3.1	2.7	23.9	20.0	0.8	0.8	3	3
CBGR	III	Switching	1	0	0	1.7	1.7	0	0	0	0	6	6
DAIR	III	Linehaul	2	138	39	3.1	0.9	1.5	0.4	1.4	0.4	6	2
IANR	III	Linehaul	1	147	147	6.2	6.2	128.8	128.8	1.5	1.5	36	36
IATR	III	Switching	1	13	13	0.2	0.2	0.3	0.3	0.1	0.1	4	4
KJRY	III	Linehaul	2	30	1	3.2	2.0	24.1	0.8	0.5	0.5	19	17
Subtotal				536	388	$ 39.9	$ 36.1	243.4	215.1	8.1	7.1	174	168
Total				**85,919**	**4,522**	**$22,687.7**	**$965.6**	**1,054,744.9**	**52,886.4**	**1,367.3**	**265.3**	**122,100**	**2,813**

NA = Not Available

Rail service to Iowa shippers continued to show improvements during the last 10 years (See Figure 14). Since 1988, revenue ton-miles increased by 77 percent, while revenues earned in Iowa increased 50 percent. However, revenue per ton-mile declined by 15 percent during this time period from 2.15 cents in 1988 to 1.83 cents in 1998 in current dollars.

Figure 14
Performance of Rail Operations in Iowa
1988-1998



NOTE: Volume = Revenue ton-miles

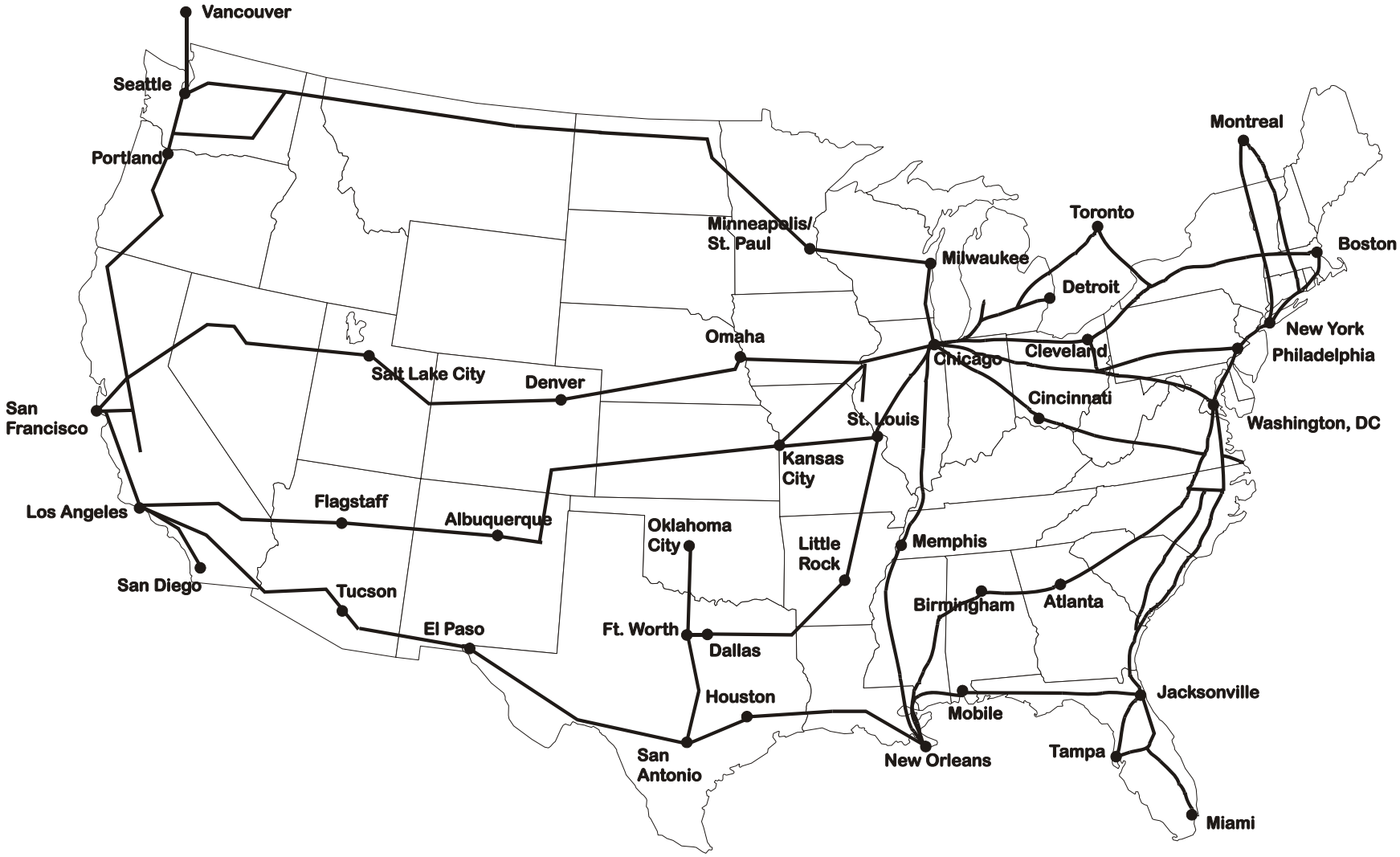
Revenue = Current operating revenues
Price = Current operating revenues per ton-mile

Passenger

Railroad passenger service, once the dominant mode of intercity passenger transportation in the United States, now plays a relatively minor role in moving people between cities. Iowa's 113,000-mile passenger transportation system includes two Amtrak routes and a well-developed road system as well as commercial air, intercity bus, and city and regional transit services. Rail passenger service is provided at six Iowa stops on the two Amtrak routes through southern Iowa. Rail passenger transportation in Iowa during the last 10 years can be characterized as follows:

- Rail passenger service has remained the same.
- The number of Iowa rail passengers has decreased slightly.

Figure 15
Existing Amtrak System
1999

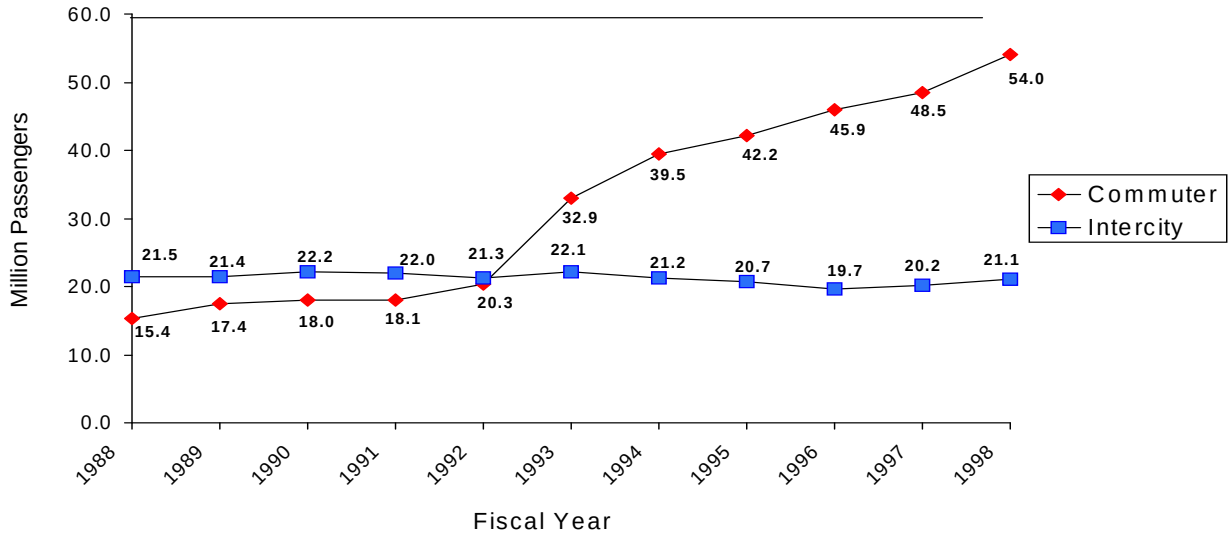


National Service

The Amtrak national system operates over 22,000 miles in 45 states, mostly on lines of freight railroads (See Figure 15). However, Amtrak owns, operates and maintains 730 miles of its own track, mainly in the Northeast. Amtrak not only provides intercity services but also commuter service under contract in seven major metropolitan areas and transports mail between U.S. postal facilities and packages between Amtrak stations.

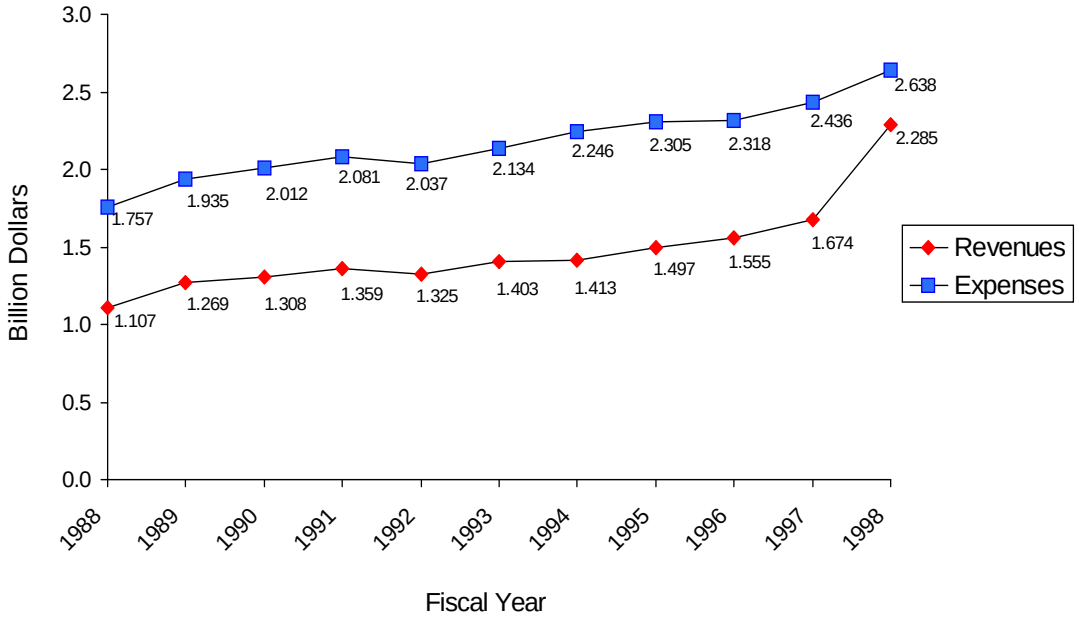
Amtrak serves 508 stations across the country using 1,962 passenger cars and 345 locomotives. These trains transport a total of 75.1 million passengers per year (21.1 million intercity and 54.0 million commuters) as shown in Figure 16. Intercity ridership has been fairly stable since 1988, decreasing by 0.4 million passengers. Commuter ridership, on the other hand, has increased by more than 38.6 million.

Figure 16
Amtrak Ridership
FY 1988-1998



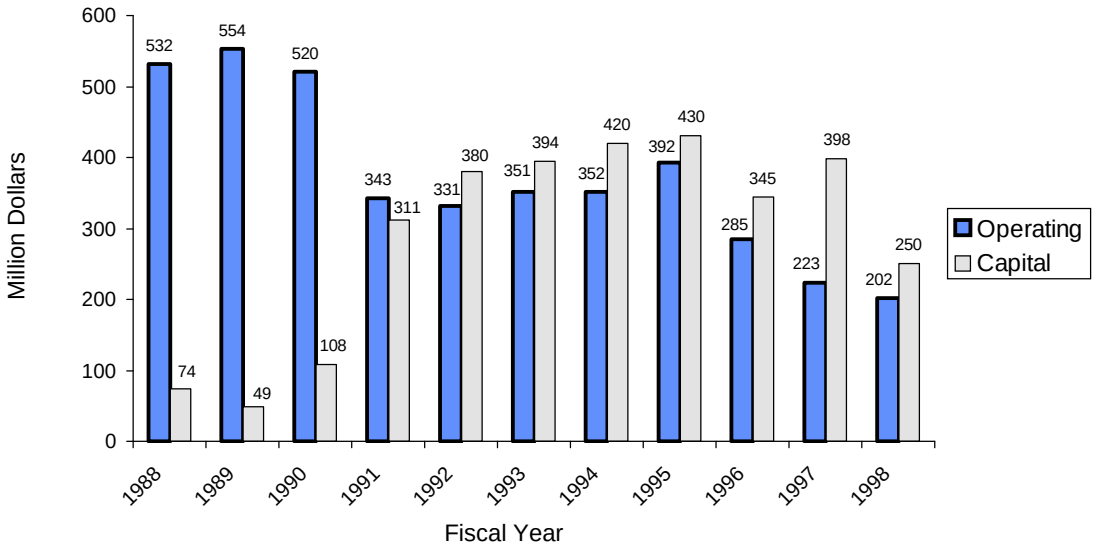
Amtrak has encountered a steadily increasing financial squeeze as a result of an operating deficit of nearly $800 million per year until FY 1998. Revenues and expenses have been growing at nearly the same rate (See Figure 17). In FY 1998, Amtrak received a federal payment of $542 million from grants and Taxpayer Relief Act Funds as part of its revenues. Total revenues were $2.285 billion while expenses equaled $2.638 billion. Passenger related revenues totaled $1.001 billion, or about 44 percent of the system operating revenues.

Figure 17
Amtrak Financial Performance
FY 1988-1998



During the last 11 years, the federal government has appropriated $7.3 billion for operating and capital support (See Figure 18). Amtrak has made substantial progress during that time in reducing its federal operating subsidy from $532 million in FY 1988 to $202 million in FY 1998. At the same time, capital needs have increased substantially, averaging $366 million per year during the last eight years.

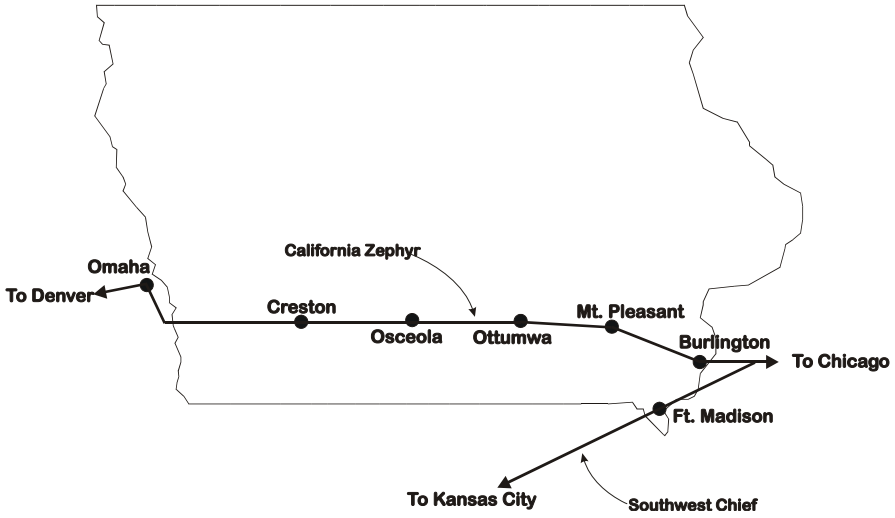
Figure 18
Amtrak Federal Appropriations
FY 1988-1998



Iowa Service

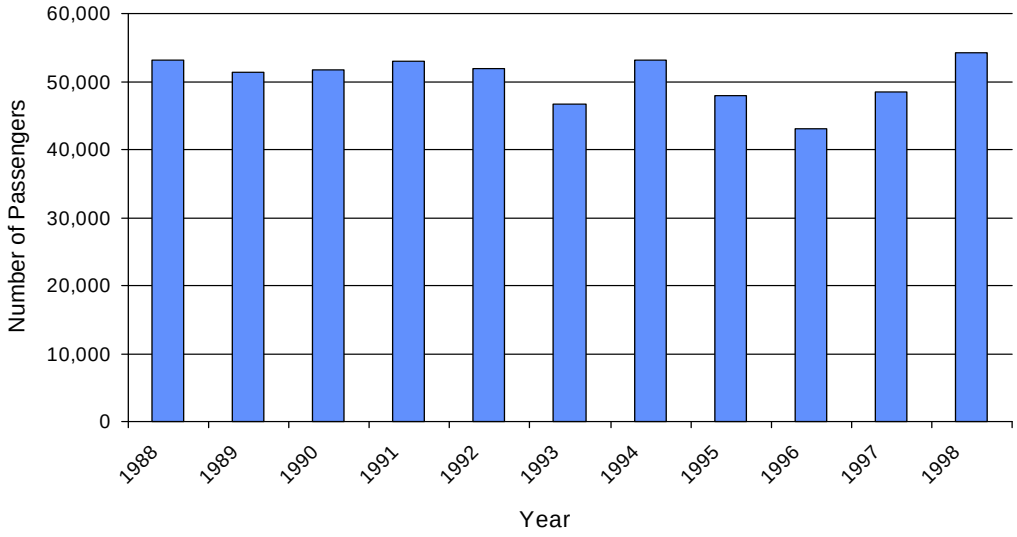
Passenger service in Iowa is currently provided by the California Zephyr from Chicago to Oakland, Calif., and the Southwest Chief from Chicago to Los Angeles, Calif. (See Figure 19). The California Zephyr operates over the Burlington Northern Santa Fe (BNSF) tracks in southern Iowa providing daily service in both directions. Stations include Burlington, Mount Pleasant, Ottumwa, Osceola and Creston. The Southwest Chief also operates daily in both directions over the BNSF tracks in extreme southeast Iowa with one stop in Fort Madison. As of December 1998, Amtrak employed 11 Iowa residents.

Figure 19
Iowa Amtrak Service



In 1998 the total number of passengers arriving and departing from Iowa Amtrak stations totaled 54,192, an increase of 5,700 from 1997 (See Figure 20). From 1988 to 1992, ridership in Iowa remained fairly stable, averaging 52,200 riders per year. However, during the floods of 1993, Iowa riders decreased to 46,600. Ridership rebounded the following year to exceed the six-year average by about 1,000 riders, followed by declines in 1995 and 1996 and increases in 1997 and 1998.

Figure 20
Amtrak Ridership in Iowa
1988-1998



The total number of Iowa passengers on the California Zephyr has increased by 1,615 riders since 1988, while the Southwest Chief has lost 547 riders during the same period. The stations at Mount Pleasant, Ottumwa and Osceola have an increase in boardings during the last 11 years; all other stations have fewer riders today (See Table 6).

Table 6
Iowa Amtrak Ridership by Station
1988-1998

Iowa Stations	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Burlington	8,569	8,955	9,058	9,145	8,900	7,365	6,527	6,041	5,902	6,263	6,951
Mount Pleasant	9,488	8,913	9,077	9,459	9,044	8,023	11,729	11,333	10,388	11,304	12,692
Ottumwa	10,700	10,055	9,916	10,714	10,111	9,433	10,872	9,321	8,694	10,294	10,998
Osceola	11,278	11,766	12,289	13,301	13,921	13,537	14,610	11,897	9,415	10,730	12,571
Creston	4,747	3,973	4,668	3,974	3,790	3,259	3,687	3,189	2,728	2,956	3,185
Subtotal California Zephyr	44,782	43,662	45,008	46,593	45,766	41,617	47,425	41,781	37,127	41,547	46,397
Fort Madison	8,342	7,640	6,711	6,365	6,148	4,986	5,727	6,187	5,889	6,926	7,795
Subtotal Southwest Chief	8,342	7,640	6,711	6,365	6,148	4,986	5,727	6,187	5,889	6,926	7,795
Total	53,124	51,302	51,719	52,958	51,914	46,603	53,152	47,968	43,016	48,473	54,192

Passenger Service Studies

The department is currently involved in several rail passenger studies aimed at identifying the appropriate role for rail passenger service in meeting Iowa's passenger service needs.

Midwest Regional Rail Initiative (MWRRI)--The MWRRI study is a cooperative and collaborative effort among nine Midwest states, Amtrak and the Federal Railroad Administration. The objectives were to evaluate the potential for the implementation of a Midwest regional rail system and to create a business plan for its implementation. Three service and equipment scenarios were used as the basis for assessing the Midwest system.

- Conservative--minimal capital investments to increase speeds to between 79 and 90 mph where feasible, conventional locomotive-hauled trains, and increased train frequencies of two to four round trips daily.

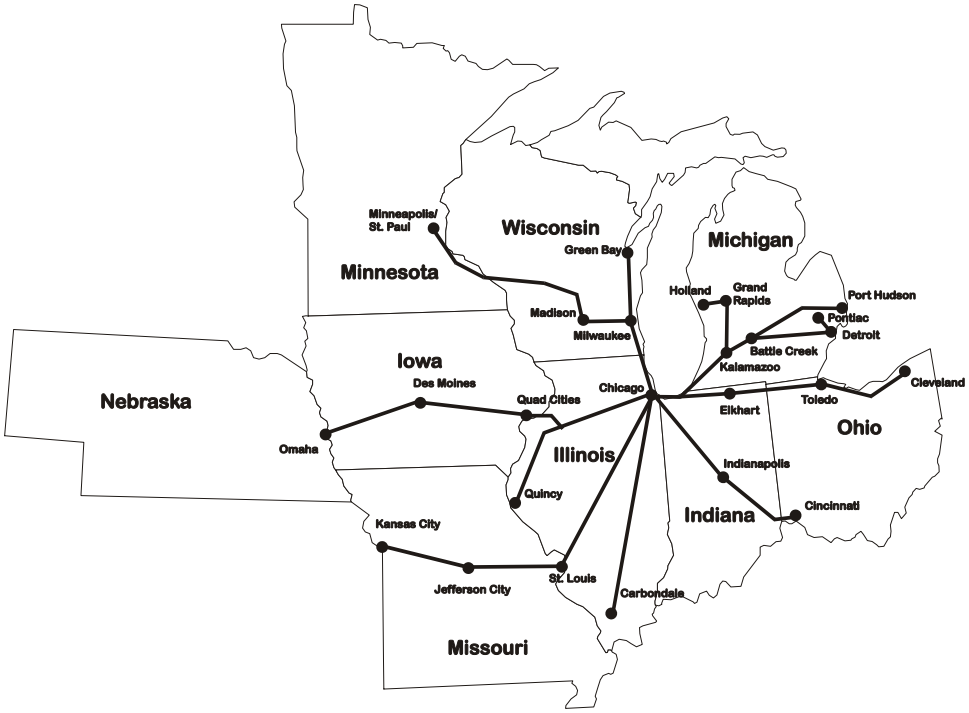
- Moderate--greater capital investments to increase speeds to 110 mph where warranted (balancing investment required with attainable speed), modern diesel multiple unit (DMU) train technology, and increased train frequencies of two to six round trips daily.

- Aggressive--significant capital investments to increase speeds to 125 mph where feasible, modern high-speed locomotive-hauled trains, and increased train frequencies of four to eight round trips daily.

The MWRRI study concluded the aggressive scenario was not a cost-effective option and the moderate scenario produced the best financial return in terms of meeting operating costs. It also found that the DMU technology was more cost-effective than the conventional locomotive-hauled trains.

The proposed regional passenger rail system includes approximately 3,000 route miles in nine states. It is based on a hub-and-spoke system with Chicago as the hub (See Figure 21).

Figure 21
Proposed Midwest Regional Rail System



The study concluded this system is feasible under the moderate scenario, yielding operating revenues greater than operating costs after two years. The moderate scenario is based on the use of diesel multiple units (DMUs) that are capable of achieving speeds of 110 mph with a minimum of four service frequencies per day. The capital investment required to implement the moderate scenario includes rolling stock purchases, track and grade crossing improvements, modern signaling and control systems, maintenance facilities, and station improvements. The total capital investment for the Midwest system is estimated to cost $3.5 billion. Details of the capital and operating costs are presented in Table 7.

Table 7
Operating and Financial Statistics
for the Proposed Midwest Regional Rail System

Total Miles Operated	3,000
Ridership in 2010	7.8 million
Operating Revenues in 2010	$470.7 million
Operating Expenses in 2010	$347.2 million
Infrastructure Cost	$3,026 million
Rolling Stock Cost	$470 million

Implementation of the moderate scenario was estimated to occur in six phases during a nine-year period. The first three and one-half years would involve planning, design and engineering. Service to Detroit, St. Louis, and Minneapolis/St. Paul would begin in year four. Service to the Quad Cities would begin in year six, to Des Moines in year eight, and to Omaha in year nine.

However, before service can begin, there are a number of actions that the nine states need to address to implement the Midwest regional railroad system. These actions are separated into immediate and short-term, medium-term (two to three years), and long-term (beyond three years), and are listed below.

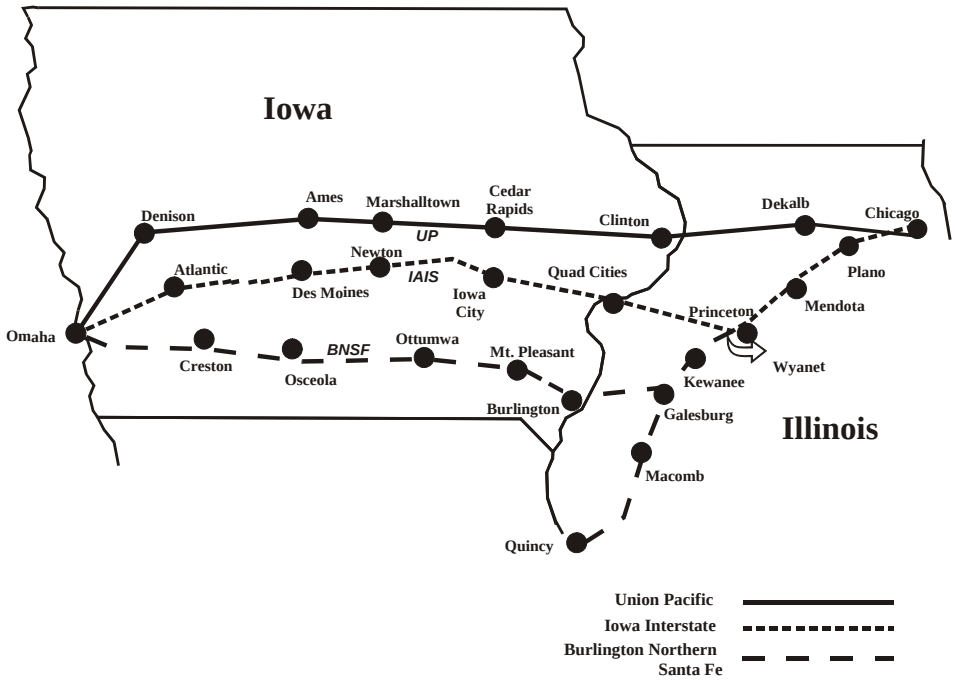
Immediate/Short-Term
- Seek public participation
- Endorse plan by the states
- Decide on institutional issues including system management and cost/revenue sharing
- Finalize the implementation plan
- Secure federal and state funds for advanced project planning
- Build grassroots support for the project
- Secure freight railroads' approval for operations

Medium-Term
- Secure federal and state funds for preliminary engineering, design and environmental reviews
- Secure federal and state funds for construction
- Refine and finalize the operating plan
- Develop the marketing program
- Select construction projects

Long-Term	• Construct phases one through six during a six-year period • Manufacture and assemble rolling stock • Introduce full service

Iowa Rail Route Alternatives Analysis--This study evaluated the potential for rail passenger service on three key routes across Iowa--the BNSF in southern Iowa, the IAIS in central Iowa, and the UP in central Iowa (See Figure 22).

Figure 22
Alternative Routes from the
Iowa Rail Route Alternatives Analysis



The Iowa Analysis was built from the data and analyses generated from the Midwest Regional Rail Initiative. The study established two objectives:

- to determine the most effective route that maximizes rail ridership, revenue and regional mobility under the MWRRI conservative scenario; and

- to minimize the relative advantages of building different segments of the selected route and minimize the capital and operating costs of providing rail service under the MWRRI moderate scenario.

The study was conducted in two phases. The first phase involved the screening of the three candidate routes through comparisons of markets, operations and infrastructure requirements. Once the screening was completed, a more in-depth analysis of the chosen route was conducted to evaluate segments of the route to assess whether

operating train service on less than the full route would be more cost-effective than full-route services to Omaha.

The route analysis showed the development of the IAIS route is the most effective option for a regional rail system. The IAIS route has the best net benefits, highest ridership, and highest population density. The UP route is the next-best route in effectiveness, but would require considerable extra capital investment due to the existence of heavy current and future expected freight traffic flows. The BNSF route is the least attractive route because there is less population and thus lower ridership. A comparison of the three routes is presented in Table 8.

Table 8
Selected Route Comparisons
from the Iowa Rail Route Alternatives Analysis

	Year	Conservative Scenario		
		BNSF	**IAIS**	**UP**
Total Miles		503	479	491
Iowa Miles		296	314	350
Iowa Population (county corridor)		264,000	834,000	560,000
Stops (Iowa)		13 (5)	11 (5)	8 (5)
Frequencies		4	4	4
Travel Times		7:56	7:27	7:29
Ridership Forecast	1998 2010	344,000 423,000	493,000 605,000	421,000 517,000
Operating Revenue (millions)	2010	$ 19.43	$ 28.45	$ 25.66
Operating Cost (millions)	2010	$ 41.95	$ 41.19	$ 41.32
Revenue/Cost Ratio		0.46	0.69	0.62
Infrastructure Costs (millions)		$116.55	$197.24	$513.71
Equipment Costs (millions)		$ 62.40	$ 62.40	$ 62.40

The segment analysis showed the only option that achieves a positive operating ratio is that of developing the entire corridor from Chicago to Omaha. Shortening the corridor to Des Moines or the Quad Cities resulted in lower financial operating returns. A comparison of the IAIS route segments is presented in Table 9.

Table 9
Incremental Analysis on the IAIS Route
from the Iowa Rail Route Alternatives Analysis

	Year	Moderate Scenario		
		Chicago-Quad Cities	**Chicago-Des Moines**	**Chicago-Omaha**
Miles		165	342	479
Ridership	2010	600,000	884,000	992,000
Operating Revenue	2010	$20.03	$37.76	$47.93
Operating Costs	2010	$28.94	$39.95	$45.96
Revenue/Cost		0.69	0.95	1.04
Infrastructure Cost		$95.95	$193.53	$263.93
Equipment Cost		$25.80	$34.40	$43.00
Number of Train Sets		6	8	10

Intercity Passenger Services Study--The department also hired a consultant to analyze intercity passenger service in Iowa including air, bus and rail. Recommendations for enhancing all modes of intercity travel were developed along with recommendations for program changes to implement the study results. The study was completed in May 1999.

The study found the existing rail passenger service results in a very limited intercity rail market penetration in Iowa. Current rail passenger service located in southern Iowa does not serve the major urban areas in Iowa other than Council Bluffs as part of the Omaha area. Only 6.6 percent of Iowa's population is located within 10 miles of an existing station and only 13.4 percent is within 25 miles.

As a result, the study focused on an east-west and a north-south corridor for proposed new intercity rail services. The east-west corridor was addressed by the Midwest Regional Rail Initiative and the Iowa Rail Route Alternatives Analysis study described above.

The north-south corridor would provide service between St. Paul, Minn., and Kansas City, Mo., through central Iowa over the Union Pacific rail line. Service would include daily trips in each direction using the current Amtrak stations in St. Paul and Kansas City. Substantial capital expenditures would be needed to accommodate passenger service on this route, since it is currently close to capacity from freight operations alone. Stops in Iowa would include Mason City, Nevada, Des Moines and Chariton. A map of the route is provided in Figure 23.

Figure 23
Proposed North-South Rail Corridor
from the Intercity Passenger Services Study

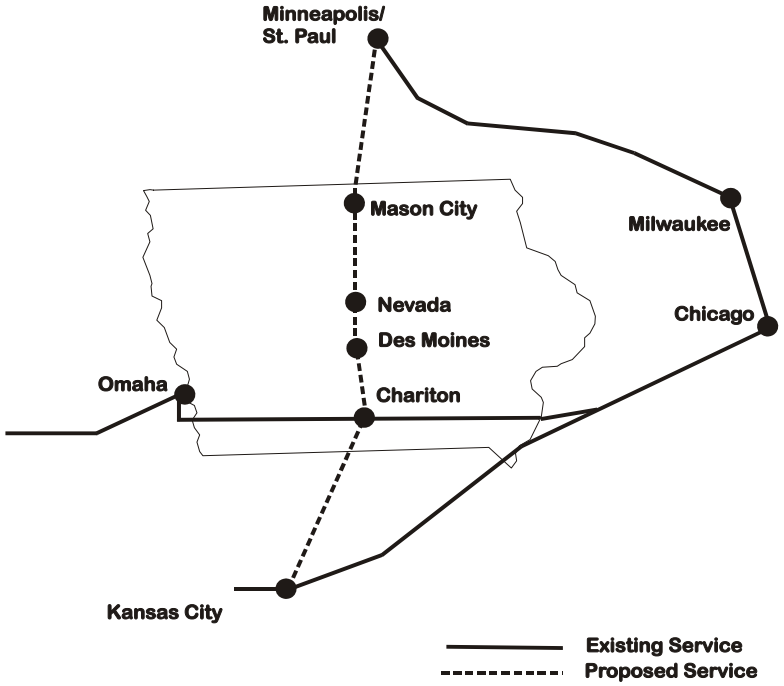


Table 10 below summarizes several key statistics for both the east-west and north-south potential intercity rail passenger service routes. The east-west route requires significant capital investments in comparison to the north-south route. However, the east-west route serves more passengers, requires much less operating subsidy per passenger, and the capital costs are lower on a per-passenger basis.

Table 10
Key Performance Statistics
from the Intercity Passenger Services Study

	Year	East-	North-South
Miles		479	482
Ridership	1998	805,900	25,080
Operating Revenue (millions)	1998	$39.27	$1.93
Operating Cost (millions)	1998	$44.88	$9.50
Revenue-to-Cost Ratio		0.88	0.20
Operating Deficit (millions)	1998	$5.61	$7.57
Operating Deficit per	1998	$7	$302
Infrastructure Cost (millions)		$263.9	$24.3
Equipment Cost (millions)		$43.0	NA

NA = Not Available

In summary, the existing Amtrak intercity rail service to Iowa is extremely limited and therefore attracts relatively low ridership. In looking at the two potential corridors for improved rail service to Iowa, the east-west route offers more potential service to Iowa for less cost per passenger served than the north-south route. The east-west route serves more of Iowa's population, it connects Iowa to the most significant out-of-state destination (Chicago), and it better connects Iowa to the Midwest and national intercity transportation system.

Intermodal Facilities

Railroads, through their connections with other modes, are involved in many intermodal traffic movements. Rail intermodal is typically thought of as a trailer-on-flat-car (TOFC) or container-on-flat-car (COFC) movement where rail provides the long-haul portion of the movement. Intermodal shipments often combine the low cost and energy efficiency of rail line haul with the fast door-to-door service time and flexibility of trucks.

The trend in intermodal facilities is toward the development of regional hub facilities that are fully mechanized to transfer the trailer and containers between rail and truck. This trend has affected Iowa in that the number of facilities has decreased from 13 in 1985 to seven at the present time. The seven TOFC/COFC facilities are located in:

- Council Bluffs served by CC
- Council Bluffs served by IAIS and UP
- Davenport served by IMRL
- Fort Dodge served by CC
- Newton served by IAIS
- Waterloo served by CC
- West Liberty served by IAIS

In addition, railroads provide intermodal service through other facilities including barge terminals, grain elevators and Amtrak passenger stations as previously discussed. Iowa currently has 48 barge terminals that are served by rail, 212 grain elevators that are capable of loading more than 25 cars at one time, and six Amtrak stations.

Investment Directions

Public input received through the *Iowa in Motion* process helped to identify the department's future investment directions documented in the State Transportation Plan. The purpose of the State Transportation Plan was to identify transportation investments to meet the needs of Iowans through the year 2020. These investment directions were developed to complement the department's goal of providing and preserving adequate, safe and efficient transportation service based on the use by and benefits to the public. The department's role is to encourage and assist in the development, preservation, maintenance, improvement and efficient use of all transportation systems, including railroad transportation systems and services.

Iowa's rail transportation policy and goals are an outgrowth of the Iowa Transportation Policy. The rail policy is used as a framework through which issues, problems and concerns are addressed, and to direct future programming efforts.

Rail Stratification

Iowa's rail system was stratified into five subsystems in 1990 and updated in the 1995 Iowa Rail Plan. The purpose of stratification is to group rail lines with similar characteristics according to their benefits to the state as transportation facilities and generators of economic activity. The results of stratifying the system can be used in implementing a more proactive state role in developing the state rail system.

Stratification is one tool that will help facilitate and guide the planning and programming of investments in Iowa's rail system. However, stratification is not intended to be a pre-determination of the department's position on applications for financial assistance nor on merger and abandonment applications before the Surface Transportation Board.

The department consulted with the railroads and shippers to help identify what factors and criteria to use in developing the rail system stratification. A variety of factors and combinations of factors were considered as listed below.

- Line segments identified as part of the national defense network (components of STRACNET, a system of strategic military lines).
- Line segments serving grain elevators, grain processors, fertilizer distribution centers, coal-consuming power plants, population centers, manufacturing centers, and retail centers.
- Line segments serving part of Iowa's intermodal transportation system such as those serving barge terminals and TOFC/COFC terminals.
- Line density of the gross tonnage (equipment and lading) moving over each line segment as a measure of the line use.
- Local traffic that originates or terminates on each line segment (excluding overhead traffic).

After considering and presenting a number of alternatives to the railroads and shippers, several factors were used in establishing the five-level stratification scheme. Rail line density measured in terms of million gross ton-miles per mile (mgtm/m) was used as the primary factor to initially categorize each individual line segment. Minor adjustments were made to the initial line segment level based on national defense designation and service to on-line traffic generators, population, and manufacturing employees. Levels 3, 4, and 5 line segments, once stratified using density, were then subjected to three other factors--cars per mile, population, and number of manufacturing employees. Minimum levels were established for each, and if a line segment met any two, then it was moved to a higher level. The stratification factor criteria is presented in Table 11 followed by the line segment results in Figure 24.

Table 11
Rail System Stratification Criteria

Level	National Defense	Average Density (1)	On-Line Rail Traffic Cars/Mile (2)	On-Line Population (2)	On-Line Manufacturing Employees (2)
1	STRACNET	Over 20			
2	Connector	5 to 20			
3		1 to 5	Over 100	Over 10,000	Over 500
4		0.5 to 1.0	50 to 100	5,000 to 10,000	100 to 500
5		0.0 to 0.5	0 to 50	0 to 5,000	0 to 100

Notes: (1) Density = million gross ton-miles per mile.
(2) Density is the primary factor used to determine Levels 3, 4, and 5. Line segments are adjusted to the next higher level if any two of the factors are higher than the density level.

Rail Actions
Input received from the public during the *Iowa in Motion* process helped provide the future direction for the development of rail transportation in Iowa. A number of rail-related issues resulted from the initial public input process. These included:

- branchline rehabilitation;
- spur track development;
- rail/highway at-grade crossing improvements;
- rail line and yard relocations and corridor enhancements;
- acquisition of new rail cars;
- state acquisition, ownership and operation of essential rail services;
- expansion of Amtrak services;
- beginning high-speed rail development; and
- developing intercity light-rail systems.

Through further discussion of the these issues, it was determined Iowans want a rail branchline system that is capable of handling larger cars, assistance with economic development, and safer rail/highway crossings. To achieve these goals, ownership and operations will remain in the private sector. However, rail investments by the department will focus on the following actions:

- invest in the rehabilitation of branchlines;
- invest in building or improving spur tracks to new or existing industries;
- invest in rail/highway at-grade crossing improvements; and
- continue efforts to analyze rail passenger service needs.

In addition to the four investment actions identified above, the department will continue to monitor rail activities by providing current rail service information, participating in rail safety education and enforcement, analyzing the restructuring of the rail industry, and helping regulate operations in Iowa. Specific implementation steps to address each rail investment action are identified below. Implementation steps will help encourage and assist in the development, preservation, maintenance, improvement and efficient use of Iowa's railroad transportation system and service.

Invest in the rehabilitation of branchlines.

A. Evaluate the need to upgrade Iowa's branchlines to handle cars weighing 286,000 pounds.

B. Provide available funding for upgrading branchlines to handle current and future traffic that can be operated on a profitable basis.

C. Provide available funding for rail facility acquisitions to enhance and continue the operations of essential rail facilities.

Invest in building or improving spur tracks.

A. Invest in the construction of new rail spurs and/or the rehabilitation of existing spurs to companies that create or retain jobs.

Invest in rail/highway at-grade crossing improvements.

A. Invest in the installation of warning devices to improve safety at rail/highway at-grade crossings.

B. Invest in the maintenance of rail/highway at-grade crossing signals.

C. Invest in the repair and rehabilitation of rail/highway at-grade crossing surfaces.

D. Evaluate the need to separate rail/highway at-grade crossings located on the Commercial and Industrial Highway Network (CIN).

Continue efforts to analyze rail passenger service needs.

A. Monitor Amtrak service in Iowa and the nation.

B. Evaluate rail passenger service from Omaha to Chicago as part of the Midwest Regional Rail Initiative.

C. Continue to participate with other Midwest states to implement rail passenger service.

D. Evaluate the role of rail passenger service in meeting the intercity travel needs of Iowans.

Continue efforts to monitor rail activities.

A. Provide up-to-date information about existing rail service in Iowa.

- Provide current rail maps of Iowa.
- Publish a railroad fact book for Iowa.
- Publish an Iowa Rail System Plan.
- Create a railroad database using a global information system (GIS) format.
- Develop performance measures to monitor Iowa's rail system condition and efficiency.

B. Increase railroad safety through education and enforcement.

- Participate in Operation Lifesaver program.
- Monitor railroads' performance of required track inspections and maintenance of tracks in accordance with federal standards.

C. Support the restructuring of the nation's and Iowa's rail system.

- Inform and assist rail users and others in rail abandonment and merger procedures.
- Support the abandonment of unprofitable and duplicate trackage.
- Support railroad mergers and sales that facilitate the reduction of transportation costs and rates to Iowa users, provided competition will not be materially impaired.
- Support the preservation of railroad rights-of-way where future operations are likely to be restored.

D. Support the regulation of railroads operating within Iowa with minimal government involvement.

- Help railroads and other involved parties reach informal settlements concerning various disputes before it becomes necessary to conduct hearings.
- Inventory railroad regulations and taxes.

Specific program guidelines to implement these actions are discussed in the Program Guidance Section.

Intermodal Actions
A separate Intermodal Section was included in the State Transportation Plan which adopted several investment actions specifically related to intermodal transportation. Intermodal infrastructure investments for both freight and passenger will focus on the following actions:

- invest in the elimination of access barriers to intermodal facilities on city streets, county roads, and rail lines;
- assist in the purchase of intermodal equipment or facility improvements at publicly owned freight and passenger facilities; and

- assist in the purchase of intermodal equipment for privately owned freight and passenger facilities.

These intermodal investment actions may benefit rail movements in Iowa. Specific guidelines to implement these actions will be addressed through the department's intermodal planning efforts but will not be included as part of this Rail System Plan. However, certain rail implementation programs discussed in the Program Guidance Section may assist in the development of the infrastructure necessary to serve an intermodal facility.

Program Guidance

This section reviews current program guidelines and recommends changes to the existing programs to implement the State Transportation Plan investment directions as discussed in the preceding section. Program guidance details how a particular program will be operated including project type, who is eligible to apply, evaluation procedures and criteria, and project priorities. This guidance will be the basis for decision making relative to the department's investments in Iowa's rail transportation improvements over the next 20 to 25 years.

Recommended Program Guidance
The department currently operates a number of funding programs to assist in branchline rehabilitation and acquisition, economic development, and crossing improvements, as well as administrative programs and rail passenger initiatives. Also, a new program was created by the 1998 Iowa Legislature to provide loans for railroad-related projects. These programs are utilized by the department to ensure that complementary and coordinated rail transportation is available to serve Iowa's needs.

Since Iowa's railroad system is privately owned and operated, the department's investment in rail infrastructure is relatively small in comparison to its investment in other modes and compared to the investments made by the railroads themselves. Each year the railroads spend a significant amount of money (over $230 million in 1998) to maintain and improve their infrastructure in Iowa. This money comes from the operating revenues paid by shippers to move their freight. Further information on the investment levels is presented in the Needs and Funding Section.

The following section details how each investment action identified in the State Transportation Plan will be handled. The details include which program applies to each action item as well as the type of projects, who can apply for funding, evaluation procedures and criteria, and project priorities.

Action: Invest in the rehabilitation of branchlines.

Background

Rail branchlines have played an important role in moving bulk commodities produced and consumed in the state. These branchlines provide a viable option to move goods to and from markets. The investment in rail branchlines will benefit farmers and other shippers by preserving rail services, reducing rail operating costs, and reducing highway maintenance costs as a result of shipping by rail rather than by truck.

Recently, the rail industry has been shifting to heavier cars weighing 286,000 pounds to achieve operating efficiencies for both the railroad and shippers. While Iowa's main lines have been upgraded to handle the 286,000-pound cars, many of Iowa's branchlines are

able to handle only 263,000-pound cars and may require additional improvements to carry the heavier cars. For example, Union Pacific plans to upgrade 500 miles of its branchline network in Iowa to handle the 286,000-pound cars by 2012. Both rail size and bridge carrying capacity are critical factors if the branchlines are to carry the heavier cars.

Currently, both the Transportation Commission and Iowa Railway Finance Authority (IRFA) Board award public assistance to help maintain and improve rail transportation service.

Recommendations

- Continue to operate the rail assistance program and IRFA to help rehabilitate and acquire branchlines.
- Upgrade rail lines to handle heavier weight cars, where appropriate.

Specific Guidelines--Rail Assistance Program

The rail assistance program was created in 1974 to identify and help maintain service on those lines essential to the economy of the state. A rail assistance project may involve restoration, improvement or construction of rail lines used in common carrier service. Nearly 1,800 miles have been rehabilitated since 1974 with $170 million in shipper, railroad, federal and state funds. Currently, 25 potential Rail Assistance and IRFA projects have been identified by railroads or shippers. These 25 potential projects totaling 575.1 miles are estimated to cost $75.2 million. Rail assistance projects are currently funded from a yearly appropriation, averaging $1.2 million annually, from the General Fund. This appropriation is also used to fund economic development and IRFA projects.

Applicant Eligibility	• Rail shippers, cities, counties or railroads.
Project Eligibility	• Branchlines that carry fewer than five million gross ton-miles per mile per year. • Restoration, improvement or construction of rail lines, including its terminals and yard facilities, spurs, sidings, switching and connections. • Work will include ties, ballast, rail, bridge repair and highway crossings to be operated up to 25 mph for cars weighing 286,000 pounds, where appropriate. • Projects must be evaluated using a benefit-cost analysis and yield a ratio of 1.0 or greater. Projects with less than a 1.0 ratio may be considered based on other benefits which have no precise monetary value such as safety, economic development, and environmental impacts.

Match	• The department may provide grants or loans for up to 80 percent of the project costs. • No minimum or maximum amounts required.
Administration	• Specific projects will be submitted to the Transportation Commission with recommendations for funding. • Project priorities will be based on immediacy of need, funding availability, economic analysis, financial participation by other sources, financial analysis, and other identifiable benefits to the state. Phased projects may be given funding preference.

Specific Guidelines--IRFA Program

The Legislature created the Iowa Railway Finance Authority (IRFA) in 1980 as a separate state board appointed by the governor and staffed by department personnel. IRFA offers financial assistance for acquisition, refinancing and improvement of essential rail lines. Assistance may take the form of low-interest loans, grants, limited partnerships, or state ownership and operation. A total of 767 miles have been acquired and 107 miles rehabilitated since 1981 with $44.7 million. IRFA projects are funded from an annual appropriation from the General Fund (see Rail Assistance Program).

Applicant Eligibility	• Any financially responsible party including rail shippers, cities, counties, railroads, etc.
Project Eligibility	• Acquisition, rehabilitation, construction, refinancing, extension, replacement, maintenance, repair or leasing of any rail facility. • IRFA may purchase and temporarily operate a railway if necessary to preserve essential service. • Consistent with the policies and plans of the department. • Positive net present value.
Match	• IRFA may provide grants or loans up to 80 percent of the project costs for acquisition. • IRFA may provide grants or loans up to 90 percent of the project costs for rehabilitation. • No minimum or maximum amounts required.
Administration	• Specific projects will be submitted to the IRFA Board with recommendations for funding. • Project selection based on consistency with department policies and plans, a financial analysis, and a benefit-cost analysis.

Specific Guidelines -- Rail Revolving Loan Fund

The 1998 Iowa Legislature approved the creation of a new program to provide loans for railroad-related projects. Section 39 of House File 2395 created the loan fund to assist in the restoration, conservation, improvement and construction of railroad main lines, branchlines, switching yards, sidings, rail connections, intermodal yards, highway grade separations, and other railroad-related improvements. Funding was provided for FY 1999 through the transfer of IRFA and state rail assistance loan repayments which exceeded the normal scheduled payment of $1.19 million during FY 1999. Administrative rules to implement the program are being developed.

Action: Invest in building or improving spur tracks.

Background

The Rail Economic Development program was created to promote economic development in Iowa through the construction or improvement of rail spur tracks serving local industries. Public comments have supported the continuation of this effort. Assisting businesses to locate in Iowa and use rail service benefits both state and local economies through the added jobs and income. This additional business also benefits the railroad through additional rail traffic and revenues. Since 1995, interest in this program has increased to the point that these projects have consumed most of the general fund appropriation leaving little funding for rail branchline projects.

Recommendations

- Continue to operate the Rail Economic Development Program.
- Seek authority to develop a funding appropriation for rail economic development projects separate from branchline funding.

Specific Guidelines--Rail Economic Development Program

The Rail Economic Development Program was created in 1986 to promote economic development through maintaining rail service to companies that create or retain jobs. Funding is based on the non-speculative creation of new jobs and capital investment, or the retention of existing jobs and capital investment that would otherwise be lost to Iowa. These projects usually involve rehabilitation or construction of spur tracks needed to serve a new industry or improvement of facilities at an existing industry. A total of 45 projects have been funded since 1986. These projects have been financed with $4.1 million in state funds, and 4,401 jobs have been assisted. Projects are funded from an annual appropriation from the General Fund (see Rail Assistance Program).

Applicant Eligibility	• Cities or counties.
Project Eligibility	• Aid in the construction of a new rail spur or siding necessary to the industry. • Aid in the rehabilitation of existing siding or spur for increased or renewed rail use. • Aid in the non-speculative creation of new jobs or the retention of jobs that might be moved out of state.
Match	• The department may provide grants or loans for up to 80 percent of the project costs. • $100,000 maximum award per project.
Administration	• Specific projects will be submitted to the Transportation Commission with recommendations for funding. • Project selection will be based on capital investment, jobs created or retained, and importance of funding to location decision.

Action: Invest in rail/highway at-grade crossing improvements.

Background

Rail/highway at-grade crossings continue to be a major national issue concerning public safety, capital and maintenance costs, and liability for both railroads and public jurisdictions. Due to increasing highway and rail traffic, and increasing vehicle speeds made possible by industry technology improvements, the rail/highway at-grade crossing safety issue has become and will continue to be a focal point for the department. Emphasis will continue to be placed on protecting and/or eliminating at-grade crossings where feasible. Crossing improvements will benefit Iowans by reducing the exposures for accidents at existing at-grade crossings. Crossings located on the Commercial and Industrial Highway Network (CIN) were included as part of the Highway System Plan. The Highway Plan indicates that all CIN crossings will be evaluated to determine the need for grade separations as well as the appropriate warning protection. Typically, CIN rail/highway crossings will be separated. If the evaluation shows that grade separation is impractical, alternative solutions will be considered.

Based on the current backlog of signal and surface projects, the department will be conducting a program review with railroads, cities and counties. Additionally, a Grade Crossing Surface Committee has been formed to study crossing repairs that will increase the crossing life and rideability and to develop recommended maintenance practices for the crossings and approaches. The committee consists of railroad and roadway representatives.

Recommendations

- Continue to operate the crossing improvement programs as structured on an interim basis.
- Conduct a crossing program review and modify the program guidelines as necessary.

Specific Guidelines--Federal-Aid Rail/Highway Crossing Safety Program

The purpose of the federal-aid funds is to improve safety of public railroad/highway grade crossings. These funds are typically used to install new crossing signal devices or to upgrade existing signals. The funding can also be used to provide low-cost improvements, such as increased sight distance, widened crossings, increased signal lens size, or crossing closures. A total of 487 projects have been completed from 1993 to 1998 at a cost of $19.9 million. For 1999, 87 projects have been authorized for accomplishment at a cost of $4.2 million. An additional 52 candidates at a cost of $2.92 million are proposed for preliminary engineering in 1999 and construction in 2000. Funding has been requested, but not approved, for an additional 148 projects costing an estimated $10.8 million. About $3.4 million annually has been allocated for these projects from federal highway funds.

Applicant Eligibility	• Railroads and public road jurisdictions.
Project Eligibility	• New crossing signal devices, upgrade existing signals, increased sight distance, widened crossings, increased signal lens size, and crossing closures. • Any public road crossing. • Candidate projects must be submitted to the department by August 1, annually.
Match	• 10 percent railroad and/or public road jurisdictions. • No minimum or maximum amounts required.
Administration	• Specific projects will be submitted to the Transportation Commission with recommendations for funding. • Project priorities will be based on predicted accident rates and on improvement costs, highway traffic, and train traffic.

Specific Guidelines--State Grade Crossing Surface Repair Program

The purpose of this fund is to assist railroads and highway jurisdictions in the repair or rehabilitation of railroad/highway grade crossing surfaces. From 1993 to 1998, a total of 185 projects were completed at a cost of $6.4 million. In 1999 there were 32 projects costing $1.4 million approved for funding. Applications have been received for an additional 180 surface repair proposals with an estimated cost of $6.9 million. An annual $900,000 is appropriated from the Road Use Tax Fund for the state surface repair fund.

Applicant Eligibility	• Railroads and public road jurisdictions.
Project Eligibility	• Repair of the grade crossing surface.
Match	• 20 percent railroad. • 20 percent public road jurisdiction. • No minimum or maximum amounts required.
Administration	• Specific projects will be submitted to the Transportation Commission with recommendations for funding. • Projects will be funded in the order they are received.

Specific Guidelines--State Grade Crossing Safety Program

The purpose of the State Grade Crossing Safety Fund is to assist in the maintenance of crossing signals installed since 1973. This fund provides almost half of the total maintenance cost on an annual basis. For 1996, the cost to maintain these signals totaled $1.7 million with $0.7 million (41 percent) coming from this fund. An annual $700,000 is appropriated from the Road Use Tax Fund for the State Crossing Safety Fund.

Applicant Eligibility	• Railroads.
Project Eligibility	• Maintenance of crossing signals installed since 1973, installation of new signals, or the replacement of obsolete ones.
Match	• Signal maintenance - none. • Signal installation/replacement - 10 percent from public road jurisdiction. • No minimum or maximum amounts required.
Administration	• Projects involving signal maintenance will be given first priority. Any remaining funds will be used for signal installation/replacement projects. • Funds will be allocated to each railroad based on its share of the total signal maintenance incurred in Iowa.

Action: Continue efforts to analyze rail passenger service needs.

Background

Railroad passenger service in Iowa plays a relatively minor role in moving people between cities. The decrease in train travel has resulted from the growth in alternative travel modes. However, increases in the direct and indirect costs of other modes of travel and the interest in high-speed passenger trains have led to a renewed interest in rail passenger service development. Iowans have expressed an interest in increased rail passenger service, especially from Chicago to Omaha through central Iowa. Currently, the department is involved in the Midwest Regional Rail Passenger Initiative, Iowa Rail Passenger Route Alternatives Analysis study, and the Iowa Intercity Passenger Service study aimed at identifying what is needed to serve Iowa intercity passenger demand. (See detailed discussion on pages 28-35.)

Recommendations

- Foster the development of rail passenger services in Iowa.
- Continue to participate with other Midwest states and Amtrak to develop a regional system.
- Explore financing options and seek federal and state funding to support rail passenger service in Iowa.
- Through the Midwest Regional Rail Passenger Initiative, assess the impact of the central Iowa passenger service on existing service in southern Iowa, including the effect on ridership and fares.
- Monitor rail passenger service in Iowa and report on the service including fares, ridership, service quality and traffic levels.

Action: Continue efforts to monitor rail activities.

Background

In addition to providing financial support for rail service, the department has also been involved in other rail activities, including restructuring, regulation and safety. These activities have been beneficial in helping to preserve the state's investment in rail service as well as helping to ensure that a safe, efficient and economically viable railroad system is developed and maintained for Iowa shippers.

Recommendations

- Continue to operate the administrative programs as structured.
- Develop performance measures to monitor the condition and efficiency of Iowa's rail system.

Specific Guidelines--Abandonments

Restructuring of Iowa's rail system is an ongoing process due to line abandonments and company mergers and acquisitions of existing lines. Since 1975 there have been 3,451 miles of track abandoned in Iowa. Rail carriers or shipper organizations have acquired an additional 1,673 miles to continue operations.

- Public meetings will be held with shippers along the line proposed for abandonment.
- A staff report may be prepared and presented to the Transportation Commission, which decides whether to support or oppose the abandonment.
- Comments may be filed with the Surface Transportation Board, which decides on the abandonment outcome.

Specific Guidelines--Mergers and Consolidations

The department also reviews proposed railroad mergers, consolidations or acquisitions of Iowa rail carriers or lines and other transactions that may affect the ability of carriers to provide competitive service to Iowa shippers.

- Proposals will be reviewed and evaluated based on cost reductions and competitive service effects to Iowa shippers.
- A staff report may be prepared and presented to the Transportation Commission, which decides whether to support or oppose the proposal.
- Comments may be filed with the Surface Transportation Board, which decides on the outcome.

Specific Guidelines--Intrastate Regulation

The department is responsible for supervising and regulating railroad companies operating within Iowa. Since 1986 an average of 24 cases have been considered by the department each year. In 1996, of the 19 cases processed, 15 reached informal settlements, two went to departmental hearings, and two cases remained pending.

- Adjudicate disputes between railroads and other involved parties to reach informal settlements before it becomes necessary to conduct hearings.
- Disputes may involve spur track abandonment and removal, bridge repairs, blocked crossings, crossing repairs, rail property arbitration cases, right-of-way fencing, and rail operations addressed by state laws.

Specific Guidelines--Track Safety Inspection Program

The department monitors the railroads' performance of required track inspections and maintenance of tracks in accordance with federal standards. The department inspects nearly 10,000 track miles in Iowa each year.

- Inspect tracks on an annual basis.
- Priorities will be based on lines with rail passenger service, double main lines, high-speed main lines, and former rail assistance projects.

Specific Guidelines--Operation Lifesaver Program

Operation Lifesaver is a public education and information program designed to reduce collisions, deaths and injuries at rail/highway intersections. The railroads operating in Iowa, the Iowa State Patrol, Federal Railroad Administration, and the department provide volunteer staffing for the Iowa committee focusing on education concerning railroad safety, engineering improvements of crossings, and enforcement of current laws. Iowa presenters conducted 526 presentations to 20,000 people in 1998. They also participated in 27 special events (fairs and celebrations) in 1998.

- Serve as the state coordinator and secretary.
- Attend board and state committee meetings.
- Distribute editorials, letters to the editor, and news releases to all major Iowa newspapers.
- Serve as presenters of Operation Lifesaver information to various groups.

Specific Guidelines--Performance Measures

Performance measures can be used to monitor Iowa's rail system condition and efficiency and to specify improvement strategies. However, the measures must be easy to understand, and the information must be readily available. Developed measures will influence the types of data that should be collected and types of analytical tools that can be used to provide information for decision makers. The selection of appropriate performance measurement can be used to help identify system strengths, weaknesses and opportunities for investments in the rail transportation system.

The preceding freight and passenger information indicates rail service in Iowa has improved over the last 11 years. This information is useful in assessing the quality of rail service. Measuring rail service quality in Iowa would involve several performance measures of condition and service as illustrated in the section on Iowa's Rail Environment. This information would be used as a starting point to measure the quality of rail service in Iowa on a year-to-year basis.

Needs and Funding

This section outlines the future investments required to achieve the improvements identified in the Program Guidance Section and compares those needs with the available funding. An assessment of the investment required was conducted for branchline, economic development and rail/highway at-grade crossing projects in Iowa. Rail passenger service needs are being evaluated as part of the Midwest Regional Rail Initiative and are not yet available. Also, needs were not estimated for monitoring of rail activities since this action does not require capital investments.

Needs Assessment

The needs assessment is a technical analysis that serves to identify the extent, type and estimated cost of capital improvements needed to accomplish the rail actions identified in the Program Guidance Section. The needs have been developed from an engineering perspective. Needs study objectives are to determine the adequacy of Iowa's transportation system, compare it to acceptable levels of service, and identify necessary improvements. It involves developing specific design standards, comparing design standards to the current situation, and estimating the cost of needed improvements. The following discussion indicates the methods used for determining needs and the resulting dollar requirements.

- Branchlines

All branchlines in Iowa were evaluated to estimate the cost of upgrading to handle heavier rail cars. Even though Union Pacific plans to upgrade 500 miles of its branchlines by 2012, these lines were included in this evaluation. UP has already upgraded the Mason City line through Lake Mills to handle 286,000-pound loadings. There are approximately 2,130 miles of branchlines in Iowa that carry less than five million gross tons annually. For purposes of this assessment, Level 3 lines carry 1.0 to 5.0 million gross ton-miles annually, Level 4 lines carry 0.5 to 1.0 million annually, and Level 5 lines carry less than 0.5 million annually. Most of these lines have been upgraded in the past to handle cars with a weight limit of 263,000 pounds, generally with 90-pound rail. One major expense to upgrade these lines to carry the heavier loads is heavier rail. There are 290 miles that have less than 90-pound rail and another 960 miles that have less than 112-pound rail. Another critical need on these branchlines is the bridges that may require upgrading or possible replacement. The assumptions used to determine the cost of upgrading are as follows. This information was reviewed with the Iowa railroads and deemed reasonable.

Assumptions

Operating Speeds

- All Level 3 and 4 lines would be operated at a minimum of 25 mph. Level 5 lines would be operated at 10 mph or less.

Rail	• All rail on Level 3 and 4 lines would be upgraded to 112-pound or heavier continuous welded rail. • Rail located on Level 5 lines would not be replaced. The existing welded or jointed rail was assumed to be sufficient for the immediate future to handle the low densities at lower speeds. • All turnouts would be replaced with a number 10, 115-pound turnout.
Ties	• Up to 1,000 cross ties per mile would be replaced to achieve a non-defective tie percentage of 75 percent after rehabilitation.
Ballast	• 1,000 cubic yards per mile necessary for six inches of clean ballast under the ties would be added to provide good drainage and stability for the welded rail.
Bridges	• All bridges would remain in place and be strengthened.

Rehabilitation costs were based on actual costs for Class I railroads and on contractor costs for Class II and III railroads. Installed costs were determined for individual material items. The individual cost estimates for rail, ties, ballast and miscellaneous costs per mile are shown in Table 12. All projects would also include drainage, signal and crossing work, turnout repair or replacement, and bank stabilization.

Table 12
Rehabilitation Cost Estimates
for Level 3 and 4 Branchlines

Item	Cost per Mile
Rail and Turnout Replacement	$170,000
Tie Replacement	$ 60,000
Ballast Replacement	$ 25,000
Miscellaneous Renewal	$ 10,000
Total	$265,000

These costs per mile were used to determine rehabilitation amounts for each line based on current track conditions. Track conditions were based on knowledge of particular branchlines by the FRA track safety inspectors. Rehabilitation quantities were determined after assessing the current track conditions. The rehabilitation of Level 3 and 4 branchlines in Iowa to handle heavier loads is estimated to cost $250 million in 1998

dollars. The department's share of the total would be $125 million, assuming a 50 percent contribution. This would be about $6.3 million per year, assuming all lines would be upgraded by the year 2020.

- Economic Development

The proposed needs for economic development projects were estimated based on historical trends. Economic development projects are based on the immediate need to help maintain or create jobs. To determine the needs using the branchline approach discussed above would be very difficult, if not impossible.

Historically, the number of economic development project applications started off slow but has increased substantially over the last two years. The number of projects averaged about three per year for the first nine fiscal years. However, this trend changed dramatically the last two years with 10 projects approved in FY 1997 and eight in FY 1998. As a result, it was assumed that applications for funding would equal 10 per year. Based on a maximum of $100,000 in funding per project, annual needs would total $1.0 million.

- Crossings

The needs assessment for the rail/highway at-grade crossings was accomplished using a three-step process--identification of deficiencies, selection of improvements, and estimation of improvement costs. Deficiencies were identified by comparing existing control techniques at the crossing to a set of criteria. Exposure factor, highway system (functional classification), type of area (urban or rural), and degree of access control were the principal variables used to judge the sufficiency of existing protective devices and to select an improvement category. Exposure factor is defined as the product of AADT (average annual daily traffic) and the number of trains per day at the crossing. Four types of improvements were considered including:

- Type 4, Grade Separation. This is the highest type of control considered. It implies elimination of the grade crossing by vertically separating the railroad and highway.

- Type 3, Flashing Lights with Gates. This control criteria includes flashing lights and gates which are automatically actuated by an approaching train.

- Type 2, Flashing Lights. This control criteria includes flashing lights which are automatically actuated by an approaching train.

- Type 1, Reflectorized Signs and Crossbucks. This is considered to be the minimum control strategy for at-grade railroad crossings. It includes signs on the approach and crossbucks at the grade crossing to warn motorists of the presence of the crossing.

Exposure factors (AADT x number of train movements per day) used for each type of improvement are presented in Table 13.

Table 13
Exposure Factors*
for Rail/Highway At-grade Crossing Improvements

Highway Classification	Grade Separation (Type 4)	Flashing Lights with Gates (Type 3)	Flashing Lights (Type 2)	Reflectorized Signs and Crossbucks (Type 1)
Urban				
Interstate/Freeway-Expressway (State Highway)	Greater than 50,000 and all full-access routes	10,000 to 50,000	1,500 to 10,000	0 to 1,500
Arterial Connector/ Trunk/Trunk Collector (Major City Street)		Greater than 15,000	1,500 to 15,000	0 to 1,500
Area Service (Minor City Street)		Greater than 20,000	1,500 to 20,000	0 to 1,500
Rural				
Interstate/Freeway-Expressway (State Highway)	Greater than 75,000 and all full-access routes	10,000 to 75,000	2,000 to 10,000	0 to 2,000
Arterial Connector/ Trunk/Trunk Collector (Major County Road)	Greater than 75,000	30,000 to 75,000	2,000 to 30,000	0 to 2,000
Area Service (Major County Road)		Greater than 30,000	2,000 to 30,000	0 to 2,000

*Exposure Factor = (AADT) X (Number of Train Movements per Day)

For crossing surfaces, design guides were based on the AADT and crossing surface types. Criteria used to develop the deficiencies and the recommended improvements are contained in Table 14.

Table 14
Crossing Surface Criteria
for Rail/Highway At-grade Crossing Improvements

AADT Range	Minimum Surface Type Required	Surface Types Meeting or Exceeding Required Condition
0 to 500	1	1, 2, 3, 4, 5, 6, 7
500 to 1,000	3	3, 4, 5, 6, 7
1,000 to 5,000	4	4, 6
Over 5,000	6	6

Crossing Surface Type Codes:
1. Sectional Timber
2. Full Wood Plank
3. Asphalt
4. Concrete Slab
5. Concrete Pavement
6. Rubber
7. Metal Sections

Average costs for the installation of rail/highway at-grade crossing protection devices and crossing surfaces were obtained from the department's records for completed projects. The unit cost of the various crossing controls and surface improvements are included in Tables 15 and 16.

Table 15
Cost of Crossing Controls

Type of Improvement	Cost per Unit	
	Urban	Rural
Grade Separation	$1,370,000	$1,300,000
Flashing Lights w/gates--Upgrade	$ 60,000	$ 48,000
Flashing Lights w/gates--Install	$ 80,000	$ 70,000
Flashing Lights	$ 46,000	$ 41,000
Reflectorized Signs and Crossbucks	$ 200	$ 200

Table 16
Cost of Crossing Surfaces

Surface Type	Cost per Lane per Track	
	Urban	Rural
Rubber	$18,000	$16,000
Concrete Slab	$18,000	$16,000
Sectional Timber	$11,500	$ 8,700
Asphalt	$11,500	$ 8,700

These costs were applied uniformly to improvements on all railroad crossings in the state. The calculated value of crossing needs for Iowa is projected to total $312.0 million during the next 20 years, or approximately $15.6 million per year. The cost to upgrade deficient crossing protection to meet current design standards is estimated at $172.0 million, or about $8.6 million per year. Approximately $140.0 million is needed to repair the crossing surfaces during the next 20 years, or about $7.0 million per year.

- Total Needs

Costs to improve branchlines, spur tracks, and rail/highway at-grade crossings, excluding economic development projects, are estimated to be $562.0 million, or approximately $28.1 million per year. Based on the match ratios presented in the Program Guidance Section, the department's share would total $383.8 million during the next 20 years, or about $19.2 million per year. These costs, represented in 1998 constant dollars, are summarized in Table 17. The needs study is only a technical analysis of system needs. It does not include recommendations for the prioritization of needs or the most appropriate source or use of available funds. Project priorities were discussed in the preceding section, and available funding is discussed later in this section.

Table 17
Summary of Total Estimated Rail Improvement Needs
(in Millions)

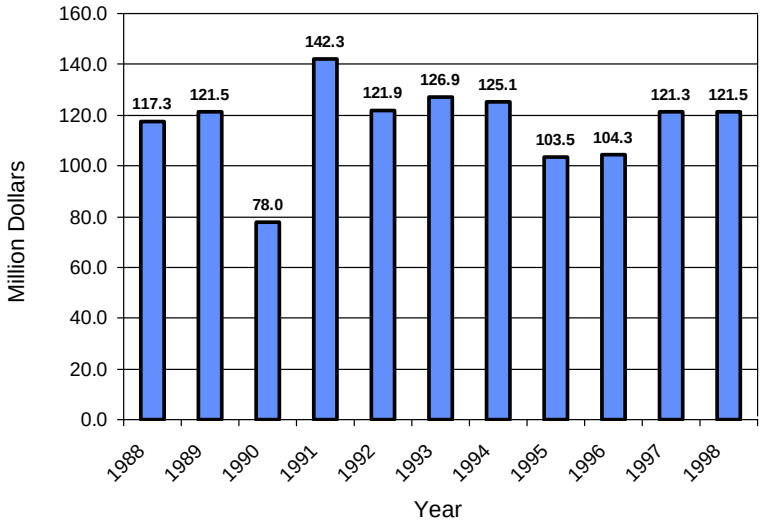
Improvement Type	Total Needs		Department's Share of Total Needs	
	20-Year Total	Annual	20-Year Total	Annual
Branchline Assistance	$250.0	$12.5	$125.0	$ 6.3
Economic Development	NA	NA	$ 20.0	$ 1.0
Crossing Protection	$172.0	$ 8.6	$154.8	$ 7.7
Crossing Surface	$140.0	$ 7.0	$ 84.0	$ 4.2
Total	$562.0	$28.1	$383.8	$19.2

NA = Not Available

Available Funds

Railroad improvements have been and continue to be financed from federal, state, local and railroad funding sources. During 1998, railroads operating in Iowa spent about $232 million to maintain and improve their track structures in Iowa. In 1998 Iowa railroads spent $121.5 million, or an average of $28,400 per mile, to maintain the rail system in Iowa (See Figure 25). Class II and III railroads spent another $7.1 million in 1998 to rehabilitate 196 miles of track on their systems. In addition, the Class I railroads spent $103.5 million in 1998 to rehabilitate their tracks in Iowa.

Figure 25
Railroad Track Maintenance Expenditures in Iowa
1988-1998



Most of the funds for maintaining and upgrading rail lines come from railroad operating revenues. As federal, state and local transportation priorities change, so do funding allocations. Variations in the rate of inflation and changes in transportation program emphasis at all levels of government have made it difficult to estimate the availability of financial resources during the next 20 to 25 years. The following financial projections by funding source are based on the extrapolation of past funding allocation patterns.

- Rail Assistance and IRFA Funding

During the last 11 years, the Rail Assistance and IRFA funding programs have provided more than $23 million in public assistance for railroad service preservation and improvement. However, in recent years both the state legislature and the federal government have been reducing their levels of funding for these programs. At the federal level, no appropriations have been made since FY 1995. Similarly, the Iowa General Assembly has cut back on funding. Since FY 1992, state general fund appropriations, based on the amount of loan repayments to the state General Fund, have declined by 40 percent. State and federal funding levels are shown in Table 18.

Table 18
Rail Assistance and IRFA Funding
FY 1988-1998

Fiscal Year	Source of Funds			
		Federal Funds		
	State General Fund	Appropriations	Loan Repayments	Total
1988	$ 866,300	$ 913,000	$ 0	$ 1,779,300
1989	$ 65,200	$ 0	$1,112,100	$ 1,177,300
1990	$ 79,500	$ 424,700	$ 420,700	$ 924,900
1991	$ 14,500	$ 422,600	$ 704,300	$ 1,141,400
1992	$ 2,370,700	$ 486,000	$ 231,600	$ 3,088,300
1993	$ 2,005,000	$ 250,000	$ 516,900	$ 2,771,900
1994	$ 1,410,600	$ 861,000	$ 594,100	$ 2,865,700
1995	$ 2,110,600	$ 696,000	$ 494,300	$ 3,300,900
1996	$ 1,497,000	$ 0	$ 401,600	$ 1,898,600
1997	$ 1,229,000	$ 0	$ 721,800	$ 1,950,800
1998	$ 1,415,000	$ 0	$ 737,500	$ 2,152,500
Total	$13,063,400	$4,053,300	$5,934,900	$23,051,600

- Crossings

Funding to improve rail/highway crossings comes from both federal and state sources. For FY 1998 Iowa received a federal authorization of $3.2 million for crossing safety improvements from the federal Highway Trust Fund. For the same period, the Iowa General Assembly authorized $700,000 for warning signal maintenance and $900,000 for the reconstruction of rail/highway at-grade crossing surfaces from the state Road Use Tax Fund. Funding for all three of these rail/highway at-grade crossing programs have remained relatively stable during the last 10 years (See Table 19).

Table 19
Historic Rail/Highway At-grade Crossing Funds
FY 1988-1998

Fiscal Year	Source of Funding			
	Federal	State		
	Safety Funds	Surface Repair Funds	Safety Funds	Total
1988	$ 3,900,000	$ 900,000	$ 700,000	$ 5,500,000
1989	$ 3,800,000	$ 900,000	$ 700,000	$ 5,400,000
1990	$ 3,900,000	$ 900,000	$ 700,000	$ 5,500,000
1991	$ 3,500,000	$ 900,000	$ 700,000	$ 5,100,000
1992	$ 3,500,000	$ 900,000	$ 700,000	$ 5,100,000
1993	$ 3,200,000	$ 900,000	$ 700,000	$ 4,800,000
1994	$ 3,400,000	$ 900,000	$ 700,000	$ 5,000,000
1995	$ 3,500,000	$ 900,000	$ 700,000	$ 5,100,000
1996	$ 3,500,000	$ 900,000	$ 700,000	$ 5,100,000
1997	$ 3,200,000	$ 900,000	$ 700,000	$ 4,800,000
1998	$ 3,200,000	$ 900,000	$ 700,000	$ 4,800,000
Total	$38,600,000	$9,900,000	$7,700,000	$56,200,000

- Summary of Available Funds

Available funds from federal and state sources to cover the rail investments are estimated to total $35.3 million during the next five years, averaging about $7.1 million per year. Funding is expected to increase from $6.7 million in FY 1999 to $7.2 million in FY 2003 as a result of an increase in the rail assistance/IRFA program funding (See Table 20). The federal and state crossing funds are expected to remain at the same levels.

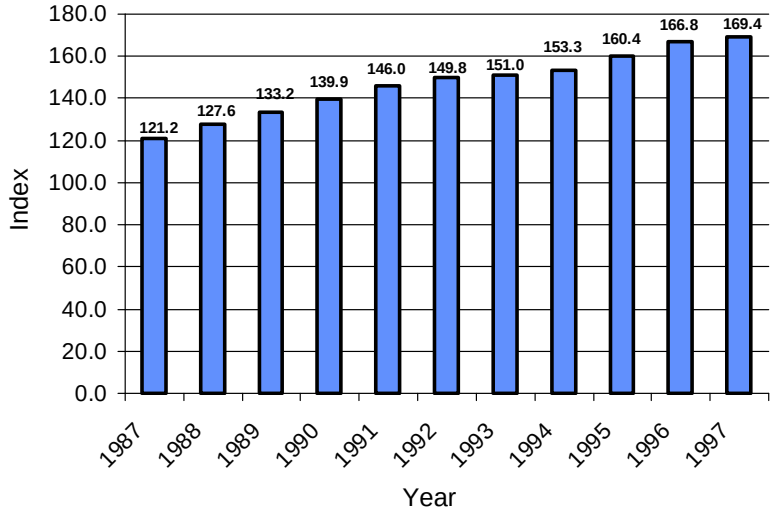
Table 20
Projected Revenue
for the Railroad Improvement Program
FY 1999-2003
(in Millions)

Program	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
Rail Assistance and IRFA	$1.1	$1.4	$1.5	$1.7	$1.6
Federal Crossing Safety	$4.0	$4.0	$4.0	$4.0	$4.0
State Crossing Surface Repair	$0.9	$0.9	$0.9	$0.9	$0.9
State Crossing Safety	$0.7	$0.7	$0.7	$0.7	$0.7
Total	$6.7	$7.0	$7.1	$7.3	$7.2

While the constant source of funding for rail improvements has provided a base to help improve rail service in Iowa, the costs of railroad labor and materials have continued to increase. The available funding has not kept pace with these cost increases, resulting in a loss of buying power and fewer projects being accomplished.

For example, the Railroad Cost Recovery (RCR) Index measures the changes in the price levels of inputs to railroad operations including wages, fuel, material and supplies, and other expenses. The RCR Index measures inflation in much the same manner as the Producer and Consumer Price Indices. Overall, the RCR Index has grown 39.8 percent during the last 10 years, or about 4.0 percent per year (See Figure 26), while available funds for rail improvements have remained basically at the same levels during the last 10 years and do not reflect the increasing costs of doing business.

Figure 26
Railroad Cost Recovery Index
1987-1997



Needs versus Funding

As noted above, implementation of the investments to support rail improvements is estimated to total $383.8 million, or $19.2 million per year in constant 1998 dollars. However, available funds from federal and state sources to cover the rail investment actions are estimated to total $128.0 million, or $6.4 million annually. The anticipated federal and state funds to invest in rail will cover 33 percent of the estimated investment costs, leaving a shortfall of $255.8 million, or $12.8 million per year. A comparison of the total plan costs and available funds is shown in Table 21.

Table 21
Comparison of Needs and Funding
2000-2020
(in Millions)

Improvement Type	Department's Share of Needs		Available Funding		Difference	
	Total	Annual	Total	Annual	Total	Annual
Branchline Assistance	$125.0	$ 6.3	$ 30.0	$1.5	($ 95.0)	($ 4.8)
Economic Development	$ 20.0	$ 1.0	(a)	(a)	($ 20.0)	($ 1.0)
Crossing Protection	$154.8	$ 7.7	$ 80.0	$4.0	($ 74.8)	($ 3.7)
Crossing Surface	$ 84.0	$ 4.2	$ 18.0	$0.9	($ 66.0)	($ 3.3)
Total	$383.8	$19.2	$128.0	$6.4	($255.8)	($12.8)

(a) Funding for economic development projects included in branchline assistance.

A significant shortfall appears between available funds and the financial resources needed to develop the desired state rail system. If the plan is implemented in its entirety, additional funds will have to be made available to cover the shortfall and keep pace with the cost of the improvements. Otherwise, a number of the improvements envisioned earlier would not be accomplished unless the railroads and shippers contribute a larger share of the expenditures.

The funding shortfall is also illustrated by the additional crossing projects requested that are not addressed by the current program. Federal funding has been requested for an additional 200 signal projects estimated to cost $13.7 million not addressed by the 1998 program. Based on the $4.0 million annual funding level, there is a 3.5-year backlog of projects. Applications have been received for an additional 180 surface repair projects estimated to cost $6.9 million. This translates into a 7.5-year backlog based on the $0.9 million annual funding level.

The funding shortfalls, both for branchlines and crossings, establish the need to develop an investment strategy and to focus available financial resources on projects which have the greatest potential for long-term benefits to the state.

Funding Recommendations

- Continue to seek rail fund appropriations at current levels.

- Research alternative and innovative sources to address the funding shortfall, eliminate the backlog of crossing improvement projects, and keep pace with the increasing cost of railroad improvements due to inflation.

Future Rail Issues

As the rail industry continues to evolve, it will be important for the department to monitor rail development to ensure that our investments are appropriate and that rail service to Iowans is not compromised. As a result, the department will be studying several additional issues affecting rail service in Iowa. Items for further consideration include the following:

Intermodal Competition and Cooperation
Railroads face competition primarily from trucks and barges. Trucks provide competition for the railroad's higher-value shipments such as intermodal and finished-vehicle transport, while barges compete for the more traditional, lower-value goods such as grain and coal. While railroads compete with these other modes, they also need to cooperate with each other. Railroads and trucks are business partners in providing intermodal services, with trucks providing the short-haul customer pickup and delivery and rail providing the interim long-haul service. Intermodal movements also take place with the inland waterway system in shipping grain, coal, fertilizer and petroleum products. The use of intermodal transportation is expected to increase and will require cooperation between modes. Interactions between modes will need to be monitored to determine how efficient services are provided to Iowa shippers and receivers.

Industry Consolidations
Railroad mergers have reduced the number of Class I railroads in the country to nine, four of which provide service to Iowa. Mergers have largely been the result of carriers wanting to increase their efficiency while providing single-line service to their customers. In contrast, shippers indicate that the consolidations have left too many of them captive to a single railroad. However, consolidations are also occurring in other areas such as Iowa businesses involved in the grain distribution system, including the consolidation of farms, grain elevators, and barge companies, each increasing in size and becoming fewer in number to take advantage of improved operating efficiencies and to gain market share. The impacts of railroad mergers on farms and elevators and the impacts of farm and elevator consolidations on rail and highway transportation should be examined to determine the impacts on transportation investments.

Value-Added Production
Iowa has a goal to export high-quality, value-added products that increase farm income. Iowa agribusiness has made dramatic shifts from sending bulk grain from the state to markets toward the movement of value-added goods where grain is the principal input (e.g., feeding livestock, processing grain to make ethanol, cereals, etc.). The shift in patterns of economic activity has resulted in changes in transportation requirements and transportation patterns, which have impacted the handling and transportation systems. The changes that have occurred and are likely to continue to occur in the future will need to be monitored to determine the impacts on rail transportation as well as other modes.

Changing Markets
Iowa relies on a number of markets located outside the state to sell and purchase goods transported by rail. Nearly 80 percent of Iowa's rail shipments are between Iowa and other states. New trade agreements, like NAFTA, with foreign countries help to open new markets for Iowa business. However, these new markets bring changes in the mix of transportation services to move Iowa goods to Mexico, Canada and the Pacific Northwest. The whole issue of changing markets is important, especially for Iowa to compete in the global economy, and will need to be evaluated as to their impact on the transportation system.

Intermodal Shipments
Railroad intermodal traffic at the national level has been one of the leading revenue growth stars for the railroad industry. Intermodal traffic has now become the second largest generator of railroad revenues, led only by coal. However, a number of rail intermodal facilities have been closed in Iowa. Many of these facilities were inexpensive, circus-style trailer loading ramps that were inefficient. The closing of local intermodal facilities was in response to the railroad industry's desire to concentrate intermodal freight at hub locations. While the hub locations reduce the total handling cost per unit and receive more frequent rail service, there is a higher cost of drayage and time lost with longer over-the-road movements. The department has prepared an Intermodal Terminal Users Manual to assist Iowa communities, shippers and intermodal providers to identify and develop intermodal traffic opportunities. Market opportunities to develop intermodal traffic among smaller urban communities and shippers that use a local intermodal facility need to be explored.

Rail Line Capacity
Rail line capacity is becoming an important issue for shippers, railroads and communities. Since 1980 the railroads have purged the rail system of the excess capacity that characterized the industry since the 1950s. However, the consolidation of rail facilities evidenced during the past two decades and the resurgence in rail traffic has caused concern about rail line capabilities. Current operational bottlenecks, related service problems, and railroad efforts to eliminate the conditions that currently constrain traffic are now the focus of the railroad industry. Higher traffic levels on certain lines are also raising concerns about rail/highway at-grade crossing delays and safety. As traffic on strategic rail lines increases, and as shippers build longer sidings to load a greater number of cars at one time, there is an increase in the frequency and duration of conflicts between highway and rail traffic. Impacted communities are seeking expensive grade separations. As the perceived need for grade separations grows, there is a need to quantify the impacts to determine the appropriate treatment of these crossings.

Regulation
While rail deregulation has been successful in revitalizing the rail industry and stabilizing its financial health, more and more shippers are expressing dissatisfaction with railroads' performance. In response, the Surface Transportation Board (STB) has launched a comprehensive review of rail regulation including revenue adequacy, competitive access, market dominance, role of small railroads, and communications between carriers and shippers. Also, the National Grain Car Council has established a regular, formalized process for discussion about rail service, and the USDA has established a grain car task force to review grain movements and car supply. The existing authorization for the STB expired on December 31, 1998 but the board continues to operate through the appropriation process. Congress has introduced several bills on STB reauthorization ranging from status quo to reform measures dealing with enhanced competition. The department is planning to conduct a regulation study that will evaluate existing transportation regulations and taxes and how they affect the movement of freight in Iowa.

Rail Safety
Substantial safety improvements have occurred following rail deregulation even as rail traffic has increased to record levels. Increased highway and rail traffic and increased speeds made possible by industry improvements have raised a number of rail safety and community issues. These issues include safer crossings (closure, four-quadrant gates, etc.) whistle bans, automated horn warning systems, trespassing, inspections (infrastructure and operations), and reflective tape for freight cars. With rail traffic expected to increase, safety considerations will continue to be a focal point.

Other Trends
The department will also continue to monitor rail service in Iowa and the U.S. to identify other trends that may affect the amount and quality of rail transportation within Iowa.

Conclusion

The primary purpose of this document is to identify specific elements to implement the rail actions developed in the State Transportation Plan. The department's role centers around providing funds to assist railroads in improving rail service efficiency and safety through branchline, spur track, and rail/highway crossing investments. These investments will help shape future rail service for Iowans.

Deregulation, consolidations and downsizing have certainly played major roles in reshaping the rail industry during the last 15 years. While much progress has been made, there is still room for improved rail service. Total freight volumes of primary freight shipments are estimated to increase by 21 percent (2 percent per year) from 1996 to 2006. For railroads to share in this increase, the railroads, with assistance from the department, must invest resources to enhance service reliability and improve competitive positions.

The rail system plan depicts existing conditions of rail service in Iowa and presents planned future rail directions and initiatives which will address the state's goal of maintaining a viable rail system in Iowa. During the next few years, the department will focus on the following initiatives:

- invest in the rehabilitation of branchlines to handle heavier cars;
- invest in spur tracks to aid in economic development;
- invest in rail/highway at-grade crossing improvements;
- research alternative funding sources for rail improvements; and
- continue efforts to analyze rail passenger service needs.

The department's role in rail will also involve efforts to monitor rail activities, issues and trends.

Appendix A

Profiles of Railroads Operating in Iowa

Railroad Profiles

Iowa is served by 17 railroad companies which operate 4,275 miles of track within Iowa. Three of these railroads are major national companies operating throughout much of the United States. These railroads operate 55 percent of Iowa's total route miles, including much of the Iowa grain-gathering network.

The remaining 14 smaller railroads serving Iowa consist of four regional railroads operating in Iowa and nearby states, and 10 local railroads operating in Iowa. These regional and local railroads serve 45 percent of Iowa's route miles.

The following pages provide information for each railroad operating in Iowa along with a map of their systems and service in Iowa.

Burlington Northern Santa Fe Railway Company (BNSF)

The Burlington Northern Santa Fe Railway Company began operating in Iowa on September 22, 1995, following the merger of the Burlington Northern and Atchison, Topeka, and Santa Fe railroads. BNSF is owned by its holding company Burlington Northern Santa Fe Corporation which is headquartered in Fort Worth, Texas.

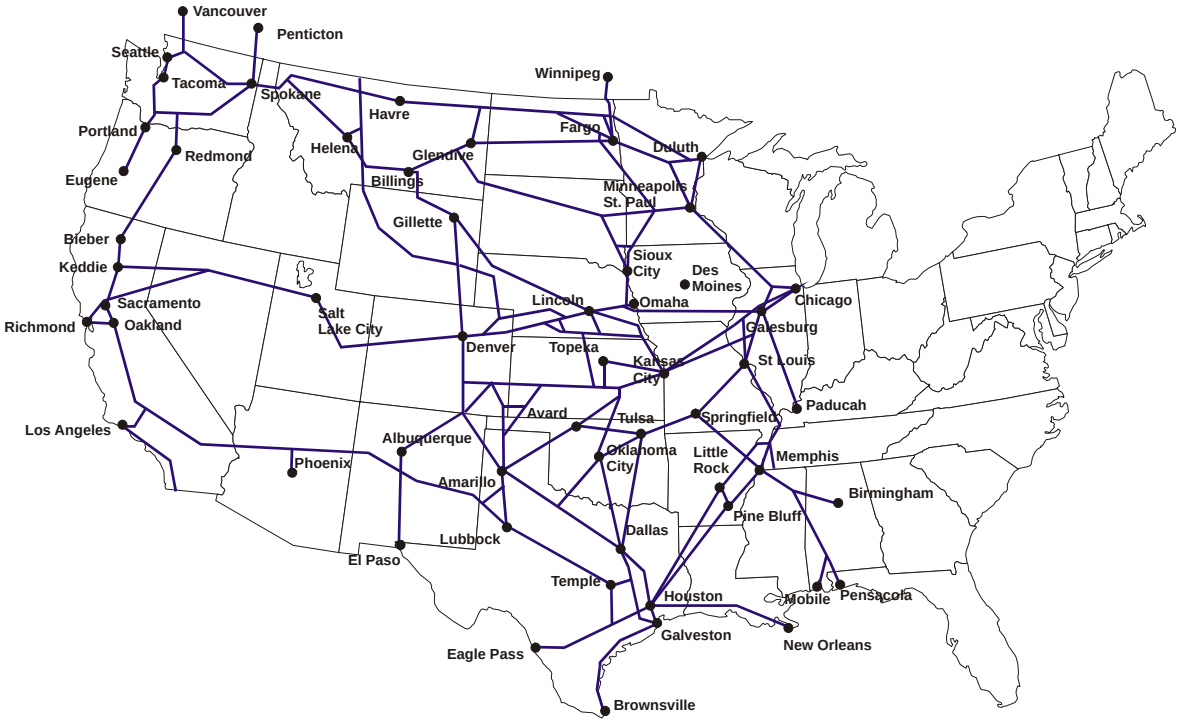
The BNSF is among the largest railroads in the U.S. today with track mileage totaling nearly 34,000 miles covering 28 states and two Canadian provinces. BNSF covers the western two-thirds of the U.S. from major Pacific Northwest and California ports to the Midwest, Southeast and Southwest, and from Canada to Mexico. The railroad operates 710 miles of track in Iowa which runs from Burlington in the southeast to Glenwood in the southwest. (Amtrak also operates on this stretch under trackage rights.) The BNSF also has branchlines that stem off its main line, including a line that runs from Des Moines to Albia. The railroad employs nearly 43,000 people.

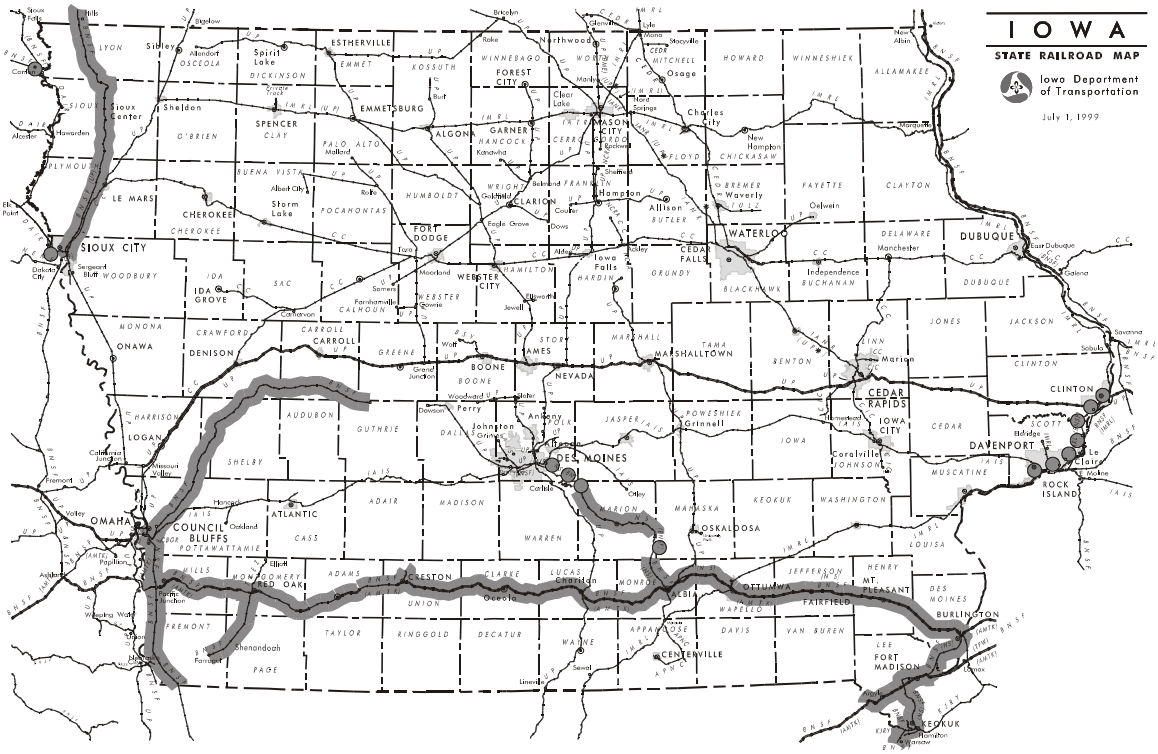
The main products handled by the BNSF include coal, grain, intermodal containers and trailers, chemicals, metals and minerals, forest products, automobiles and consumer goods.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	BNSF		
FRA Classification	Class I		
Type of Service	Linehaul		
States Operated In	28		
Miles Operated	33,353	710	2.0 %
Operating Revenues (millions)	$8,936.2	$220.5	2.5 %
Operating Expenses (millions)	$6,781.1	NA	NA
Ton-miles (millions)	473,897.6	19,861.1	4.2 %
Tons Hauled (millions)	498.6	127.5	25.6 %
Rehabilitation Expenses (millions)	$1,585.8	NA	NA
Track Maintenance Expenses (millions)	$1,192.7	NA	NA
Freight Cars in Service	96,372	NA	NA
Locomotives in Service	5,031	NA	NA
Employment	42,887	NA	NA

NA = Not Available

Burlington Northern Santa Fe Railway Company (BNSF)





Norfolk Southern Railway Company (NS)

The Norfolk Southern Railway Company was formed June 1, 1982, with the merging of the Norfolk and Western Railway and the Southern Railway. The NS is owned by Norfolk Southern Corporation which is based in Norfolk, Virginia.

The railroad operates more than 14,400 miles of track in 22 states in the Southeast and Midwest, as well as in Ontario, Canada. The NS operates 44 miles of track in Iowa running from Des Moines to Burlington, most of which are trackage rights on the Burlington Northern Santa Fe. The railroad employs almost 25,000 people systemwide.

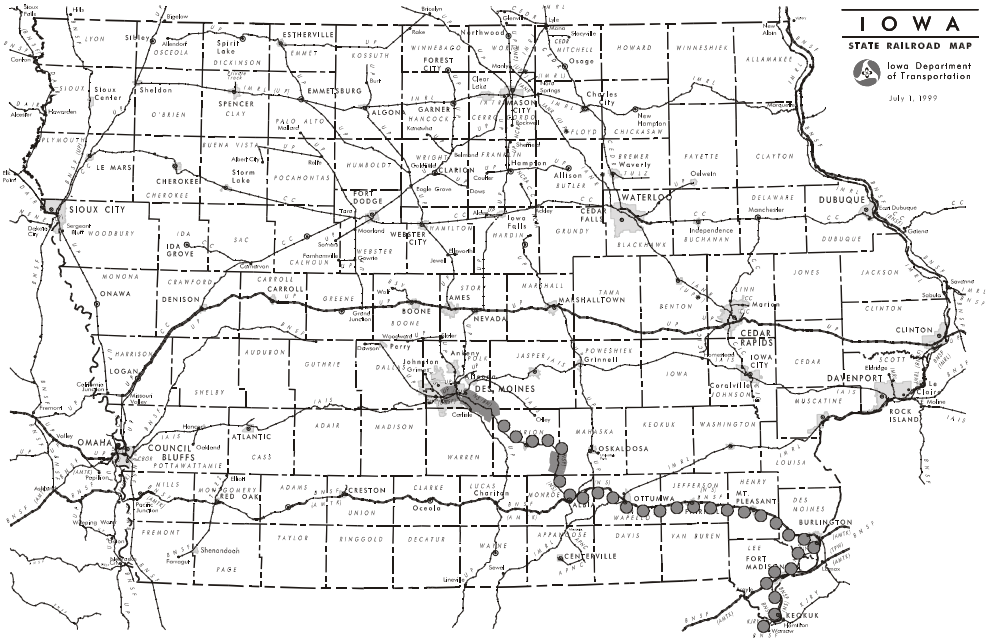
The main products handled by the NS include coal, chemicals, paper/forest, intermodal, agricultural, metal/construction, and automotive.

In June 1997, the NS and CSX filed a joint application to purchase the Conrail property. The NS began operating about 7,200 miles of the former Conrail property June 1, 1999.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	NS		
FRA Classification	Class I		
Type of Service	Linehaul		
States Operated In	22		
Miles Operated	14,423	44	0.3 %
Operating Revenues (millions)	$4,221.2	$0.9	0.02 %
Operating Expenses (millions)	$3,179.1	$0.2	0.006 %
Ton-miles (millions)	133,727.2	2.3	0.002 %
Tons Hauled (millions)	306.2	0.1	0.03 %
Rehabilitation Expenses (millions)	$675.9	NA	NA
Track Maintenance Expenses (millions)	$637.0	$0.01	0.002 %
Freight Cars in Service	91,197	NA	NA
Locomotives in Service	2,261	NA	NA
Employment	24,668	NA	NA

NA = Not Available

Norfolk Southern Railway Company (NS)



Union Pacific Railroad Company (UP)

The Union Pacific Railroad Company was chartered in 1862 through an act of Congress. The railroad is comprised of the original Union Pacific, Missouri Pacific, Chicago and North Western, and Southern Pacific railroads. The UP is part of the Union Pacific Corporation based in Dallas, Texas, which also owns Union Pacific Technologies, Skyway Freight Systems, and Overnight.

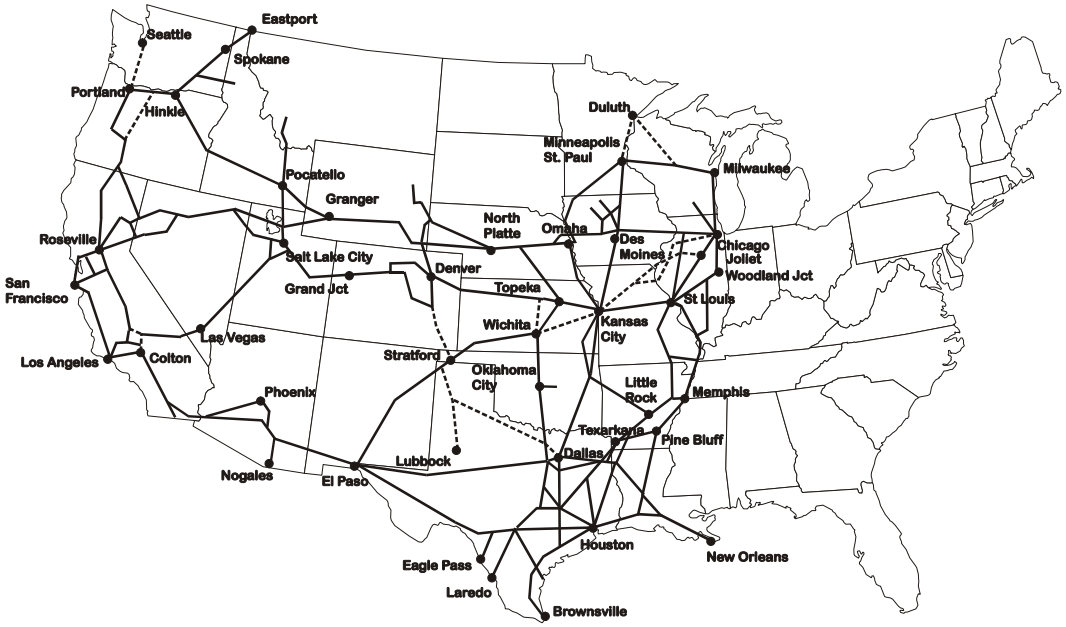
The UP is the largest railroad in the U.S., operating nearly 34,000 miles in 24 states in the western two-thirds of the United States and into Mexico. The UP operations link major West coast and Gulf ports with major gateways to the east including Chicago, St. Louis, Memphis, and New Orleans. The railroad operates 1,752 miles in Iowa. UP operates a main line from Clinton to Council Bluffs and another north-south route through central Iowa, along with many branchlines. The railroad employs almost 53,000 people systemwide, with 1,941 located in Iowa.

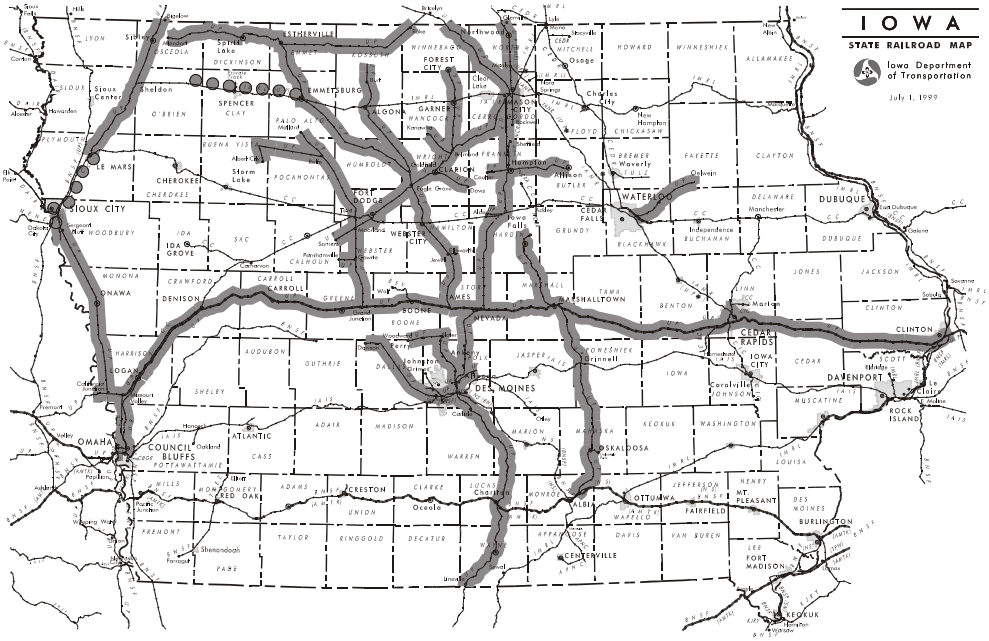
The main products handled by the UP include chemicals, coal, food and food products, forest products, grain and grain products, intermodal, metals and minerals, and automobiles and parts.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	UP		
FRA Classification	Class I		
Type of Service	Linehaul		
States Operated In	24		
Miles Operated	33,706	1,752	5.2 %
Operating Revenues (millions)	$9,198.4	$573.3	6.2 %
Operating Expenses (millions)	$8,821.1	$492.9	5.6 %
Ton-miles (millions)	436,687.5	27,843.4	6.4 %
Tons Hauled (millions)	508.3	107.1	21.1 %
Rehabilitation Expenses (millions)	$642.3	NA	NA
Track Maintenance Expenses (millions)	$1,424.1	$80.5	5.7 %
Freight Cars in Service	119,776	NA	NA
Locomotives in Service	7,085	NA	NA
Employment	52,897	1,941	3.7 %

NA = Not Available

Union Pacific Railroad Company (UP)





Chicago, Central and Pacific Railroad (CC)

The Chicago, Central and Pacific Railroad was formed in December 1985 as a spinoff from the Illinois Central Gulf Railroad. In June 1996 the Illinois Central Railroad repurchased the CC. Currently, the CC is a subsidiary of the Canadian National Railroad system that resulted from the Canadian National and Illinois Central merger effective on July 1, 1999.

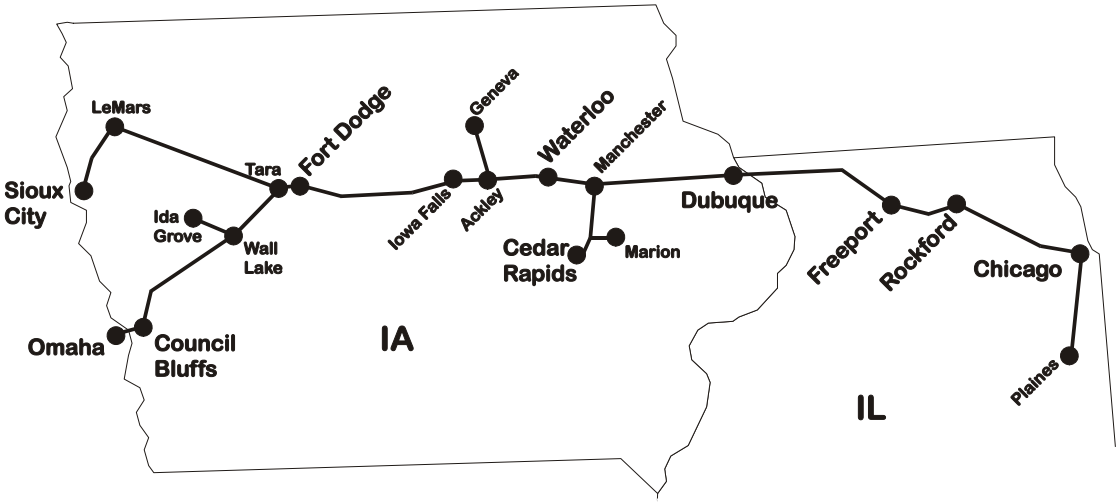
The CC operates 736 miles of track in Iowa, Illinois and Nebraska, with 558 miles located in Iowa. The line in Iowa extends from Dubuque through Fort Dodge to Council Bluffs. The railroad also operates a line from Fort Dodge to Sioux City, along with several branches. The CC currently employs 290 people systemwide, with 218 are located in Iowa.

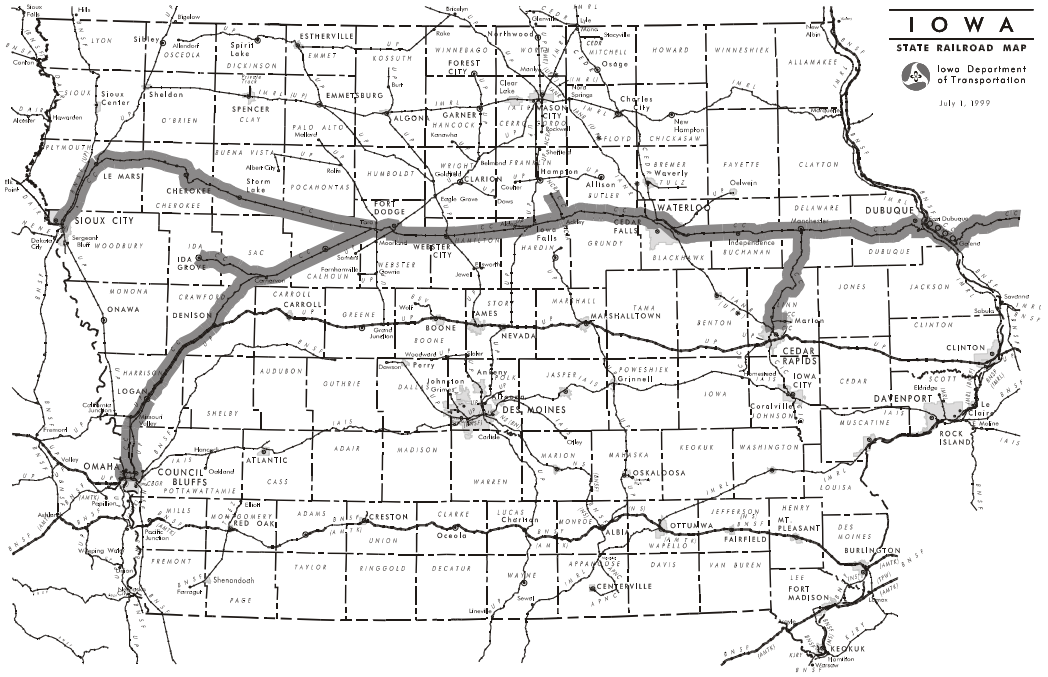
The main products handled by the railroad include coal, farm products, food products, chemicals and miscellaneous mixed shipments.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	CC		
FRA Classification	Class II		
Type of Service	Linehaul		
States Operated In	3		
Miles Operated	736	558	75.8 %
Operating Revenues (millions)	$69.3	$36.5	52.7 %
Operating Expenses (millions)	$51.9	NA	NA
Ton-miles (millions)	2,792.4	1,617.4	57.9 %
Tons Hauled (millions)	12.3	5.1	41.5 %
Rehabilitation Expenses (millions)	$5.6	$3.6	64.3 %
Track Maintenance Expenses (millions)	$1.6	$1.1	68.8 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	59	NA	NA
Employment	290	218	75.2 %

NA = Not Available

Chicago, Central and Pacific Railroad (CC)





Dakota, Minnesota & Eastern Railroad Corporation (DME)

The Dakota, Minnesota & Eastern Railroad was formed in 1986, taking over lines owned by the Chicago & North Western located in South Dakota and Minnesota. The railroad is based in Brookings, South Dakota. The DME currently has an application before the Surface Transportation Board to build 250 miles and rebuild 650 miles of track, allowing the railroad access to coal located in the Powder River Basin in Wyoming.

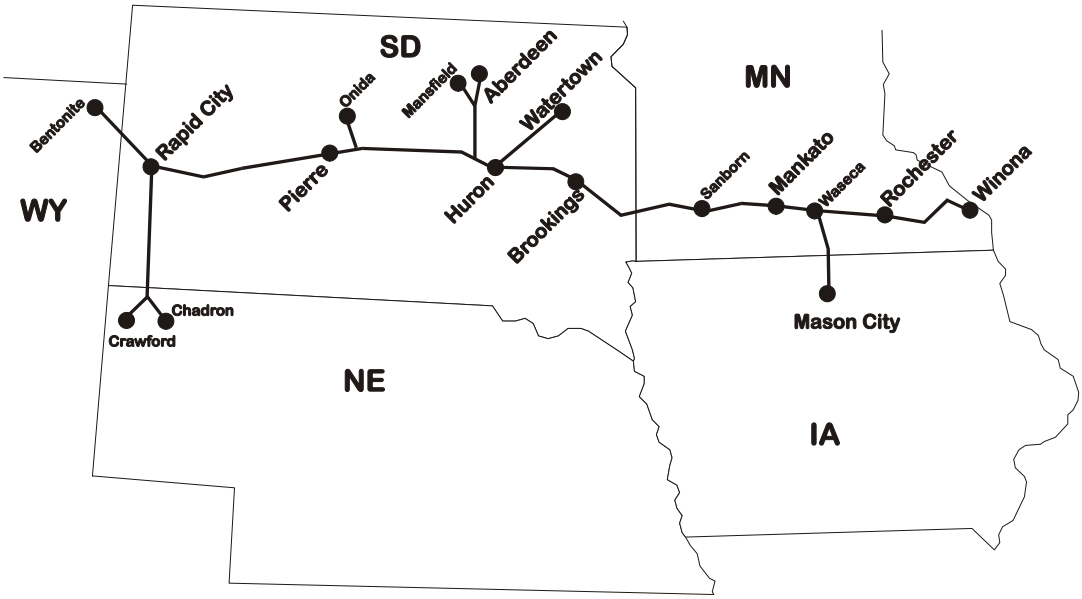
The DME operates more than 1,100 miles of track running from Rapid City, South Dakota to Winona, Minnesota, located on the Mississippi River. The railroad operates 24 miles in Iowa via trackage rights between Albert Lea, Minnesota, and Mason City. The DME currently employs 320 people, none of which are located in Iowa.

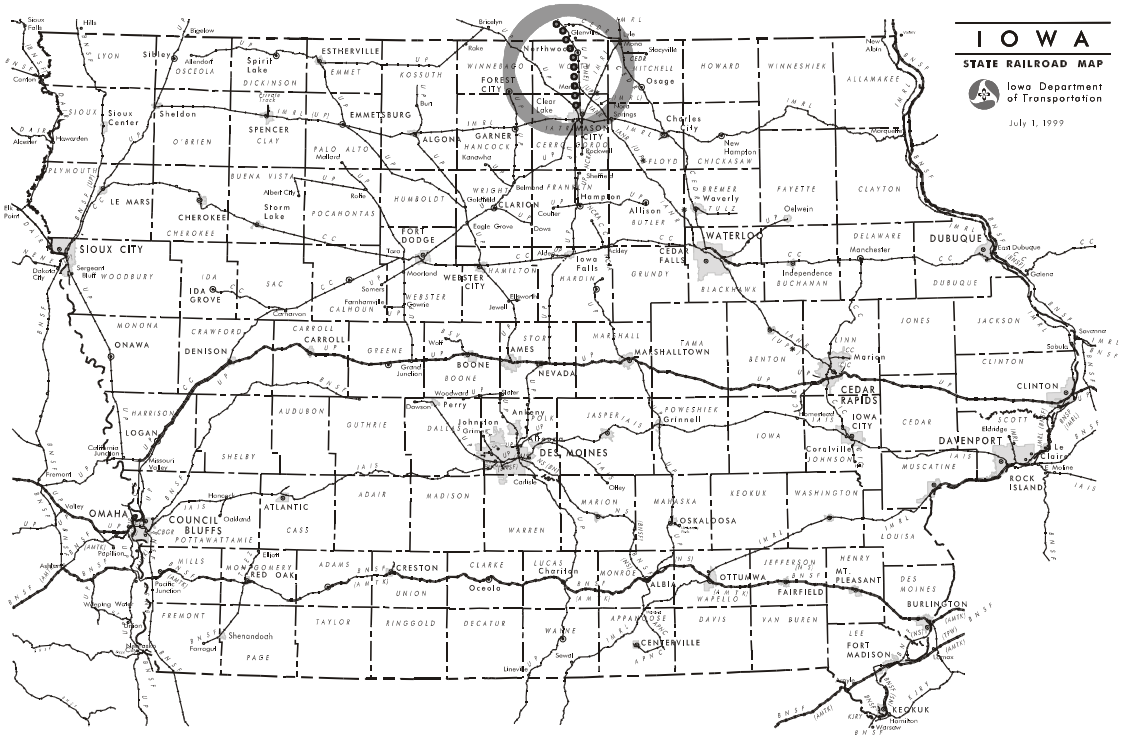
The main products handled by the DME include farm products, stone, food products, and nonmetallic minerals.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	DME		
FRA Classification	Class II		
Type of Service	Linehaul		
States Operated In	5		
Miles Operated	1,118	24	2.1 %
Operating Revenues (millions)	$56.9	$0.9	1.6 %
Operating Expenses (millions)	$46.4	NA	NA
Ton-miles (millions)	1,736.7	21.3	1.2 %
Tons Hauled (millions)	5.2	0.4	7.7
Rehabilitation Expenses (millions)	$9.3	$0	0.0 %
Track Maintenance Expenses (millions)	$5.3	$0	0.0 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	64	NA	NA
Employment	320	0	0.0 %

NA = Not Available

Dakota, Minnesota & Eastern Railroad Corporation (DME)





Iowa Interstate Railroad Ltd. (IAIS)

The Iowa Interstate Railroad operates the former Chicago, Rock Island & Pacific Railroad line between Chicago and Omaha. This track is owned by Heartland Rail Corporation, which was formed in June 1983 to preserve rail service in this corridor. IAIS is headquartered in Iowa City.

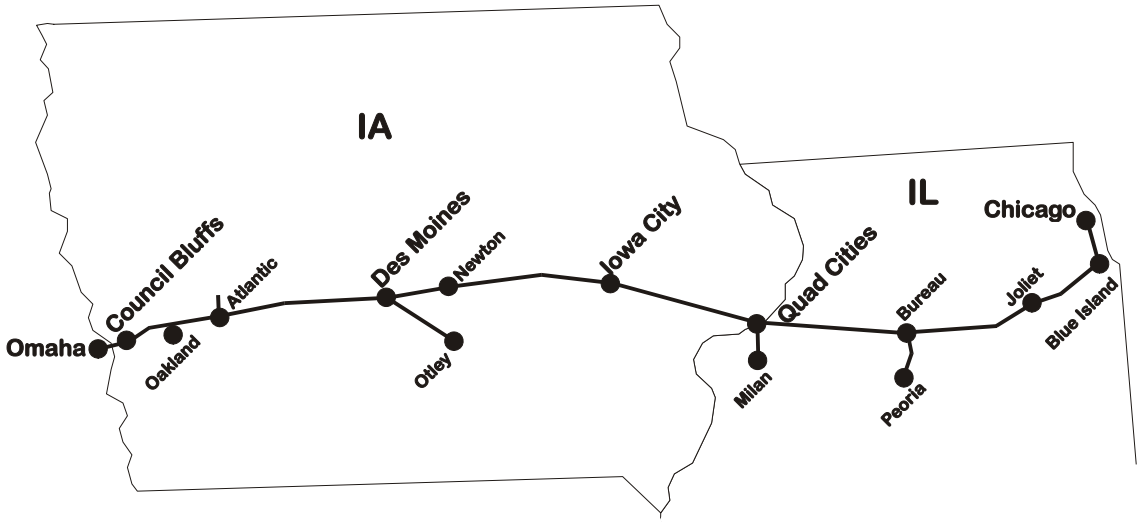
The railroad operates 643 miles of track from Chicago to Omaha through the Quad Cities, Iowa City and Des Moines, as well as several branchlines. Intermodal service is provided at Chicago, Council Bluffs, Newton and West Liberty. The IAIS operations in Iowa include 432 miles. Employees of the railroad total 176, with 136 located in Iowa.

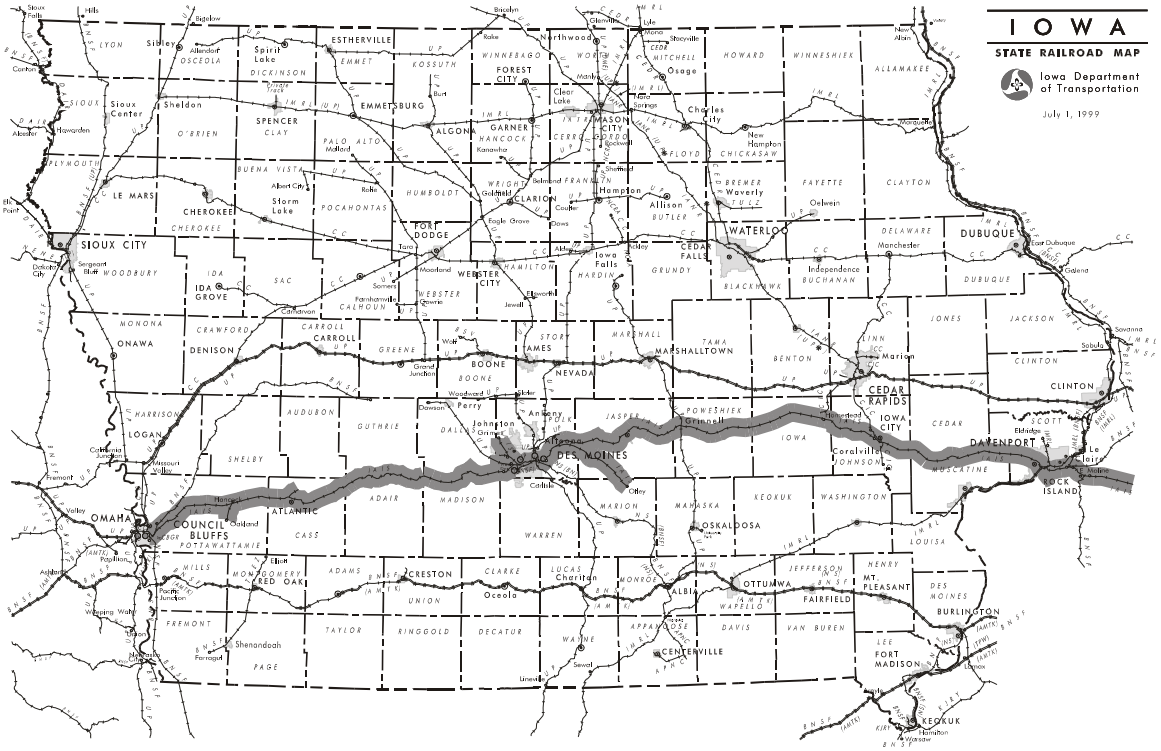
The main products handled by the IAIS include farm products, food products, transportation equipment, waste and scrap products, and metals.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	IAIS		
FRA Classification	Class II		
Type of Service	Linehaul		
States Operated In	2		
Miles Operated	643	432	67.2 %
Operating Revenues (millions)	$29.4	$16.4	55.8 %
Operating Expenses (millions)	$27.9	NA	NA
Ton-miles (millions)	964.1	536.9	55.7 %
Tons Hauled (millions)	5.0	4.6	92.0 %
Rehabilitation Expenses (millions)	$2.8	$2.2	78.6 %
Track Maintenance Expenses (millions)	$2.8	$2.7	96.4 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	35	NA	NA
Employment	176	136	77.3 %

NA = Not Available

Iowa Interstate Railroad Ltd. (IAIS)





I & M Rail Link, LLC (IMRL)

The I & M Rail Link was formed February 3, 1997, to operate the CP Rail System track in Illinois, Iowa, Minnesota and Missouri. The railroad is owned by the Washington Group which is located in Missoula, Montana. IMRL is headquartered in Davenport.

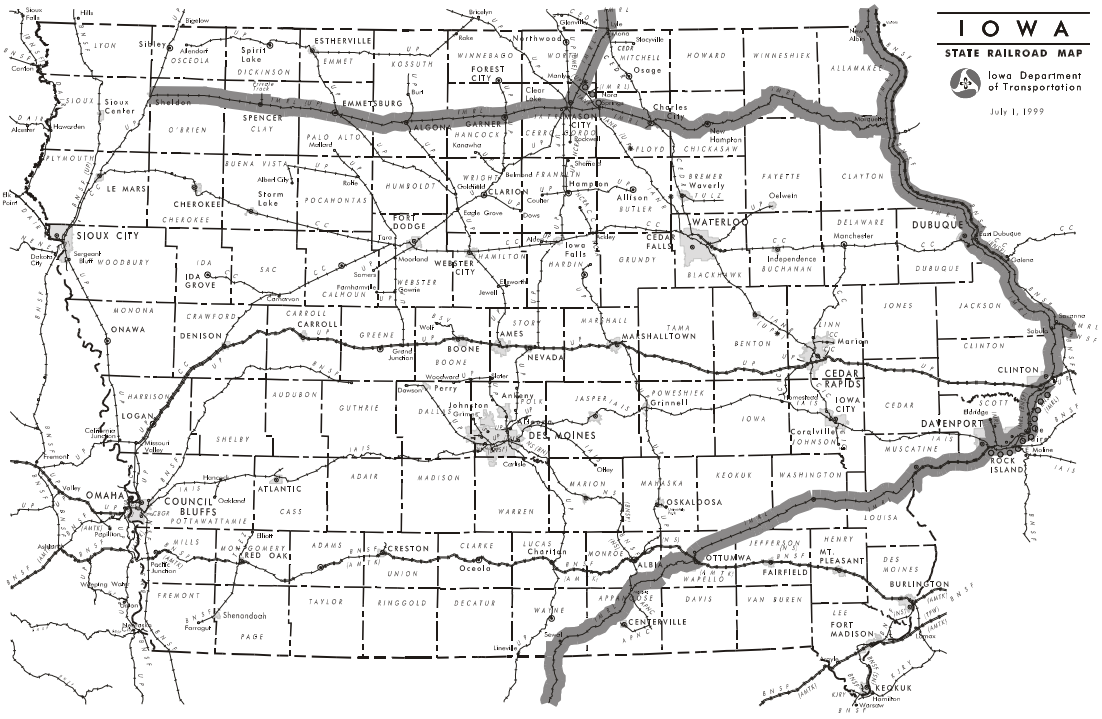
The railroad operates 1,404 miles of track from Minneapolis to Chicago and Kansas City, paralleling the Mississippi River through Iowa. The IMRL also operates a line across northern Iowa and southern Minnesota. Iowa operations consist of 688 miles. The railroad serves intermodal facilities located in Chicago, Kansas City, Minneapolis and the Quad Cities. Current employment totals 688 systemwide, with 350 located in Iowa.

The main products handled by the IMRL include coal, farm products, food products, chemicals, transportation equipment, miscellaneous mixed shipments, and hazardous materials.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	IMRL		
FRA Classification	Class II		
Type of Service	Linehaul		
States Operated In	5		
Miles Operated	1,404	688	49.0 %
Operating Revenues (millions)	$136.4	$81.0	59.4 %
Operating Expenses (millions)	$122.3	NA	NA
Ton-miles (millions)	4,696.0	2,788.9	59.4 %
Tons Hauled (millions)	16.5	13.4	80.7 %
Rehabilitation Expenses (millions)	$9.3	$0.1	1.1 %
Track Maintenance Expenses (millions)	$5.8	$2.2	37.9 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	56	NA	NA
Employment	688	350	50.9 %

NA = Not Available

I & M Rail Link, LLC (IMRL)



Appanoose County Community Railroad Inc. (APNC)

The Appanoose County Community Railroad was formed in 1983 by the town of Centerville, utilizing abandoned sections of the Burlington Northern, Rock Island and Norfolk Southern railroads. The railroad is a non-profit railroad with headquarters in Centerville.

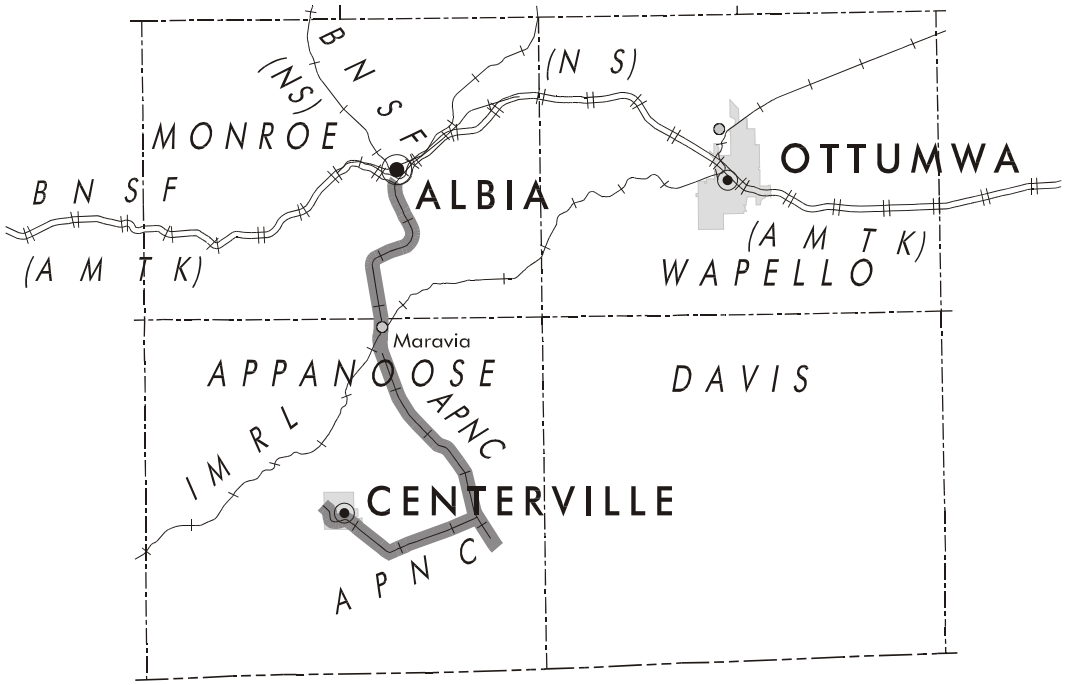
The APNC operates 35 miles of rail from Centerville to Albia. The line connects with the Burlington Northern Santa Fe and the Norfolk Southern at Albia. Current employment totals five people, all located in Iowa.

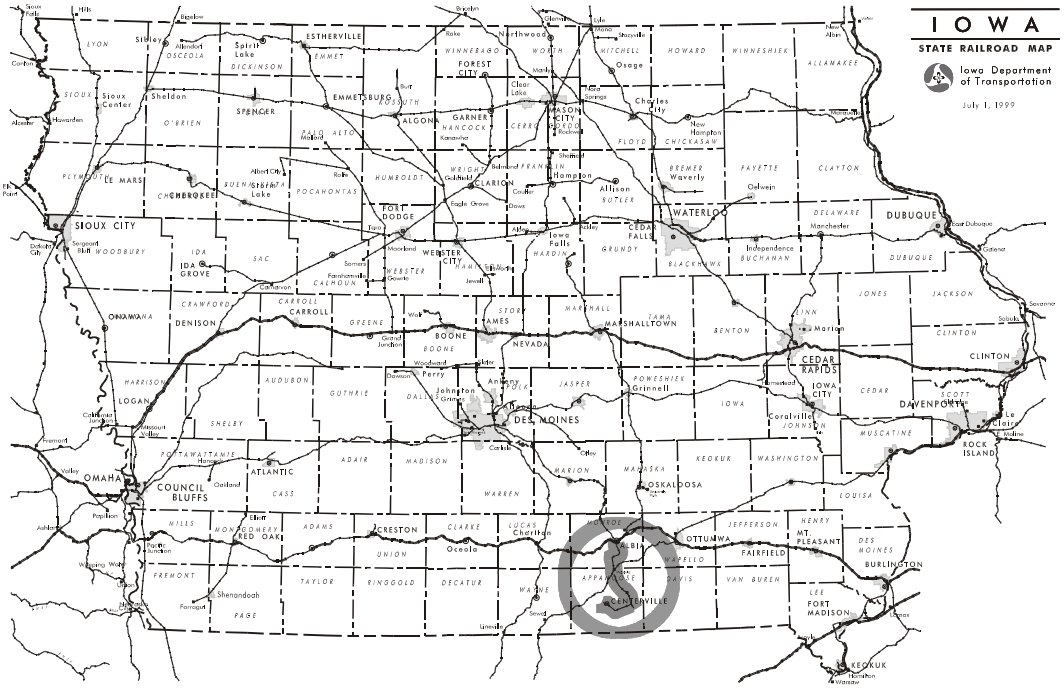
The main commodity handled by the APNC is plastic products.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	APNC		
FRA Classification	Class III		
Type of Service	Switching		
States Operated In	1		
Miles Operated	35	35	100 %
Operating Revenues (millions)	$0.7	$0.7	100 %
Operating Expenses (millions)	$0.8	$0.8	100 %
Ton-miles (millions)	1.0	1.0	100 %
Cars Received and Forwarded	299	299	100 %
Rehabilitation Expenses (millions)	$0.04	$0.04	100 %
Track Maintenance Expenses (millions)	$0.1	$0.1	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	2	2	100%
Employment	5	5	100 %

NA = Not Available

Appanoose County Community Railroad Inc. (APNC)





Burlington Junction Railway (BJRY)

The Burlington Junction Railway was formed in 1985 to operate the former Chicago, Rock Island & Pacific Railroad track in Burlington in southeastern Iowa. In 1996 the BJRY began switching operations in Mount Pleasant. The railroad is headquartered in Burlington.

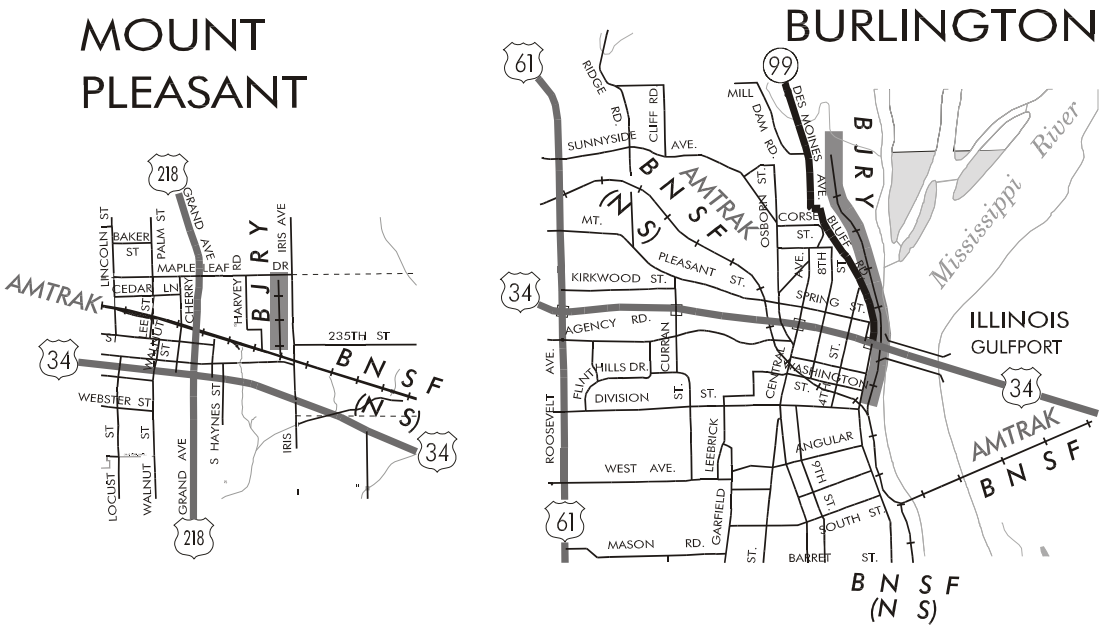
The BJRY provides switching operations in Burlington and Mount Pleasant. The railroad operates a total of 3.5 miles (3.0 miles in Burlington and 0.5 miles in Mount Pleasant). The BJRY employs a total of five people, all located in Iowa.

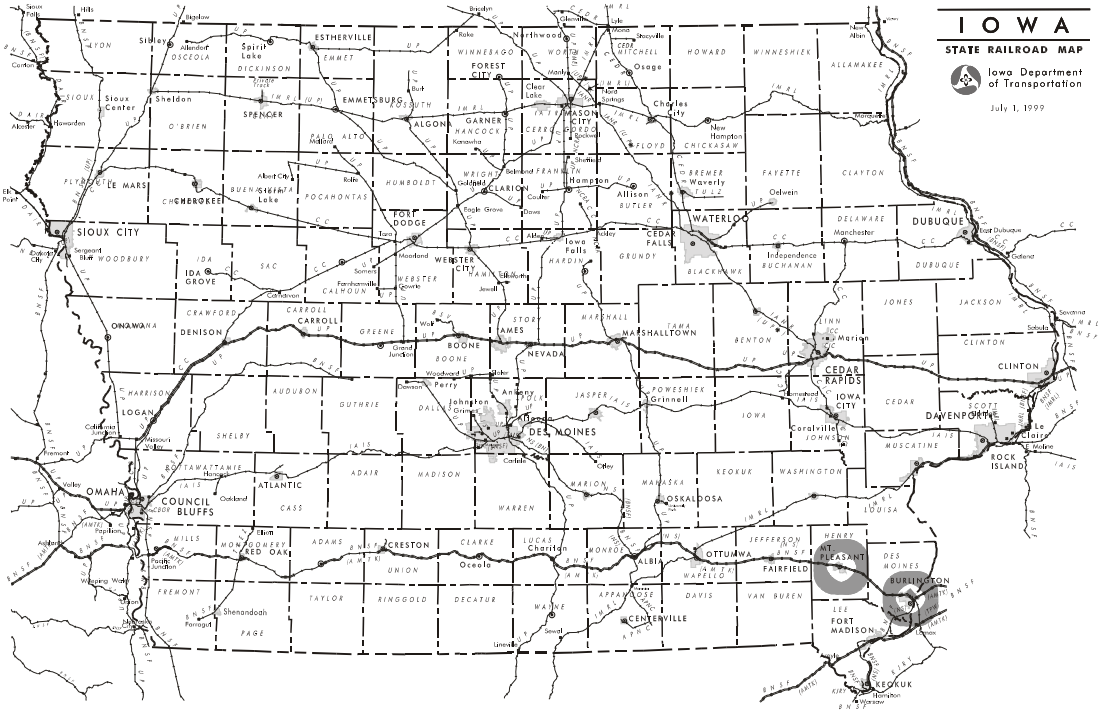
Major commodities handled by the BJRY include chemicals and fertilizer.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	BJRY		
FRA Classification	Class III		
Type of Service	Switching		
States Operated In	1		
Miles Operated	3.5	3.5	100 %
Operating Revenues (millions)	$0.8	$0.8	100 %
Operating Expenses (millions)	$0.6	$0.6	100 %
Ton-miles (millions)	NA	NA	NA
Cars Received and Forwarded	2,684	2,684	100 %
Rehabilitation Expenses (millions)	$0	$0	100 %
Track Maintenance Expenses (millions)	$0.06	$0.06	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	4	4	100 %
Employment	5	5	100 %

NA = Not Available

Burlington Junction Railway (BJRY)





CBEC Railway Inc. (CBEC)

The CBEC Railway was formed in 1992 by the MidAmerican Energy Company in Council Bluffs. The CBEC is a wholly-owned subsidiary of MidAmerican. The headquarters are located in Des Moines.

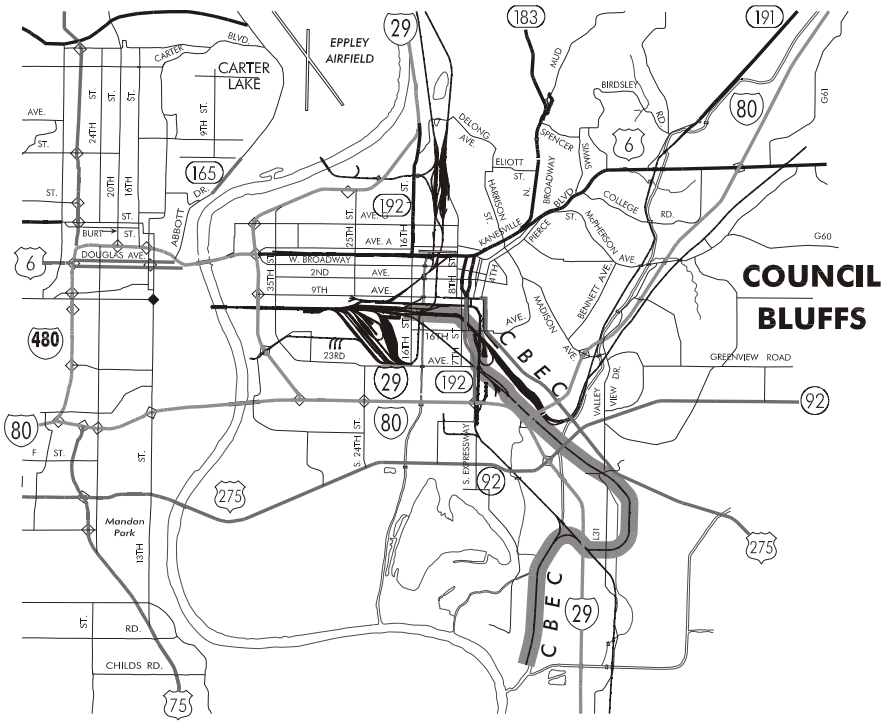
The CBEC owns six miles of track in the Council Bluffs area, which were installed in 1997. The track is primarily used by the Burlington Northern Santa Fe to haul coal to the utility plant located south of Council Bluffs. Administrative services are provided by MidAmerican Energy. The Great Western Railway performs the maintenance functions.

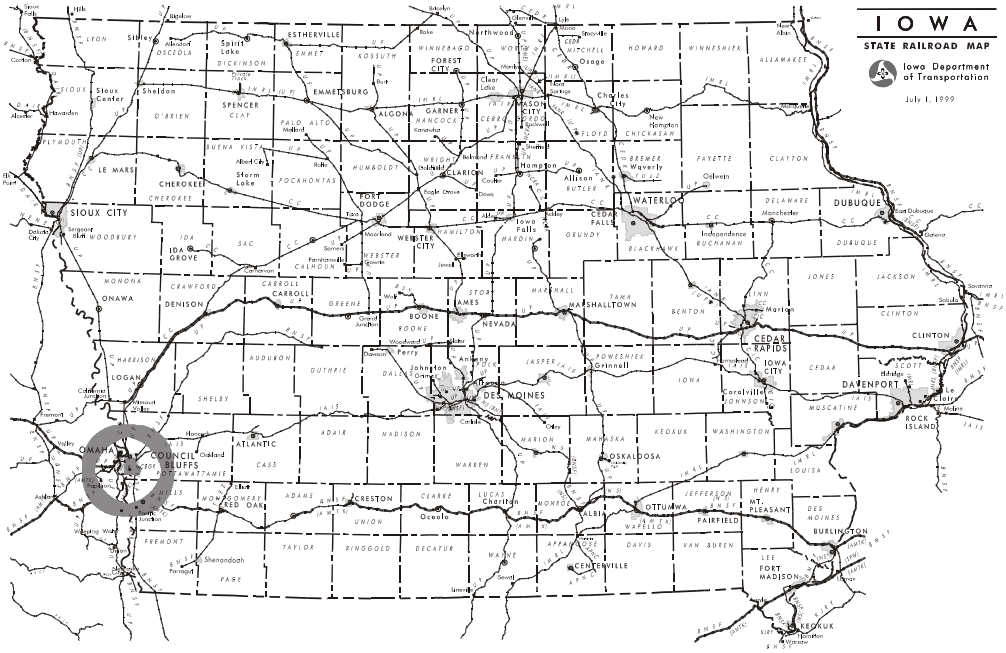
The main product handled by the CBEC is coal.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	CBEC		
FRA Classification	Class III		
Type of Service	Switching		
States Operated In	1		
Miles Operated	6	6	100 %
Operating Revenues (millions)	$2.1	$2.1	100 %
Operating Expenses (millions)	$0.5	$0.5	100 %
Ton-miles (millions)	NA	NA	NA
Tons Hauled (millions)	NA	NA	NA
Rehabilitation Expenses (millions)	$0	$0	--
Track Maintenance Expenses (millions)	$0.03	$0.03	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	0	0	--
Employment	0	0	--

NA = Not Available

CBEC Railway Inc. (CBEC)





Cedar Rapids and Iowa City Railway Company (CIC)

The Cedar Rapids and Iowa City Railway Company began operations in 1904. The railroad operated as a passenger line until 1953. The CIC is a wholly-owned subsidiary of IES Transportation Inc. The headquarters are located in Cedar Rapids.

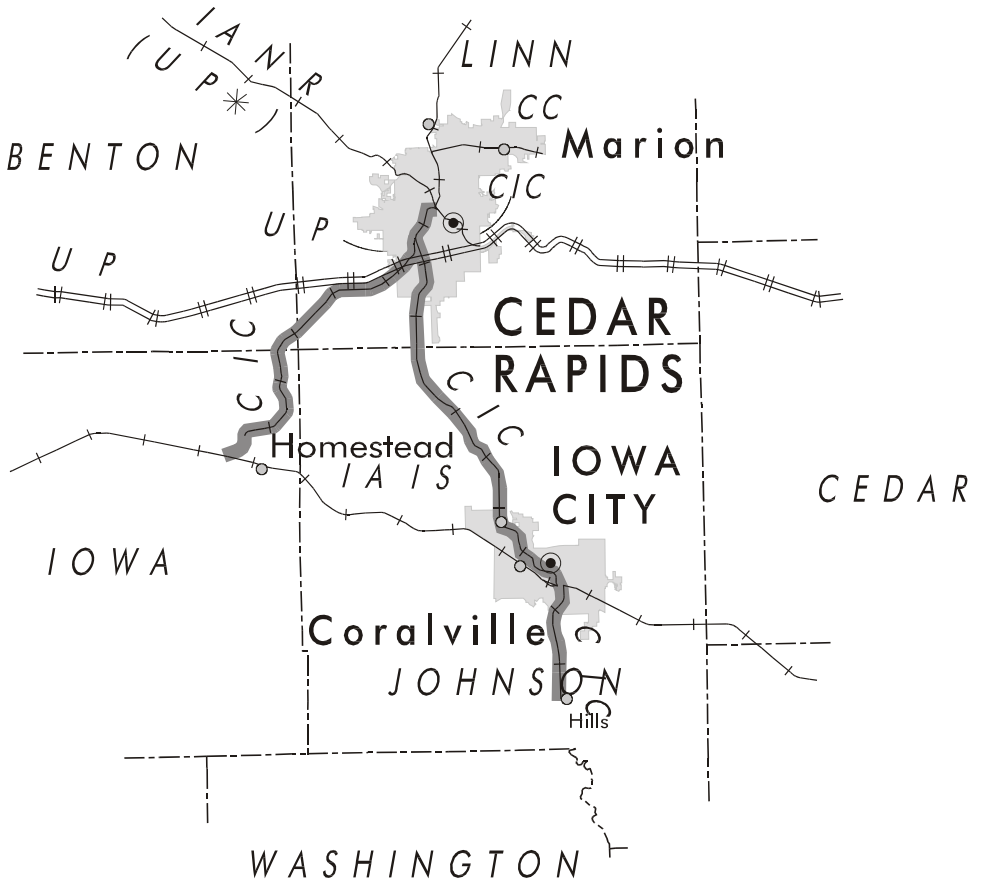
The railroad operates 60 miles of track in eastern Iowa. The CIC's main line runs from Cedar Rapids to Iowa City. In 1981 the railroad expanded by purchasing 23 miles of the Milwaukee Road from Cedar Rapids to Homestead. It also purchased the Iowa City-to-Hills line from the Chicago, Rock Island & Pacific Railroad in 1982. The CIC also provides switching operations in Cedar Rapids. The railroad interchanges traffic with the Chicago, Central and Pacific Railroad; Iowa Northern Railway Company; and the Union Pacific Railroad in Cedar Rapids. The railroad interchanges with the Iowa Interstate Railroad in Homestead and Iowa City. The railroad employs 90 people, all located in Iowa.

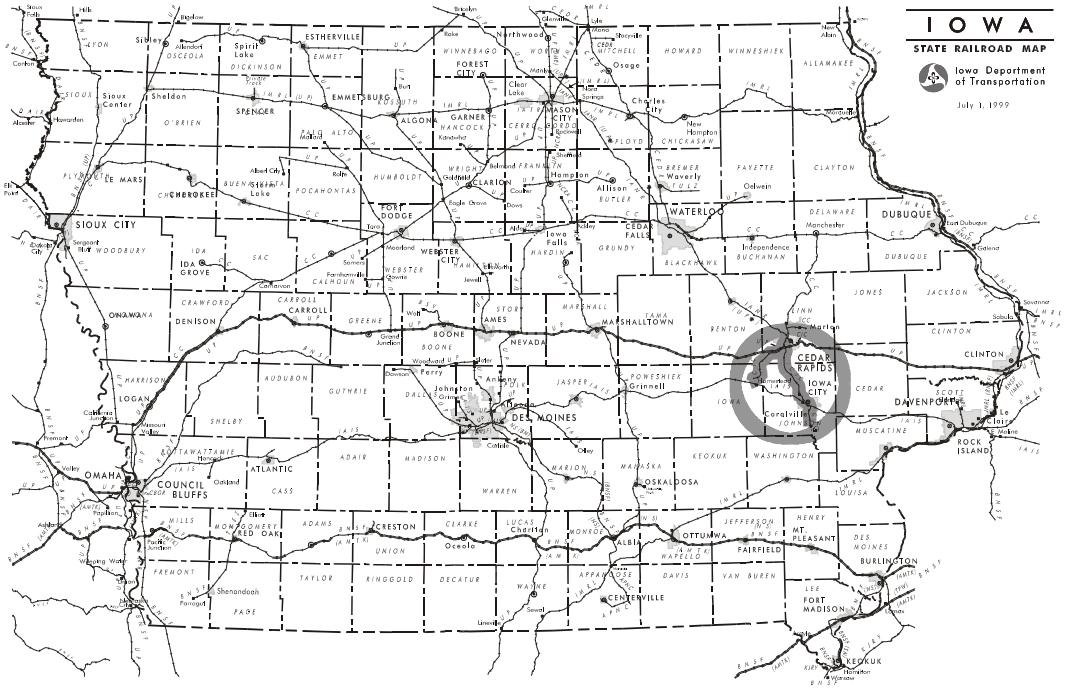
The main products handled by the CIC include food products, coal, grain, paper, and hazardous materials.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	CIC		
FRA Classification	Class III		
Type of Service	Linehaul		
States Operated In	1		
Miles Operated	60	60	100 %
Operating Revenues (millions)	$18.8	$18.8	100 %
Operating Expenses (millions)	$11.2	$11.2	100 %
Ton-miles (millions)	63.8	63.8	100 %
Tons Hauled (millions)	3.8	3.8	100 %
Cars Received and Forwarded	37,206	37,206	100 %
Rehabilitation Expenses (millions)	$0.7	$0.7	100 %
Track Maintenance Expenses (millions)	$1.0	$1.0	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	20	20	100 %
Employment	90	90	100 %

NA = Not Available

Cedar Rapids and Iowa City Railway Company (CIC)





Cedar River Railroad Company (CEDR)

The Cedar River Railroad was established in 1991 with the acquisition of the Cedar Valley Railroad. Cedar Valley was formed in 1984 with the purchase of track from the Chicago, Rock Island & Pacific Railroad. The CEDR is a subsidiary of the Canadian National Railroad as a result of a merger with the Illinois Central Railroad.

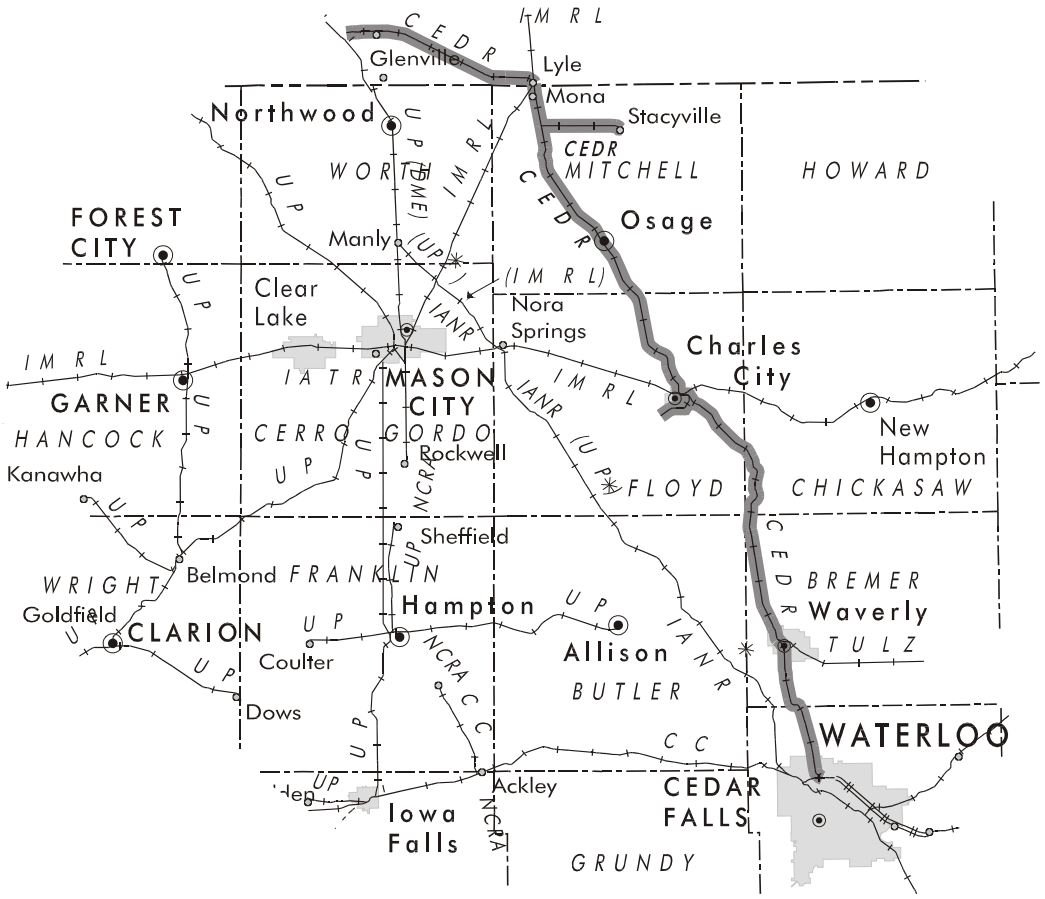
The CEDR operates 103 miles from Waterloo to Glenville, Minnesota. About 83 miles are located in Iowa, including a branchline to Stacyville. The railroad interchanges traffic with the CC at Waterloo as well as with the I & M Rail Link in Charles City and Lyle, Minnesota, and with the Dakota, Minnesota and Eastern and the Union Pacific in Glenville, Minnesota. The CEDR employs three people, all located in Iowa.

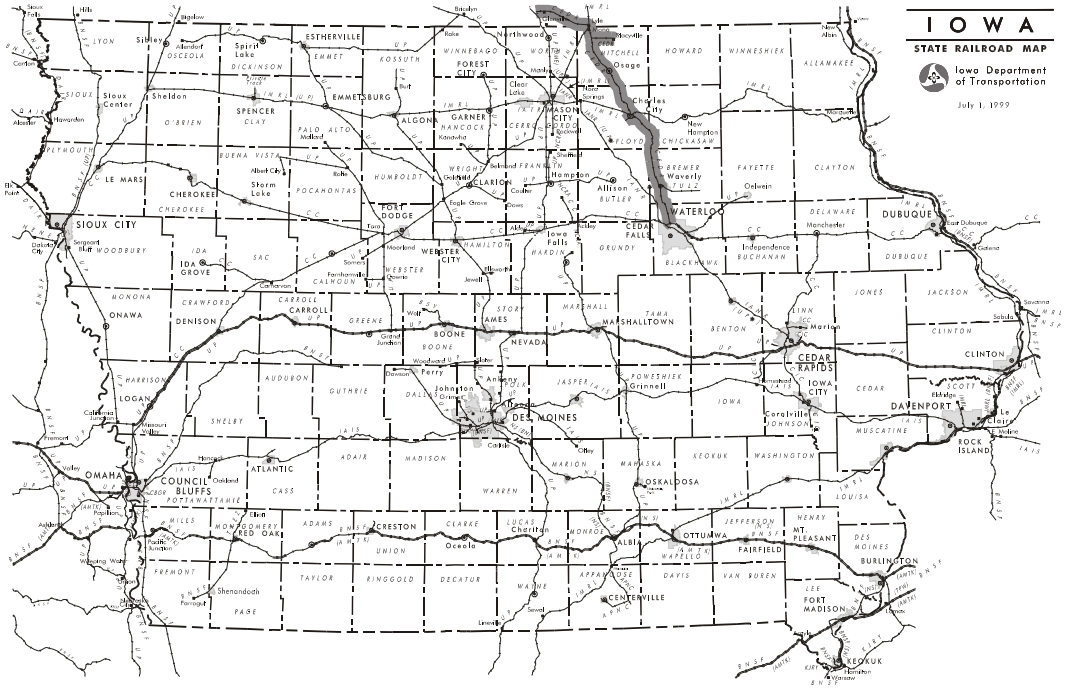
The main products handled by the CEDR include grain, food products, and chemicals.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	CEDR		
FRA Classification	Class III		
Type of Service	Linehaul		
States Operated In	2		
Miles Operated	103	83	80.6 %
Operating Revenues (millions)	$3.1	$2.7	87.1 %
Operating Expenses (millions)	$2.0	NA	NA
Ton-miles (millions)	23.9	20.0	83.7 %
Tons Hauled (millions)	0.8	0.8	100.0 %
Rehabilitation Expenses (millions)	$0.02	$0.01	50.0 %
Track Maintenance Expenses (millions)	$0.09	$0.07	77.8 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	4	NA	NA
Employment	3	3	100 %

NA = Not Available

Cedar River Railroad Company (CEDR)





Great Western Railway Company of Iowa, LLC (CBGR)

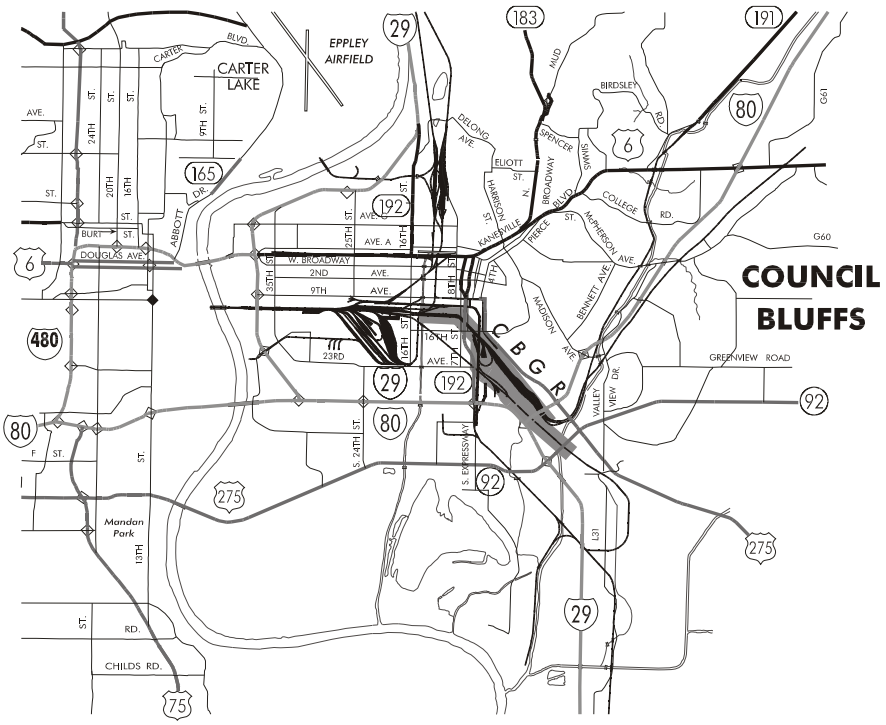
The Great Western Railway Company was formed in 1991 with the purchase of the Council Bluffs and Ottumwa Railway. The CBGR is part of OmniTRAX, which operates 11 railroads in seven states and two Canadian provinces totaling 2,900 miles. The headquarters are located in Denver, Colorado.

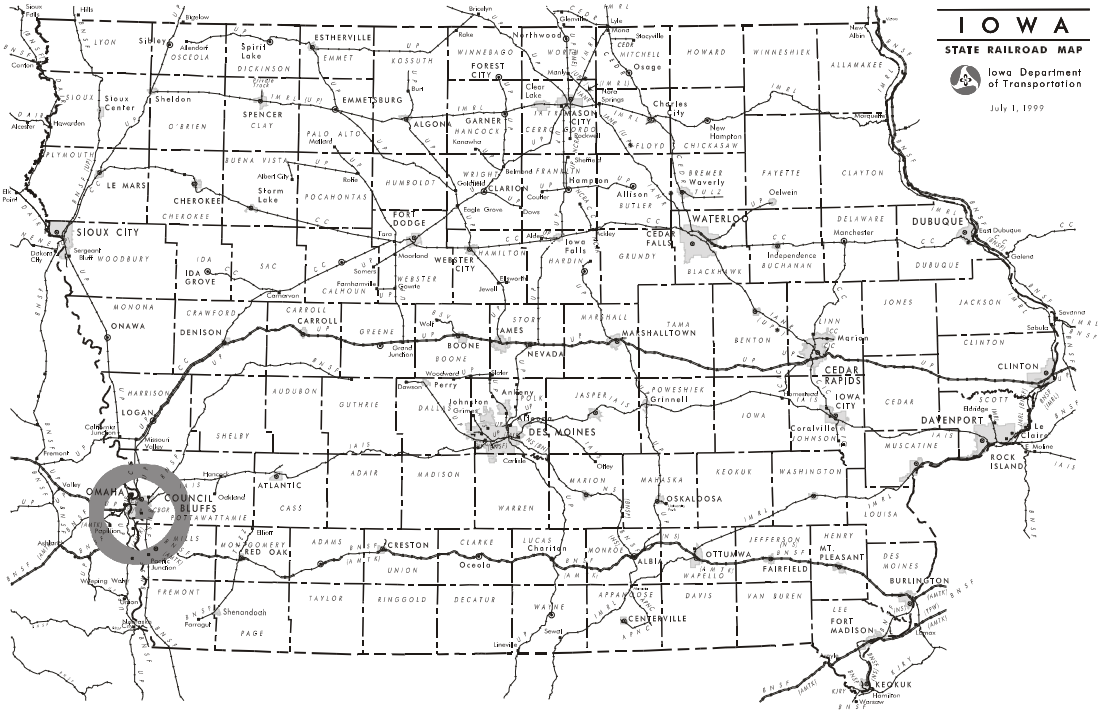
The CBGR operates a terminal switching operation in Council Bluffs consisting of 29 miles of yard and industry tracks. The railroad interchanges with all major carriers in the area, including the Burlington Northern Santa Fe; CBEC Railway Company; Chicago, Central and Pacific; Iowa Interstate; and Union Pacific railroads. The CBGR also provides car storage and car repair services. The railroad employs six people, all located in Iowa.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	CBGR		
FRA Classification	Class III		
Type of Service	Switching		
States Operated In	1		
Miles Operated	0	0	
Operating Revenues (millions)	$1.7	$1.7	100 %
Operating Expenses (millions)	$1.6	$1.6	100 %
Ton-miles (millions)	NA	NA	NA
Cars Received and Forwarded	4,846	4,846	100 %
Rehabilitation Expenses (millions)	$0	$0	--
Track Maintenance Expenses (millions)	$0.2	$0.2	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	1	1	100 %
Employment	6	6	100 %

NA = Not Available

Great Western Railway Company of Iowa, LLC (CBGR)





D & I Railroad Company (DAIR)

The D & I Railroad was incorporated in 1981 to operate part of the Milwaukee Road purchased by South Dakota in Northwest Iowa. The railroad is owned by L.G. Everist Inc., a construction company. It is headquartered in Sioux Falls, South Dakota.

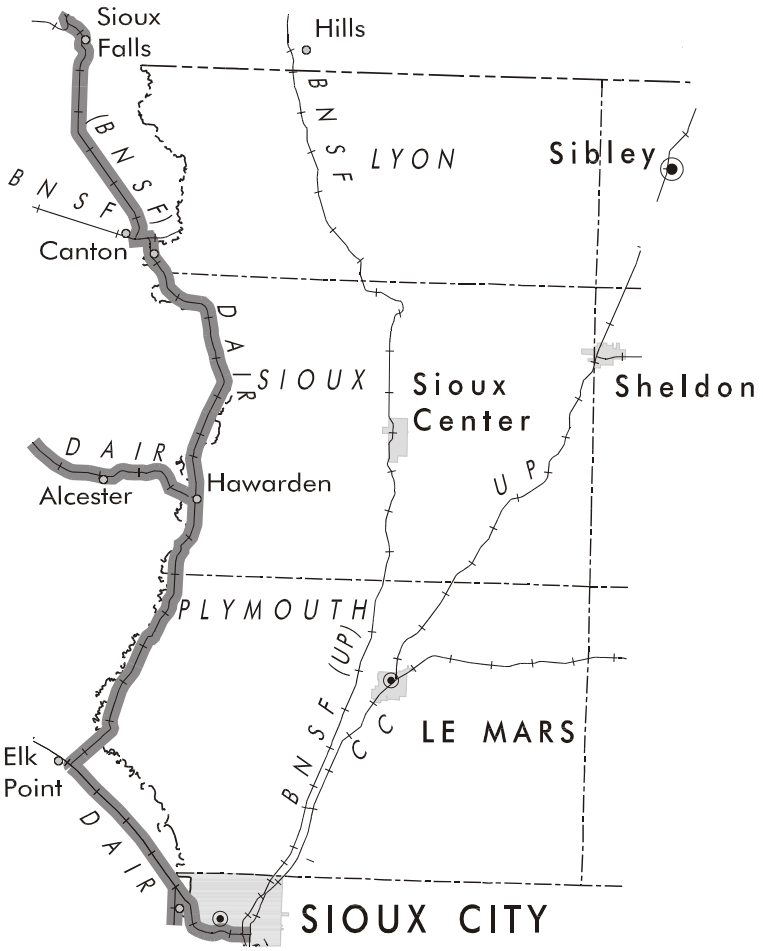
The DAIR operates on 138 miles of track that is owned by South Dakota from Sioux City to Sioux Falls, South Dakota. About 39 miles are located in Iowa. The railroad shares trackage rights with the Burlington Northern Santa Fe. The DAIR connects with the Burlington Northern Santa Fe; Chicago, Central and Pacific; and the Union Pacific railroads in Sioux City. In Sioux Falls, the railroad connects with the Burlington Northern Santa Fe. The railroad employs six people, with two located in Iowa.

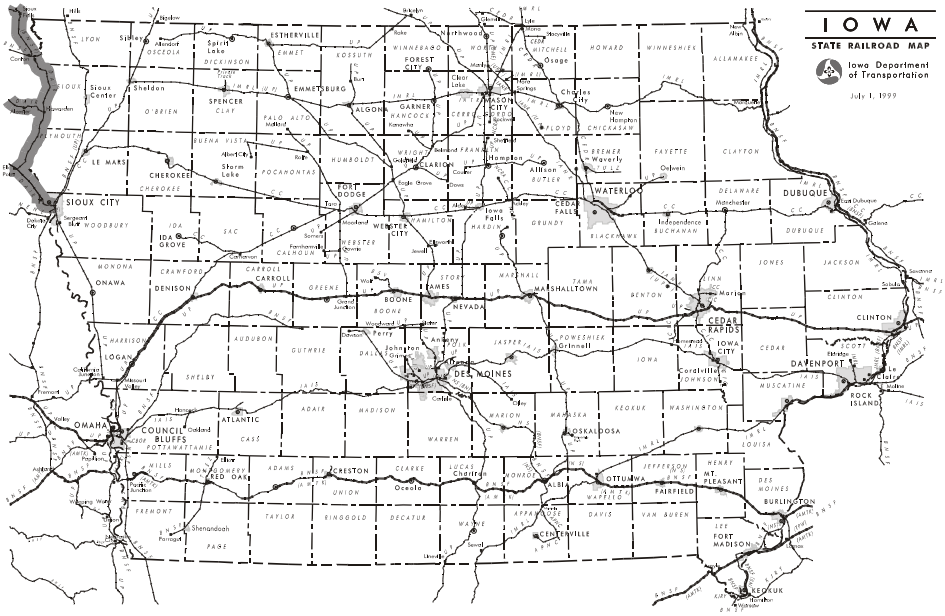
The main products handled by the DAIR include stone products and grain.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	DAIR		
FRA Classification	Class III		
Type of Service	Linehaul		
States Operated In	2		
Miles Operated	138	39	28.3 %
Operating Revenues (millions)	$3.1	$0.9	29.0 %
Operating Expenses (millions)	$2.2	NA	NA
Ton-miles (millions)	1.5	0.4	26.7 %
Tons Hauled (millions)	1.4	0.4	28.6 %
Rehabilitation Expenses (millions)	$0	$0	--
Track Maintenance Expenses (millions)	$0.7	$0.3	42.9 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	16	NA	NA
Employment	6	2	33.3 %

NA = Not Available

D & I Railroad Company (DAIR)





Iowa Northern Railway Company (IANR)

The Iowa Northern Railway was incorporated in 1984 and is one of the first short-line railroads in the state. The IANR was formed from the bankrupt Chicago, Rock Island & Pacific Railroad. The railroad is headquartered in Greene, Iowa. The railroad was originally owned by a group of grain dealers located along the line. The line was sold in 1994 to the Iron Road Railway Company, which is headquartered in Livonia, Michigan.

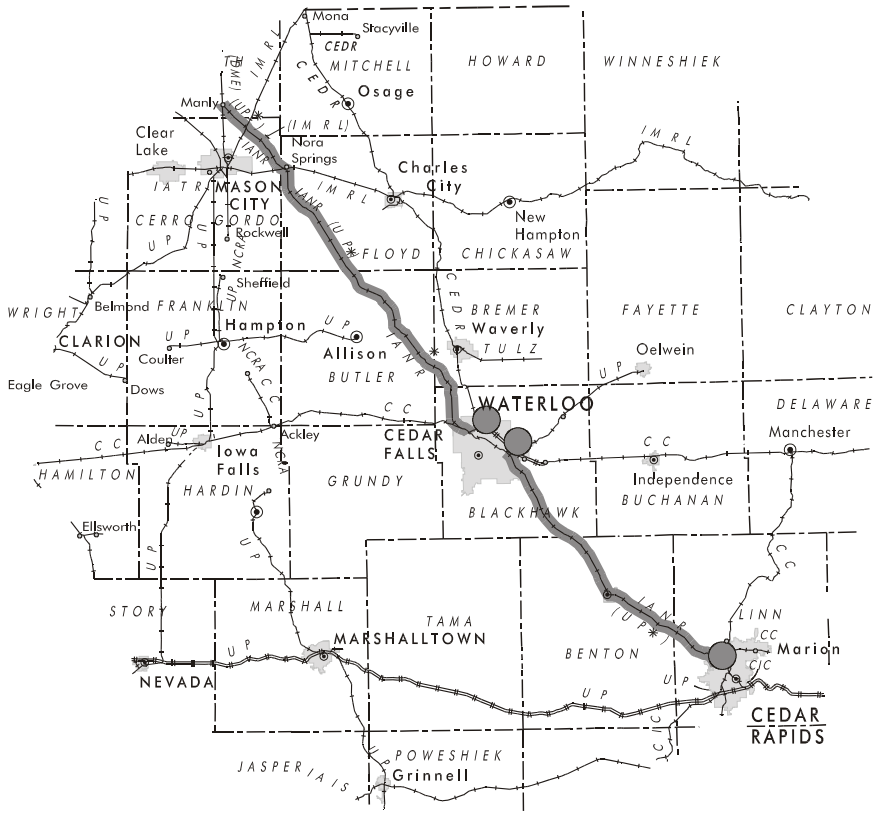
The IANR operates 147 miles in Iowa between Cedar Rapids and Manly in north central Iowa. The railroad connects with the Cedar Rapids and Iowa City Railroad in Cedar Rapids; with the Chicago, Central and Pacific in Cedar Rapids and Waterloo; with the I & M Rail Link in Nora Springs; and with the Union Pacific in Cedar Rapids and Manly. The railroad employs 36 people, all located in Iowa.

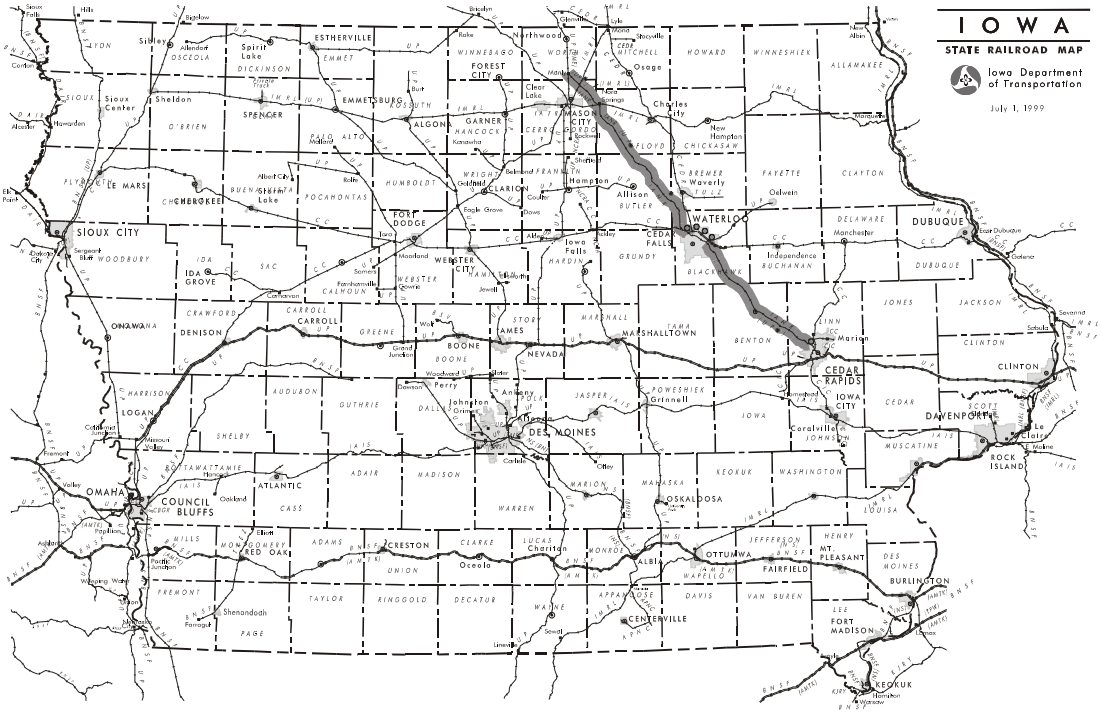
The main products handled by the IANR include grain, chemicals, food products, and machinery.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	IANR		
FRA Classification	Class III		
Type of Service	Linehaul		
States Operated In	1		
Miles Operated	147	147	100 %
Operating Revenues (millions)	$6.2	$6.2	100 %
Operating Expenses (millions)	$5.7	$5.7	100 %
Ton-miles (millions)	128.8	128.8	100 %
Tons Hauled (millions)	1.5	1.5	100 %
Rehabilitation Expenses (millions)	$0.5	$0.5	100%
Track Maintenance Expenses (millions)	$0.7	$0.7	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	7	7	100 %
Employment	36	36	100 %

NA = Not Available

Iowa Northern Railway Company (IANR)





Iowa Traction Railroad Company (IATR)

The Iowa Traction Railroad was incorporated in 1986 and is privately owned. The IATR is the last freight-hauling 600-volt DC-electric railroad in the country. The line was previously known as the Iowa Terminal Railroad. The headquarters are located in Mason City.

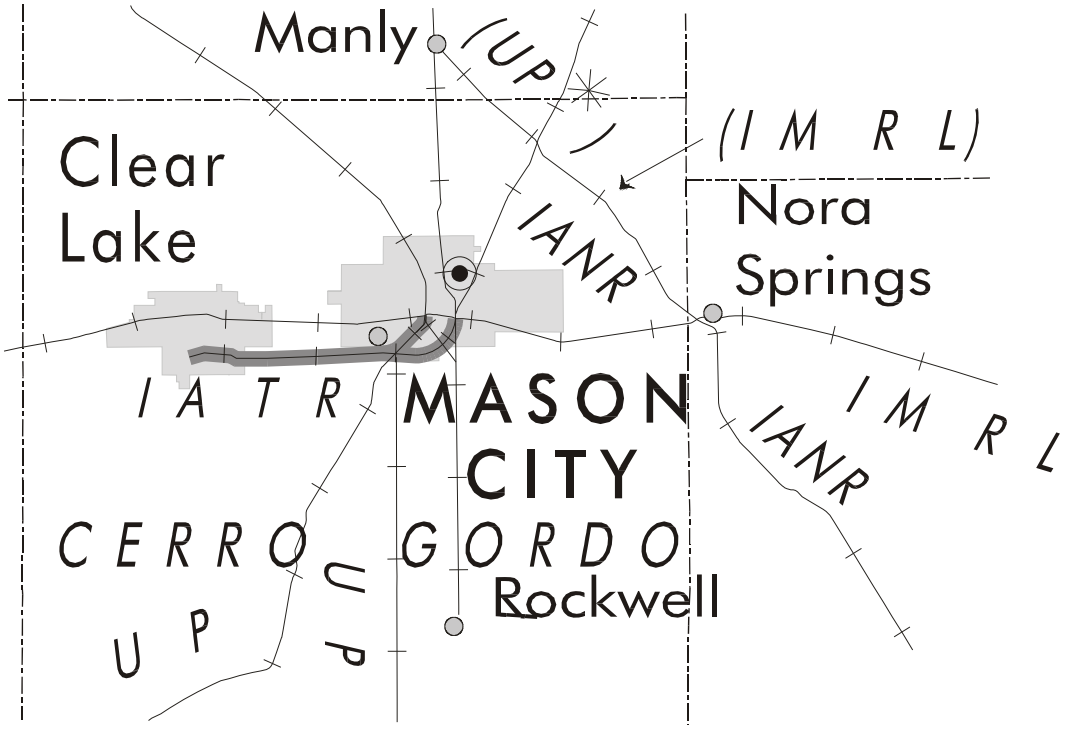
The IATR operates 13 miles between Clear Lake and Mason City in northern Iowa. The railroad connects with both the I & M Rail Link and the Union Pacific in Mason City. The IATR employs four people, all located in Iowa.

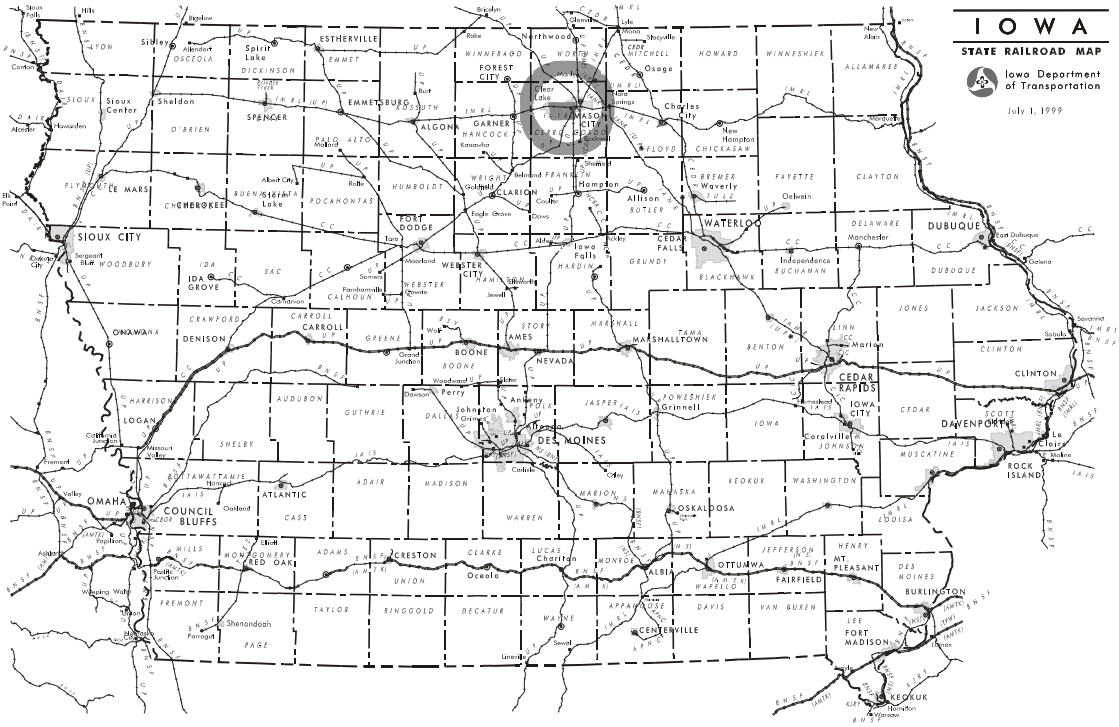
The main products handled by the IATR include food products, scrap materials, and chemicals.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	IATR		
FRA Classification	Class III		
Type of Service	Switching		
States Operated In	1		
Miles Operated	13	13	100 %
Operating Revenues (millions)	$0.2	$0.2	100 %
Operating Expenses (millions)	$0.3	$0.3	100 %
Ton-miles (millions)	0.3	0.3	100 %
Tons Hauled (millions)	0.1	0.1	100 %
Rehabilitation Expenses (millions)	$0.04	$0.04	100 %
Track Maintenance Expenses (millions)	$0.06	$0.06	100 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	5	5	100 %
Employment	4	4	100 %

NA = Not Available

Iowa Traction Railroad Company (IATR)





Keokuk Junction Railway Company (KJRY)

The Keokuk Junction Railway was incorporated in May 1980 to purchase 4.5 miles of the Chicago, Rock Island & Pacific Railroad yard track in Keokuk. In December 1986 the railroad expanded its operations by purchasing the line between Keokuk and La Harpe, Illinois, from the Atchison, Topeka and Santa Fe Railway. In March 1996, Pioneer Railcorp purchased the KJRY. Pioneer Railcorp is a short-line railroad holding company operating 14 railroads in 8 states totaling more than 500 miles. The headquarters for Pioneer Railcorp are located in Peoria, Illinois. The KJRY has a main office in Keokuk.

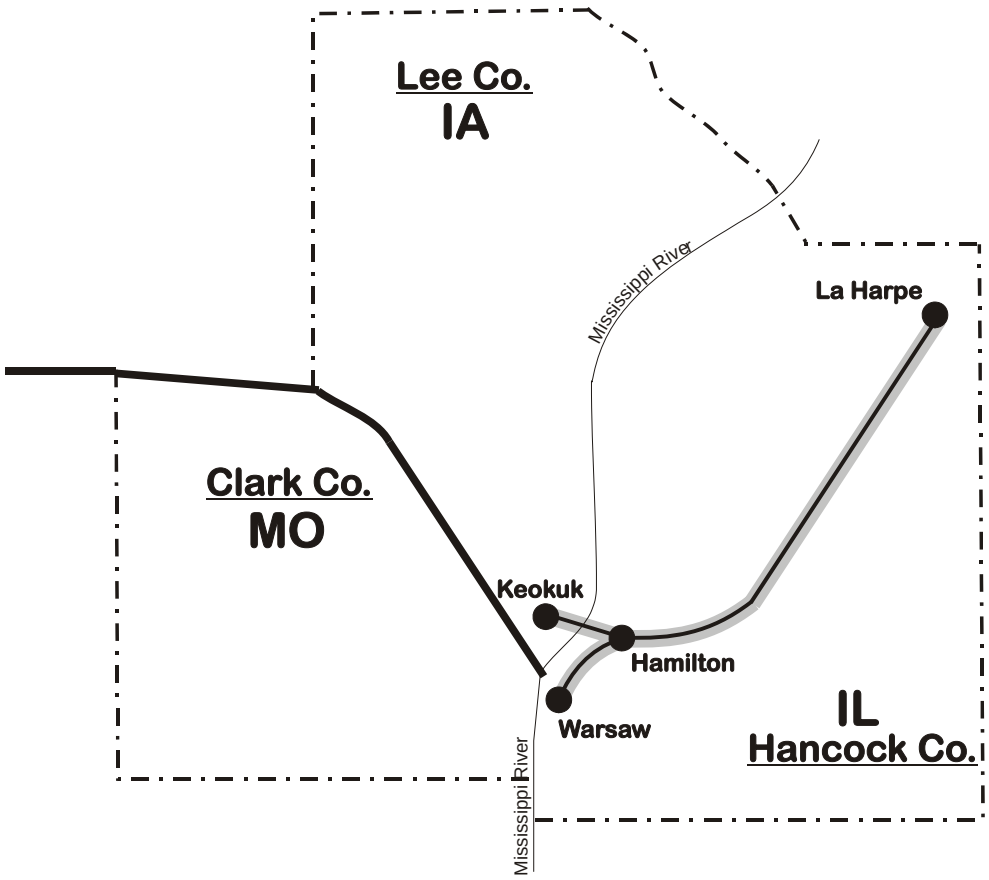
The railroad operates a total of 30 miles, with one mile located in Iowa. The KJRY serves as a switching carrier in Keokuk, interchanging with the Burlington Northern Santa Fe. The KJRY employs a total of 19 people, with 17 working in Iowa.

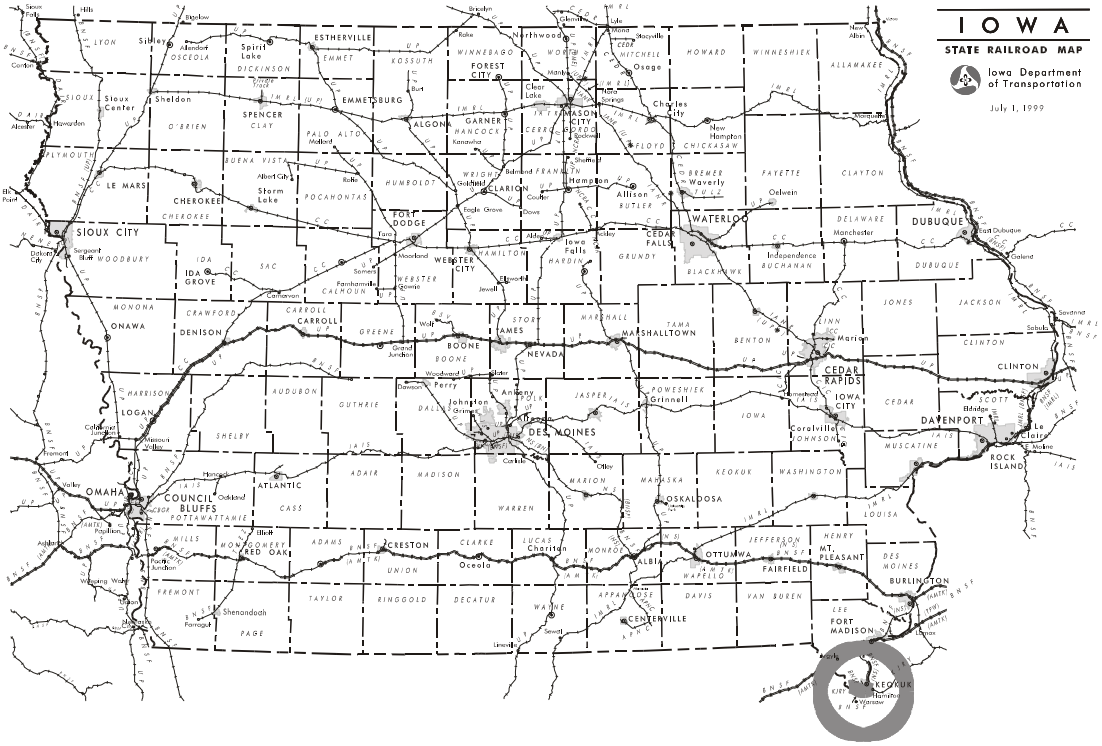
The main products handled by the KJRY include food products, grain, and coal.

Item	Systemwide	In Iowa	Percent in Iowa
RR Abbreviation	KJRY		
FRA Classification	Class III		
Type of Service	Linehaul		
States Operated In	2		
Miles Operated	30	1	3.3 %
Operating Revenues (millions)	$3.2	$2.0	62.5 %
Operating Expenses (millions)	$2.8	NA	NA
Ton-miles (millions)	24.1	0.8	3.3 %
Tons Hauled (millions)	0.5	0.5	100 %
Cars Received and Forwarded	6,893	6,893	100 %
Rehabilitation Expenses (millions)	$0	$0	--
Track Maintenance Expenses (millions)	$0.2	$0.1	50.0 %
Freight Cars in Service	NA	NA	NA
Locomotives in Service	3	NA	NA
Employment	19	17	89.5 %

NA = Not Available

Keokuk Junction Railway Company (KJRY)





Glossary

Glossary

AADT(Average Annual Daily Traffic): The average number of vehicles passing a given point on a roadway during a 24-hour period.

Abandonment: Elimination of a segment from the rail network. Abandonments must be approved by the Surface Transportation Board.

Amtrak: Informal name for the National Railroad Passenger Corporation created by the federal government to operate the nation's intercity passenger rail services.

Ballast: Selected material placed on the railroad roadbed for the purpose of holding the track in line.

Branchline: The trackage of a railroad which extends from the principal lines of rail traffic to connect external shipping points.

Car Miles: The movement of a rail car one mile.

Class of Track: Refers to the general condition of a section of track measured in terms of the maximum speed at which trains may be operated safely over the track. Classes are as follows:

	Maximum Allowable Operating Speed	
FRA Class	**Freight**	**Passenger**
1	10 mph	15 mph
2	25 mph	30 mph
3	40 mph	60 mph
4	60 mph	80 mph
5	80 mph	90 mph
6	110 mph	110 mph

Class of Railroads: Refers to Surface Transportation Board (STB) classification of railroads based on their level of annual operating revenue. Based on 1998 figures, the classifications were as follows:

Class of Railroad	Annual Operating Revenues
Class I	$259.4 million or more
Class II	$20.8 million to $259.4 million
Class III	Less than $20.8 Million

COFC (Container On Flat Car): An intermodal shipment that refers to the practice of moving highway containers on rail intermodal cars for the long-haul portion of the total freight trip.

Commuter Rail: Short-haul rail passenger service operating in metropolitan and suburban areas on trackage that is usually part of the general railroad system.

Density: Reflects the amount of freight traffic moving over a segment of rail line measured in million gross ton-miles per mile.

Derailment: When one or more cars or locomotives leave the rails.

DMU (Diesel Multiple Unit): A self-propelled rail passenger car with the engines under the floor and the driver's compartment as part of the coach.

FRA (Federal Railroad Administration): A division of the U.S. Department of Transportation responsible for administering all federal programs related to rail transportation.

Gage: The distance between the two rails measured at right angles. Standard gage is 4 feet, 8 ½ inches.

GIS (Geographic Information System): A computer-based tool for mapping and analyzing data and events.

Gross Ton Miles: The movement of a ton of freight one mile, including the weight of the goods, cars and locomotives.

Intermodal: The use of two or more modes to complete the movement of a shipment of freight or a passenger trip from origin to destination.

Interstate Shipment: Traffic that originates in one state and terminates in another.

Intrastate Shipment: Traffic that originates and terminates in the same state.
IRFA (Iowa Railway Finance Authority): Created in 1980 for the purpose of financing rail facilities.

Light Rail: An urban rail transportation system that uses electric-powered rail cars along exclusive rights-of-way at ground level, on aerial structures, in subways, or occasionally in streets.

Linehaul Railroad: A railroad principally involved in the movement of freight from one town or city to another.

Main Line:
1. A designation by each railroad of its own track signifying a line over which through-trains pass with relatively high frequency. Main lines generally have heavier weight rail, more sophisticated signaling systems, and better maintenance than branchlines.
2. A designation by the U.S. Department of Transportation based on gross ton miles per mile passing over a segment of track. Main lines carry more than 5 million gross ton miles per mile annually.

Merger: The combination of two or more railroads through the acquisition of assets of the other(s).

MWRRI (Midwest Regional Rail Initiative): A cooperative effort among nine Midwest states, Amtrak, and the Federal Railroad Administration to evaluate the potential of a regional passenger rail system hubbed in Chicago.

Net Ton-mile: The movement of a ton of freight one mile.

Operation Lifesaver: A public education and information program designed to reduce collisions, deaths, and injuries at rail/highway intersections.

Performance Measure: A quantitative or qualitative tool to assess progress towards an outcome or goal.

Rail/Highway Crossing: A location either at-grade or grade separated where one or more railroad tracks intersect a public highway, street or alley.

Rail Weight: The weight of rail measured in pounds per yard.

RCR (Railroad Cost Recovery Index): A measure of railroad inflation indicating the change in the price levels of inputs to railroad operations including wages, fuel, materials and supplies, and other expenses.

RED (Rail Economic Development): A program started in 1986 to help create or retain jobs in Iowa through the rehabilitation or construction of spur tracks to serve a new or existing industry.

Regional Railroad or Carrier: A railroad company earning less than $259.4 million annually and operating more than 100 miles of track.

Short-line Railroad: A railroad company which is typically less than 100 miles in length.

Spur Track: A short track extending out from or along side another track that is connected at only one end with the other track.

STB (Surface Transportation Board): The federal body charged with enforcing acts of Congress affecting interstate rail traffic.

STRACNET (Strategic Rail Corridor Network): An interconnected network of rail corridors important to national defense.

Switching Railroad: A railroad involved in the shifting of rail cars between two points, both of which are within the same vicinity of an industry, a group of industries, a station or a city.

Through Traffic: A railroad's traffic which originates and terminates on other railroads, off-line, or outside of the state. Also known as overhead or bridge traffic.

Ties: The wooden, concrete or steel cross pieces that keep the two rail in gage to provide a guide way.

TOFC (Trailer On Flat Car): An intermodal shipment that refers to the practice of moving highway trailers on rail intermodal cars for the long-haul portion of the total freight trip.

Turnout: A track structure used to divert cars and locomotives from one track to another.

Value Added: A process which transforms a product or service, causing it to be worth more.

Warning Devices: Signs, signals, markings, and devices placed along highways approaching and at railroad/highway crossings on, over or adjacent to a street or highway used to direct and assist vehicle operators and pedestrians in crossing the rail line safely.

Weight Limit: The maximum gross weight per four-axle rail car, including the equipment and goods that can be handled over rail lines.