2011

Iowa's

Rail

System

Trends

Prepared by the
Office of Systems Planning
November 2012

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 2011 Iowa's rail transportation system could be described as follows:

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 14 percent of Iowa's freight tonnage (excludes traffic moving through the state). 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, ethanol, 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 25 years can be characterized as follows:

Key 2011 Facts

- 3,893 miles of track
- 18 railroads
- 56.2 million tons shipped
- 42.9 million tons received
- 2 Amtrak routes
- 6 Amtrak stations
- 57,880 rail passenger rides

Key Rail Freight Trends

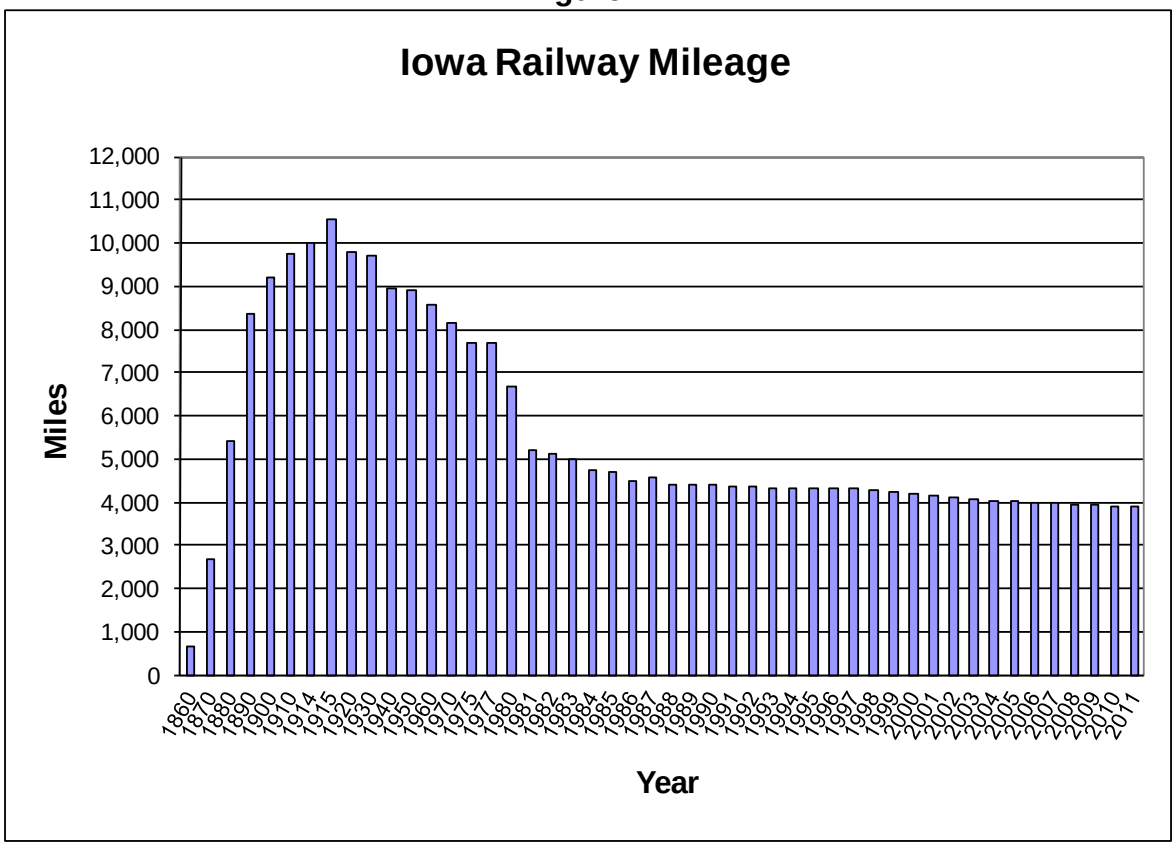
- slightly fewer miles being operated;
- railroads serving Iowa has remained the same;
- more rail freight traffic;
- more tons hauled per car;
- higher average rail rates per ton-mile since 2002;
- more car and tons hauled per locomotive; and
- more ton miles per gallon of fuel consumed.

Iowa Rail Mileage

Iowa railroad mileage peaked in 1915 at approximately 10,500 miles. Today, Iowa has 3,893 miles, 12 miles less than 2010. The 2011 miles are 37 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. In the late 1980s and 1990s, rail line abandonments and new short-line creations slowed considerably. Since 1985, Iowa's rail mileage has remained fairly stable with only 789 miles being abandoned over this 26-year time period.

However, railroad service in Iowa continues to evolve as railroads seek to lower transportation costs and improve efficiencies. Currently, there are 40 miles being considered for abandonment in Iowa.

Figure 1



Iowa Railroads

Railroads serving Iowa have declined since 1985 (See Figure 2). Class I railroad declined from 9 in 1985 to 6 in 2011. The number of Class II and III railroads serving Iowa has remained basically the same at 1 and 11, respectively.

Rail service in Iowa is privately owned and operated by 18 railroad companies operating 3,389 miles of track (See Table 1). Six of these railroads are major national companies and operate 82 percent of Iowa's total miles. The remaining 12 railroads consist of regional linehaul carriers and local switching companies. Of the 12 smaller railroads serving Iowa, 8 operate only within the state.

Figure 2

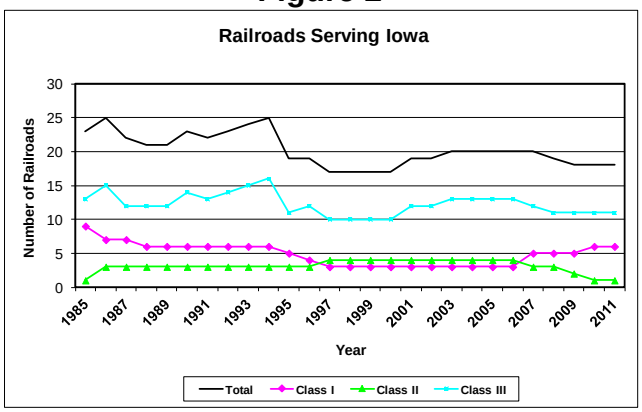


Table 1
Rail Miles Operated in Iowa by Railroad
December 31, 2011

Railroad Companies			Total Miles Owned/ Leased	Percent Of Total	Miles Operated Under Trackage Rights*
Class I	BNSF	BNSF Railway	635	16.31	38
	CC	Chicago Central & Pacific Railroad **	522	13.41	0
	CEDR	Cedar River Railroad**	83	2.13	0
	DME	Dakota, Minnesota and Eastern Railroad***	654	16.80	2
	NS	Norfolk Southern Railway	7	0.18	37
	UP	Union Pacific Railroad	1,305	33.52	95
	Subtotal		**3,206**	**82.35**	**172**
Class II	IAIS	Iowa Interstate Railroad	334	8.47	27
	Subtotal		334	8.47	27
Class III	APNC	Appanoose County Community Railroad	35	0.89	0
	BSV	Boone & Scenic Valley Railroad	2	0.05	0
	BJRY	Burlington Junction Railway	5	0.13	0
	CBEC	CBEC Railway	6	0.15	0
	CIC	Cedar Rapids & Iowa City Railway	60	1.54	23
	DAIR	D & I Railroad	0	0.00	39
	DWRV	D& W Railroad	19	0.49	6
	IANR	Iowa Northern Railroad	142	3.65	35
	IARR	Iowa River Railroad	43	1.10	0
	IATR	Iowa Traction Railway	13	0.33	0
	KJRY	Keokuk Junction Railway	1	0.03	0
	Subtotal		**326**	**8.37**	**103**
Other		State of South Dakota	39	1.00	0
	Total		**3,893**	**100.00**	**302**

*Trackage Rights –rights obtained by one carrier to operate over another carrier's tracks. South Dakota owns the tracks that D & I operate under trackage rights.
**Subsidiaries of the CN Railway.
***Subsidiaries of the CP Railroad.

Share of Rail Operations

Rail service in Iowa is dominated by the six Class I carriers. In 2011, they operated 82 percent of Iowa's mileage and generated 91 percent of the ton-miles and 94 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 more local customer-oriented operations. The Class II railroad operated 8 percent of the mileage and generated 2 percent of the ton-miles and 3 percent of the freight revenues in 2011. 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 11 Class III carriers operated 10 percent of the mileage and generated 1 percent of the ton-miles and 3 percent of the freight revenues in 2011 (See Table 2).

Table 2

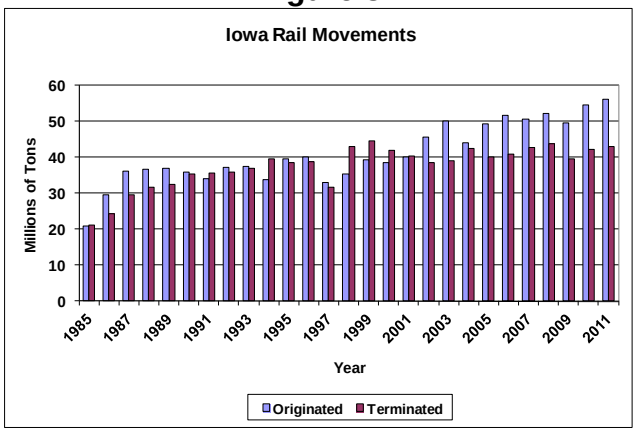
2011 Share of Rail Operations in Iowa

	Class I	Class II	Class III
Number of Companies	33%	6%	61%
Miles Operated	82%	8%	10%
Tons Originated	73%	14%	13%
Tons Terminated	91%	3%	6%
Ton-Miles	97%	2%	1%
Revenues Earned	94%	3%	3%

Use

While rail mileage in Iowa has slowly declined during the last 26 years, Iowa rail traffic levels have generally continued to increase (See Figure 3). In 2011, railroads originated 56.2 million tons and terminated 42.9 million tons in Iowa, compared to 54.5 million and 42.2 million, respectively, in 2010. In 1985, railroads originated 20.9 million tons and terminated 21.2 million tons in the state.

Figure 3



Type of Commodity

A variety of freight commodities are moved by rail, ranging from mail, textiles and furniture to lumber, plastic pellets and automobiles. However, a majority of Iowa rail traffic involves bulk commodities. Farm, food, chemicals, and ethanol products account for 90 percent of the Iowa originations, totaling 50.7 million tons in 2011. In 2010, these same four commodities accounted for 49.3 million tons or 82 percent.

Four commodities—coal, farm products, chemicals, and food products—comprised about 88 percent of all freight terminating in Iowa in 2011 compared to 86 percent in 2010. In 2011, 37.7 million tons of these commodities were terminated in Iowa (See Table 3).

Table 3
Commodity Types

Year	Originated Tons in Millions					Terminated Tons in Millions				
	Farm	Food	Chemicals	Ethanol	All Other	Coal	Farm	Chemicals	Food	All Other
1985	10.2	7.2	1.5		2.0	10.5	4.4	2.3	1.1	2.6
1986	16.2	8.7	1.6		3.0	10.1	6.6	2.6	1.4	3.7
1987	22.0	8.8	1.8		3.4	11.8	9.4	3.0	1.3	4.0
1988	21.9	9.1	1.7		4.1	12.7	9.8	3.2	1.1	4.9
1989	21.7	9.4	1.6		4.1	13.2	11.1	2.9	1.1	4.0
1990	20.2	9.7	1.4		4.7	15.1	11.2	3.1	1.3	4.7
1991	16.8	10.4	1.4		4.5	16.6	9.9	2.8	1.5	4.8
1992	19.3	11.2	1.3		4.4	15.2	11.3	3.1	1.6	4.8
1993	17.9	12.0	1.6		5.9	17.1	10.3	3.1	1.7	4.9
1994	14.7	11.8	1.5		5.9	18.2	10.2	3.3	2.0	6.0
1995	21.4	11.7	1.6		5.0	18.3	9.4	3.0	2.0	5.1
1996	20.9	12.3	1.5		5.4	20.2	8.4	2.9	1.6	5.6
1997	14.2	11.9	1.7		5.3	18.2	6.3	3.1	1.9	5.8
1998	13.1	14.0	2.3		6.1	22.7	6.8	3.7	2.3	5.7
1999	15.8	14.8	2.3	0.4	6.1	24.4	7.8	3.7	2.2	6.4
2000	15.4	14.8	2.1	0.4	5.9	22.1	7.0	3.9	2.0	7.0
2001	17.5	16.0	1.8	0.6	4.3	22.8	5.5	3.8	2.0	6.2
2002	22.0	16.0	1.8	0.9	5.0	21.9	4.7	3.4	2.3	6.3
2003	23.4	17.3	2.4	1.0	5.9	22.8	3.7	3.6	2.3	6.6
2004	18.8	16.1	2.3	1.7	5.3	24.2	4.4	3.7	2.1	8.2
2005	20.8	18.3	2.7	2.0	5.5	21.9	4.3	4.1	2.0	7.7
2006	20.4	19.1	4.2	2.5	5.4	23.5	4.1	4.0	2.0	7.4
2007	18.0	17.9	5.1	3.1	6.5	26.4	3.1	4.4	1.9	7.0
2008	17.3	18.5	6.1	4.0	6.4	27.6	2.7	4.2	2.0	7.2
2009	13.4	19.4	6.1	6.0	4.6	25.4	3.8	3.2	2.3	5.1
2010	13.6	21.6	8.9	5.2	5.3	25.8	3.8	4.5	2.4	5.8
2011	13.2	22.0	9.3	6.2	5.5	25.6	4.1	5.4	2.6	5.2

Total Rail Movements

Total rail movements in Iowa increased by 15.9 million tons from 2010 to 2011. Since 1985, total movements have increased by 231.1 million tons (See Figure 4). Total rail movements consist of what originates and terminates in Iowa as well as what passes through the state.

In addition to the 56.2 million tons originated in Iowa and the 42.9 million tons terminated in Iowa, another 259.3 million tons of rail freight merely passed through Iowa in 2011, 13.5 million tons more than 2010. Through traffic during the last 26 years has increased 204 percent from 85.2 million tons in 1985 to 259.3 million tons in 2011 (see Figure 5). The majority of this traffic, consisting of coal, intermodal shipments, food products, chemicals, and farm products, traverses the state on the Union Pacific's east-west main line located in central Iowa and the BNSF Railway's east-west main line located in southern Iowa.

Figure 4

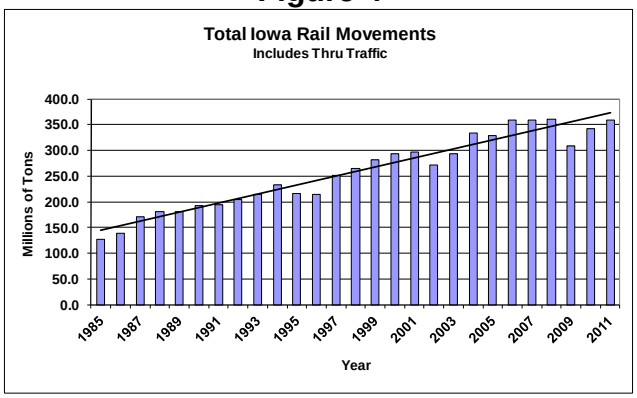
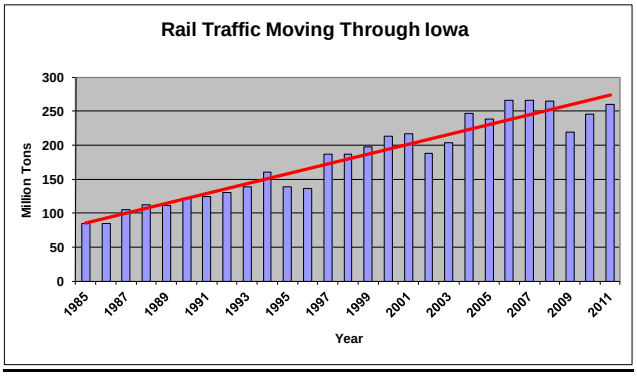


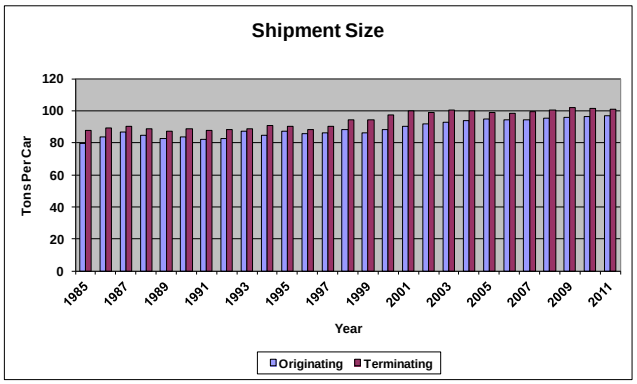
Figure 5



Car Size

Railroads continue to focus their attention on heavier axle load freight equipment on longer, heavier trains to lower their costs. This trend has led to the current use of 110-ton cars moving in unit trains of bulk commodities where the benefits are the greatest. Over the last 26 years, the average tons moved per car have slowly increased by about 18 percent. In 2011, originating traffic in Iowa averaged 96.7 tons per car while terminating traffic averaged 100.9 tons per car (See Figure 6). This compares to 96.1 tons per car originating and 101.7 tons per car terminating in 2010. In 1985, the average tons per car equaled 79.4 for originating traffic and 87.7 for terminating traffic.

Figure 6



State-to-State Movements

The total freight shipped and received by Iowa rail users in 2010 was about 94.7 million tons based on the most recent waybill sample. Of this total, 11.2 million tons (12 percent) involved intrastate shipments (transported between points within the state). The remaining 83.5 million tons were shipped between Iowa and other states. While the tons of freight moved over Iowa's rail network have increased from 35.7 million tons in 1985 to 94.7 million in 2010, intrastate movements remained relatively stable averaging around 10 million tons per year (See Figure 7).

Of the rail shipments into Iowa, most of the tonnage comes from Wyoming, followed by states around Iowa including Nebraska, South Dakota, Minnesota, and Illinois. Freight traffic originating in Iowa has more widespread destinations, with Illinois receiving the largest amount followed by Texas, California, Washington, Louisiana, Canada, Arkansas, Oklahoma, Missouri, Idaho, Minnesota, and Nebraska. 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.

Ton Miles

While Iowa's rail miles have remained stable, the amount of tonnage moving over the Iowa network has been increasing (See Figure 8). Between 1985 and 2011 ton-miles increased 216 percent while rail miles fell by 17 percent. This translates into Iowa's rail system being used more on a ton-mile basis. Ton miles for 2011 totaled 65.9 billion, 4.1 billion more than 2010.

Figure 7

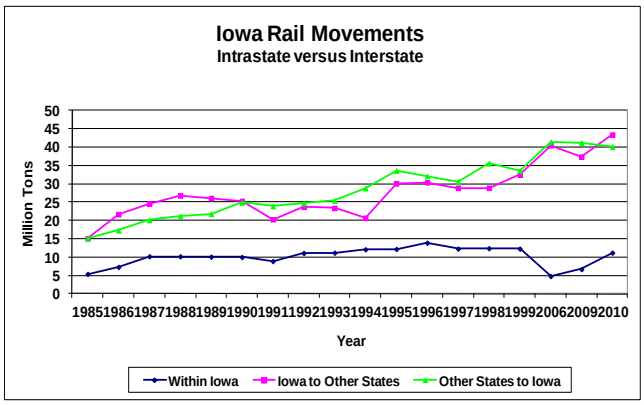
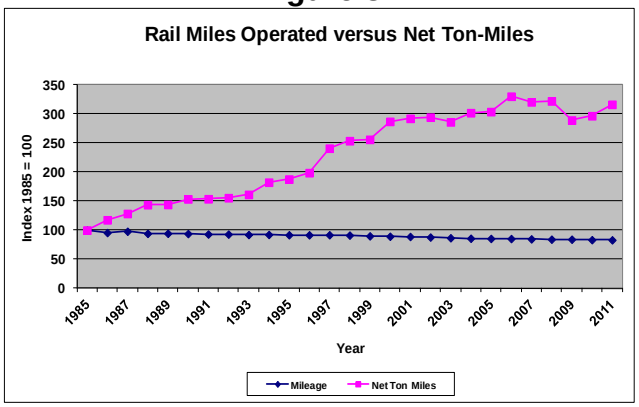


Figure 8



Density

The activity on individual rail lines is measured in terms of density or gross ton-miles per mile (gtm/m). Average rail line density has nearly tripled over the last 26 years primarily as a result of the increased through traffic moving over Iowa's main lines (See Figure 9). As of 2011, the average rail line density in Iowa was 29.6 million, compared to 28.5 in 2010 and 10.3 in 1985. Traffic density for individual line segments ranges from 0.01 million gross ton-miles per mile to more than 100.0 million.

Miles by Density Category

Density reveals the relative use of each component of the state rail system: the higher the density, the more heavily the line is used. The Federal Railroad Administration classifies lines that carry more than five million gtm/m as main lines while those carrying less than five million gtm/m are considered branch lines (See Table 4).

One-fourth of Iowa's rail miles carried a majority of the rail traffic in 2011. Only 1,066 miles (27 percent) carried 88 percent of the gross ton-miles hauled in the state in 2011. Conversely, the remaining 2,914 miles (73 percent) accounted for the other 12 percent of the gross ton-miles.

As shown in Figure 10, since 1985, both A Main Line and A Branch Line miles have increased while both B Main Line and B Branch Line miles have decreased. This further illustrates the increasing traffic volumes and the elimination of little used lines. The miles shown in Figure 10 are based on the density categories from Table 4.

Figure 9

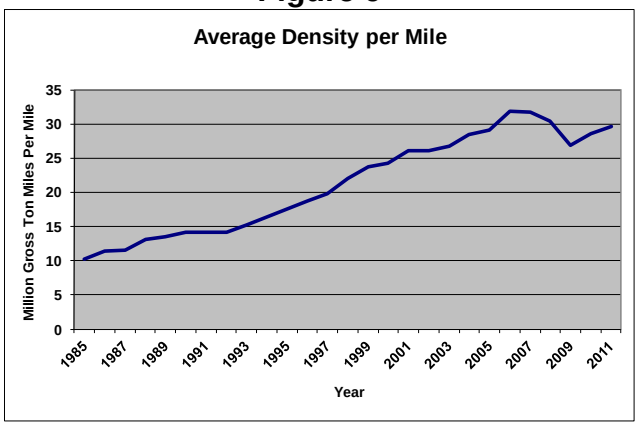
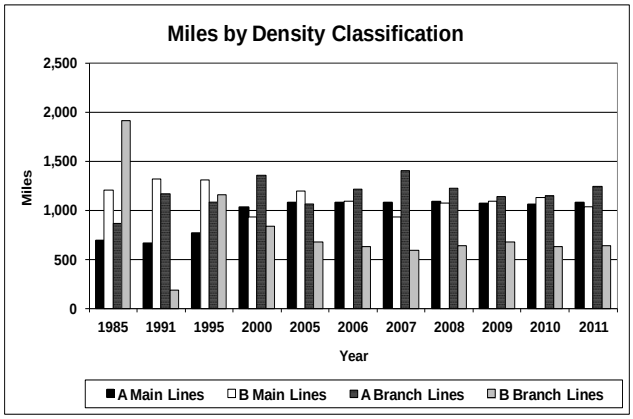


Table 4
FRA Density Classification

Category	Density (gtm/m)
A Main Line	Over 20 million
B Main Line	5 million to 20 million
A Branch Line	1 million to 5 million
B Branch Line	Less than 1 million

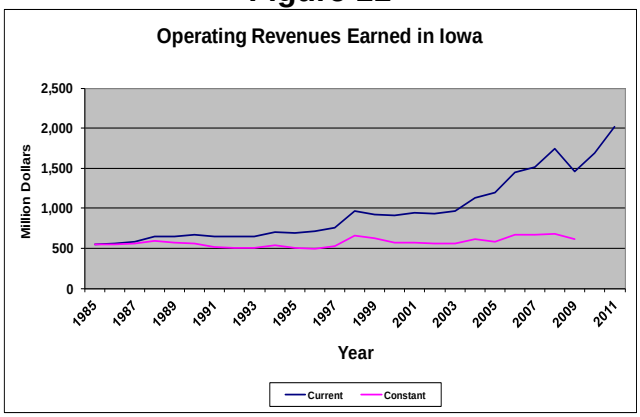
Figure 10



Operating Revenues

In 2011, operating revenues earned in Iowa totaled $2.0 billion, an increase of $0.3 billion over 2010. Since 1985, operating revenues have increased 267 percent in current dollars and by only 10 percent in constant dollars when inflation is considered (See Figure 11).

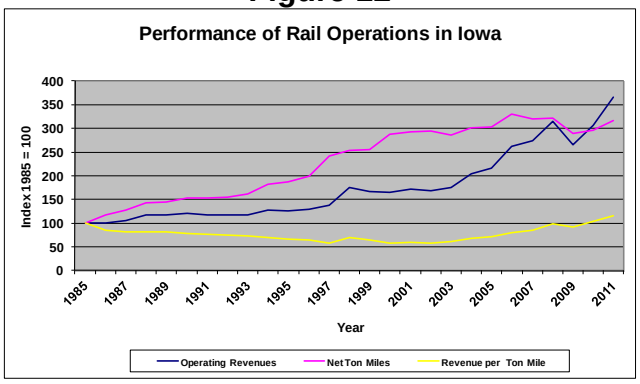
Figure 11



Rail Operation Performance

Rail service to Iowa shippers continued to show improvements during the last 26 years (See Figure 12). Since 1985, revenue ton-miles increased by 216 percent, while revenues earned in Iowa increased 267 percent in current dollars. Revenue per ton-mile declined 43 percent from 2.64 cents in 1985 to 1.52 cents in 2002 in current dollars. Since 2002, revenue per ton-mile has increased 101 percent to 3.06 cents in 2011. Revenue per ton-mile was 0.33 cents more than 2010.

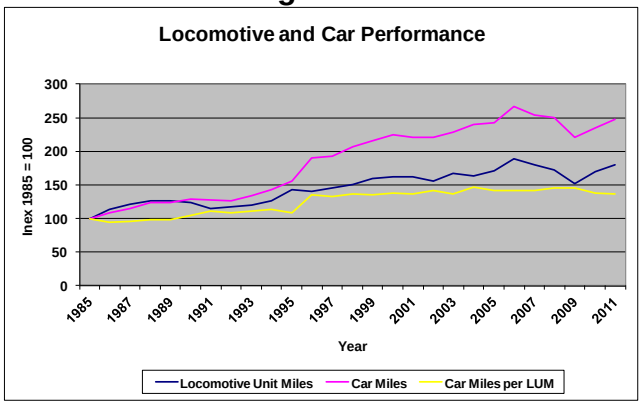
Figure 12



Rail Equipment Performance

Over the last 26 years, railroads have improved their operations through the efficient use of their locomotives and cars. Railroads are getting more car miles per locomotive. The number of cars per locomotive has increased from an average of about 23 cars in 1985 to 31 cars in 2011. As shown in Figure 13, locomotive unit miles have increased by 81 percent, car miles by 147 percent, and car miles per locomotive unit miles by 37 percent since 1985.

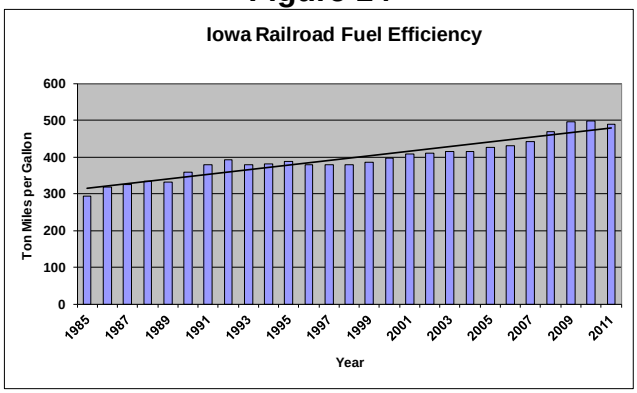
Figure 13



Fuel Efficiency

In 2011, railroads consumed an estimated 134.8 million gallons in Iowa, 11.0 million gallons more than 2010 and 90 percent more than used in 1985. While railroads are consuming more fuel, they have become more fuel efficient hauling more tons per gallon of fuel. As a result, ton-miles per gallon have grown from 294 in 1985 to 489 in 2011, an increase of 66 percent (See Figure 14). In 2010, ton-miles per gallon totaled 497. This compares to an increase of 216 percent in ton-miles and 81 percent in locomotive unit miles.

Figure 14

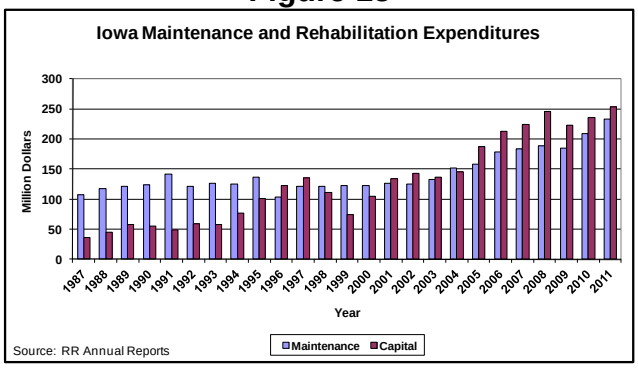


Railroad Track Expenditures

Railroads operating in Iowa spent an estimated $486.3 million in 2011 to maintain and improve their Iowa rail infrastructure, an increase of $41.4 million over 2010. Iowa railroads spent an estimated $233.3 million or an average of about 59,900 per mile to maintain the Iowa rail system in 2011 (See Figure 15). This compares to an average of about $23,500 per mile spent in 1987.

In addition, Iowa railroads spent an estimated $253.0 million in 2011 to upgrade their tracks, an increase of $216.2 million over 1987.

Figure 15



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 26 years can be characterized as follows:

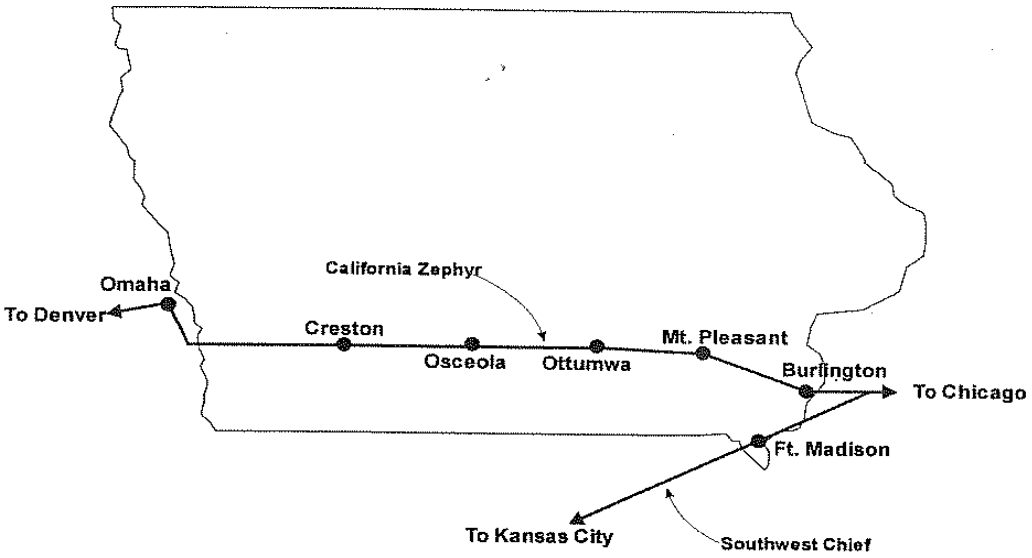
- Rail passenger service has remained the same.
- The number of Iowa rail passengers has increased from FY 2003 to FY 2011.
- Ridership declined by 15.8 percent in FY 2011 due to flooding and traffic congestion.

<u>Iowa Service</u>

Passenger service in Iowa is currently provided by the California Zephyr from Chicago to Oakland, CA, and the Southwest Chief from Chicago to Los Angeles, CA (See Figure 16). The California Zephyr operates over the BNSF Railway 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. During fiscal year 2011, Amtrak employed three Iowa residents.

Iowa is presently pursuing additional rail passenger service in the state including service from Chicago to Omaha and Chicago to Dubuque.

Figure 16
Amtrak Routes in Iowa



Number of Passengers

Since 1985, ridership in Iowa has remained fairly stable, averaging 54,760 riders per year. Since 2002, Iowa ridership has been growing. However, flooding and traffic congestion during FY 2011 resulted in a 15.8 percent decline in ridership from 2010. Ridership from 2005 to 2010 was above the long-term average (See Figure 17). In 2011, the total number of passengers arriving and departing from Iowa Amtrak stations totaled 57,880, a decrease of 10,864 from 2010.

Ridership by Station

Even with the down year in FY 2011, the total number of Iowa passengers on the California Zephyr has increased by 4,186 riders since 1985, while the Southwest Chief has lost 1,967 riders during the same period. The ridership at Mount Pleasant and Osceola increased since 1985; all other stations have fewer riders (See Table 5).

Figure 17

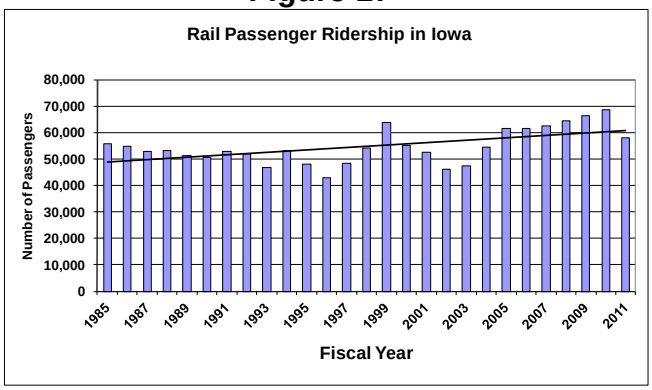


Table 5

Amtrak Ridership by Station

Year	California Zephyr						Southwest Chief	Total
	Burlington	Mount Pleasant	Ottumwa	Osceola	Creston	Subtotal	Fort Madison	
1985	10,850	8,369	12,838	8,482	5,211	45,750	9,911	55,661
1986	10,849	9,362	10,947	8,572	5,086	44,816	10,055	54,871
1987	11,105	8,773	10,611	9,704	4,580	44,773	8,169	52,942
1988	8,569	9,488	10,700	11,278	4,747	44,782	8,342	53,124
1989	8,955	8,913	10,055	11,766	3,973	43,662	7,640	51,302
1990	8,058	9,077	9,916	12,289	4,668	44,008	6,711	50,719
1991	9,145	9,459	10,714	13,301	3,974	46,593	6,365	52,958
1992	8,900	9,044	10,111	13,921	3,790	45,766	6,148	51,914
1993	7,365	8,023	9,433	13,537	3,259	41,617	4,986	46,603
1994	6,527	11,729	10,872	14,610	3,687	47,425	5,727	53,152
1995	6,041	11,333	9,321	11,897	3,189	41,781	6,187	47,968
1996	5,902	10,388	8,694	9,415	2,728	37,127	5,889	43,016
1997	6,263	11,304	10,294	10,730	2,956	41,547	6,926	48,473
1998	6,951	12,692	10,998	12,571	3,185	46,397	7,795	54,192
1999	12,319	12,954	11,371	14,292	3,883	54,819	8,932	63,751
2000	7,007	12,605	11,189	13,025	3,347	47,173	7,973	55,146
2001	3,857	12,962	11,334	13,090	3,402	44,645	7,758	52,403
2002	5,460	10,663	9,168	10,941	2,801	39,033	7,173	46,206
2003	5,576	10,075	9,179	11,490	3,592	39,912	7,530	47,442
2004	6,532	12,010	9,208	14,044	3,894	45,688	8,677	54,365
2005	7,087	13,344	10,840	16,310	4,341	51,922	9,496	61,418
2006	6,550	12,719	11,190	16,437	5,002	51,898	9,479	61,377
2007	6,654	13,239	10,679	15,976	5,011	51,559	10,797	62,356
2008	7,283	14,422	10,993	17,811	4,444	54,953	9,307	64,260
2009	7,487	15,176	11,556	19,423	4,831	58,473	7,813	66,286
2010	8,744	16,063	12,383	19,095	4,803	61,088	7,656	68,744
2011	7,285	13,034	10,497	14,891	4,229	49,936	7,944	57,880