2018

Iowa Rail Trends

Image Source: CHS, Inc.

Systems Planning Bureau
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This document is meant to serve as an overview of current railroad trends in the state of Iowa. The sources of the information included within has been compiled from Railroad Annual Reports, Federal Railroad Association, AMTRAK, and American Association of Railroads.

IOWA DOT

Overview

Introduction

The railroad network in Iowa provides connections to national and international destinations for freight and passengers throughout the state and region. The system and service continue to evolve over time, driven by the states relative size, financial conditions, and competition from other modes. This document will serve as a fact book containing rail trends from the year 2018.

Iowa's 160,000-mile multimodal freight transportation system is comprised of multiple air cargo facilities, a well-developed highway system, an extensive rail network, a large web of pipelines, two bordering navigable waterways, and hundreds of freight-related facilities to assist in the movement of commodities. Although rail competes with other transportation modes, it also complements them as an essential part of an optimized freight network.

2018 Quick Facts

- 3,837 miles of track
- 18 railroads
- 57.3 million tons shipped
- 30.3 million tons received
- 2 Amtrak routes
- 6 Amtrak stations
- 58,119 rail passenger rides

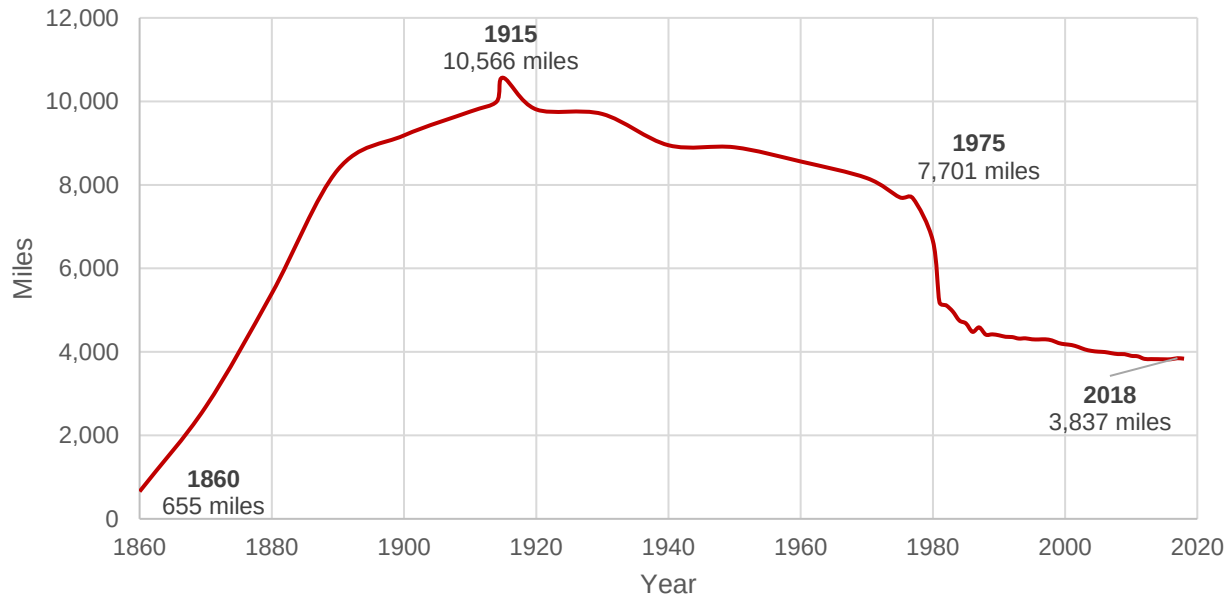
Although rail is about three percent of the freight network, it boasts roughly 17 percent of Iowa's freight tonnage. The railroad network performs an important role in moving bulk commodities produced and consumed in the state to and from local processors, livestock feeders, river terminals, and ports for foreign export. The railroad's ability to haul large volumes over long distances at low costs will continue to be a major factor in moving freight and improving the economy of Iowa.

Railroad service in Iowa continues to evolve as railroads seek to lower transportation costs and improve efficiencies. The development and implementation of Iowa's State Rail Plan, Rail Toolkit, and State Freight Plan create exposure to other businesses looking to invest in the railroad industry and seek to assist railroads in optimizing their networks to further contribute to Iowa's economy.

Mileage

Iowa railroad mileage peaked in 1915 at approximately 10,500 miles. The current rail system evolved from a massive restructuring in the early 1980s that was partly due to bankruptcies and expansion opportunities. Since that time, rail line abandonments and new short-line creations have slowed considerably but Iowa's rail mileage has steadily declined. There have been over 800 miles of abandonments over this 30-year period bringing Iowa to the current total of 3,837 miles of rail lines in the state. Figure 1 shows the annual trend of Iowa's railway mileage since 1860.

Figure 1: Iowa Rail Mileage by Year, 1860-2018



Railroads

Rail service in Iowa is privately owned and/or operated by 18 railroad companies. Six of these railroads are national companies and account for roughly 83 percent of Iowa's total miles. The remaining 12 smaller railroads consist of regional line haul carriers and local switching companies. Of the 12 smaller railroads serving Iowa, eight operate only within the state.

With the decrease of rail mileage since 1985, the number of railroads serving Iowa has also declined. The number of Class I railroads declined from nine in 1985 to six today, while the number of Class II and III railroads has remained unchanged at one and eleven, respectively. To distinguish the size of the railroad companies, the Surface Transportation Board classifies the railroads by annual operating revenue using thresholds such as $250 million, which is the minimum revenue required for a Class I designation.

The Class II and III railroads often provide feeder service to the Class I carriers. This arrangement is a result of Class I railroads downsizing and selling off their unprofitable and light-density lines in the 1970s and 1980s. Due to Class II's and III's ability to facilitate short and mixed car types, these smaller carriers have been able to create local customer-oriented operations with low operating costs. Unlike Class I and Class II railroads, Class III railroads consist of two separate operating categories—line haul and switching. Switching railroads operate in urban areas and facilitate the interchange of rail shipments. These switch operators are typically associated with Class I railroads and are common practices within Class III operations. Table 1 synthesizes all railroads in Iowa.

Table 1: Iowa Railroad Companies and Miles Operated, 2018

Railroad Companies			Miles (owned/leased)	Percent of Total	Miles (trackage)[1]
Class I	BNSF	BNSF Railway	659	17.2%	35
	CC	Chicago Central and Pacific Railroad[2]	522	13.6%	41
	CEDR	Cedar River Railroad[2]	76	2.0%	1
	DME	Dakota, Minnesota & Eastern Railroad[3]	650	16.9%	0
	NS	Norfolk Southern Railway	5	0.1%	37
	UP	Union Pacific Railroad	1,288	33.6%	176
	Subtotal		3,200	83.4%	290
Class II	IAIS	Iowa Interstate Railroad	305	8.0%	27
	Subtotal		305	8.0%	27
Class III		Boone & Scenic Valley Railroad	2	0.0%	2
		Burlington Junction Railway	6	0.1%	6
		CBEC Railway	5	0.1%	
		Cedar Rapids & Iowa City Railway	60	1.6%	139
		D & I Railroad	0	0.0%	39
		D & W Railroad	19	0.5%	
		Iowa Northern Railway	145	3.8%	270
		Iowa Southern	35	0.9%	35
		Iowa River Railroad	11	0.3%	0
		Iowa Traction Railroad	10	0.3%	0
		Keokuk Junction Railway	1	0.0%	0
	Subtotal		293	7.6%	490
Other		State of South Dakota[4]	39	1.0%	
	Total		3,837	100.0%	806

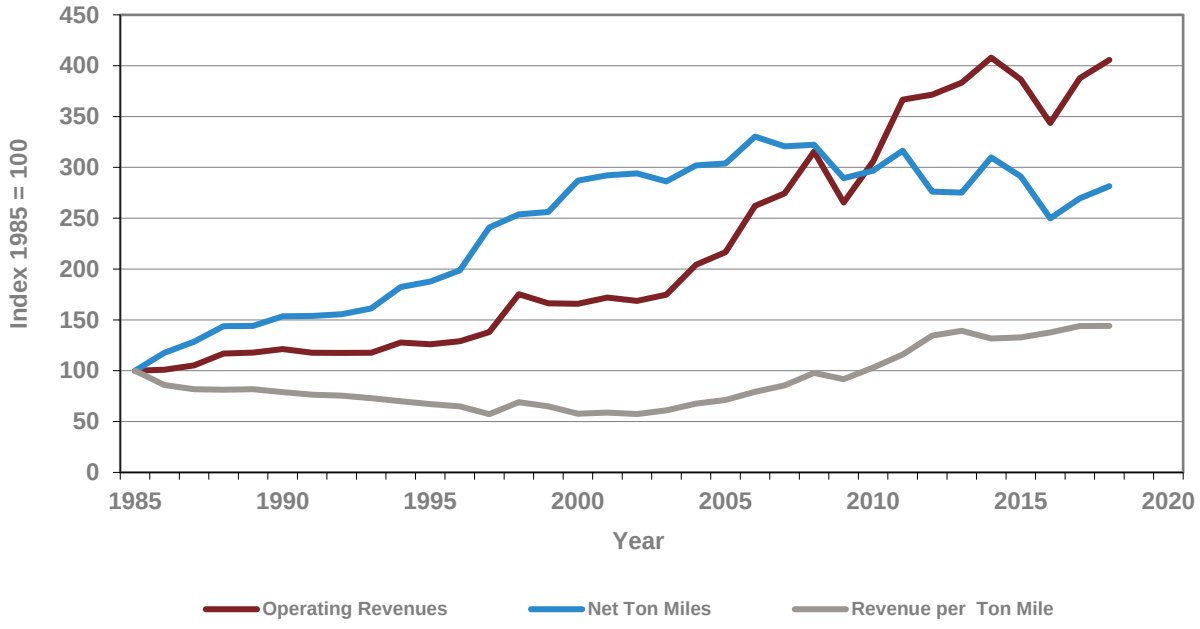
1 – Trackage Rights are rights obtained by one carrier to operate over another carrier's tracks.
2 – Subsidiary of the CN Railway
3 – Subsidiary of Canadian Pacific
4 – South Dakota owns the tracks that D & I operate under trackage rights

Rail Operating Revenues and Performance

Overall rail service to Iowa shippers has steadily increased since 1885 as shown by calculating total operating revenues, total net ton miles, and revenue per ton mile over that time period. See Figure 2.

In 2018, operating revenues earned from all railroads in Iowa totaled roughly $2.2 billion, the highest since 2014. This trend of increased revenues has been consistent since the late 1990s. Net ton miles in Iowa rose from 1985 to the mid-2000s and have since leveled off with some fluctuation over the last 15 years. The total net ton miles in 2018 was 58.7 million. Earned revenue by ton-miles has seen a steady rise and fall of values since 1985. Due to the recent increase in operating revenues and net ton miles, the 2018 revenue per ton mile is at its highest value over the last 35 years.

Figure 2: Performance of Rail Operations in Iowa



Freight Rail

Rail Movements

Total rail movements consist of freight originating and terminating in Iowa as well as freight passing through the state. Since the 1980s, total tonnage moved by rail has steadily increased from roughly 127 million tons in 1985 to over 355 million tons in 2018 with a few fluctuating years in between. The 2018 totals include 57.3 million tons originating, 30.3 million tons terminating, and roughly 267.9 million tons passing through in the state.

Much of this through traffic traverses the state on the Union Pacific's east-west main line located in central Iowa and BNSF Railway's east-west main line located in southern Iowa. Freight traffic originating in Iowa has many destinations. Texas receives the largest amount of freight, followed by Louisiana, Illinois, Pennsylvania, Mexico, New Jersey, California, Washington, Michigan, North Carolina, and Florida. A majority of the freight traffic terminating in Iowa comes from Wyoming, followed by Minnesota, Illinois, Wisconsin, and Louisiana. 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.

Figures 4, 5, and 6 show Iowa's total rail tonnage, originating and terminating tonnage, and through traffic, respectively.

Figure 4: Iowa Tonnage - Total

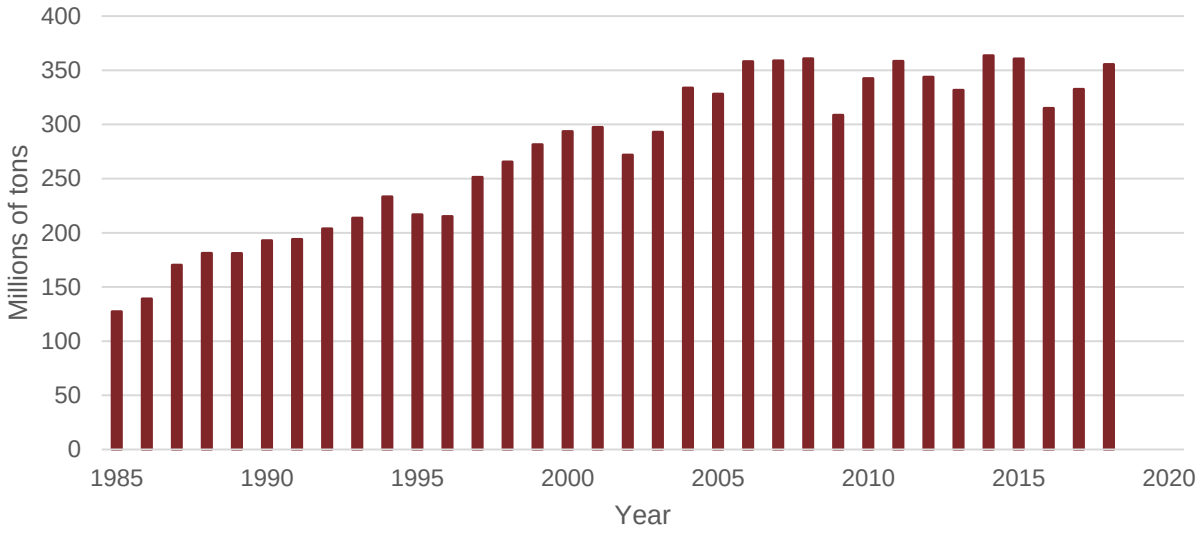


Figure 5: Iowa Tonnage – Originating and Terminating

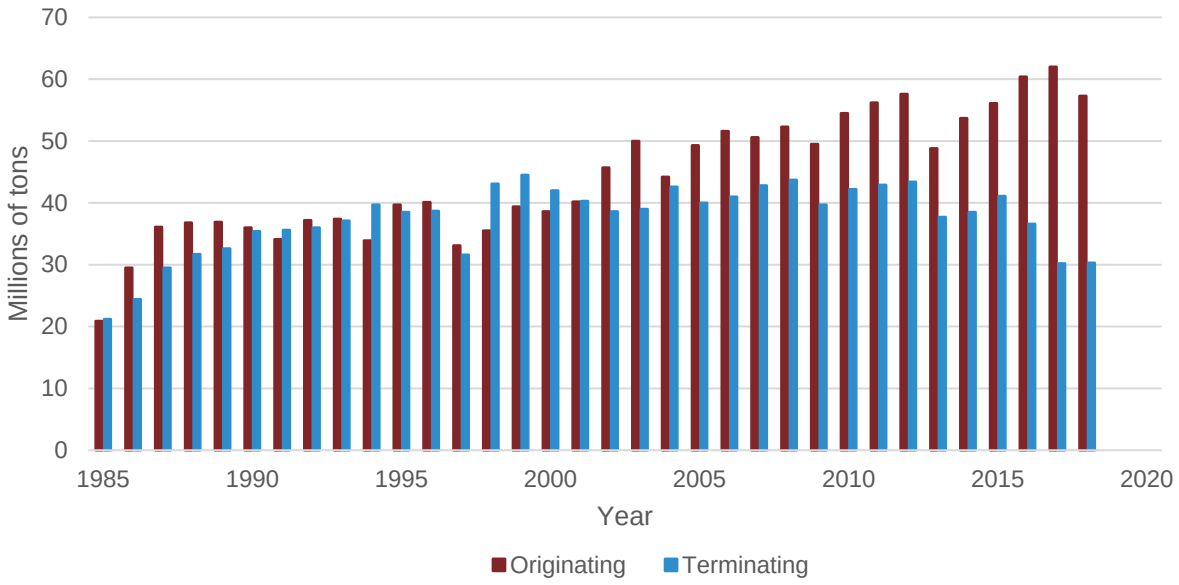
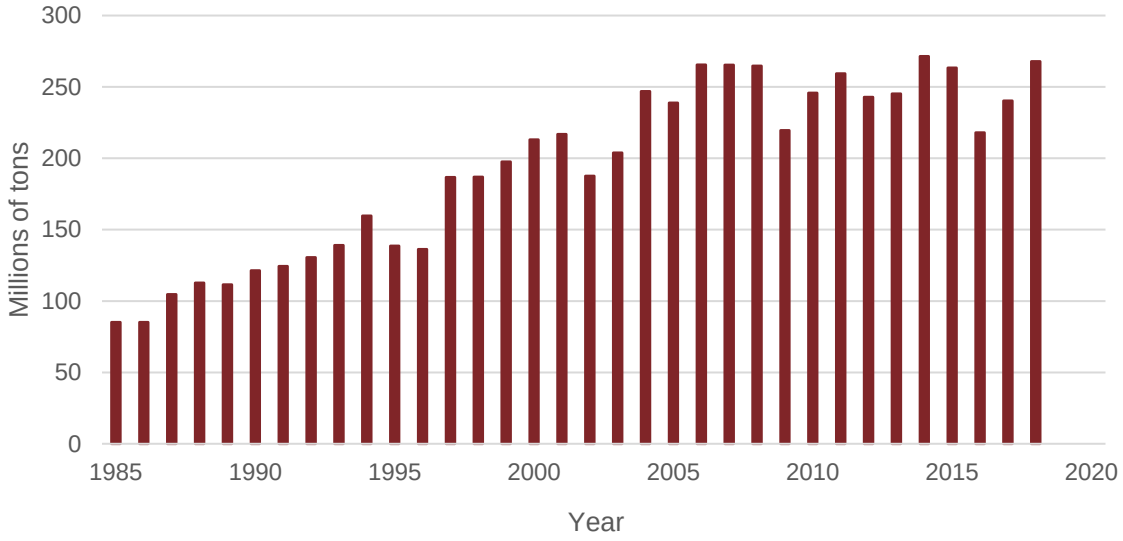


Figure 6: Iowa Tonnage – Through Traffic



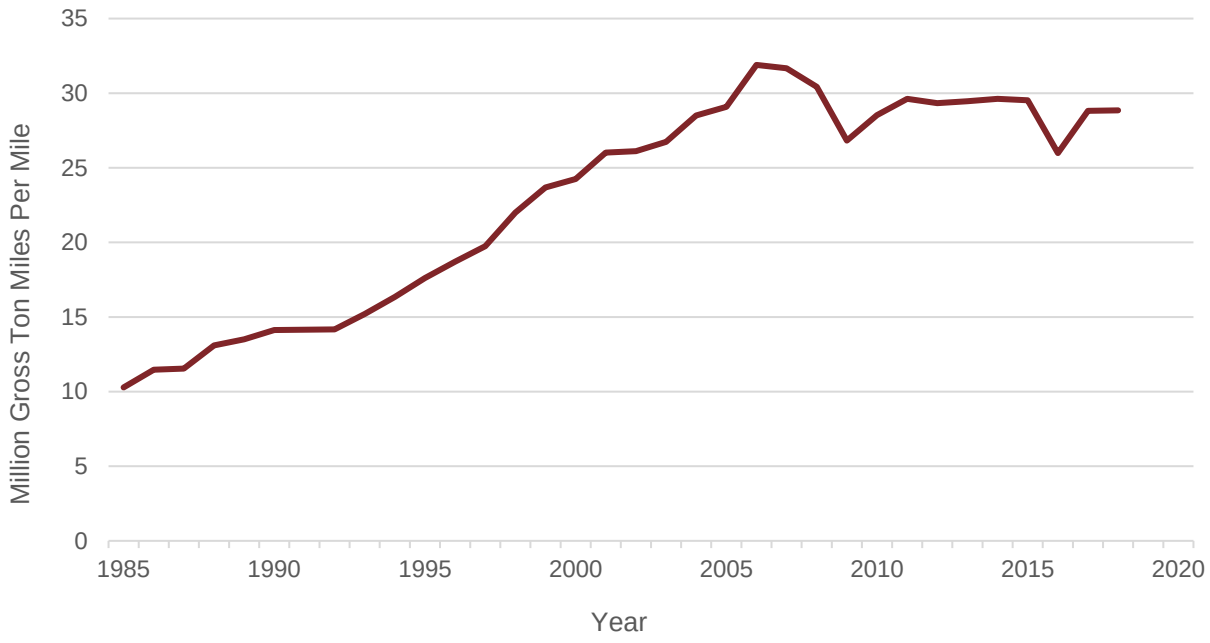
Ton-Miles and Density Miles

The activity on individual rail lines is measured in terms of density or gross ton-miles per mile (gtm/m). Gross ton-miles are defined as the total weight of all freight traveling on the rail line including the weight of freight-train cars, and locomotives.

Iowa's rail density increased steadily until the mid-2000's when it began to level of. Since 2004, density has remained relatively stable. Rail density was 28.8 gtm/m in 2018.

Figure 7 shows Iowa's average rail density per mile.

Figure 7: Average Density per Mile



Commodity Movements

Commodities moved by rail range from machinery, textiles, and furniture to lumber, plastic pellets, and automobiles. However, the majority of Iowa rail traffic involves the movement of bulk commodities.

Most of the tonnage originating in Iowa is made up of farm, food, and chemical products. This accounts for roughly 82 percent of Iowa's originating tonnage. Farm products were the primary commodities being shipped in the past but that has since changed now that more of these commodities produced in the state are staying in Iowa to be used for the production of ethanol, animal feed, and other value-added products.

The same three commodities (farm, food, and chemical products) along with coal comprise about 83 percent of the tonnage terminating in Iowa. Coal is the primary commodity being shipped to Iowa by rail, accounting for over half of the terminating tonnage. This remains true even though the total amount of coal shipped continues to decline as other energy sources are expanded in the state.

Table 2 shows the total tonnages of commodities shipped to and from Iowa.

Table 2: Rail Freight by Top Commodity

Year	Originated Tons in Millions				Terminated Tons in Millions				
	Farm	Food	Chemicals	All Other	Farm	Food	Chemicals	Coal	All Other
1995	21.4	11.7	1.6	5.0	9.4	2.0	3.0	18.3	5.1
1996	20.9	12.3	1.5	5.4	8.4	1.6	2.9	20.2	5.6
1997	14.2	11.9	1.7	5.3	6.3	1.9	3.1	18.2	5.8
1998	13.1	14.0	2.3	6.1	6.8	2.3	3.7	22.7	5.7
1999	15.8	14.8	2.3	6.1	7.8	2.2	3.7	24.4	6.4
2000	15.4	14.8	2.1	5.9	7.0	2.0	3.9	22.1	7.0
2001	17.5	16.0	1.8	4.3	5.5	2.0	3.8	22.8	6.2
2002	22.0	16.0	1.8	5.0	4.7	2.3	3.4	21.9	6.3
2003	23.4	17.3	2.4	5.9	3.7	2.3	3.6	22.8	6.6
2004	18.8	16.1	2.3	5.3	4.4	2.1	3.7	24.2	8.2
2005	20.8	18.3	2.7	5.5	4.3	2.0	4.1	21.9	7.7
2006	20.4	19.1	4.2	5.4	4.1	2.0	4.0	23.5	7.4
2007	18.0	17.9	5.1	6.5	3.1	1.9	4.4	26.4	7.0
2008	17.3	18.5	6.1	6.4	2.7	2.0	4.2	27.6	7.2
2009	13.4	19.4	6.1	4.6	3.8	2.3	3.2	25.4	5.1
2010	13.6	21.6	8.9	5.3	3.8	2.4	4.5	25.8	5.8
2011	13.2	22.0	9.3	5.5	4.1	2.6	5.4	25.6	5.2
2012	13.9	22.8	9.2	5.6	3.9	2.7	5.0	25.2	6.5
2013	6.3	21.9	9.5	11.0	4.0	2.4	4.8	20.3	6.1
2014	10.5	23.2	9.5	10.8	4.5	2.8	4.9	19.6	6.7
2015	12.3	23.5	9.8	10.6	3.7	2.8	4.3	23.5	6.8
2016	15.6	23.8	10.7	10.3	3.7	3.0	4.5	19.0	6.5
2017	15.2	21.1	8.9	16.7	3.8	3.3	4.7	16.0	6.5
2018	14.3	22.7	10.0	10.4	2.4	2.6	4.1	16.0	5.1

Passenger Rail

Routes and stations

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 within the state. 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 two Amtrak routes through southern Iowa.

The California Zephyr Amtrak route from Chicago, IL to Oakland, CA, 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 from Chicago, IL to Los Angeles, CA, operates daily in both directions over the BNSF tracks in extreme southeast Iowa with one stop in Fort Madison.

Figure 8: Iowa Amtrak Routes

Additional passenger rail service has been investigated. Iowa DOT has completed a Service Development Plan calling for the phased development of passenger rail service connecting Omaha/Council Bluffs with Chicago via Des Moines, Iowa City, and the Quad Cities. No funding has been identified and any service is contingent upon Illinois developing the Chicago to Quad Cities portion of the route. Implementation of all phases would ultimately result in four roundtrips per day between Chicago and Council Bluffs/Omaha (Source: Amtrak).

Ridership

From 1985 until now, ridership (the number of persons who ride a system of transportation) in Iowa has averaged 55,660 passengers per year. Totals have fluctuated between a low of 43,016 passengers in 1996 and a high of 68,744 passengers in 2010. In 2018, Iowa ridership totaled 58,119. This includes 52,228 on the California Zephyr and 5,891 on the Southwest Chief. Figure 11 shows ridership by station.

Figure 9: Amtrak Ridership (Source: Amtrak)