

# Freight and the Economy

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### Moving Freight and the Economy

Freight transportation plays a critical role in the economy. As part of the supply chain, goods are moved from where they are produced to where they are consumed using the regional, national, and international transportation network. Goods movement provides for delivery, transfer, and trading of commodities and offers employment opportunities. The freight industry includes for-hire freight carriers, private transportation providers, freight forwarders, logistics providers, and vehicle service and maintenance. This chapter examines the Quad Cities' freight system assets and obstacles to efficient movements of goods and services.

In the *Bi-State Region Freight Plan (2015)*, key themes were identified to monitor the performance of the metropolitan and regional freight transportation system:

- **Economy** – Use the Bi-State Region freight system to support the region's economy
- **Infrastructure** – Maintain and enhance highway system infrastructure
- **Operations** – Promote freight rail system operational efficiencies
- **Access and Modal Options** – Increase accessibility and mobility options for the region
- **Resiliency** – Work toward system resiliency and reliability



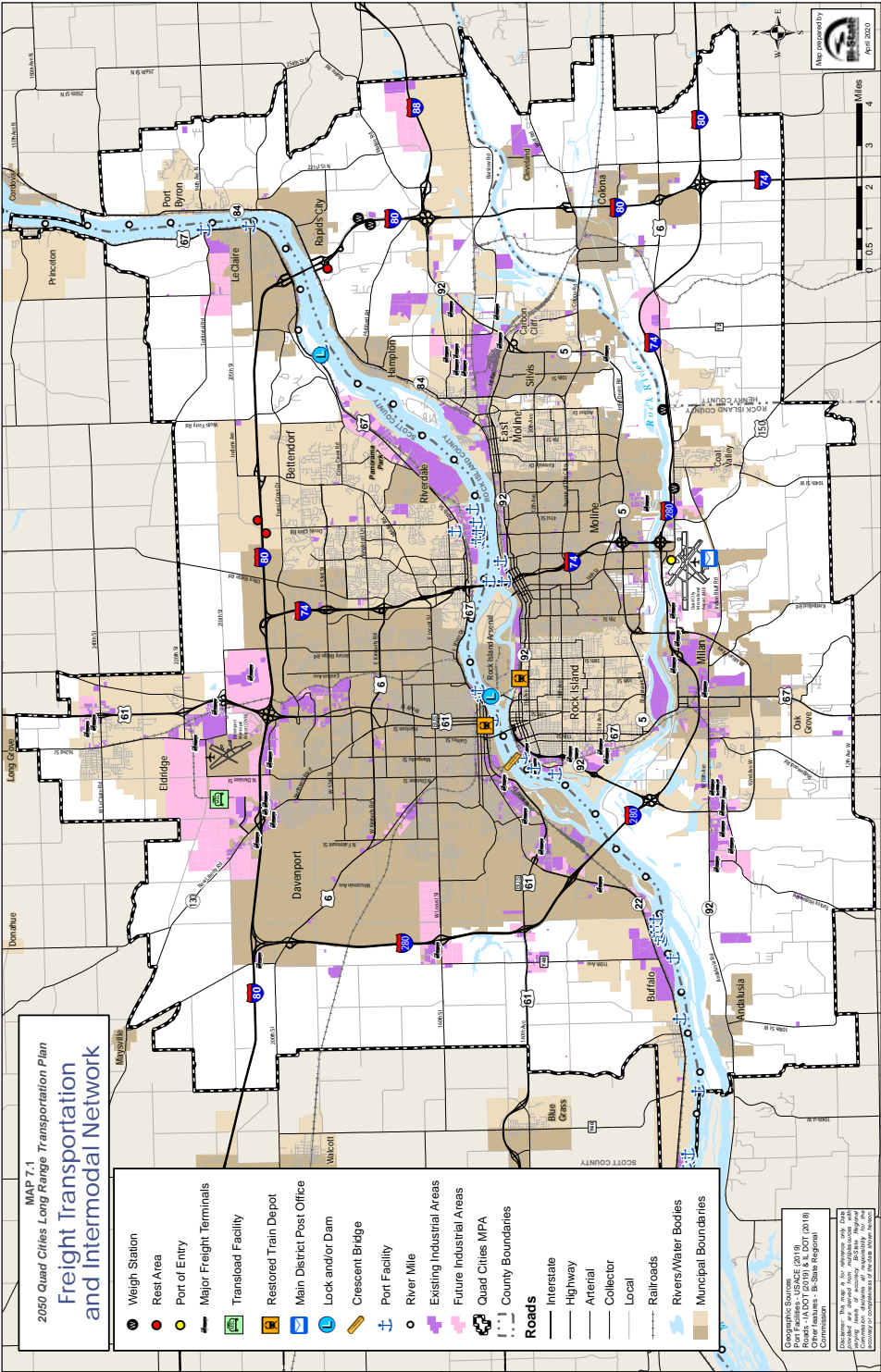
The *Bi-State Region Freight Plan* will be referenced in this plan, but a more comprehensive analysis can be found in the freight plan document at [www.bistateonline.org](http://www.bistateonline.org). Using the lens of system performance, the following sections will provide an assessment of the freight system by mode – air, rail, truck, and water – and discuss future needs related to the freight network. Pipelines transport liquid or gas primarily for energy purposes. They bisect the MPA and are touched on in this chapter but detailed more fully in the Scott and Rock Island County Hazard Mitigation Plans. The regional freight plan also only touched on the subject of pipelines in general terms. Map 7.1 shows the Freight Transportation and Intermodal Network for the Metropolitan Planning Area (MPA).

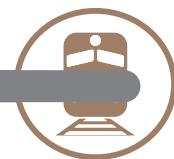
The freight plan identified the Bi-State Region as a production location, indicating that there are numerous manufacturing operations in the area. Linking local industries to various markets is imperative for the regional economy. Multimodal access expands the opportunities available for industries to ship their products to their destinations. However, clusters of industries tend to be spread out in the Bi-State Region, resulting in difficulties achieving sufficient volumes for efficient rail service, for instance.

### *Intermodal Freight Transportation*

*Intermodal freight transport involves an intermodal container or trailer, using multiple modes of transportation (rail, ship, and/or truck), without handling of the freight itself when changing modes. The method reduces cargo handling, improving security, reducing damage and loss, and can allow freight to be transported faster.*

Source: Iowa Department of Transportation, Iowa Rail Toolkit, 2019.





## Air Freight

There are two airports in the Quad Cities shown in Table 7.1. The Quad Cities International Airport in Moline, Illinois provides commercial and general aviation services. The Davenport Municipal Airport in Davenport, Iowa provides general aviation services.

**Table 7.1 – Regional Airports**

Airport	Location	F.A.A. Category	Highway Access	Lengths
Quad Cities International	Moline, IL	Certified Air Carrier	I-74, I-280 U.S. 6 U.S. 150	10,002 ft. x 150 ft. 7,301 ft. x 150 ft. 5,016 ft. x 150 ft.
Davenport Municipal	Davenport, IA	Basic Transport	U.S. 61 I-80	5,511 ft. x 100 ft. 4,001 ft. x 100 ft.

Source: Quad Cities International Airport Officials and Davenport Municipal Airport Master Plan Update

### Quad Cities International Airport (MLI)

The Quad Cities International Airport (MLI) in Moline, Illinois is operated by the Metropolitan Airport Authority. The airport is directly accessible from Interstates 74 and 280 and U.S. Highways 6 and 150. It is the regional commercial aviation airport, serving both passenger (noted in Chapter 5) and freight needs. It is the 3<sup>rd</sup> busiest airport in Illinois. The 2019 Illinois Aviation Plan reported 84 based aircraft and 34,589 operations for MLI. The 2012 Illinois Statewide Aviation Economic Impact Study noted MLI has a total employment of 2,980 (direct on-airport employment of 587) and total output of \$384 million. In 2020, the airport saw 425,138 lbs. of freight deplaned, which was an increase of 6% from the year prior. That same year saw 550,372 lbs. of freight enplaned, a 3% decrease from the year prior. It is an important economic asset in the metropolitan area.



Runways are roughly 10,000, 7,000, and 5,000 feet in length. Improvements at the airport since 2010 include:

- Main runway (9/27) reconstruction (2011)
- Modifications to the onsite refueling facility
- New U.S. Customs facility constructed in Cargo Building 3
- New Airport Rotating Beacon installation (2014)
- 32,000 sq. ft. General Aviation (GA) Ramp expansion for general aviation use at Elliott Aviation
- 25,000 sq. ft. expansion of Airport “Snow Readiness Equipment” (SRE) building and addition of new ramp area around the building
- New “South Service Road” connecting the south GA ramps and T-hangars allowing vehicles to move between ramps without contacting the Federal Aviation Administration (FAA) tower for taxiway clearances
- New Quick Turn Around (QTA) facility for airport rental car agencies, including 6 fueling islands with integrated fuel pumps, central vacuum system, washer fluids, and compressed air, two new drive-through car wash bays, and individual tenant offices and mechanic work areas for vehicle repairs
- Installation of new “Runway Guard Lights” at each runway holding position throughout the airfield and providing enhanced safety for aircraft and vehicles by more prominently-showing hold positions for active runways
- Rehabilitation of runway lighting to install LED fixtures
- Runway 9/27 safety area grading to divert flood water that attracts wildlife dangerous to aircraft
- Paved perimeter road around the entire airport

General aviation services are provided by Elliot Aviation, a private company offering full-service Fixed-Base Operations on the south side of the airfield via three fully instrumentalized runways. International trade services within the Quad Cities MPA include an on-site U.S. Customs Port of Entry and a Foreign Trade Zone located near the Quad Cities International Airport. Other amenities include Civil Air Patrol and ground transportation services including public transportation, rental car, taxi, and delivery services.



To accommodate freight service providers, the Quad Cities International Airport has a full-service freight-aircraft parking area (ramp) and 3 freight storage/cargo buildings. All three cargo buildings have from 5,000 to 10,000 square feet of space and are located just east of the main airport terminal building. They are available for aeronautical and non-aeronautical use, such as warehousing and office suite space for air freight or express delivery companies. The area within 60 miles of the airport is Foreign Trade Zone (FTZ) #133. Land-based development around the airport has been a focus in recent years.

According to the *Bi-State Region Freight Plan*, mode shifts away from air cargo to truck as the primary mode has occurred, as trends move toward consolidated air freight facilities. Except for highly time-sensitive goods, most air destined freight is trucked to Chicago O'Hare airport 170 miles away. Expedited carriers are the primary users of air freight. FedEx and UPS operate at MLI for some cargo, but primarily truck from the MPA to Chicago.

### Davenport Municipal Airport (DVN)

The Davenport Municipal Airport (DVN), located in Davenport, Iowa, is operated by the City of Davenport and was built in 1948. The airport is accessible from Interstate 80 and U.S. Highway 61. It is a general aviation airport providing full service Fixed-Base Operations containing two runways with full instrument landing systems. The primary runway length is 5,511 feet in length and 100 feet in width, while the secondary runway is 4,001 feet in length and 100 feet in width. According to the DVN Master Plan, the airport features a precision landing system equipped with Glide Slope outer marker, localizer, approach lights, federally-maintained Automated Weather Observing System, and a Remote Communications Outlet. Planes using DVN facilities are able to refuel employing the airport's 24-hour fuel facilities.

There are more than 100 aircraft based at the Davenport Municipal Airport recording over 28,000 take-offs/landings in 2014. The *Iowa Aviation System Plan 2010-2030* estimates 118 based aircraft and 53,100 operations in 2020, and projected 133 based aircraft and 59,850 operations in 2030 for DVN.

### *Foreign Trade Zone*

*Foreign and domestic merchandise may be moved into zones for operations not otherwise prohibited by law, including storage, exhibition, assembly, manufacturing, and processing. Customs and Border Patrol duty and federal excise tax, if applicable, are paid when the merchandise is transferred from the zone for consumption. While in the zone, merchandise is not subject to U.S. duty or excise tax. Certain tangible personal property is generally exempt from state and local ad valorem taxes. Goods may be exported from the zone free of duty and excise tax.*





Several construction projects were completed since 2011, including:

- Addition of six new box hangars
- Roadway and signage enhancements to the entrance of the airport
- 20,000 square foot Carver (FBO) Hangar attached to an 8,000 square foot office building
- Reconstruction of the Primary Runway, Runway 15/33
- Reconstruction of Crosswind Runway 3/21

The airport has the capacity of 150 vehicles for public and employee parking, 120 spaces for based aircraft, and approximately 100 other based air craft. There are 78 aircraft T-hangars, 6 box-style hangars, and 2 executive box-style hangars. Four large aircraft hangars are also maintained. Other services located at the airport include the Iowa Air National Guard, Civil Air Patrol, and National Weather Service.

### *Rail Freight*

Iowa's first railroad lines opened in November 1855 from Davenport to Muscatine. Currently, there are a total of three rail carriers operating in the Quad Cities MPA. These lines, BNSF (Federal Railroad Administration-FRA Class I), Canadian Pacific (CP) (FRA Class I), and Iowa Interstate (IAIS) (FRA Class II) provide connections to national markets. In the five-county Bi-State Region, the approximate mileage of rail operated by each carrier is 80 miles (BNSF), 110 miles (CP), and 102 miles (IAIS).<sup>1</sup> BNSF provides important gateway access to Chicago, Kansas City, and Memphis. CP connects to gateways in Minneapolis-St. Paul, Chicago, and Kansas City. IAIS connects to all seven Class I Railroads, connecting to Chicago and Omaha-Council Bluffs.

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<sup>1</sup> Source: Oak Ridge National Laboratory Operational Network, National Transportation Atlas Database





## Rail Traffic

There are 10-17 trains daily in the busiest road-rail intersections in the Quad Cities MPA. Table 7.2 shows a breakdown of the busiest public at-grade motor vehicle crossings by daily train traffic in each of the three counties. Several rail crossings are located near the Rock Island Arsenal, a major military manufacturing facility, logistics center, and employer.

The intersection of roadrails are often points for bottlenecks. In Colona, a long standing issue at IL84 and Cleveland Road is being addressed with potential track consolidation or narrowing the rails by the Illinois DOT and railroads to provide more storage space for vehicles waiting for trains. Both Departments of Transportation have funding to aid in railroad crossing safety. In the last five years, there have been discussions of train length of time blocking crossings particularly in relation to access to employers. In some cases, communities have established a relation with local railroad contacts to address complaints. Federal regulations take precedence, and there is no specific regulation governing the amount of time a standing train can block a public at-grade crossing.

Rail in the Bi-State Region represents 22% or 8,207 tons for inbound freight movement and 11% of the share in tons for outbound freight based on 2007 Freight Analysis Framework data through the U.S. Department of Transportation and reported in the *Bi-State Region Freight Plan*. These shares are expected to decrease by 2040 to 13% and 11% respectively, with the greater share of tonnage going to truck transportation. Overall, inbound tonnage via rail is expected to decrease from 8.2 million tons to 6.9 million tons, while outbound tonnage is expected to increase from 3.3 million tons to 4.4 million tons by 2040. Trucking is typically more economically viable for transporting lower-weight and higher-value commodities. In looking at the freight commodities by value, there appears to be a projected shift from fertilizers being shipped by total value at 12% (2007) to machinery at 15% of the total (2040).

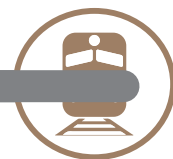
## Freight and the Economy



**Table 7.2 – Busiest Rail Traffic at Public Crossings within the Quad Cities MPO by County**

Crossing ID	Street Road	Trains Per Day	Avg Vehicle Count	Reporting Railroad	Updated	City
<b>Scott County, IA</b>						
865653R	RIPLEY ST	10	10000	DME	10/10/18	In Davenport
603900H	ROCKINGHAM ROAD	10	9000	DME	04/05/19	In Davenport
865648U	ACCESS TO MISS RIVER	10	6800	DME	10/10/18	In Davenport
607145S	SOUTH STARK ST	10	2531	DME	09/06/18	In Davenport
376011C	ONEIDA AVE	10	2270	DME	10/10/18	In Davenport
865646F	13TH ST	10	2180	DME	10/10/18	In Davenport
865654X	GAINES ST	10	2120	DME	10/10/18	In Davenport
865638N	35TH ST	10	2010	DME	10/10/18	In Bettendorf
865639V	33RD ST	10	1407	DME	10/10/18	In Bettendorf
<b>Rock Island County, IL</b>						
479075A	ARGO ST	17	150	NS	09/08/20	Near Coal Valley
065670X	SMITH RD	16	150	BNSF	11/07/19	Near Barstow
065672L	BARSTOW RD	14	475	BNSF	11/07/19	Near Barstow
065673T	193RD ST N	14	150	BNSF	11/07/19	Near Barstow
065682S	248 ST N	14	100	BNSF	11/07/19	Near Barstow
<b>Henry County, IL (near Colona)</b>						
065667P	COLONA ROAD	16	500	BNSF	11/07/19	In Colona
065668W	CLEVELAND ROAD	16	7300	BNSF	11/07/19	Near Colona
065655V	N 1900TH AVENUE	16	150	BNSF	11/07/19	Near Colona

Source: Federal Rail Administration Office of Safety Analysis. Data Table 8.o8 Public Crossing Inventory Detail Report



### Rail Facilities

There are currently no intermodal container facilities in the Quad Cities MPA. This presents a challenge in shipping products from the MPA. A facility located in Rochelle, Illinois, 90 miles east of the Quad Cities, closed in 2019. Currently, the closest intermodal container facilities are located in Chicago, with others located in St. Louis, Omaha, and Minneapolis-St. Paul. Nationally, the trend is toward regional hubs that require shipments via locally serviced rail or truck to an intermodal facility.

A public transload facility has recently been developed in Davenport's Eastern Iowa Industrial Center (EIIC) to accommodate truck to rail freight. Located near the Davenport Municipal Airport, this asset connects the industrial center to Canadian Pacific Railroad's system via a rail spur from the riverfront north through Davenport to the industrial center. There are other private transload facilities and warehouses in the metro area with rail service, such as Catch-up Logistics and Murray Warehousing served by Canadian Pacific (2015 Iowa Rail Toolkit).

In Muscatine, Iowa, southwest of the MPA, an intermodal facility is being considered where rail, truck, and barge options would be available. The feasibility of containerized shipping on the Upper Mississippi River has been examined in the region. A LIFTS grant was awarded in 2015 to study the issue and was completed in 2017. The study outlined key steps forward for the 100-acre privately owned site, Kent Corporation. A Port Commission was recommended for governance enabled by the City of Muscatine. To date, Kent Corporation was assessing interested partners within the region. Changes in local community and business champions have slowed progress of this development. This facility would provide 2,500 linear feet of access along the river with sufficient depth for barge and towboat handling. The site offers opportunities for river, rail, and highway multi-model options to move containerized freight.

Quad City Railport in Silvis, Illinois is located on 900-acres and is currently owned by Iowa Interstate Railroad. Of the total acres, 360 acres are dedicated to rail activities. The area is currently used for rail switching and railcar storage. There is potential for greater industrial development in this area of the MPA where proximity to rail is needed.

### *Transload Facility*

*A facility that provides for transferring freight to and from trucks and rail cars. Intermodal facilities, cross docks, and team tracks are all examples of transload facilities. Cross docks transfer materials with little or no storage between transfers. Team tracks are tracks on which railcars are placed for the use of the public in loading or unloading freight.*

Source: Iowa Department of Transportation, Iowa Rail Toolkit, 2019



Image 7.1: Crescent Bridge



Source: Mississippi River Rail Crossing Study, 2020. HDR.

### Interstate Rail Travel

Interstate rail travel in the MPA is served by two existing rail crossings over the Mississippi River at the Government Bridge (Iowa Interstate Railroad) and the Crescent Bridge (BNSF). The Government Bridge is owned by the Rock Island Arsenal. Railroad lines lease the tracks. Both crossings are located between Davenport and Rock Island, either at or downstream of Lock and Dam 15. These rail bridges are in excess of 115 years of age. The upper rail deck of the Government Bridge has been retrofitted for double-stacked railroad containers. Rail access over the Government Bridge, a swing span, opens to allow river traffic to pass through Lock and Dam 15. Due to navigation regulations, river barge traffic has precedence over other modes. This can create bottlenecks for both rail and vehicular transportation.

According to the 2017 Iowa State Rail Plan, rail traffic at the Government Bridge is restricted to a speed of 10 mph and results in rail travel delays in addition to those related to barge movements. Both Mississippi River crossings were listed in the Iowa Rail Network Bottlenecks Inventory in the plan. With the age and restricted speeds, the *Bi-State Region Freight Plan* identified a need to examine the feasibility of new or improved rail crossings in the metro area.

The *Bi-State Region Freight Plan* also drew attention to rail speeds at the Mississippi River crossings. Likewise, the 2017 *Iowa State Rail Plan* indicated the Crescent Bridge was functionally obsolete, while the Government Bridge needed to be replaced to support higher gross weights than 286K. As a result of these plans, Bi-State Regional Commission sponsored a study of Mississippi River rail crossings in the Quad Cities. The *Mississippi River Rail Crossing Study* (2020) investigated rehabilitating the existing crossings at the Crescent and Government Bridges in addition to constructing a new span to carry rail traffic across the river. A series of three alternatives were recommended based on impacts to the Centennial Bridge, future passenger rail traffic, and levels of funding. The three alternatives would support 30-to-40-mph operations on the crossings, which is higher than the current 10 mph limits.

In addition to the Crescent and Government Bridges being in excess of 115 years old, railcar weight restrictions and speed limitations, slow rail freight traffic, as well as right-of-way for river navigation affect



freight flow. There are also bottleneck issues related to barges passing through the lock system. As mentioned earlier in this chapter, delays of 2 to 6.5 hours for tows to lock through directly reduce the efficiency of river transportation and bulk shipments of commodities.

### Truck Freight

Truck freight traffic in the Quad Cities is served by four interstates, five federal highways, and ten state highways. Interstate 80 connects the area nationally with the east and west coasts. The I-280 bypass along with I-80 encircles the Quad Cities, providing excellent access within and outside of the Quad Cities. Interstate-74 bisects the metro area, creating north/south movement, while I-88 provides an alternate route to Chicago. Both Illinois and Iowa participate in Unified Carrier Registration (UCR), along with 39 other states. This system allows an interstate motor carrier to register its operation with the base state where it is located at one fee for all states in which operations will be conducted.

### Truck Traffic and Travel

Highways for truck freight movement are critical to every sector of the Quad Cities economy. The vast majority of freight in the Quad Cities region, some 76%, moves on its highways, as trucks represented the most used mode of freight both in terms of tonnage and value of commodities. Some sections of I-280 and all of I-80 in the Bi-State Region carry over 5,000 trucks per day on average and at some locations up to 12,000 trucks per day or nearly 37% truck traffic. According to the 2015 *Bi-State Region Freight Plan*, inbound truck tonnage is greater than outbound tonnage, while outbound value is greater than inbound value. These two indicators point to a high number of manufacturing and processing employers in the Quad Cities.

As noted in Chapter 4, bridges in the Quad Cities are responsible for the majority of bottlenecks in the region. The age and condition of those bridges affect highway freight movement when there are backups due to crashes or if bridges need to be closed for repair or washing. Table 7.3 lists the sufficiency ratings for Mississippi and Rock River crossings in the Quad Cities along with the average annual daily truck traffic (ADT) and the percentage of trucks that cross the river on that facility.



**Table 7.3 – Sufficiency Ratings on the Mississippi and Rock Rivers Bridges**

Bridge	Sufficiency Rating (IADOT)	Sufficiency Rating (ILDOT)	Avg. Truck ADT (Percentage)
<b>Mississippi River</b>			
Government Bridge	n/a	n/a	n/a
US 67/Centennial Bridge	5.6	23.5	9,545 (30.5%)
I-74	55.7 (EB); 48.5 (WB)	56.0 (EB); 46.7 (WB)	3,309 (4.7%)
I-280	41.0	51.7	4,329 (19.3%)
I-80	65	65	9,971 (29.2%)
SR 92, Muscatine	66.6	65.6	167 (4.6%)
<b>Rock River</b>			
US 67 (North Channel)		51.6	825 (6.1%)
US 67 (Central Channel)		73.8	825 (6.1%)
US 67 (South Channel)		49.8	825 (6.1%)
I-74		96.1 (NB); 97.1 (SB)	1,800 (5.3%)
I-80		96.4 (NB); 86.4 (SB)	9,175 (43.9%)
27th Street, Moline IL		48.4	n/a
SR 92		88.2 (NB); 55.3 (SB)	2,425 (20.2%)
SR 92 (Henry/Rock Island County Line)		88.5	200 (10.3%)
SR 84		87.6	710 (4.8%)
Milan Beltway		81.5	n/a

## Sufficiency Ratings by County

County	Bridge Counts				Bridge Areas			
	All	Good	Fair	Poor	All	Good	Fair	Poor
Rock Island County, IL	275	120	135	20	304,154	39,523	179,270	85,361
Henry County, IL	328	180	128	20	117,811	31,432	80,406	5,973
Scott County, IA	99	59	33	7	41,780	18,833	14,049	8,898

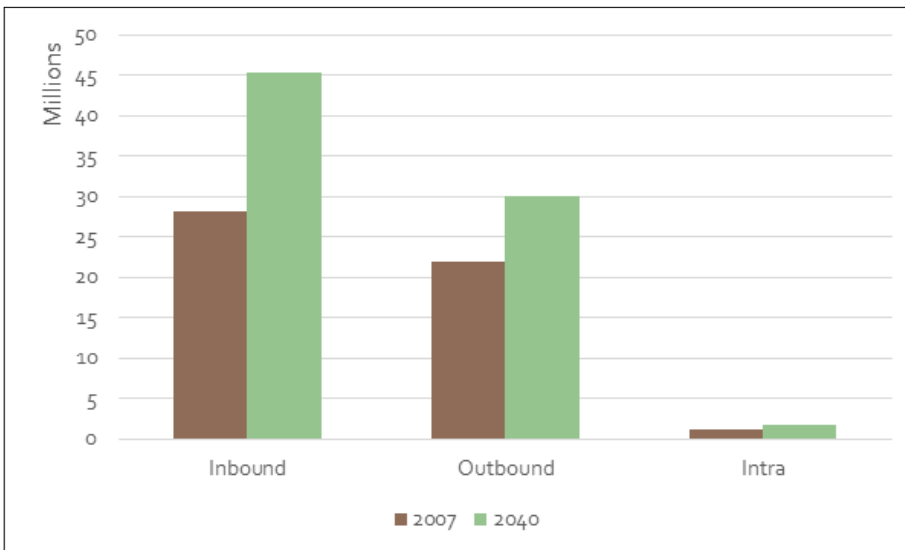
Source: Bridge Condition by County 2019, National Bridge Inventory. <https://www.fhwa.dot.gov/bridge/nbi/no10/county19a.cfm#il>

The Bi-State Region Freight Plan found that the highway infrastructure in the Quad Cities is generally in good



condition and meets the needs of the region. However, there are growing concerns with congestion and bridge sufficiency, as inbound and outbound shipments via truck are expected to increase by tonnage and value by 2040 as shown in Figures 7.1 and 7.2.

**Figure 7.1 – Bi-State Regional Truck Modal Share by Tonnage**

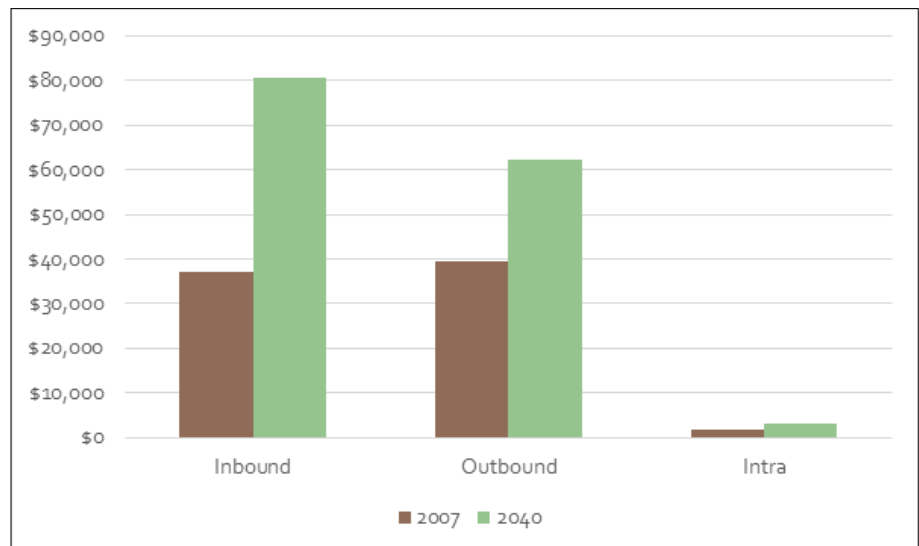


Source: *Bi-State Regional Freight Plan (2015)*





**Figure 7.2 – Bi-State Regional Truck Modal Share by Value in Millions**



Source: *Bi-State Regional Freight Plan (2015)*

In addition to river crossing bottlenecks, low clearance structures pose risks for truck traffic moving through and within the Quad Cities. Refer to Chapter 4 and Map 4.4 showing annual average daily truck traffic and low clearance structures to locate these features. There are a number of low clearance structures located on I-74. With the I-74 Mississippi River Corridor Reconstruction project, a number of these problem areas will be eliminated. However, there are other corridors and spot locations on major highways where they will need to be addressed in the future, such as near downtown Davenport and Rock Island's Centennial Expressway.

Weight restrictions have a bearing on road durability and bridge capacity, as well as impacts to maintenance of roadway facilities. Both Iowa and Illinois have provisions and permit systems for oversized and overweight vehicles. In Iowa, typically vehicles over 80,000 pounds require oversize/overweight permits, issued by the Iowa Department of Transportation, Department of Motor Carriers. Due to the COVID-19 pandemic, requirements were loosened to allow greater weights by 12.5% without a permit and with other specifications to facilitate timely freight movement. In Illinois, restrictions are similar to Iowa with a gross weight of 80,000 pounds, and based on weight per axle and axle spacing.

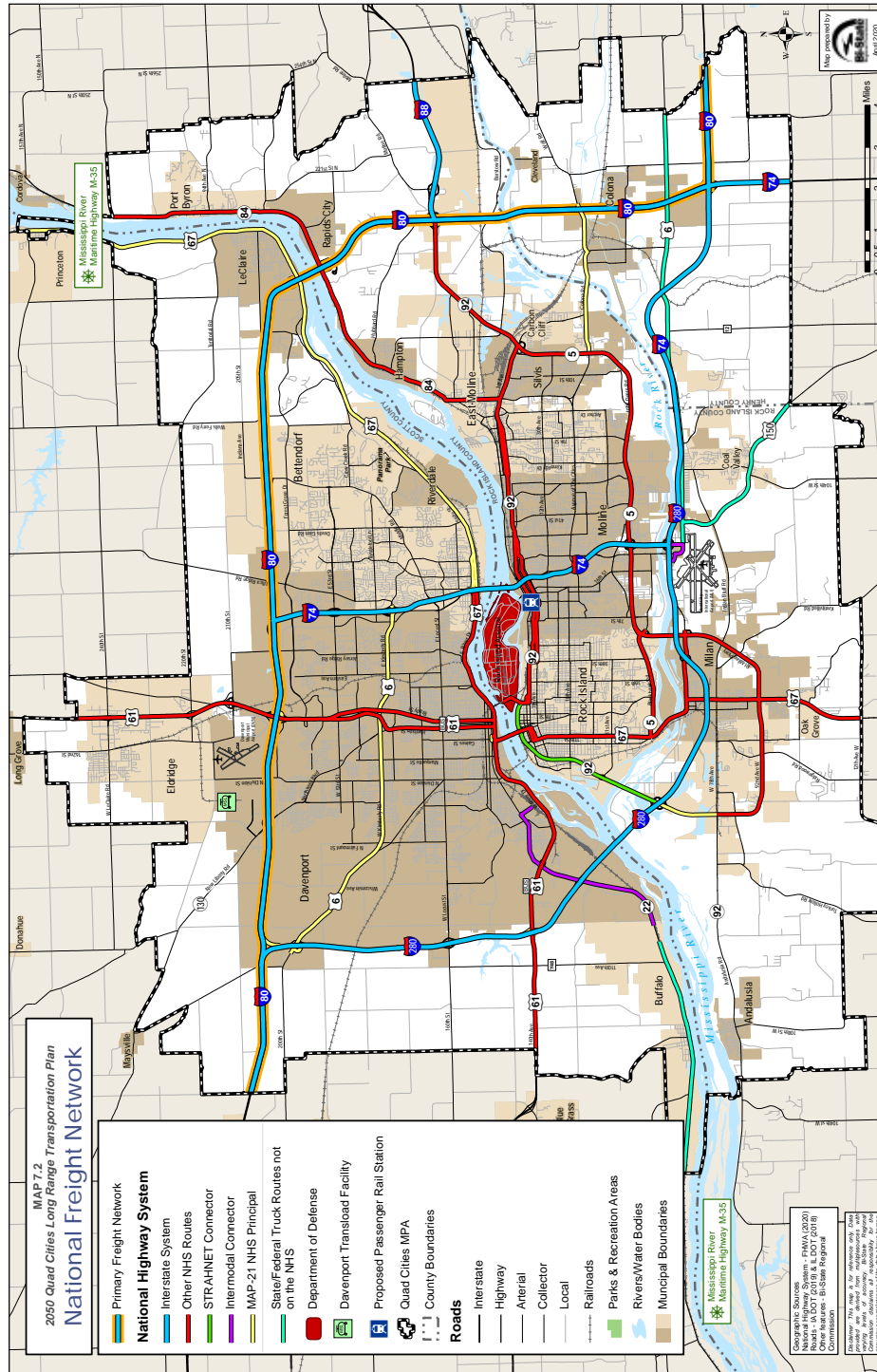


### **National Freight Network**

Under MAP-21, the U.S. DOT was tasked with establishing a national freight network to assist in the strategic direction of resources for improving the mobility of freight on the highway portion of the national freight transportation system. According to FHWA, “the primary freight network will be comprised of not more than 27,000 centerline miles of existing roadways that are most critical to the movement of freight, but the 27,000 mile cap may be increased by an additional 3,000 centerline miles of existing and planned roadways that the Secretary deems critical to the future efficient movement of goods on the primary freight network.” In the Quad Cities, I-80 on both sides of the Mississippi River is designated on the primary freight network. The U.S. DOT also designated an additional 14,000 miles that were above the statutory cap, but fulfilled the statutory criteria. The segment of I-280 in Iowa from I-80 to the Mississippi River has been included in this comprehensive primary freight network. Map 7.2 shows the National Highway System and Connectors, as well as the Primary Freight Network in the MPA.

Under the FAST Act, which is currently extended through FY2021, Congress authorized the establishment of a nationally-significant freight and highway projects program to provide financial assistance for projects of national or regional significance. FAST established criteria for a National Highway Freight Network that will include a 41,518-mile network identified during the designation process for the primary freight network. This network will be designated every five years. Criteria for this network will include changes in origins/destinations for freight movement, percentage of annual daily truck traffic, changes in location of key facilities, ports of entry, access to energy development/production, access to modal freight and intermodal facilities, tonnage and value of freight movement, freight bottlenecks, significance of good movement, and emerging freight/commerce corridors.

# Freight and the Economy





### Water Freight

Inland waterway freight links the Quad Cities with other communities and markets along the Mississippi River, the Gulf of Mexico, and the Great Lakes, and provides connections to foreign ports. Navigation season in the Quad Cities Region runs for approximately ten months, March through December, with an average channel depth of nine feet. While barge transportation requires more shipping time than other forms of transport, the lower shipping rates and energy efficiency of this mode of transportation provides a significant cost savings to bulk material shippers. According to the U.S. Army Corps of Engineers, barge transportation is 7.5 times more economical than shipping by trucks measured by weight.

A marine highway system was established in 2007 under Section 1121 of the Energy Independence and Security Act to reduce congestion on the surface highway network. The U.S. Maritime Administration has oversight for this program. Its purpose is to expand the use of America's navigable waterways. The Mississippi River north of St. Louis is designated as M-35. In October 2020, the Mississippi River Ports of Eastern Iowa and Western Illinois was designated as a port statistical area. This 221.5 river mile corridor will allow the U.S. Army Corps of Engineers to report commodity data to be consolidated for this segment of the river. The benefit of the designation includes recognition of the volume of freight moving on the river, assurance of reliable access to the region's exports, and promoting environmentally sustainable water infrastructure development. Bi-State staff in cooperation with peer Metropolitan Planning Organizations (MPOs) will be initiating a mapping project in 2021 related to the MRPEIWI statistical area to map and catalog the terminals. The project should be completed by 2023.



**Figure 7.3 – Barge at Lock & Dam 14, LeClaire, Iowa**



*Source: Mississippi River Rail Crossing Study, 2020. HDR.*

### Water Traffic and Travel

River Miles 469 through 503 are located in the Quad Cities MPA. There are two locks and dams on the Mississippi River located in the MPA: Lock and Dam 14, located downstream of LeClaire, and Lock and Dam 15, located between Davenport and Rock Island. Like other locks and dams built during the 9-foot Channel Navigation Project in the 1930s, their lock chambers are shorter than most contemporary commercial barges and require barges to split up and pass through the locks in multiple operations. According to the U.S. Army Corps of Engineers, “this procedure requires uncoupling barges at midpoint which triples lockage times and exposes deckhands to increased accident rates.” Table 7.3 provides data on the average delay and processing time at Locks 14 and 15.



**Table 7.3 – Overview of Locks and Dams in the Quad Cities MPA**

Description	Lock and Dam 14 (LeClaire)	Lock and Dam 15 (Rock Island)
Construction (9-foot Channel)	1935-1940	1931-1934
Chamber fill time	8 minutes	7 minutes
Average Delay – Tows (Hours), 2017 Data	3.35	2.74
Average Processing Time (Hours), 2017 Data	0.64	0.75

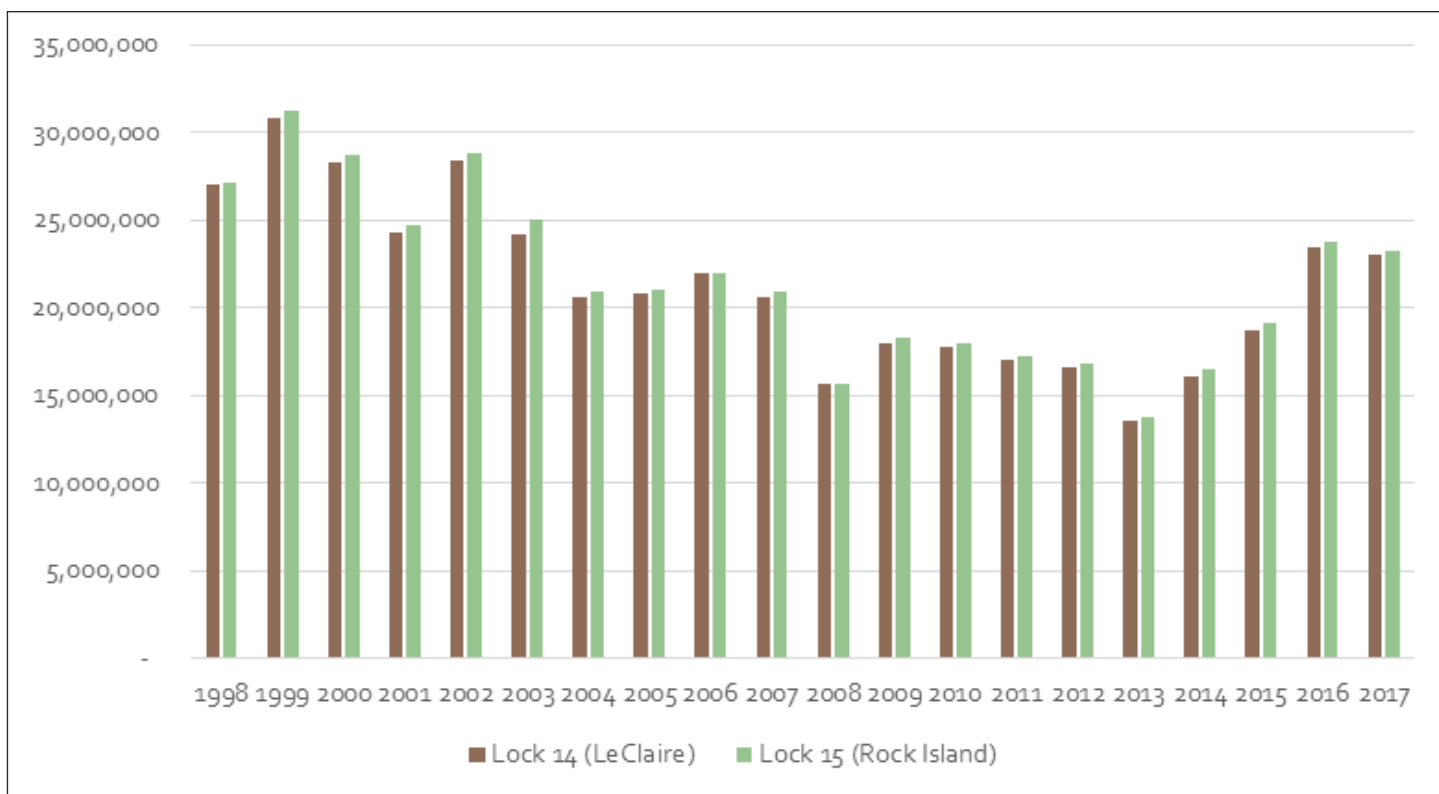
Source: U.S. Army Corps of Engineers, *Locks and Dams 14 & 15 Fact Sheets, 2017 Vessel & Lockage Data*

Figure 7.4 shows the average tonnage that passed through Locks and Dams 14 and 15 from 1995 through 2017. Significant flooding events affected river shipping in 2008 and 2013. The Quad Cities also experienced record-breaking flooding by flood height and duration in 2019, though FY2019 data is not included in the following figure. Due to the slow nature of river transportation, most of the commodities shipped on the river are bulk commodities (Figure 7.5) and not time-sensitive. When this type of extreme weather event occurs, shifts to alternative modes are necessary placing greater pressure on rail and highway modes.

Grain shipments traveling downstream dominate the average tonnage that gets locked through Locks 14 and 15. Coal, chemicals, manufactured goods, and crude materials constitute the majority of commodities that are shipped upstream to the Bi-State Region.



**Figure 7.4 – Average Annual Tonnage at Locks 14 and 15 (2017 Data)**

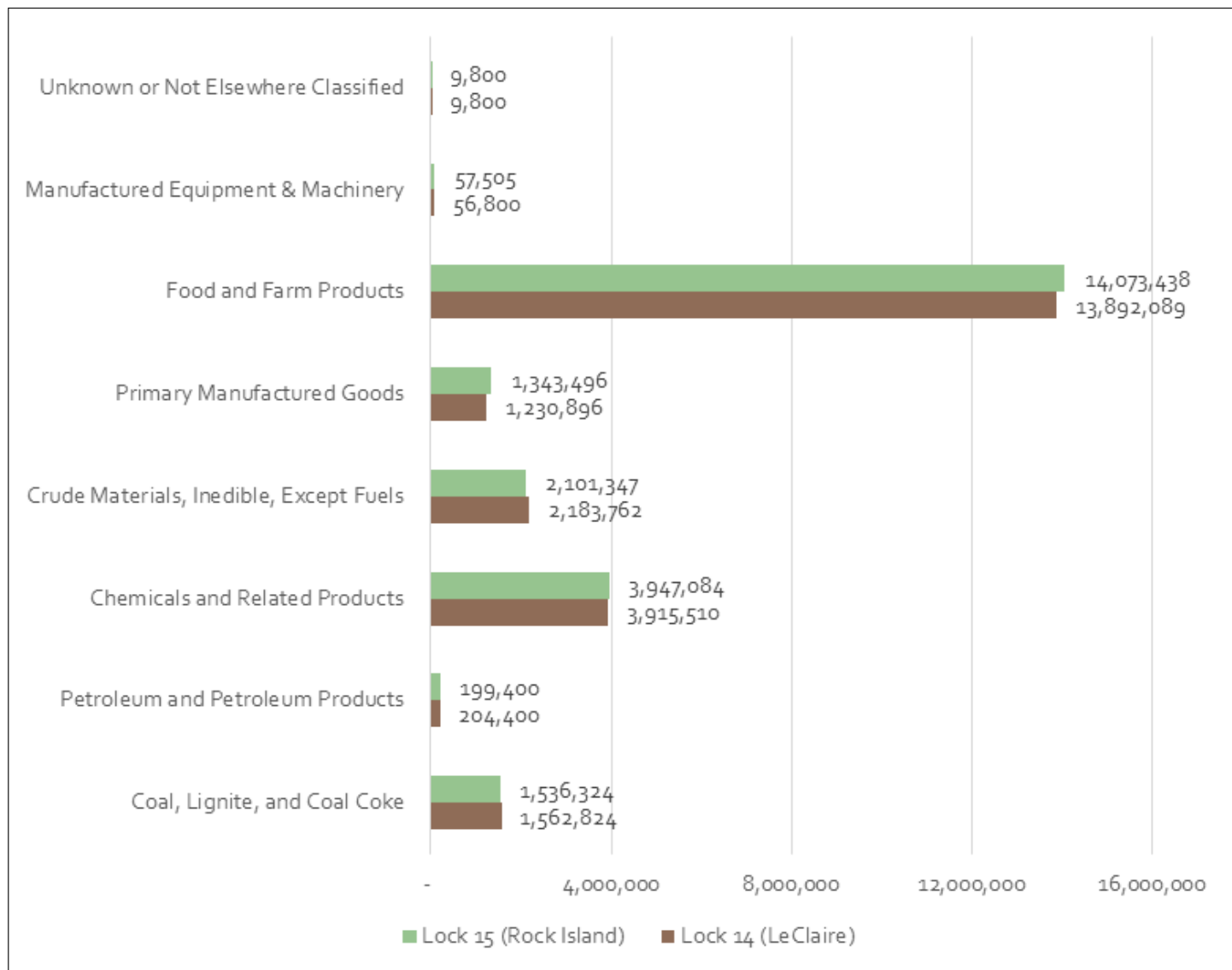


Source: U.S. Army Corps of Engineers, Locks and Dams 14 & 15 Fact Sheets, 2017 Vessel & Lockage Data





**Figure 7.5 – Average Tonnage by Commodity at Locks and Dams 14 and 15 (2017)**



Source: U.S. Army Corps of Engineers, Locks and Dams 14 & 15 Fact Sheets, 2017 Vessel & Lockage Data



### **Domestic and International Freight Movement**

The Quad Cities Region lies at the crossroads of numerous American freight routes, representing the multimodal nature of bulk and other commodity shipments. Maritime, rail and highway shipping operations are all represented in the logistics and freight network in the Quad Cities. Recent approval of the three U.S. Corn Belt Ports including the Mississippi River Ports of Eastern Iowa and Western Illinois Region (MRPEIWI), signals the growing interest in promoting the region's maritime freight capabilities. Likewise, the Illinois Marine Transportation Plan (2021) emphasizes the significance of the state's waterways as a crucial component of the state and national freight network.

Direct access to foreign markets provides regional producers additional opportunities to sell their products. However, this dependence on foreign markets can occasionally be volatile, as exemplified by the pork and soybean tariffs imposed by China in 2018. According to a report by the Bureau of Labor Statistics<sup>2</sup>, American exports of soybeans to China fell from \$12.2 billion in 2017 to \$3.1 billion in 2018. The result of such a dramatic decrease impacted agricultural economies throughout the Midwest and increased the soybean inventory domestically, while affecting shipping and freight providers by largely negating a major market. The same report noted in October 2018, "the U.S. Department of Agriculture provided up to \$12 billion in aid to the agricultural industry...to help farmers ease the downside of the effects of the additional tariffs." While the aid assisted some producers, the impact of large scale changes within high export industries such as agriculture are felt throughout ancillary sectors such as shipping. Regional economies can better adapt to these changes through a multimodal transportation network to provide producers efficient access to other markets.

### **Water Freight Facilities**

<sup>2</sup> Source: Hergt, B. (October 2020). The effects of tariff rates on the U.S. economy: What the Producer Price Index tells us. *Bureau of Labor Statistics - Beyond the Numbers*.



Table 7.4 provides a listing of river terminals in the MPA. These facilities require a reliable river navigation system where lock delays are reduced in order to move their products. Depending on their locations, they also need reliable access to rail and/or the highway system. Reducing bottlenecks in and around these facilities will help freight movement in the metropolitan area.

In October 2020, the U.S. Army Corps of Engineers approved the creation of the Mississippi River Ports of Eastern Iowa and Western Illinois (MRPEIWI) as one of three Corn Belt Port Statistical Areas. The statistical area designation will ideally attract business, create jobs, and promote usage of the Mississippi River for shipping goods. The proposed MRPEIWI consists of existing ports and terminals along the Mississippi River between Iowa and Illinois from river mile 361.5 in Keokuk, Iowa to river mile 580 in Dubuque, Iowa. MRPEIWI would encompass 50 existing Iowa barge terminals, and about 20 existing barge terminals in Illinois.



**Table 7.4 – Quad Cities Area Dock and Lock and Dam Facilities**

Name of Dock or Lock and Dam	River Mile
AGRI GRAIN MARKETING, BUFFALO GRAIN ELEVATOR DOCK	469
BLACKHAWK FLEET, BUFFALO TERMINAL DOCK	469.7
MILE 470 UPPER MISS RIVER	470
MILE 471 UPPER MISS RIVER	471
MILE 472 UPPER MISS RIVER	472
BLACKHAWK FLEET MIDDLE FLEET MOORINGS	472.1
MILE 473 UPPER MISS RIVER	473
UPPER MISSISSIPPI FLEETING SERVICE	473
MILE 474 UPPER MISS RIVER	474
LAFARGE NORTH AMERICA, DAVENPORT PLANT WHARF	474.5
MILE 475 UPPER MISS RIVER	475
HARVEST STATES COOP, DAVENPORT GRAIN ELEVATOR DOCK	475
LINWOOD MINING & MINERALS CORP. DOCK	475.2
KOCH MATERIALS CO., DAVENPORT DOCK	475.4
TEXPAR ENERGY, DAVENPORT TERMINAL	475.5
BLACKHAWK FLEET TERMINAL WHARF	475.9
MILE 476 UPPER MISS RIVER	476
MILE 477 UPPER MISS RIVER	477
MILE 478 UPPER MISS RIVER	478
MILE 479 UPPER MISS RIVER	479
MILE 480 UPPER MISS RIVER	480
ROCK ISLAND RIVER TERMINAL CORP. DOCKS	480
BUZZI UNICEM USA - ROCK ISLAND	480.9
MILE 481 UPPER MISS RIVER	481
BURLINGTON NORTHERN SANTA FE CRESCENT BRIDGE	481
MILE 482 UPPER MISS RIVER	482
RHYTHM CITY, CASINO BOAT DOCK	482.5
LOCK & DAM NO 15	483
MILE 483 UPPER MISS RIVER	483
BUILDERS SAND AND CEMENT CO. WHARF	483.1
RIVER/GULF GRAIN CO., DAVENPORT DOCK	483.2
W. G. BLOCK CO., DAVENPORT DOCK	483.3



Name of Dock or Lock and Dam	River Mile
MILE 484 UPPER MISS RIVER	484
MILE 485 UPPER MISS RIVER	485
MILE 486 UPPER MISS RIVER	486
MOLINE PUBLIC LANDING	486
PUBLIC LANDING	486
RIVERSTONE GROUP MOLINE DOCK	486.3
CELEBRATION RIVER CRUISES DOCK	486.4
CHANNEL CAT WATER TAXI, DOCK	486.5
CONTINENTAL CEMENT CO., BETTENDORF TERMINAL DOCK	486.8
MILE 487 UPPER MISS RIVER	487
PHILLIPS PIPE LINE CO., BETTENDORF TERM BARGE DOCK	487
BP PRODUCTS NORTH AMERICA, BETTENDORF	487.1
BETTENDORF TERMINAL CO. WHARF	487.4
FLINT HILLS RESOURCES, BETTENDORF DOCK	487.7
MILE 488 UPPER MISS RIVER	488
MILE 489 UPPER MISS RIVER	489
MILE 490 UPPER MISS RIVER	490
MILE 491 UPPER MISS RIVER	491
MILE 492 UPPER MISS RIVER	492
MILE 493 UPPER MISS RIVER	493
LOCK & DAM NO 14	493.1
MILE 494 UPPER MISS RIVER	494
MILE 495 UPPER MISS RIVER	495
MILE 496 UPPER MISS RIVER	496
MILE 497 UPPER MISS RIVER	497
LE CLAIR PUBLIC LANDING	497
MILE 498 UPPER MISS RIVER	498
RIVERSTONE GROUP, LECLAIRE QUARRY, BARGE DOCK	498.2
MILE 499 UPPER MISS RIVER	499
MILE 500 UPPER MISS RIVER	500
MILE 501 UPPER MISS RIVER	501
MILE 502 UPPER MISS RIVER	502
MILE 503 UPPER MISS RIVER	503

## Freight and the Economy



Name of Dock or Lock and Dam	River Mile
MILE 504 UPPER MISS RIVER	504
MILE 505 UPPER MISS RIVER	505
MILE 506 UPPER MISS RIVER	506
MILE 507 UPPER MISS RIVER	507
MILE 508 UPPER MISS RIVER	508
WESTWAY TRADING CORP., CORDOVA TERMINAL DOCK	508.6
MILE 509 UPPER MISS RIVER	509
CF INDUSTRIES, INC., NORTH CORDOVA DOCKS	509
MILE 510 UPPER MISS RIVER	510
MILE 511 UPPER MISS RIVER	511
MILE 512 UPPER MISS RIVER	512

Source: U.S. Army Corps of Engineers, Navigation Data Center, Complete Dock List Data <https://publibrary.planusace.us/#/series/>

*Port Facilities, Retrieved 2020.*

### Pipelines

Certain bulk commodities, largely oil and natural gas, needing to travel long distances are shipped via pipeline from their production sites to locations where they can be refined and used. The Quad Cities MPA is served by numerous pipelines that traverse the region. Two local plans, the *Scott County Multi-Jurisdictional Hazard Mitigation Plan* (2018) and the *Rock Island County Hazard Mitigation Plan* (2016), provide maps and information regarding pipelines in the region, including issues of safety and security.

### *Freight Opportunities*

#### Modal Trends and Commodity Shipments

The *Bi-State Region Freight Plan* outlined a number of global trends affecting freight movement in the future. Industrialization of agriculture has resulted in farmers shipping more output over longer distances by truck. Class I railroads have shifted towards larger, 100-plus car, grain shuttle and consolidation facilities that result in longer distance travel.



Extraction of natural resources using the emerging technology to produce domestic oil and gas sources is expected to continue to have an impact on freight movement. Current congestion on the rail network is expected to continue due to shale oil drilling in the Bakken Region of North Dakota, the Alberta tar sands, and others. Rail systems throughout the Midwest are seeing large increases in crude by rail, according to the *Bi-State Region Freight Plan*. Safety associated with these trains is a concern to the communities through which the trains run. In 2015, a train carrying crude oil derailed in Galena, IL, requiring a sizable clean-up effort by the EPA. Another potential mode of moving the oil and gas extracted in those regions to refineries in the south is via pipeline. Numerous natural gas and hazardous liquid pipelines traverse the Quad Cities Region. These assets are more fully discussed in detail in the Rock Island County and Scott County hazard mitigation plans to address minimizing safety issues related to pipeline transport.

Lastly, workforce issues are having an impact on transportation with driver shortages, hours of service issues, changing family-work balance interests, and safety requirements. These global issues will have direct and indirect influence on the Quad Cities' intermodal transportation system.

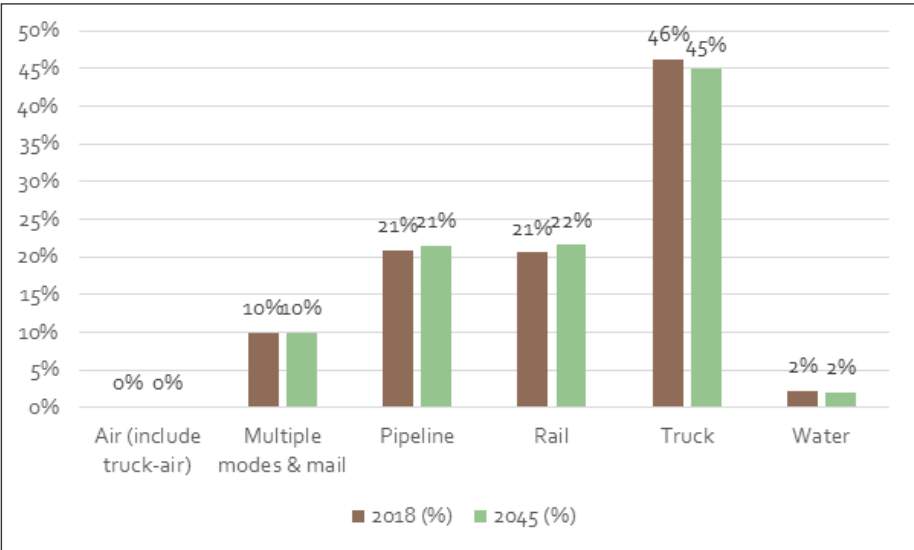
### Freight By Mode

The Bureau of Transportation Statistics' Freight Analysis Framework provides state summary tables by mode and commodity type for all freight products. In both IA and IL, trucking is the dominant mode and represents 46% and 41% of each respective state's share of outbound domestic goods by tonnage, according to the 2018 Freight Analysis Framework (FAF) data. Predictions for 2045 indicate trucking will continue to dominate the mode share, although Iowa is predicted to see a slight raise in rail freight and Illinois is predicted to see a large raise in pipeline freight. Trucking may decrease in the future if improvements can be made to other modes or if conditions like higher fuel prices drive shipments to more fuel efficient modes, such as rail and water transportation. Figures 7.6 – 7.7 break down the percent of outbound domestic freight by mode for each state. The unreliability of the Upper Mississippi River System may hamper efforts to shift freight to water, unless investments occur to improve the lock system to reduce river congestion, and address extreme weather resilience.



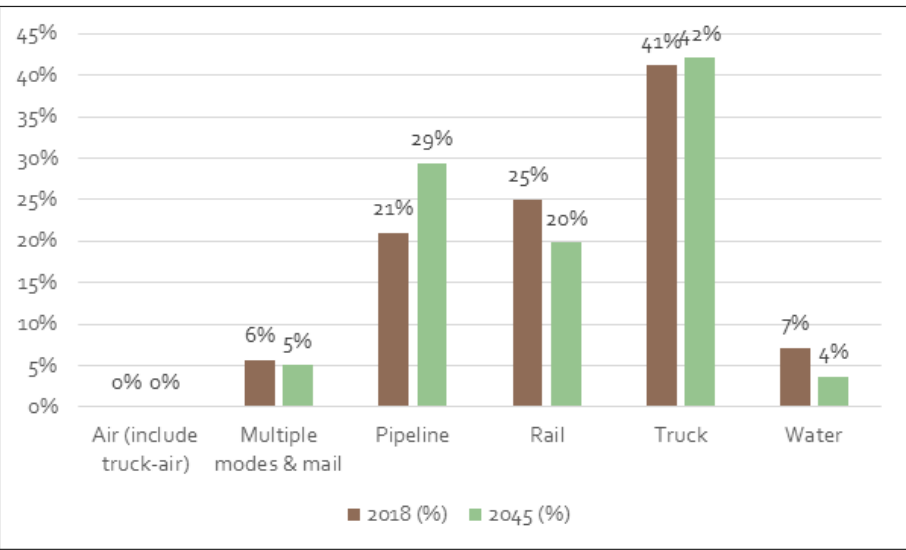


**Figure 7.6 – Iowa Outbound Domestic Good Tonnage By Mode, 2018 -2045**



Source: Data from the Freight Analysis Framework Version 4.5.1

**Figure 7.7 – Illinois Outbound Domestic Good Tonnage By Mode, 2018 -2045**



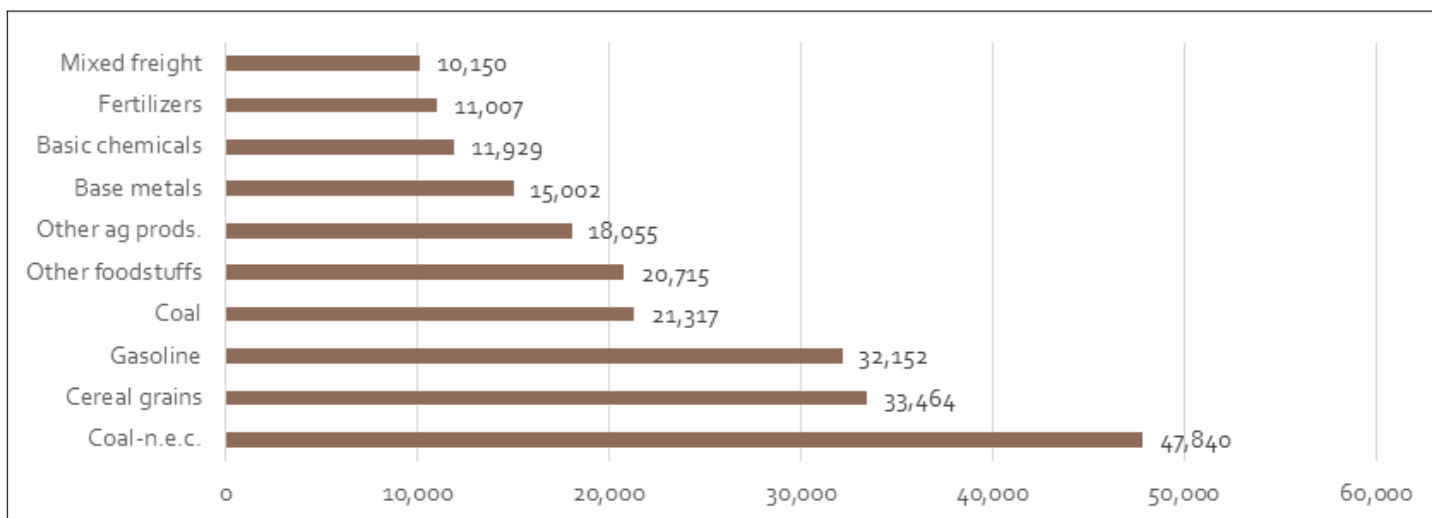
Source: Data from the Freight Analysis Framework Version 4.5.1



## Freight by Commodity

According to 2018 FAF data, Illinois' top outbound commodities by tonnage are coal-n.e.c., cereal grains, and gasoline; and the top outbound commodities by value are electronics, machinery, and pharmaceuticals. Similarly, Iowa's top outbound commodities by tonnage are coal-n.e.c., cereal grains, and other agricultural products; and the top outbound commodities by value are machinery, motorized vehicles, and other foodstuffs. The Bi-State Region itself supports both food production and machinery pieces, particularly due to the agricultural machinery pieces made at Deere and Company, headquartered in Moline. Figures 7.8 and 7.9 show the top ten commodities of Iowa and Illinois by total tonnage.

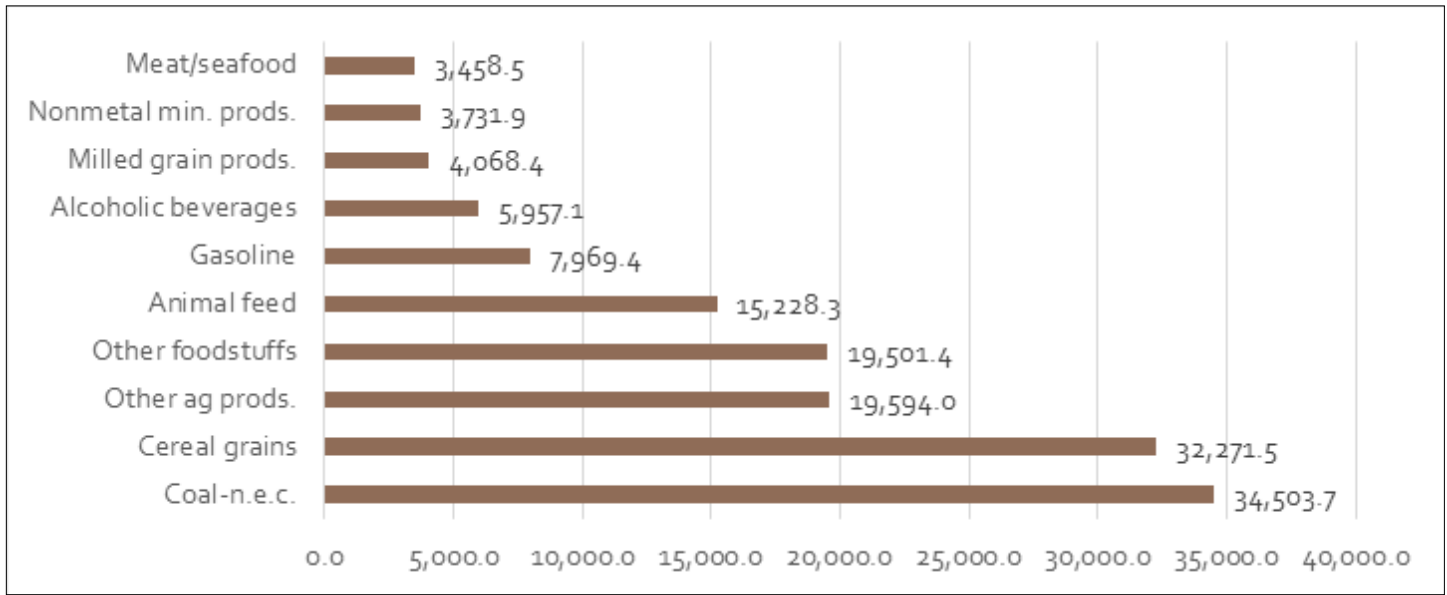
**Figure 7.8 – Top Outbound Illinois Commodities by Tonnage in 2018 (thousands of tons)**



Source: Data from the Freight Analysis Framework Version 4.5.1



**Figure 7.9 – Top Outbound Iowa Commodities by Tonnage in 2018 (thousands of tons)**

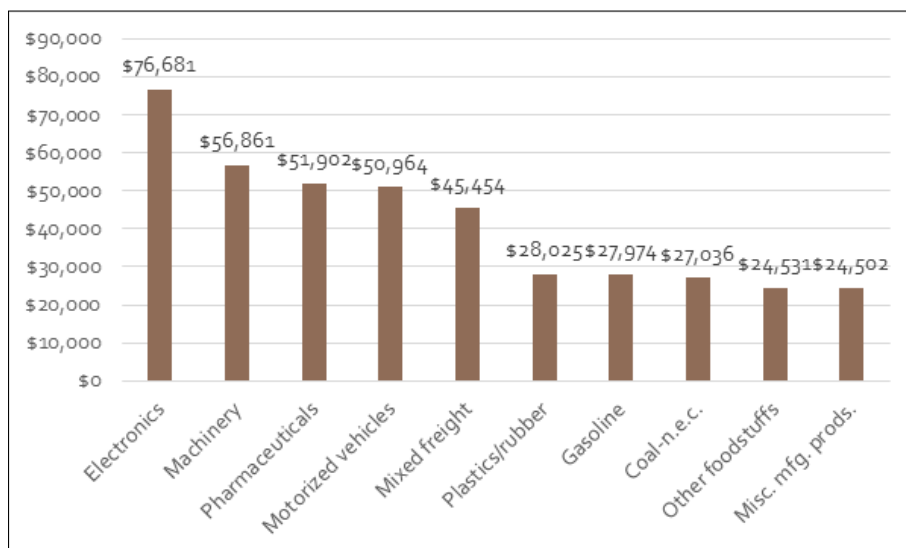


Source: Data from the Freight Analysis Framework Version 4.5.1

The following figures break down the weight and value of the top ten outbound commodities for the States of Illinois and Iowa. Cereal grains is one of the top outbound commodities by tonnage and for both Illinois and Iowa, representing 10% and 18% of each respective state's total tonnage. Figures 7.10 and 7.11. show major freight commodities by value for 2018.

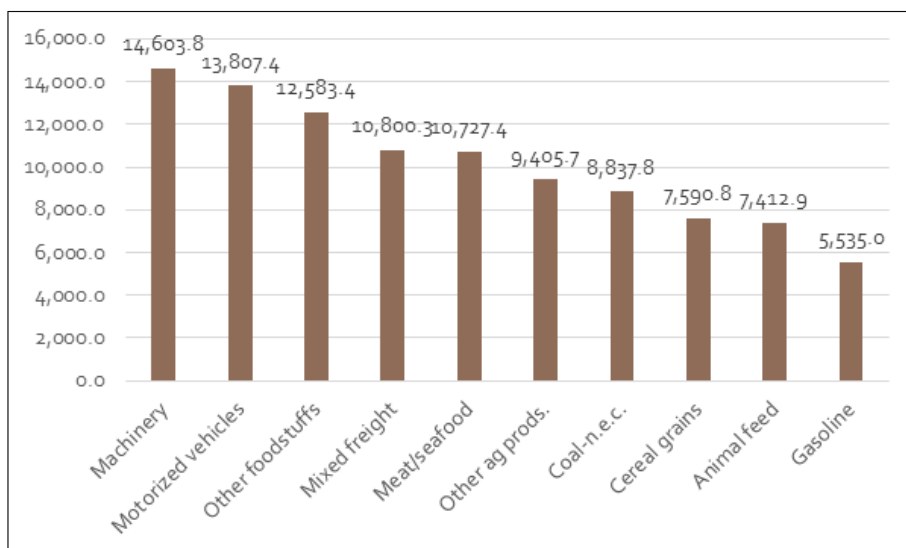


**Figure 7.10 – Top Outbound Illinois Commodities by Value in 2018 (millions \$)**



Source: Data from the Freight Analysis Framework Version 4.5.1

**Figure 7.11 – Top Outbound Iowa Commodities by Value in 2018 (millions \$)**



Source: Data from the Freight Analysis Framework Version 4.5.1



### *Freight Barriers and Obstacles*

#### Capacity and Congestion

With the emphasis on bulk commodities of grain and gravel by tonnage and products, such as machinery and chemical products by value, the Quad Cities' multi-modal network should continue to support the efficient movement of goods. Compared to other metro areas, the Quad Cities is fortunate, having relatively low congestion. The Federal Highway Administration defines seven root causes of congestion: physical bottlenecks (a.k.a. "capacity constraints"), traffic incidents, work zones, weather, poorly timed signals, special events, and over-capacity demand (i.e., daily and seasonal peaks superimposed on a system with a fixed capacity). A number of these can apply to the other modes as well.

#### Bottlenecks and Incidents

Bottlenecks and incidents are the greatest source of slowing traffic on the highway network in the Quad Cities. In Chapter 3 of the *Bi-State Region Freight Plan* and Chapter 4 of this plan, congested areas are identified, either based on the average daily 24-hour traffic volumes or using projected traffic volumes compared with capacity. There are corridors that do experience peak hour congestion and were either noted in the *Bi-State Region Freight Plan* and/or communicated by the public as congested corridors. The most congested corridors include:

- I-74 (53<sup>rd</sup> Street, Davenport to I-280, Moline)
- U.S. Business 61 (Veterans Memorial Parkway to River Drive, Davenport)
- U.S. 6/Kimberly Road-Spruce Hills Road (Welcome Way, Davenport to Utica Ridge Road, Bettendorf)
- U.S. 67 (Centennial Bridge/River Drive, Davenport to Devil's Glen Road, Bettendorf)
- IL 92 (15<sup>th</sup> Street, Rock Island to 19<sup>th</sup> Street, Moline)
- Avenue of the Cities (16<sup>th</sup> Street, Moline to Archer Drive, East Moline)
- IL 5/John Deere Road (7<sup>th</sup> to 70<sup>th</sup> Streets, Moline)



- U.S. 6 (I-74 Airport Entrance, Moline to Niabi Zoo Road, Coal Valley)

The *Bi-State Region Freight Plan* noted locations in the region with significant mobility challenges, based on truck travel times from the National Performance Management Research Data Set (NPMRDS). This analysis indicated that the least reliable roadways in the Quad Cities for freight movement were at River Drive, Davenport and 1st Avenue, Rock Island accessing the Centennial Bridge crossing. Another chokepoint was the U.S. 61/I-80 interchange.

Modal intersections such as at rail-highway crossings or rail-river crossings are another source of bottlenecks. These intersections create modal conflicts that may increase shipping time, costs, or create other negative consequences. Several locations within the transportation planning area have high roadway traffic crossing at-grade with active rail corridors. Typically at locations with at-grade crossings, trains have the right-of-way over motor vehicles. The *Bi-State Region Freight Plan* Section 3.2 indicated that “density of rail traffic, measured in million gross ton-miles, per mile is substantial around the Quad Cities metro area, but moderate in the towns along the Mississippi River outside of the urbanized area. Density is measured by the Federal Railroad Administration (FRA) on a scale of 1-7, with 7 being the highest value. Generally, values at 4 are considered to be medium density.” In the Quad Cities, the BNSF line has a density code of 4 while the Canadian Pacific line has a value of 3 along the Mississippi River and through the Quad Cities metro area.

*FRA Office of Safety Analysis Web Site (Query Table 8.08)* indicated that in Davenport, the Canadian Pacific tracks have 10 trains over Ripley Street with 10,000 daily vehicles. In East Moline, 13<sup>th</sup> Avenue’s roadway traffic of 5,400 vehicles per day competes with Canadian Pacific rail freight traffic of 4 trains (reported 2019). On the already congested corridors, such as Kimberly Road and 53<sup>rd</sup> Street, the data indicates there is one train per day on the CP/DME. Increased traffic to the transload facility in north Davenport is expected to contribute to potential delays on this roadway.

Another identified bottleneck is at the IL-84/Colona Road/Cleveland Road intersection of the BNSF line. The Illinois DOT’s Average Annual Daily Traffic Count map indicates traffic of 13,200 vehicles per day



on IL-84 entering Colona, Illinois, including 665 trucks per day. As IL-84 nears the BNSF rail tracks, traffic splits from IL-84 onto Cleveland Road, where a traffic count of 7,300 vehicles per day travel enroute to I-80. In Colona, the BNSF line has 16 trains that cross IL-84/Colona Road. The IL DOT plans to consolidate the tracks in the future, but these examples demonstrate areas of the Quad Cities MPO where road/rail conflicts occur and can affect freight efficiencies.

### Regional-National Infrastructure

As noted earlier, the *Bi-State Region Freight Plan* also drew attention to rail speeds at the Mississippi River crossings. In 2020, Bi-State Regional Commission commissioned a study to review rail crossings in the region. The study examined the existing crossings, and recommended a series of primary alternatives in the vicinity of the Crescent Bridge and near the Government Bridge. The benefits of a new bridge included a high-fixed crossing to avoid river barge delays, capacity to carry passenger rail traffic at 40-mph, and improved grade crossings. However, significant investment will be required to meet the requirements to adapt a crossing to fit within the existing urban footprint. Numerous other bridges will likely be affected due to insufficient clearances, including the Centennial Bridge and the Rock Island Viaduct.

Lastly, air freight, which is mainly trucked from the Quad Cities to Chicago, is affected by delays at the larger commercial airports. With much of the air and rail freight traveling to Chicago's O'Hare Airport, the need to support the nationally significant Chicago Regional Environmental and Transportation Efficiency (CREATE) program to reduce freight and passenger bottlenecks in the Chicago region is important. The implementation of CREATE will have positive trickle down effects on freight shipments to and from the Quad Cities.

### Safety and Operations

Chapter 4 (Map 4.8a) outlines a five-year history of crashes and shows higher total crashes over five years along key truck routes (Map 4.4). These locations include:

- U.S. 6/Kimberly Road (U.S. 61 to I-74 ), Davenport – 315 trucks per day





- I-74 (U.S. 6/Kimberly Road, Davenport to IL-5 John Deere Road, Moline) – 1,364 trucks per day
- IL-5/John Deere Road (I-74 to 41<sup>st</sup> Street), Moline – 933 trucks per day

There are planned reconstruction improvements for each of these corridors. The improvements are expected to reduce crashes and improve system reliability once complete.

As shown in Table 7.5, there have been 119 total railroad accidents resulting in rail infrastructure or train car damage in Rock Island and Scott Counties between January 1, 2000 and December 31, 2019. Accidents, as defined by *FRA Railroad Safety Data Frequently Asked Questions (FAQs) Table 3.07*, are any occurrence where train cars or rail infrastructure are damaged. An accident listed need not be a collision with an automobile. Table 6.5 also identifies incidents where casualties are reported by injury or fatality on rail property by county and rail line. The FRA injury/fatality data is a query from *FRA Data Table 4.05* by state and county with subsets "All locations, All Casualties & All Job Categories" selected. Although more rail crossings are located in Rock Island County, Scott County recorded more than double the amount of injuries during the same period. Total injuries for both counties is 162 with eight fatalities, a subset of the injuries category. Five occurred in Scott County and three in Rock Island County. Primary causes found in the FRA data for injuries are due to track, human, or equipment error. The number of rail/motor vehicle train accidents in Scott and Rock Island Counties has decreased substantially in the last 20 years, as depicted in Figure 7.12.



**Table 7.5 – Railroad Accidents, Injuries, and Fatalities by Year and County**

Year	Scott			Rock Island		
	Accidents*	Injuries**	Fatalities**	Accidents*	Injuries**	Fatalities**
2000	9	16	0	2	2	0
2001	3	6	0	5	4	0
2002	5	3	0	1	4	0
2003	9	13	0	2	0	0
2004	11	9	0	7	2	1
2005	8	15	0	6	7	1
2006	3	7	0	10	1	0
2007	1	12	1	2	4	0
2008	4	8	0	5	3	0
2009	4	6	3	8	8	1
2010	3	5	0	3	5	0
2011	3	2	1	1	5	0
2012	2	5	0	0	3	0
2013	4	6	0	0	1	0
2014	0	4	0	2	0	0
2015	0	5	0	2	1	0
2016	0	3	0	2	0	0
2017	0	6	0	0	1	0
2018	0	3	1	1	2	0
2019	0	4	0	2	1	0
Total	69	138	6	61	54	3

\*Source: Federal Rail Administration Office of Safety Analysis. Data Table 3.18 Accident By State/Railroad

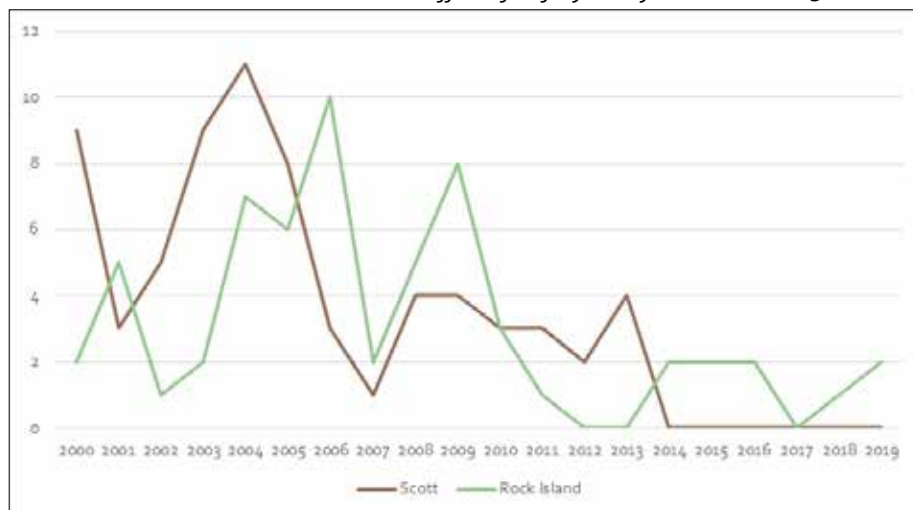
\*\*Source: Federal Rail Administration Office of Safety Analysis. Data Table 4.12 Casualties By State/Railroad

**Figure 7.12 – Total Train Accidents (by calendar year, Jan-Dec) for Scott County, IA and Rock Island**



## County, IL

Source: Federal Rail Administration Office of Safety Analysis. Data Table 3.18 Acci-



dent By State/Railroad

Throughout the Quad Cities MPA, public access areas intersect rail infrastructure. To reduce accidents (pedestrian, motor collisions, and other rail infrastructure damage) municipalities may need to examine the space and type of interactions occurring near rail infrastructure.

Schwiebert Riverfront Park in Rock Island is an example where the rail infrastructure has the ability to be both economically viable, safe, and aesthetically pleasing. Minor adjustments such as fencing or other pedestrian-friendly improvements could maximize corridor utility at the Illinois Highways 84 and 92 crossings of BNSF in East Moline, the Rockingham and Division Street crossings of the Canadian Pacific rail line, and the Canadian Pacific's route along the LeClaire Park area with its farmer's market and Modern Woodman Ballpark. Where applicable, additional safety enhancements may be considered:

- Fencing and appropriate spacing
- Advanced warning signage
- Flashing lights and railroad wigwags (pendulum crossing signals)
- Bells
- Other electronic warning systems
- Locomotive speed ordinance



- Nighttime whistle ban lift in low visibility areas
- Cross bucks with track numbers
- Road paint to maintain distance
- Traffic law enforcement

### **Planned Intermodal Network Improvements for Tomorrow**

#### ***Maintaining Air Freight Options***

According to the *Bi-State Region Freight Plan*, mode shifts away from air cargo to truck as the primary mode of transportation will continue since trends toward consolidated air freight facilities have already occurred. Except for highly time-sensitive goods, most air-destined freight is trucked to Chicago O'Hare airport 170 miles away. Expedited carriers are the primary users of air freight. FedEx and UPS operate at Quad Cities International Airport (MLI) for some cargo but primarily truck from the MPA to Chicago. The expectation is that this mode choice will continue. The local focus will be to maintain basic air cargo options currently available for specialized, time-sensitive goods and rent existing cargo-oriented spaces for aeronautical and non-aeronautical uses.

Future projects at MLI will consist of realigning taxiways to improve airport geometry, continued drainage improvement around the airport taxiways and runway, realigning the entrance road to the general aviation facilities, rehabilitation to sections of Runway 13/31, and general aviation ramp enhancements. The Metropolitan Airport Authority regularly reviews and updates its airport master plan to maintain services and provide for future development in and around the facility.

The Davenport Municipal Airport (DVN) serves a variety of business needs. It supports nearly 400 employment opportunities and generates \$20 million annually in local spending. DVN is positioning itself to meet the future air and air cargo demand of the region with the planning of the following projects:

- Installation of a new above-ground 24-hour self-serve and full-serve fuel storage facility



- The installation of an upgraded perimeter security fence in 2022
- 300-acre addition reserved for air freight operators by 2023
- Land acquisition and construction of a 1,000 foot runway extension to the airport's Crosswind Runway (Runway 3/21) in 2023

The City of Davenport, the Iowa Department of Transportation Aviation Bureau, and the Federal Aviation Administration work closely with each other in regularly reviewing and updating its master plan for future improvements.

### **Improving Rail Freight Movement**

Rail network improvements are typically conducted by the private investment of railroads. In addition to maintaining the rail lines, switching yards and signaling, there is continued interest in the Quad Cities to facilitate improved rail freight movement to serve the area's economy.

In 2019, CP raised the height of tracks through downtown Davenport as a result of continued, historic flooding. After flood waters receded, numerous access points between downtown Davenport and LeClaire Park remained cutoff for almost a year.

In the *Bi-State Region Freight Plan*, a few project concepts were identified to allow the area rail system to better serve industry needs. They included addressing:

- Rail bridges and weight limitations, as well as vertical and horizontal clearance
- Rail spurs and connections from the Iowa Interstate Railroad
- An intermodal, transload, and/or consolidation facility

Improving rail crossing capacity at the Mississippi River will aid the efficiency and reliability of rail freight movement in the Quad Cities. The Crescent Bridge at the Mississippi River has a limited remaining useful life due to its age and condition. On-going improvements and maintenance to the Davenport span of the Government Bridge will help to retain the viability of interstate rail service through the Quad Cities MPA. The *Mississippi River Rail Crossing Study* (2020) presented numerous alternatives to address the deficiencies of the two existing rail bridges in the Quad Cities, the Government Bridge and the Cres-



cent Bridge. The next step would be to further refine and determine a preferred alternative for engineering analysis to address this future infrastructure need.

In addition to crossing capacity, efficient freight access will also involve addressing capacity constraints at crossings, near industry, and near downtown and retail centers. Industrial uses are unique because many demand access to road, rail, and river freight infrastructure. Numerous clusters can be found within the Quad Cities, such as the industrial cluster of steel, metal, and plastics manufacturing in Bettendorf along the Mississippi River. Conflicts between freight and passenger modes may cause delay times in shipping, as passenger rail service is initiated in the metro area. From a local perspective when rail-highway modes intersect, issues can arise. These crossings include IL-92 and IL-84 and the Iowa Interstate Railroad and BNSF lines at the Arsenal Bridge, where road, rail, and river modes intersect. Solutions at these locations may aid better freight movement in the metropolitan area.

With the completion of a rail extension to the Eastern Iowa Industrial Center, the operation of a transload facility will become an important asset in the movement of freight in the metro area. Within the Bi-State Region, a study was completed in 2017 to investigate a 100-acre port site in Muscatine, Iowa. The port would provide a number of on-site services for consolidating and transloading freight on highway, rail, and water modes. As of 2020, the project is on hold, as the prime industry driving the initiative evaluates the potential benefit and viability.

### *Facilitating Truck Freight Transportation*

Chapter 4 highlights improvements to the roadway system. Many of these improvements, particularly to those categorized as part of the national highway system, will aid freight movement. The *Bi-State Region Freight Plan* lists more than a dozen previously unidentified, unfunded highway system project concepts. Important reconstruction recommendations include:

- I-80/U.S. 61 Interchange
- U.S. 67 Centennial Bridge
- I-280/U.S. 6 Interchange



There are a number of spot locational improvements, where traffic bottlenecks or low clearance structures reduce system capacity. These locations may require either operational improvements or reconstruction to improve system efficiency. Additionally, truck traffic continues to increase along the I-80 corridor, and there is interest in improved capacity, such as 6-laning the interstate from Iowa City to/through the Quad Cities. A location study and environmental assessment is being conducted in 2021 for I-80 from west of I-280 to just east of the 35<sup>th</sup> Street bridge in LeClaire to evaluate capacity increases. Both the Iowa and Illinois DOTs have worked cooperatively on a pre-engineering, environmental, and land use analysis for the replacement of the I-80 bridge over the Mississippi River. As of 2021, an preliminary engineering study is underway for its replacement.

### *Serving Water Freight Needs*

Aging infrastructure coupled with limited federal appropriations presents a number of challenges in maintaining the Upper Mississippi River (UMR), a vital marine highway system. The UMR carries more than 600 million tons of cargo each year. Barge transportation is the least expensive mode for bulk commodities and the most environmentally-friendly transportation option. U.S. Army Corps of Engineers cited the cost savings for industry as \$23.74 per ton for traffic moving through the UMR.

U.S. Inland Waterway Trust Fund supports a portion of the system. In 2014, the navigation fuel tax was raised from \$0.20 to \$0.29 per gallon. The previous increase was in 1984. There are three main programs to fund projects by the U.S. Army Corps of Engineers – operation and maintenance, major rehabilitation, and future improvements. Only operations and maintenance have been funded in recent years but not to its fullest extent.

Since 2015, work at Lock and Dam 15 has included replacement of all eight miter gates; repair and painting of the dam's service bridge; repair of the upper guide wall's bullnose; and repairs to the lower guide wall. Work at Lock and Dam 14 includes repairs to the upper guide wall. In addition, the lock was dewatered in winter 2021 to perform inspections, make minor repairs, and replace the bubbler system. The U.S. Army Corps of Engineers' Mississippi River Project's service



base is co-located with Lock and Dam 14. In the forebay, the Corps has completed a dockwall rehabilitation project and the construction of a new storage building. Significant repairs are also underway on the lower guide wall's public walkway.

The result of delayed maintenance and new project implementation affects system reliability and contributes to congestion within the river navigation system. The Water Resources Reform and Development Act of 2014 made provisions to allow public-private partnerships (P3) that may encourage more innovative partnerships and solutions to the nation's navigation system.

On the metropolitan level, the presence of facilities to handle and consolidate goods for transport on the waterway system is an attractive asset for the Bi-State Region. As noted previously, in Muscatine, Iowa downstream from the Quad Cities, a planned intermodal port was explored through a 2017 study. Currently, the project is on hold, as developers review the potential viability of the 100-acre site.

### *Supporting Strategies*

The *Bi-State Region Freight Plan* identified supporting strategies related to physical infrastructure, operations, policy, organization, partnerships, and funding to address the needs of the Bi-State Region. The strategies will not be referenced in detail here but relate not only to physical improvements, but operational strategies that address resilience, system reliability, policy, partnerships to leverage support for projects, and advocacy to prioritize investments. These strategies continue to be supported as part of this plan update.