

ECONOMIC VALUE

The State of Illinois holds a valuable position as the nation's freight hub. This position is substantially founded on the multimodal transportation network Illinois provides to industry, citizens and travelers. The Illinois Marine Transportation System (IMTS) is a crucial part of this network. This chapter explores the size and character of the economic value the IMTS brings to the state. It begins with a description of the flow of commodities moving across the system, the waterways relied upon and the counties involved, then presents a forecast of traffic growth between 2017 (the base year of this study) and the year 2045. Profiles of some of the major industries involved in producing or receiving commodities on the IMTS follow and are accompanied by introductions to the carriers and operators in the freight industry who transport the goods or supply facilities to stage them for movement. The chapter concludes with an assessment of the impact of the system on the economy of Illinois in terms of jobs, income, value added, and economic output.

The impact of the IMTS on the Illinois economy is substantial. The analysis presented in this chapter shows that 166,628 workers are directly or indirectly affected by the marine services across the state. The system generates \$36 billion in economic output in Illinois - representing 4 percent of gross state product - and each port district contributes to the total. The principal agricultural crops of Illinois depend on the IMTS for access to global markets, and the favorable cost of transportation by water keeps Illinois' crops competitive and farmers in business. In sectors like construction, chemicals or metals, goods that move on the IMTS either would bear a material economic penalty without the system, or they might not move at all.



The Economy of the IMTS Generates:

\$36 BILLION DOLLARS

166,628 JOBS

\$10.5 BILLION IN WORKER INCOME

\$2.9 BILLION IN FEDERAL, STATE AND LOCAL TAXES

\$17.4 BILLION IN GROSS STATE PRODUCT

4% OF GROSS STATE PRODUCT

4.1 COMMODITY FLOWS

The IMTS handled 90.6 million tons of freight in 2017 as compared to the 1.23 billion total Illinois freight tons reported in the state freight plan for 2014, the marine system is handling over 7 percent of the statewide traffic. More than 69 percent of the waterborne tonnage were commodities shipped outbound from Illinois to other parts of the country and world, with the majority of that shipping originating on the Mississippi and Illinois rivers. Shipments inbound to Illinois from the rest of the country and world accounted for 22 percent of the tonnage, with the Chicago Region and the Illinois River handling over two-thirds. The remaining 9 percent of tonnage moved within Illinois itself, notably from the Chicago Region. These proportions and the waterway components are illustrated in **Figure 4.1**.

The prominence of the Chicago region – which has connections both to the Great Lakes and the river system – can be seen again from the map in **Figure 4.2**, which depicts estimates of total 2017 waterborne tonnage by Illinois county. Counties near the juncture of other major rivers stand out in this map: St. Clair County on the Mississippi, which lies across from St. Louis, Missouri, and below the entrance of the Missouri River, and Massac County on the Ohio, across from Paducah, Kentucky, and the entrance of the Tennessee River. The large tonnages on the Mississippi and Illinois rivers otherwise are fairly dispersed among counties on their long pathways, although concentrations can be seen near such Illinois locations as Quincy (Adams County) and Peoria (Peoria and Tazewell Counties).

The IMTS Moves:
90.6 MILLION TONS OF FREIGHT
7% OF ALL STATEWIDE FREIGHT TRAFFIC

FIGURE 4.1 2017 Freight Volume by Direction and Waterway in Thousands of Tons

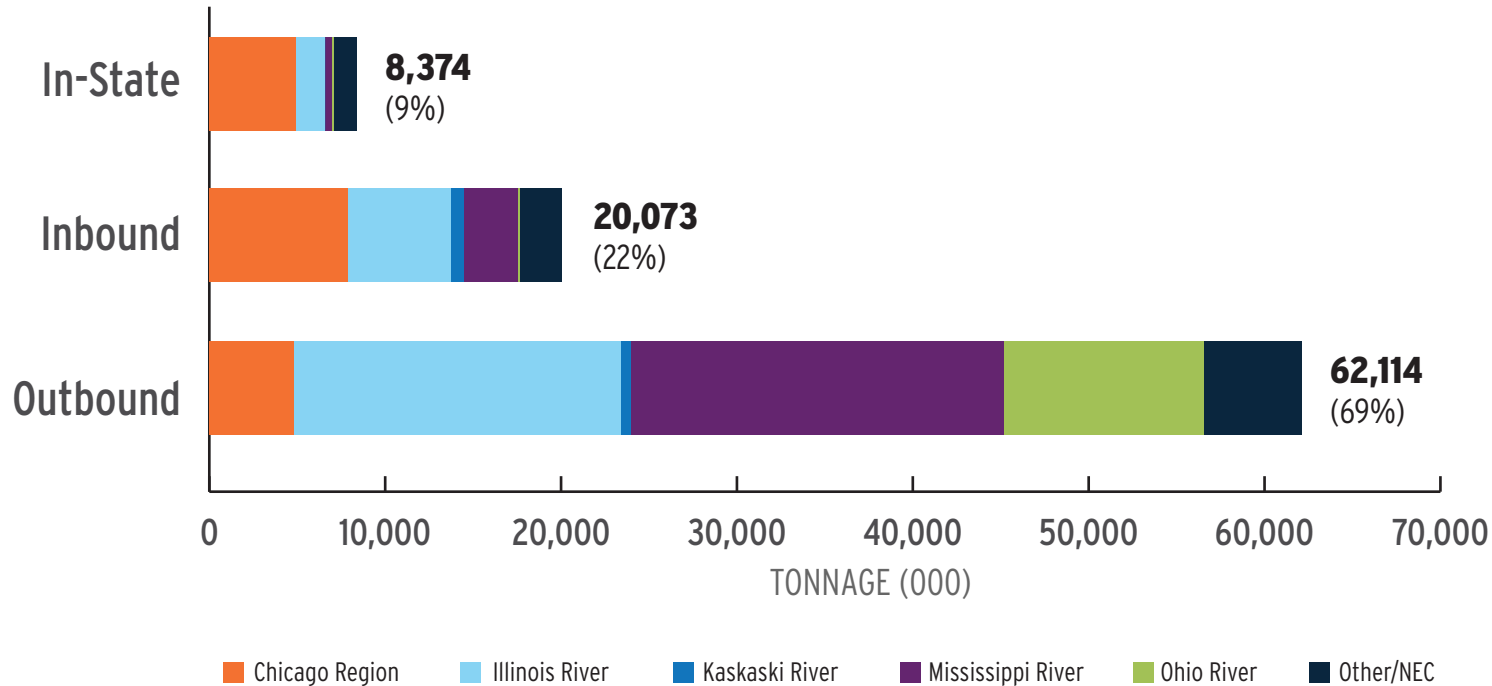
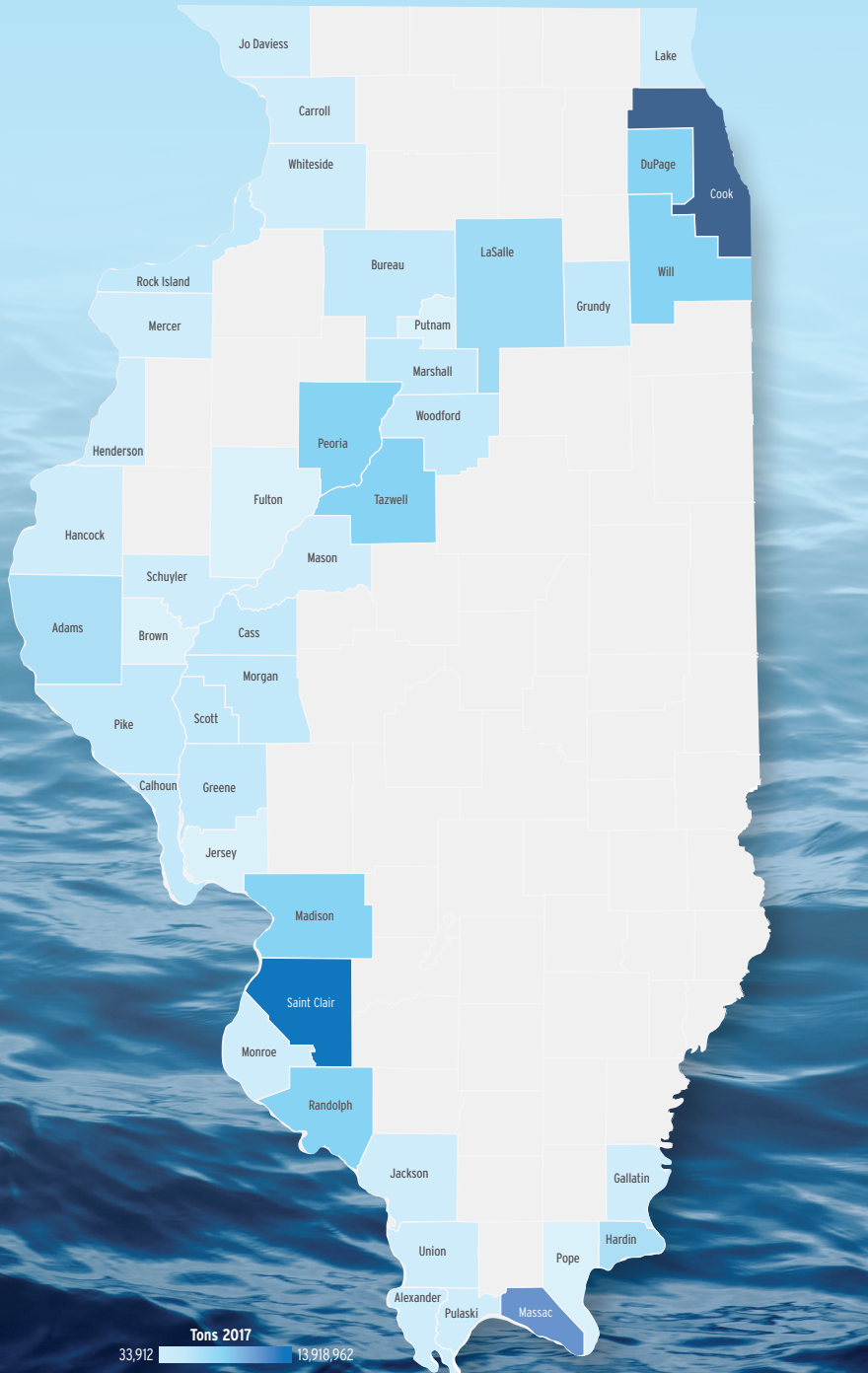


FIGURE 4.2 2017 Total Waterborne Tonnage by County



COUNTY NAME	TONNAGE TOTAL	COUNTY NAME	TONNAGE TOTAL
Cook	13,918,962	Marshall	866,573
St Clair	11,091,523	Grundy	711,987
Massac	8,753,071	Rock Island	708,506
Randolph	5,117,870	Alexander	476,182
Madison	4,386,729	Hancock	457,833
Tazewell	3,764,316	Jo Daviess	439,877
Du Page	3,693,209	Schuyler	398,878
Will	3,269,569	Jackson	327,464
Peoria	3,066,902	Whiteside	309,531
Adams	2,352,314	Henderson	242,785
La Salle	2,202,267	Putnam	230,864
Hardin	1,518,253	Monroe	173,195
Pike	1,426,332	Lake	117,674
Cass	1,368,653	Mercer	80,804
Woodford	1,366,574	Carroll	72,208
Morgan	1,343,225	Gallatin	42,616
Mason	1,310,482	Union	0
Greene	1,261,995	Brown	0
Calhoun	1,236,834	Fulton	0
Scott	1,135,416	Jersey	0
Bureau	1,113,225	Pope	0
Pulaski	869,223		



Freight tonnage on the IMTS declined 16 percent in just three years, from the 2014 volume reported in Illinois State Freight Plan and the 2017 volume reported here.

Almost all of that decline was due to the loss of outbound coal traffic which primarily reflects the nationwide conversion of electric

utility plants from coal to natural gas. The “fracking” boom in oil fields in Texas, Pennsylvania, and elsewhere has created an abundance of domestic natural gas with a lower cost and environmentally cleaner profile than coal. This trend is expected to continue: the forecast for Illinois outbound waterborne tonnage through 2045 expects a 10 percent decrease, substantially caused by the continuing drop in coal volumes. Fortunately – and as shown in **Figure 4.3** – Illinois’ inbound tonnage is projected to grow by 42 percent and in-state volume by 19 percent, offsetting the outbound loss and yielding a 5 percent net gain in total tonnage by 2045, from 90.6 million to 94.7 million tons.

The breakdown of the 2045 forecast by waterway appears in **Table 4.1**. The net increase of 4.1 million tons combines waterways rising by 9.3 million tons, with waterways falling by 5.1 million tons. The tonnage growth is expected to come from the Chicago Region - a strong location for inbound materials - and the Illinois River, which is a continuing source of outbound agricultural products. Decreasing tonnage appears on the Ohio and Mississippi Rivers, which have greater exposure to the coal mines of southern Illinois. These waterway differences by direction are illustrated in **Figure 4.4**. The effect is that Chicago and Illinois River volumes climb from 47 percent of Illinois tonnage in 2017 to 55 percent in 2045.

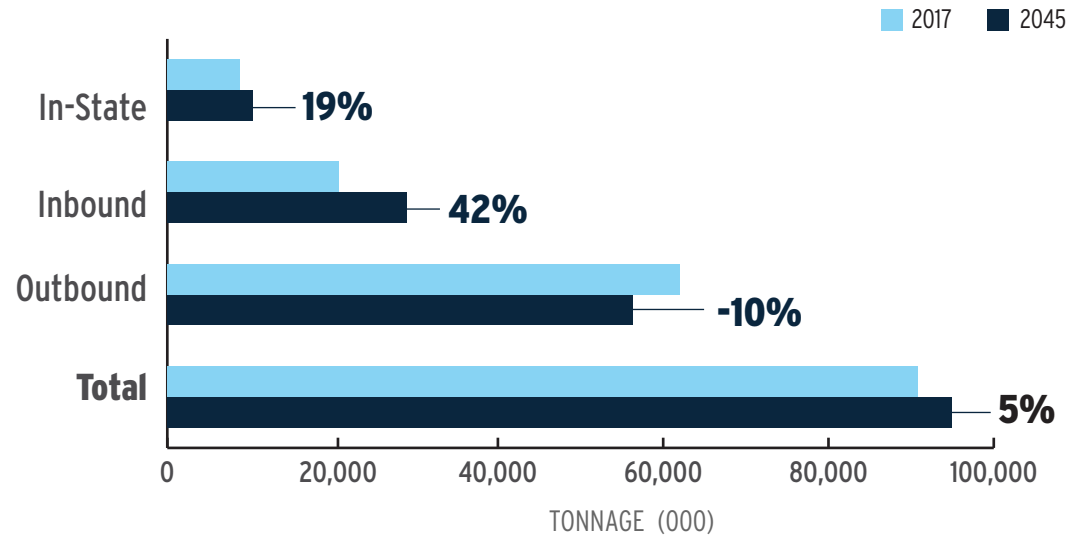
Freight Tonnage

DECLINED 16% IN 3 YEARS DUE TO LOSS OF OUTBOUND COAL TRAFFIC

Illinois Waterborne Tonnage

FORECASTED TO GROW 5% BY 2045

FIGURE 4.3 2045 Forecast Growth by Direction in Thousands of Tons

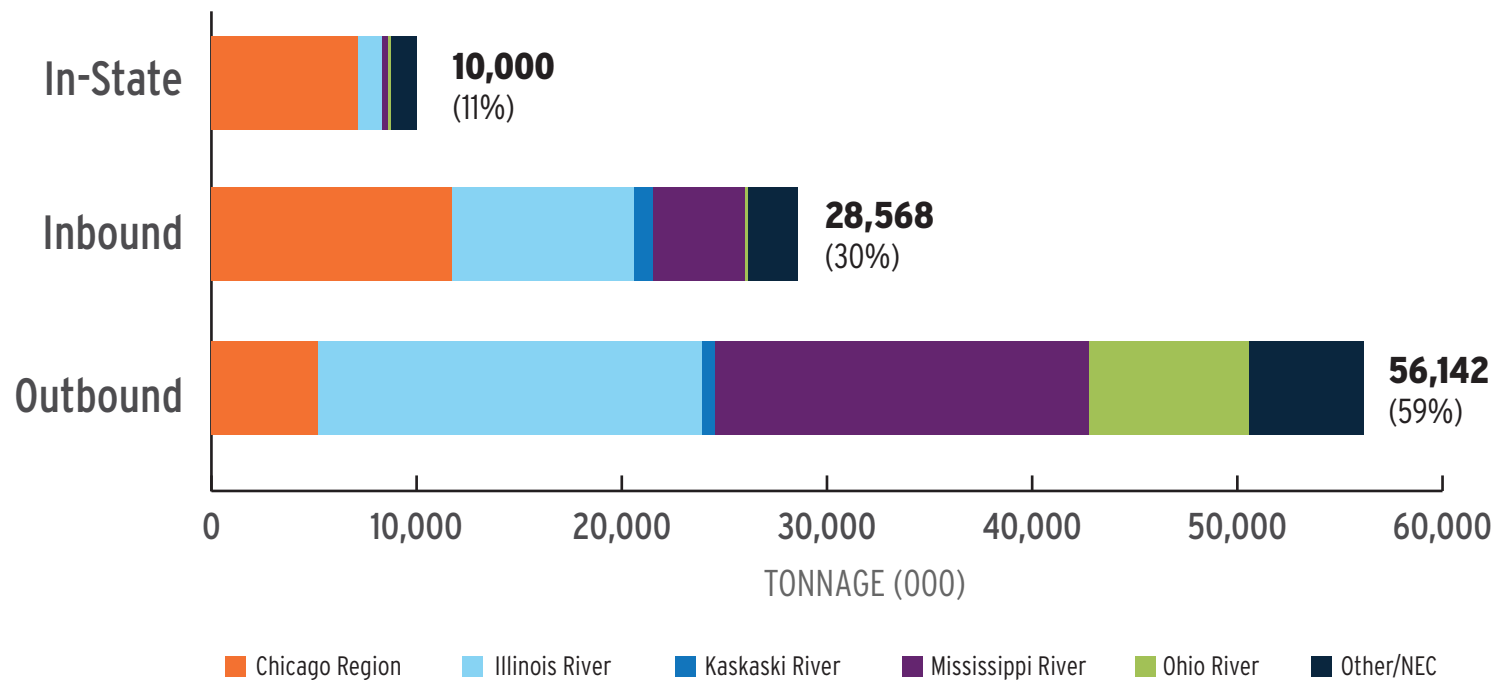


The traffic also includes an “Other and Not Elsewhere Classified (NEC)” category which is Illinois tonnage without identifying information as to type and location. Because it cannot be characterized, there is no basis for projecting whether it will grow or decline, and the forecast leaves the tonnage flat.

TABLE 4.1 2045 Forecast Growth by Waterway in Thousands of Tons

WATERWAY	TONS 2017	% OF STATE	TONS 2045	% OF STATE	GROWTH	CHANGE
Chicago Region	17,616	19%	24,083	25%	6,467	37%
Illinois River	26,074	29%	28,650	30%	2,576	10%
Kaskaskia River	1,385	2%	1,604	2%	219	16%
Mississippi River	24,590	27%	23,023	24%	-1,567	-6%
Ohio River	11,611	13%	8,065	9%	-3,546	-31%
Other/NEC	9,285	10%	9,285	10%	0	0%
Total	90,561	100%	94,710	100%	4,149	5%

FIGURE 4.4 2045 Volume by Direction and Waterway in Thousands of Tons



The source of tonnage is individual commodities and the driver of the forecast is the outlook for these commodities, whether produced and shipped in Illinois (outbound), or demanded and consumed in Illinois (inbound, with in-state also both out and in). The remainder of this chapter describes the array of commodities moving on Illinois waterways, first in 2017 and then as forecast for 2045, and presents examples of three prominent types:

- Food and Food Products, the principal outbound commodity and by far the largest overall, comprising nearly 40 percent of the total tonnage on Illinois waterways;
- Coal, the second largest outbound commodity and the source of over 80 percent of the forecast decline in outbound shipping, and
- Primary Metal Products, a top inbound and in-state commodity in 2017 and 2045, with a healthy forecast for growth.

The chapter concludes with a summary of sources for the traffic data and forecast.

4.1.1 COMMODITY FLOWS IN 2017

Illinois' outbound commodity flows on waterways totaled 62.1 million tons in 2017. The state is a top producer of agricultural products, notably corn, soybeans, and animal feed. Much of this production is sold for export, and the low-cost transportation provided by waterways running through the producing regions is a major factor determining the competitiveness of Illinois farm goods in the global market. The state also is a large manufacturer of food

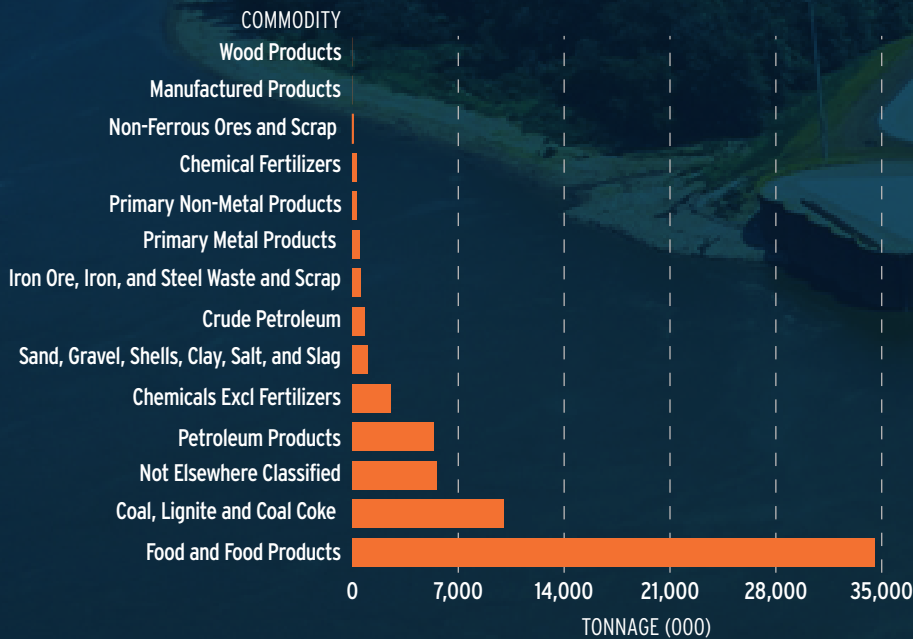
products, using farm goods as one of the inputs and shipping by water in bulk to markets around and outside the country.

Given the state's prominence in agriculture, food manufacture and exports of U.S. grains and soybeans, food and food products unsurprisingly account for the majority of the large outbound volume shipped by water. Other top commodities in 2017 include coal, petroleum products, chemicals, and sand and gravel, as shown in **Figure 4.5**.

Total inbound commodity flow volumes were 20.1 million tons in 2017, less than one-third the outbound total. Top inbound flows include primary metal products, chemical fertilizers, sand and gravel, and petroleum products as shown in **Figure 4.6**.

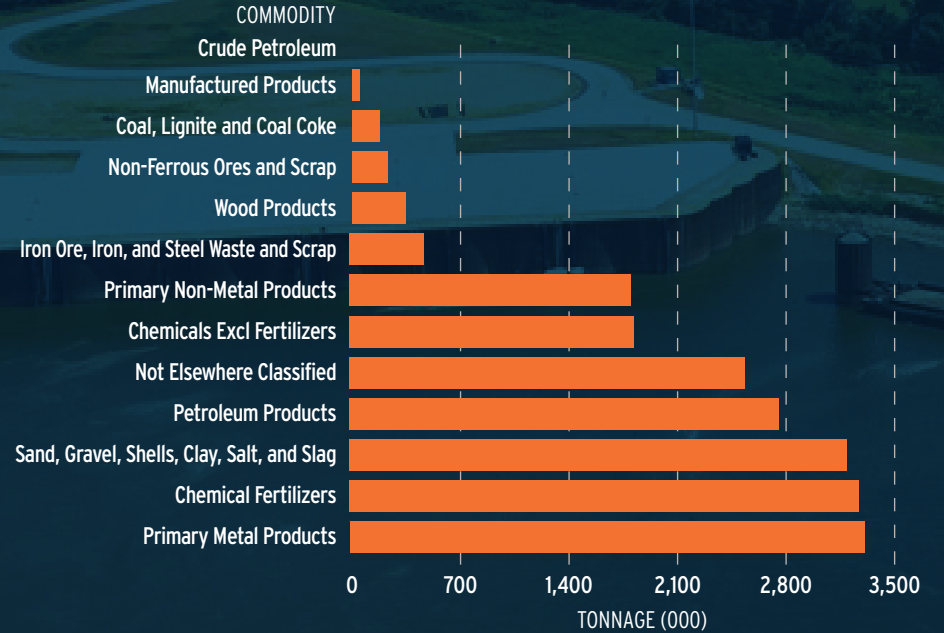
In-state commodity flows totaled 8.4 million tons in 2017, with sand and gravel the top commodity shown in **Figure 4.7** on the following page.

FIGURE 4.5 Outbound Commodity Shipments in 2017 in Thousands of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

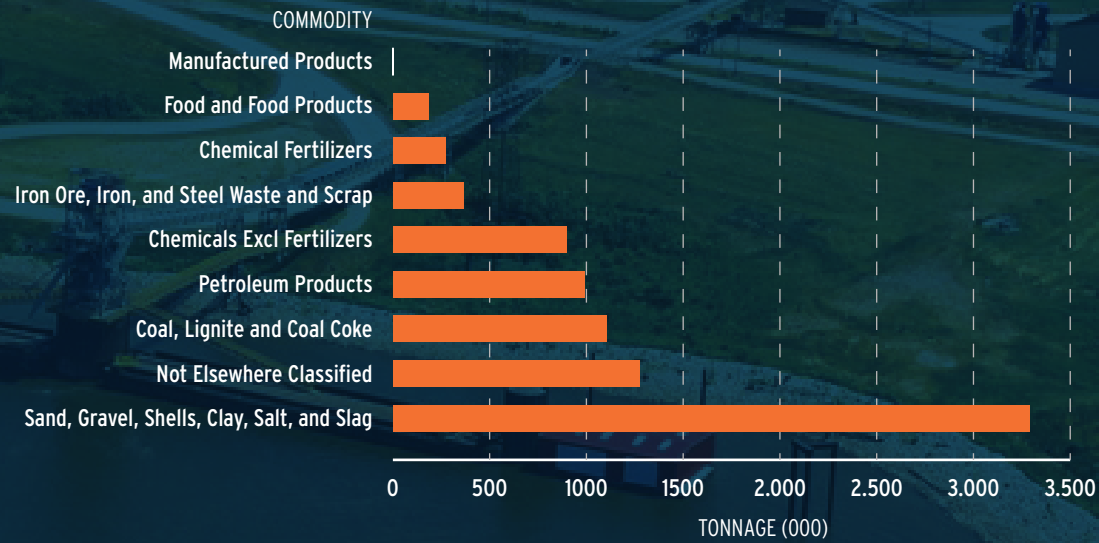
FIGURE 4.6 Inbound Commodity Shipments in 2017 in Thousands of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis



FIGURE 4.7 In-State Commodity Shipments in 2017 in Thousands of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

4.1.2 COMMODITY FLOW FORECAST

Illinois' outbound shipments are projected to decline by 10 percent from 2017 to 2045, as shown in **Table 4.2**. The state's substantial volumes of outbound food and food products are expected to grow 4 percent over this period. In contrast, 2017 volumes of the second largest volume commodity group, coal, lignite and coal coke, are projected to decline sharply from 2017 to 2045, dropping by 74 percent and turning the overall outbound forecast negative. Shipments of petroleum products are also expected to decline by 27 percent.

TABLE 4.2 Outbound Commodity Shipments 2045 Forecast in Thousands of Tons

COMMODITY GROUP	2017	2045	GROWTH	CHANGE
Wood Products	0	0	0	N/A
Manufactured Products	0	0	0	N/A
Coal, Lignite and Coal Coke	9,936	2,609	-7,327	-74%
Petroleum Products	5,417	3,938	-1,479	-27%
Chemicals excluding Fertilizers	2,624	2,357	-267	-10%
Crude Petroleum	953	932	-21	-2%
Not Elsewhere Classified	5,628	5,628	0	0%
Non-Ferrous Ores and Scrap	45	46	1	1%
Food and Food Products	34,567	36,009	1,442	4%
Sand, Gravel, Shells, Clay, Salt, and Slag	1,167	1,348	181	15%
Iron Ore, Iron, and Steel Waste and Scrap	706	1,055	349	49%
Chemical Fertilizers	297	502	205	69%
Primary Non-Metal Products	311	691	380	122%
Primary Metal Products	463	1,027	565	122%
Total	62,115	56,143	-5,973	-10%

Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

In contrast to outbound shipments, inbound volumes are expected to grow by 43 percent from 2017 to 2045, led by primary non-metal products, chemical fertilizers, primary metal products and chemicals. Coal volumes are expected to decline the most over this period in percentage terms, and petroleum products in terms of diminished tonnage, as shown in **Table 4.3**.

TABLE 4.3 Inbound Commodity Shipments 2045 Forecast in Thousands of Tons

COMMODITY GROUPS	2017	2045	GROWTH	CHANGE
Coal, Lignite and Coal Coke	46	12	-34	-75%
Petroleum Products	2,768	2,221	-546	-20%
Crude Petroleum	0	0	0	N/A
Manufactured Products	4	4	0	0%
Not Elsewhere Classified	2,433	2,433	0	0%
Sand, Gravel, Shells, Clay, Salt, and Slag	3,328	4,034	706	21%
Iron Ore, Iron, and Steel Waste and Scrap	349	474	126	36%
Non-Ferrous Ores and Scrap	178	286	107	60%
Primary Metal Products	3,322	5,318	1,996	60%
Chemicals excluding Fertilizers	1,837	3,038	1,201	65%
Chemical Fertilizers	3,285	5,432	2,147	65%
Food and Food Products	479	841	362	76%
Wood Products	230	432	201	87%
Primary Non-Metal Products	1,815	4,084	2,269	125%
Total	20,074	28,609	8,535	43%

Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

In-state shipment volumes are projected to grow 19 percent from 2017 to 2045, with primary metal products and sand and gravel accounting for most of this increase (as indicated in **Table 4.4**). As is the case for outbound and inbound shipments, volumes of petroleum products and coal, lignite, and coal coke are expected to decline the most.

TABLE 4.4 In-State Commodity Shipments 2045 Forecast in Thousands of Tons

COMMODITY GROUP	2017	2045	GROWTH	CHANGE
Coal, Lignite and Coal Coke	990	260	-730	-74%
Petroleum Products	897	631	-266	-30%
Chemicals excluding Fertilizers	363	326	-37	-10%
Not Elsewhere Classified	1,274	1,274	0	0%
Food and Food Products	1	2	0	4%
Sand, Gravel, Shells, Clay, Salt, and Slag	3,291	4,341	1,050	32%
Iron Ore, Iron, and Steel Waste and Scrap	270	403	133	49%
Chemical Fertilizers	183	310	127	69%
Primary Metal Products	1,105	2,453	1,348	122%
Total	8,375	10,000	1,625	19%

Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis



4.1.3 FOOD AND FOOD PRODUCTS

Outbound food and food products represent the largest volume commodity group transported on Illinois waterways. Volumes are mainly comprised of corn, soybeans, and animal feeds, almost all of which ultimately are transported down the Mississippi River. Illinois' outbound shipments of food products totaled 34.6 million tons in 2017 of which 33.7 million tons went to Louisiana and its ports, and 0.7 million tons to Alabama and Tennessee (i.e. via the Tennessee River). For the most part, these volumes are later shipped from Gulf of Mexico ports to international destinations.

Outbound shipments of 14.5 million tons originated from the Illinois River. A total of 13.5 million tons originated from Illinois portions of the Mississippi River and 5.6 million tons from the Ohio River. Volumes of outbound shipments of food are projected to grow 4 percent from 2017 to 2045, as illustrated in **Figure 4.8**. Specific projections for corn and soybeans appear in **Figure 4.9**, showing the growth in corn at 7.5 percent through 2045 and soybeans at 2.2 percent.

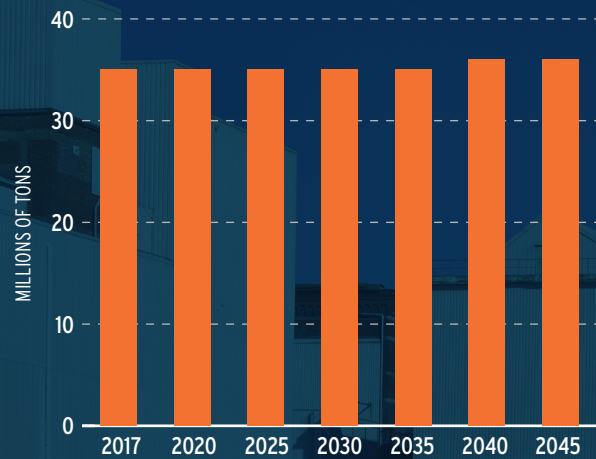
Inbound food product volumes totaled a relatively small 0.8 million tons in 2017 and included vegetable

oils and molasses. These volumes are projected to grow 76 percent from 2017 to 2045, as depicted in **Figure 4.10**.

Shipments of food products within Illinois were negligible in 2017 and are projected to remain so.

As shown in **Figure 4.11** 2017 origins of outbound food shipments are concentrated in St. Clair, Madison, and Adams Counties on the Mississippi River, Massac County on the Ohio River, and in central Illinois and to the South on the Illinois River. The 2045 forecast does not change these patterns.

FIGURE 4.8 Forecast of Outbound Shipments of Food in Millions of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

FIGURE 4.9 Forecast of Outbound Corn and Soybean Shipments in Millions of Tons

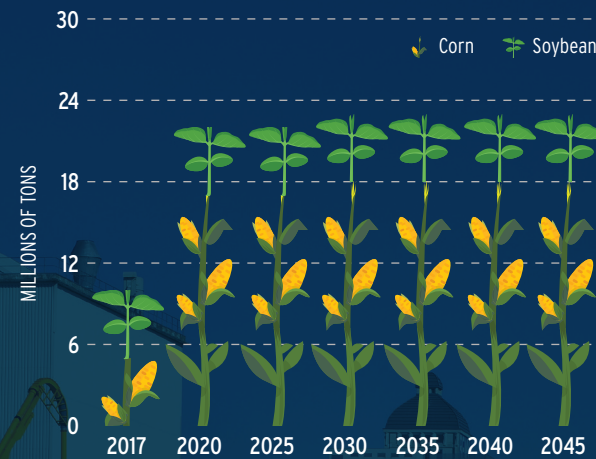


FIGURE 4.10 Forecast of Inbound Shipments of Food in Thousands of Tons

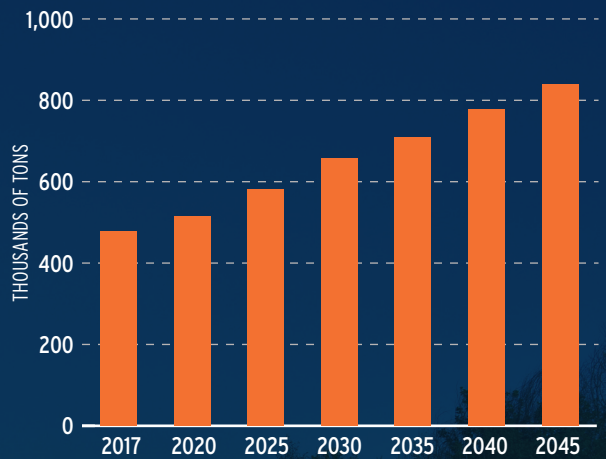
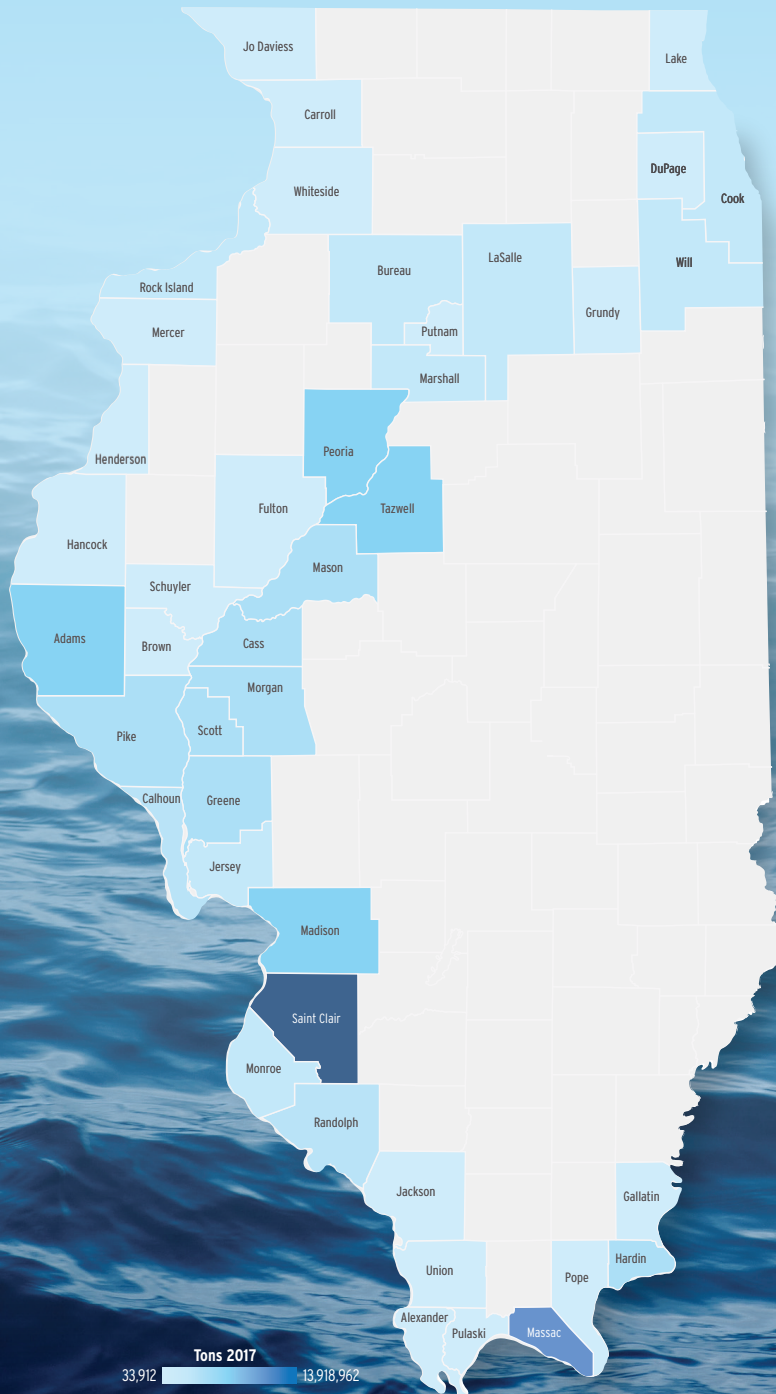


FIGURE 4.11 Distribution of 2017 Outbound Food Shipments by Origin County in Tons



Tons 2017
33,912 — 13,918,962

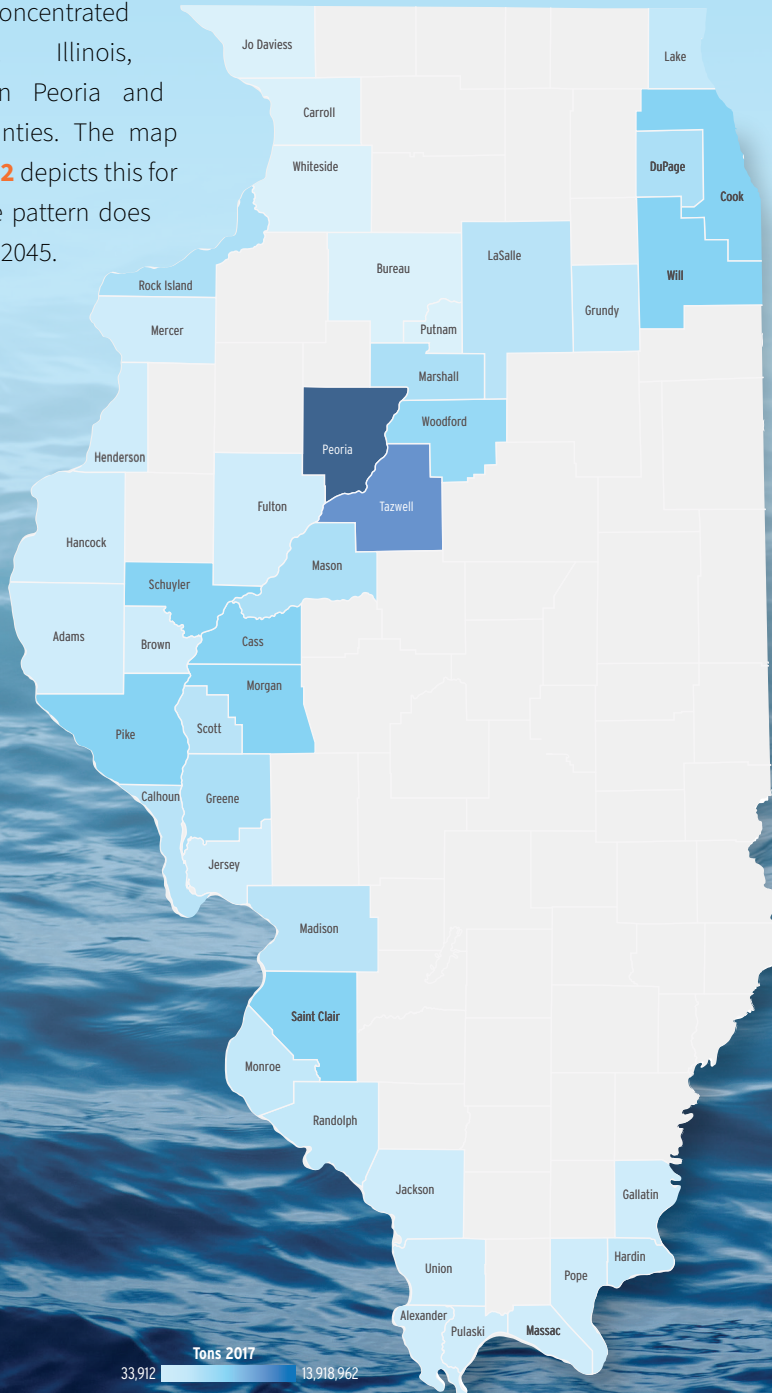
COUNTY NAME	TONNAGE	COUNTY NAME	TONNAGE
St Clair	7,141,257	Bureau	407,732
Massac	3,845,524	Cook	360,290
Madison	2,318,587	Alexander	291,135
Adams	2,188,346	Schuyler	275,387
Tazewell	2,185,583	Whiteside	230,918
Peoria	1,489,414	Henderson	229,781
Pike	1,234,875	Jackson	212,321
Cass	1,165,027	Grundy	204,856
Morgan	1,138,731	Jo Daviess	146,583
Greene	1,103,807	Putnam	82,397
Scott	999,959	Du Page	70,919
Mason	936,841	Mercer	60,318
Hardin	919,956	Monroe	45,000
Woodford	828,986	Carroll	28,479
La Salle	673,047	Gallatin	17,734
Will	637,535	Union	0
Marshall	561,524	Brown	0
Pulaski	540,890	Fulton	0
Calhoun	537,709	Jersey	0
Rock Island	517,179	Pope	0
Randolph	512,188	Lake	0
Hancock	426,230		

Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

4. ECONOMIC VALUE

Destinations of inbound food are concentrated in central Illinois, specifically in Peoria and Tazewell Counties. The map in **Figure 4.12** depicts this for 2017, and the pattern does not change in 2045.

FIGURE 4.12 Distribution of 2017 Inbound Food Shipments by Destination County in Tons



COUNTY NAME	TONNAGE	COUNTY NAME	TONNAGE
Peoria	80,643	Grundy	3,410
Tazewell	66,051	Henderson	2,181
Cook	35,112	Monroe	1,529
Will	30,669	Bureau	1,003
St Clair	26,486	Mercer	957
Morgan	25,399	Randolph	683
Cass	25,057	Jackson	723
Pike	22,513	Carroll	331
Woodford	20,704	Putnam	315
Schuyler	18,432	Union	0
Greene	17,974	Jo Daviess	9
Scott	14,980	Brown	0
Adams	12,765	Fulton	0
Du Page	12,690	Jersey	0
Madison	10,975	Alexander	0
Marshall	9,827	Gallatin	0
Rock Island	8,895	Hardin	0
La Salle	8,597	Massac	0
Mason	6,784	Pope	0
Hancock	5,307	Pulaski	0
Calhoun	4,173	Lake	0
Whiteside	3,639		

Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

4.1.4 COAL

Almost all shipments of coal have been outbound. Coal was the second largest commodity group in terms of shipments from Illinois to other states, with 9.9 million tons shipped in 2017 including 6.3 million tons shipped north to Indiana and 3.1 million tons going south to Louisiana.

For outbound volumes from Illinois, the major origin in 2017 was the Kaskaskia region including the Kaskaskia River and Port of Kaskaskia (the Army Corps' definition which includes part of the East bank of the Mississippi River).

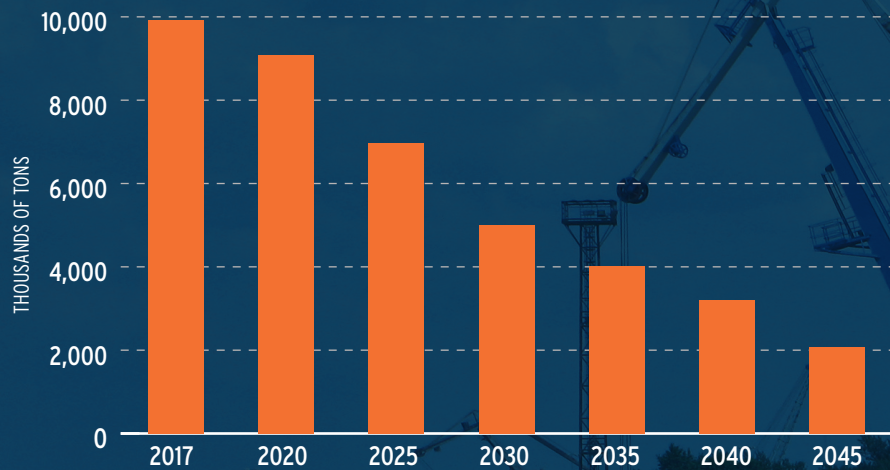
This region was the origin of 4.0 million tons of coal in 2017, exceeding the 3.1 million tons shipped to Louisiana, with the remainder going to other destination states such as Iowa or Wisconsin. It is estimated that the Ohio River was the origin of 4.0 million tons of coal, accounting for a majority of coal volumes shipped to Indiana. Another 0.4 million tons of coal originated out of the Port of Chicago.

Outbound coal has fallen dramatically from the 30 million tons in 2014, as reported in the Illinois

State Freight Plan. Competition from natural gas as an energy source for electric utilities is the chief cause, and falling volumes are projected to continue, with a decline of 74 percent from 2017 to 2045 (**Figure 4.13**).

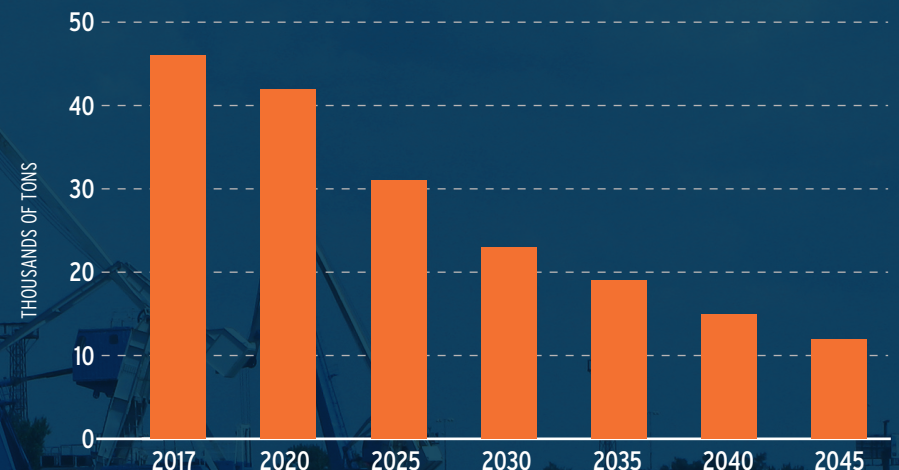
Inbound receipts of coal have been significantly smaller compared to outbound shipments, at under 90 thousand tons in 2017 (**Figure 4.14**). Volumes are projected to decline 75 percent from 2017 to 2045. No coal moved within Illinois in 2017.

FIGURE 4.13 Forecast of Outbound Shipments of Coal in Thousands of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

FIGURE 4.14 Forecast of Inbound Shipments of Coal in Thousands of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

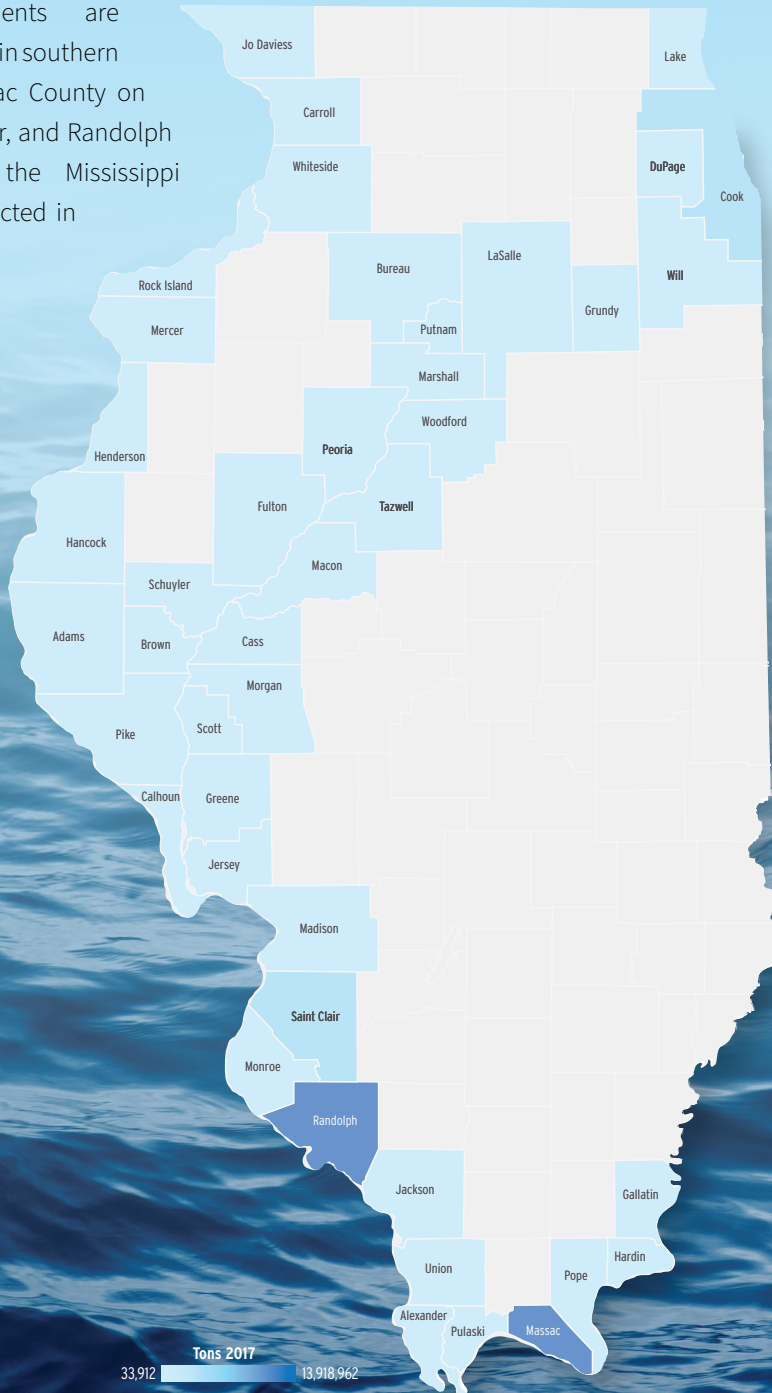


4. ECONOMIC VALUE

Origins of outbound coal shipments are concentrated in southern Illinois, Massac County on the Ohio River, and Randolph County on the Mississippi River, and Randolph County on the Mississippi River, as depicted in

Figure 4.15.

FIGURE 4.15 Distribution of 2017 Outbound Coal Shipments by Origin County in Tons



COUNTY NAME	TONNAGE	COUNTY NAME	TONNAGE
Massac	4,702,606	Woodford	349
Randolph	4,033,671	Marshall	236
St Clair	419,438	Adams	53
Cook	362,782	Pike	10
Madison	126,842	Cass	10
Du Page	71,410	Morgan	9
Hardin	68,955	Greene	9
Pulaski	40,542	Scott	8
Jo Daviess	40,389	Schuyler	2
Alexander	21,822	Union	0
Jackson	12,471	Brown	0
Calhoun	10,773	Fulton	0
La Salle	6,508	Jersey	0
Will	6,165	Monroe	0
Bureau	3,942	Hancock	0
Grundy	1,981	Henderson	0
Gallatin	1,329	Mercer	0
Tazewell	920	Rock Island	0
Carroll	807	Whiteside	0
Putnam	797	Pope	0
Peoria	627	Lake	0
Mason	394		

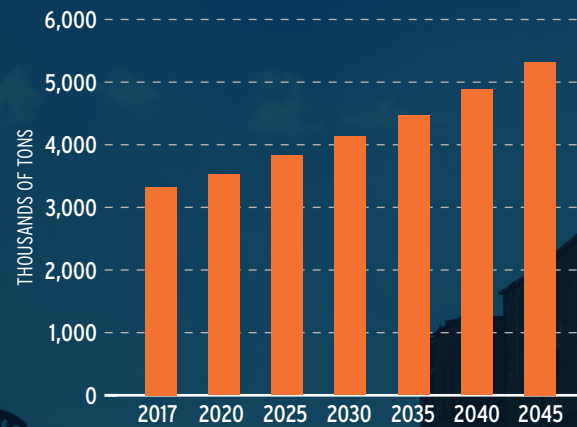
Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

4.1.5 PRIMARY METAL PRODUCTS

Primary metal products range from pig iron to bars and shapes. A majority of primary metal product volumes are inbound, with 3.3 million tons in 2017 coming from states including Louisiana and Arkansas, as well as from Canada and other countries. Growth in inbound volumes is projected to increase 60 percent from 2017 to 2045, as shown in **Figure 4.16**.

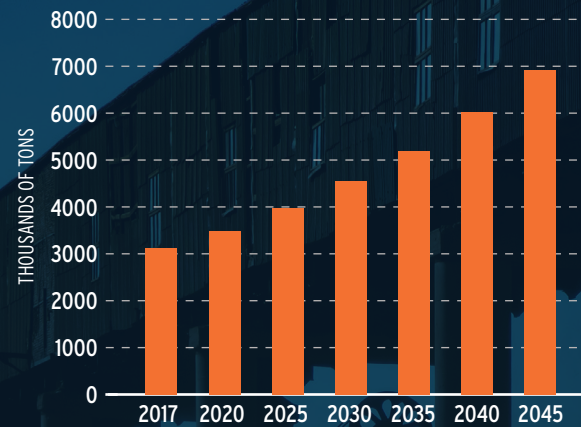
Outbound volumes are quite small, at 0.3 million tons in 2017 although projected to grow 122 percent from 2017 to 2045 (**Figure 4.17**). In-state volumes are larger at 1.1 million tons in 2017 and also are projected to grow 122 percent from 2017 to 2045 (**Figure 4.18**).

FIGURE 4.16 Forecast of Inbound Primary Metal Products in Thousands of Tons



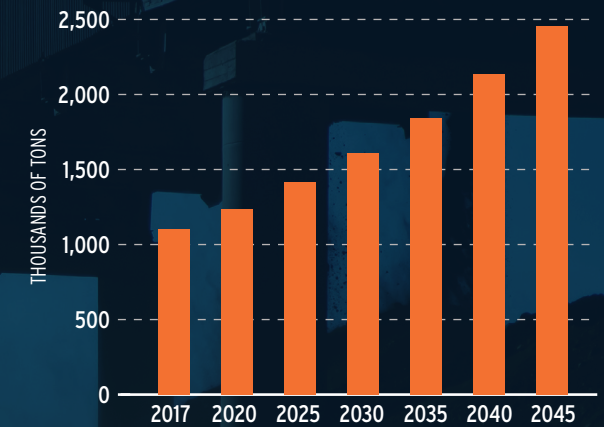
Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

FIGURE 4.17 Forecast of Outbound Primary Metal Products in Thousands of Tons



Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

FIGURE 4.18 Forecast of In-State Primary Metal Products in Thousands of Tons



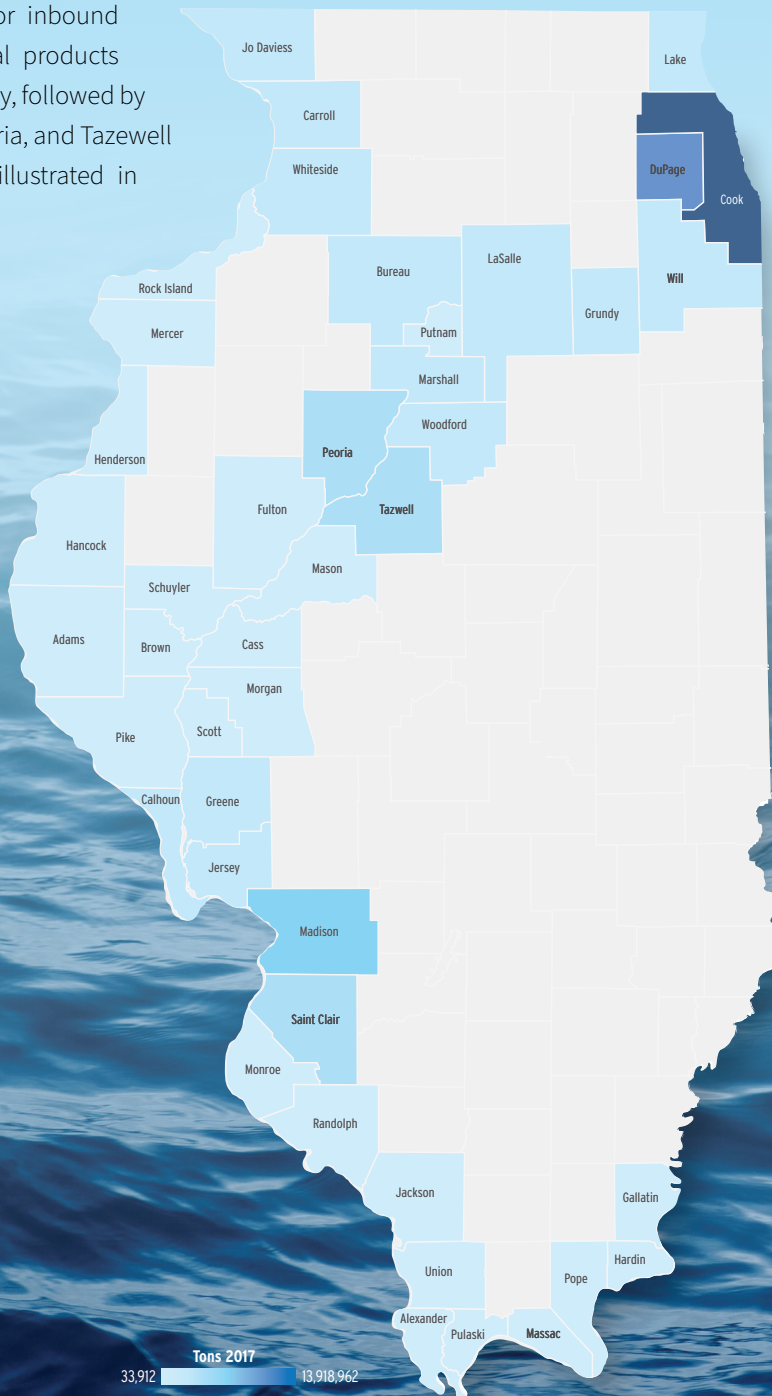
Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

4. ECONOMIC VALUE

The predominant destination for inbound primary metal products is Cook County, followed by Madison, Peoria, and Tazewell Counties as illustrated in

Figure 4.19.

FIGURE 4.19 Distribution of 2017 Inbound Primary Metal Products by Destination County in Tons



COUNTY NAME	TONNAGE	COUNTY NAME	TONNAGE
Cook	1,566,819	Morgan	814
Du Page	566,253	Cass	803
Madison	334,546	Pike	721
Peoria	195,328	Mercer	605
Tazewell	159,984	Schuyler	590
St Clair	138,625	Greene	576
Will	130,235	Scott	480
Woodford	50,148	Union	0
La Salle	36,505	Brown	0
Monroe	28,741	Fulton	0
Marshall	23,802	Jersey	0
Mason	16,433	Hancock	0
Grundy	14,480	Henderson	0
Randolph	12,836	Jo Daviess	0
Calhoun	10,438	Alexander	0
Jackson	9,138	Gallatin	0
Carroll	7,092	Hardin	0
Rock Island	5,626	Massac	0
Bureau	4,260	Pope	0
Whiteside	2,302	Pulaski	0
Adams	2,065	Lake	0
Putnam	1,337		

Source: Army Corps of Engineers Waterborne Commerce Statistics and WSP Analysis

4.1.6 SOURCE OF DATA AND FORECAST

Four sets of data are used to develop the profiles presented in this chapter and to produce commodity flow forecasts for Illinois waterways. The first two are historical commodity flow data from the Army Corps of Engineers Waterborne Commerce of the United States (WCUS) for 2017, the third is derived from the Transearch Database, and the fourth from the U.S. DOT Freight Analysis Framework. These data sources are outlined below.

The WCUS data are reported in such a way as to protect the confidentiality of shippers and receivers of goods, and there is overlap between the volumes reported for various sections of waterway. Thus, while the state's total tonnage is a straightforward quantity, its waterway components are ambiguous and do not sum to the state total. Because volumes on specific waterways are important to Illinois port districts and to the estimation of activity by county, a considerable

effort was undertaken for the IMTS Plan to develop practical estimates of tonnage by waterway. This involved consultation with the Army Corps and multiple Illinois port districts, as well as cross-referencing and analysis across reported values and their definitions. The result is a reasonable depiction of waterway shipping; it is not exact, but it is sound and affords a solid basis for planning.

1 STATE TO STATE COMMODITY FLOWS transported on waterways in tons. Detail includes 14 commodity groups. This information does not contain waterway segment detail.

3 REGIONAL COMMODITY FLOWS derived from the commercial database Transearch for the Illinois State Freight Plan. It includes county-to-county flows and is used to estimate county origins for outbound shipments and county destinations for inbound receipts.

2 TONNAGE TRANSPORTED ON U.S. WATERWAY SEGMENTS. This data provides greater commodity detail, direction of movement, and shipments versus receipts, but does not contain origin-destination flows. Illinois waterway segments include the Illinois Waterway System (with Illinois River and Chicago area segments), the Kaskaskia River, and segments of the Mississippi River and Ohio River.

4 U.S. DOT FREIGHT ANALYSIS FRAMEWORK version 4 (FAF) forecasts of projected Illinois waterborne commodity volumes. Long term growth rates from FAF are applied to 2017 base year Army Corps' WCUS data to produce forecasts out to 2045.

In addition to the data and sources listed above, there is another classification which is important to note and could have federal funding implications. Port Statistical Areas (PSA) are used by the Army Corps of Engineers (USACE) to help rank ports based on the tonnage that is shipped or received within that geographic area. PSA's can vary in size from a municipality to multiple counties. The USACE does not use this statistic to prioritize projects, however PSA's assist in acquiring more accurate shipping data which can be helpful to the ports within the PSA in making a case for the receipt of state and federal funding.

4.2 INDUSTRY AND CARRIER PROFILES

The preceding subsection described the flow of commodities on the IMTS, first in summary and then in detail for three principal commodity types important to outbound and inbound traffic volumes and projections: food and food products, coal, and primary metal products. This subsection presents profiles of the industries responsible for this traffic, their importance in Illinois, their geography in respect to the marine system, and their business dynamics as they affect demand. The subsection following profiles the carriers who move goods on the marine system in service to these and other industries in the state.

4.2.1 FOOD AND FOOD PRODUCTS

The farm and food manufacturing industry accounted for 13.7 percent of the contribution of the private goods producing sector to 2017 GDP in the state of Illinois, according to the U.S. Department of Commerce.

Farms are a bit less than one-third of this contribution, but they are the underpinnings of much of the rest, supplying raw materials for processed foods. Corn and soybeans are the primary crops in Illinois agriculture.

Illinois is ranked as the nation's largest producer of soybeans in 2018 and was second only to Iowa in corn production.¹ Both commodities are heavily used for animal feed and as sources of oil. Among other products, soy is the basis of tofu and soy milk, a leading entry in the growing market for plant-based food. Corn is a source of sweeteners, starches, alcohol, and the ethanol used as a fuel additive with gasoline. These two Illinois crops are thus vital inputs for a variety of food and industrial uses, from livestock and manufactured goods to transportation.

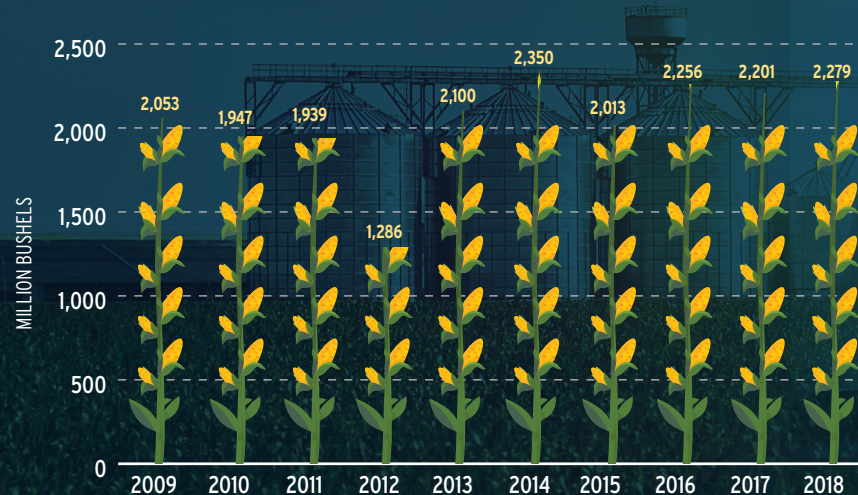
The waterway system is well suited to the movement of food in bulk, especially for high volume goods

in concentrated corridors. Corn and soybeans transported from Illinois farms have these characteristics. The largest single category of goods moved on the IMTS in 2017 was outbound food and food products, almost two-thirds of which consisted of corn and soybeans.

Production trends for these crops in Illinois are shown in **Figure 4.20** and **Figure 4.21**. Corn has been generally flat in recent years, whereas soybean output has risen fairly steadily. This is significant in that farmers generally alternate between them, partly for the benefit to soil of crop rotation and partly in response to variable market demand and commodity prices on a delivered basis. These commodities are traded globally. Illinois agriculture competes with growers around the world, and global demand affects every market and the income farmers can realize for their labor.

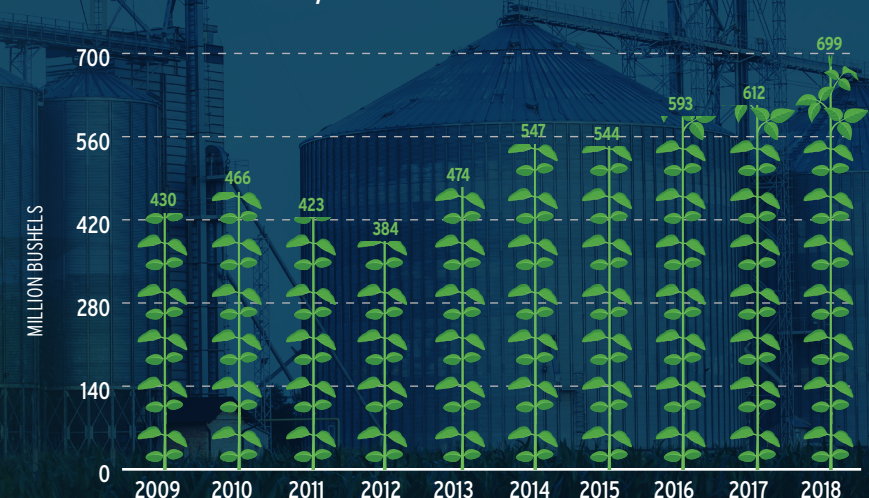
FARM AND FOOD MANUFACTURING CONTRIBUTE **13.7%** of Illinois' GDP

FIGURE 4.20 Trend in Illinois Corn Production



Source: USDA

FIGURE 4.21 Trend in Illinois Soybean Production



Source: USDA

This is especially and acutely true for traffic on the IMTS. Roughly one-quarter of the value of Illinois corn and two-fifths of soybean production went to export in 2018.² However, the previous section noted that nearly all (97 percent) of the Illinois outbound waterborne shipments of food products traveled downriver to Louisiana – home to the largest dry bulk ports in the country where half the volume goes to export.³

The implication is that the export market is a key driver of demand for the largest commodity group on the IMTS. As **Figure 4.22** illustrates, this is a volatile market, with corn exports rising 42 percent between 2017 and 2018 in a year when total production rose less than 4 percent, and soybean exports falling 15 percent between 2017 and 2018 in a year when total production grew 14 percent. The drop in soybeans can be attributed to the loss of the Chinese market due to higher tariffs imposed by that country during trade disputes with the United States.

The Chinese market (unimportant for U.S. corn but the largest in the world for soybeans) absorbed the majority of Illinois soybean exports in 2017, then with tariffs the following year, the Chinese market for Illinois exports declined more than 90 percent.⁴ A commodity market is one that turns on price because there is little difference among products between producers. Because a tariff is an effective price increase, the decline in 2018 volume is a demonstration of sensitivity to its effect. In turn, this is an indirect demonstration of the importance of the IMTS to Illinois agriculture, because waterways offer the least expensive means of bulk transportation for shippers with efficient access to them and thus help keep the state's farmers' price competitive.

The geography of Illinois corn and soybean production is mapped in **Figure 4.23** and **Figure 4.24** on the following page. The state produces three times as much corn as soybeans, making corn volumes by

county greater, yet soybean prices are approximately two-and-a-half times higher than corn, so the total dollar values of output by county would be closer to one another. Locations are comparable (to be expected for crops that are rotated); growers are present throughout the state but larger output broadly is north of St. Louis, and concentrations are south of Rock Island. Prominent counties are similar; top ones are somewhat different (perhaps again because of crop rotation), although such counties as Tazewell and Sangamon are leading producers of both crops. Clusters of crop volume are evident along and between the Mississippi and Illinois rivers, and extend further east toward the Indiana border. Grain terminal operators interviewed for this plan stated they do business with farms 60-90 miles away, which equates to the breadth of two to three counties; distances can be longer or shorter depending on the presence of competing facilities and transportation alternatives.

FIGURE 4.22 Illinois Corn and Soybean Export Trends (USDA)

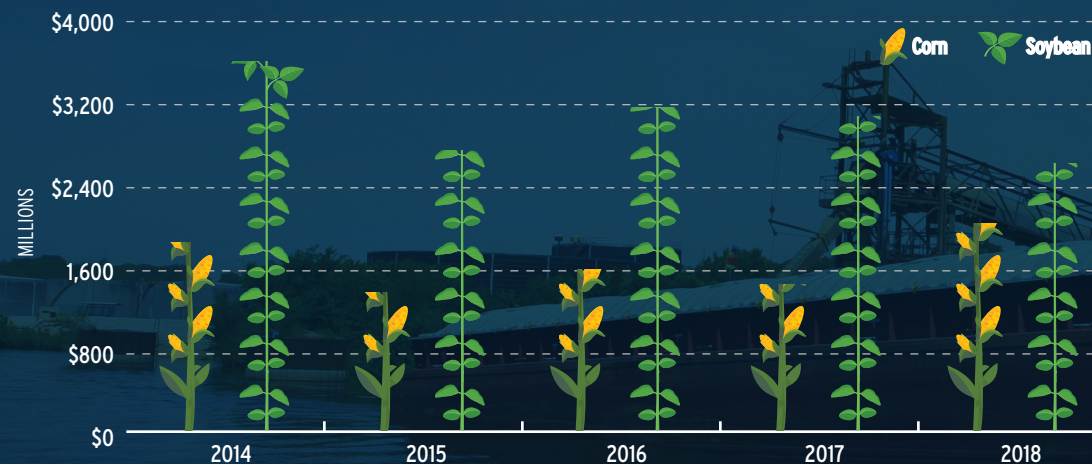


FIGURE 4.23 IL Corn Production by County: 2018 Bushels per Acre (USDA)

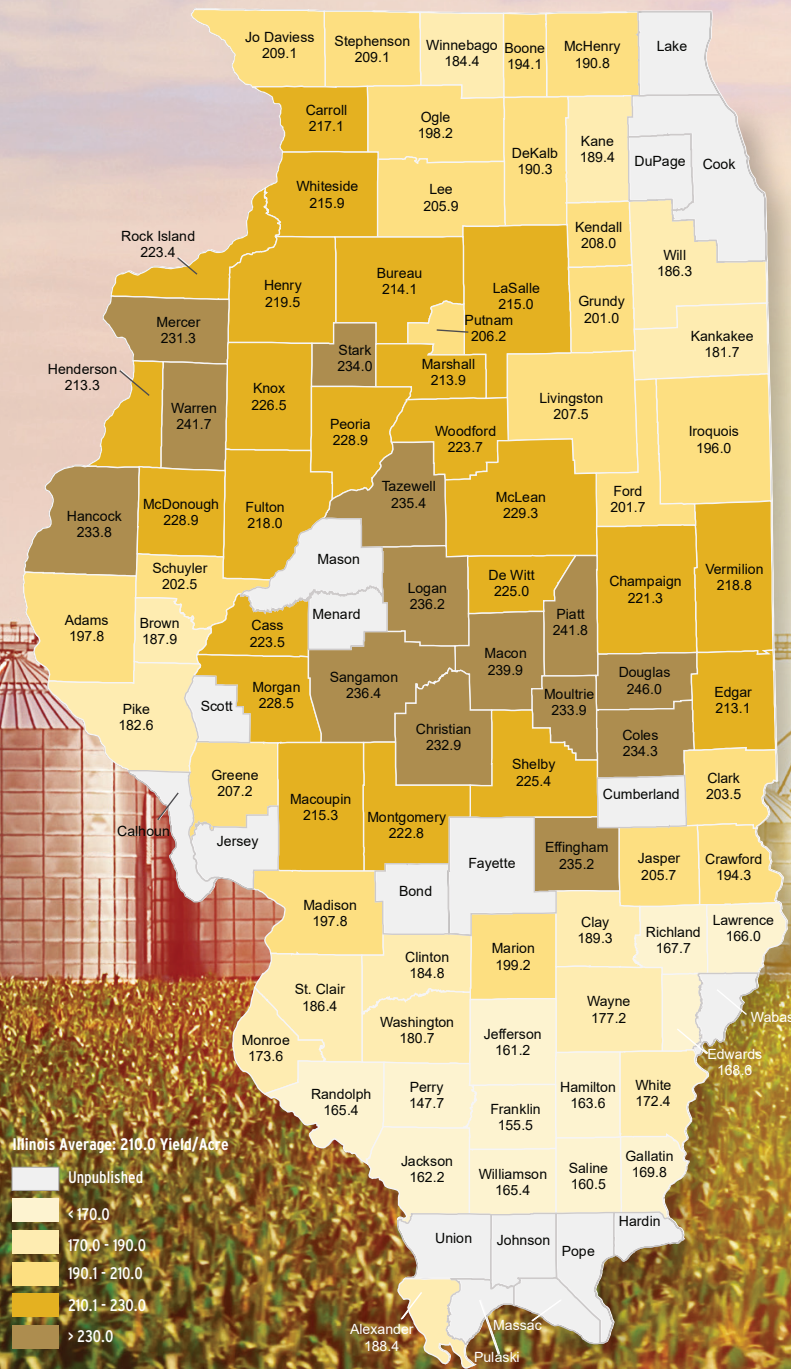
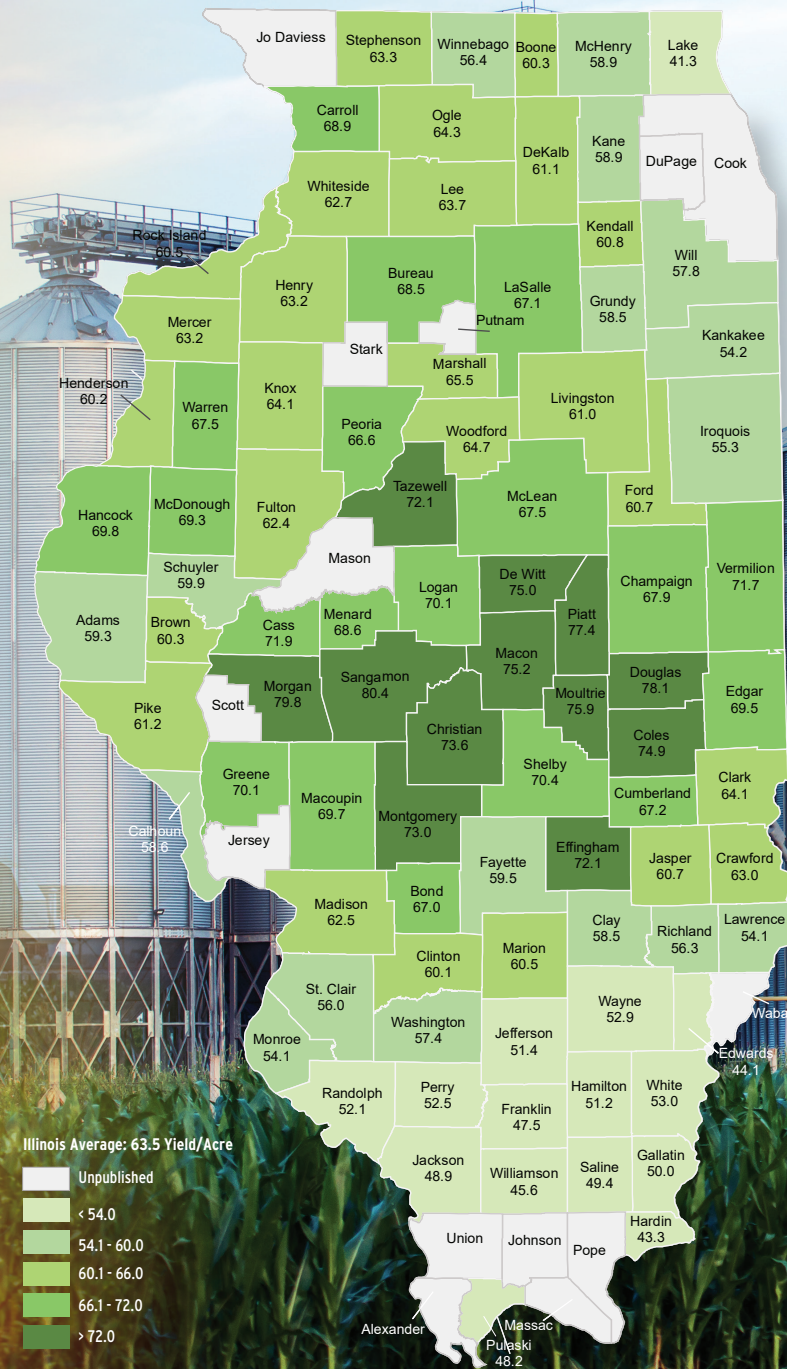


FIGURE 4.24 IL Soybean Production by County: 2018 Bushels per Acre (USDA)



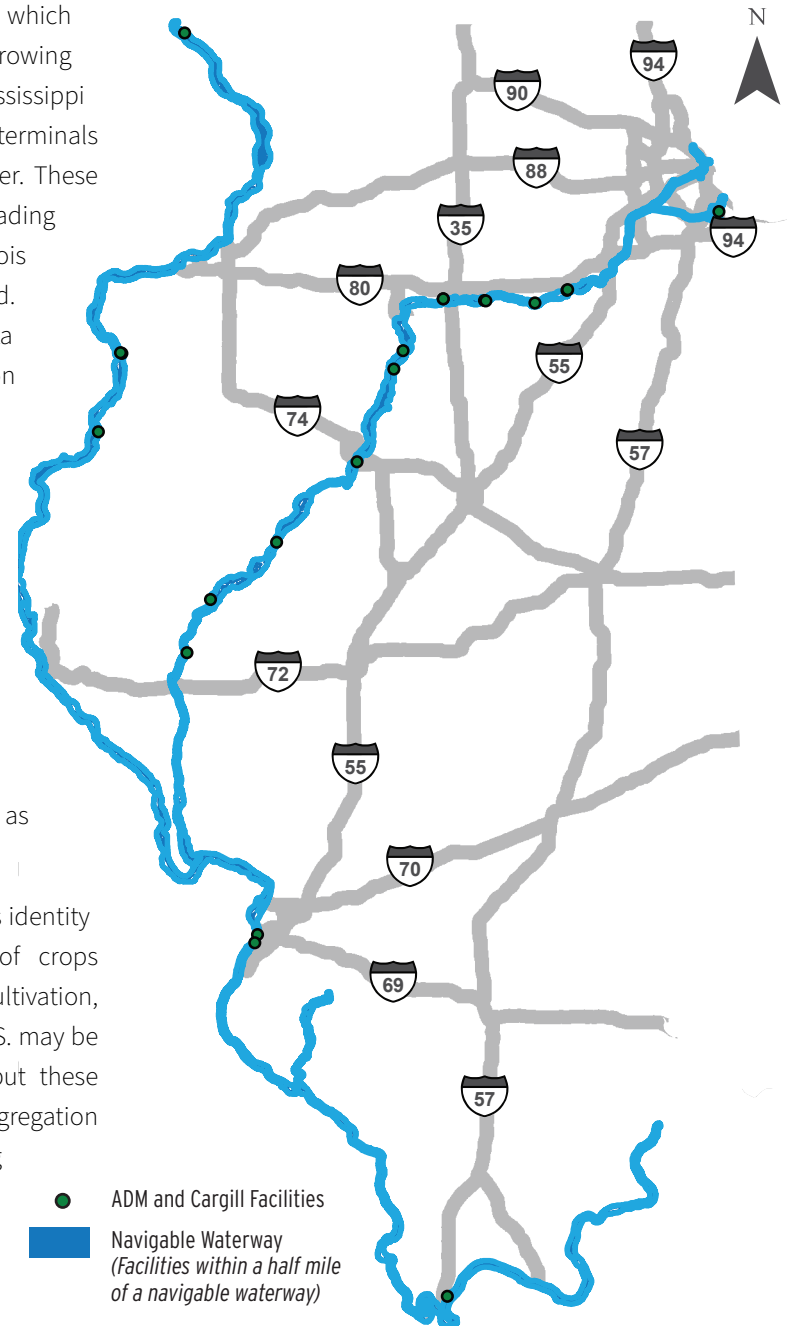
Farms access the rivers over roads by truck, with average payloads reportedly of 55,000 pounds. The top commodity moved by truck in the Illinois State Freight Plan was grain, although this encompassed direct shipments by truck and transloads to rail as well as to water. The cost of trucking was quoted in interviews at \$3.50 per loaded mile, which equates to ten to twelve cents per bushel for a 30-mile connection and twice that for 60 miles. In addition, the grain will be moved at least twice enroute to the waterfront - once to a grain elevator or "bin," then again to the waterside terminal - which easily could add 20-30 percent to the cost. This translates to two to seven percent of the market price per bushel depending on the connection distance and commodity (the higher priced soybeans are at the low end of the range, corn at the high). Farmers pay close attention to the "basis," which is the difference between the cash price at which they can sell grain locally and the market price for grain futures contract, which is established at exchanges such as the Chicago Board of Trade. Basis effectively sets the local cash price; it is more favorable close to the Mississippi River and less favorable further north in Illinois which reflects the cost of moving to domestic and global markets. The consequence is that the competitiveness of waterway transportation and access to the water affects farm incomes, land values, and tax bases.

The American multinational agribusiness companies Archer Daniels Midland (ADM) and Cargill are the leading intermediaries for Illinois corn and soybeans. Both have Illinois terminals along the IMTS (as depicted by the map in **Figure 4.25**) in addition to offices and facilities for other aspects of their

business. As the map indicates, the terminals are concentrated along the Illinois River which runs through the heart of the state's growing region. A smaller number appear on the Mississippi River although there are apt to be other terminals on the Iowa and Missouri sides of the water. These companies are involved in commodity trading contracts and are market makers for Illinois farms helping them sell into global demand. They work with farmers directly offering data and guidance for example on the direction of prices, what and how much to plant, when to store, and when to sell. Crops sold to the intermediary are trucked to the terminal where they may be dried (to remove moisture and weight) and are staged for loading. Both companies own barges themselves and also load onto equipment provided by carriers and others. There are smaller companies in this sector doing similar things on the IMTS, but these two firms are noteworthy as global players.

An important development in this market is identity preservation which is the segregation of crops according to their source, method of cultivation, and genetics. Grains and oil seeds in the U.S. may be genetically modified organisms (GMOs), but these are restricted in some foreign countries. Segregation of non-GMO crops is necessary for trading with such countries. However, the concept of identity preservation has evolved beyond GMO into the quest to define the conditions that lead to

FIGURE 4.25 IL Facilities of Major Agribusiness Companies on IMTS



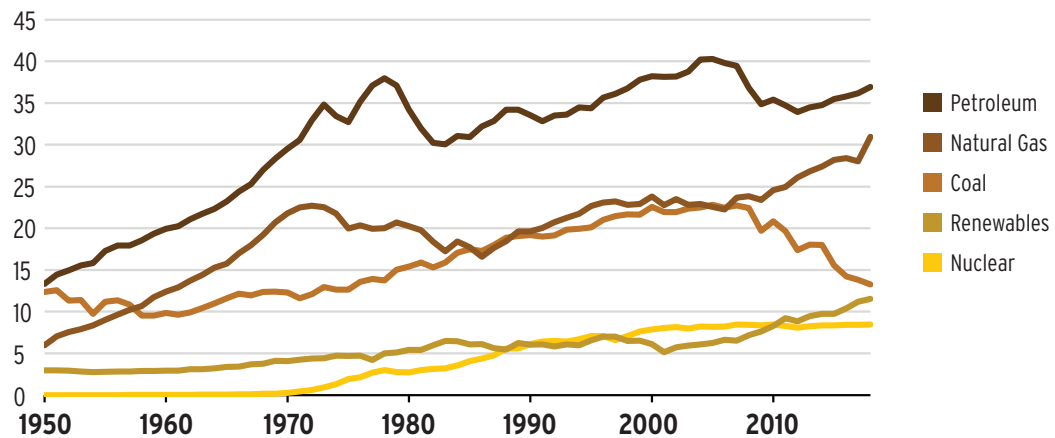
certain desirable crop characteristics such as protein content and disease resistance. This is enabled by information technology incorporated into farm equipment which can keep detailed digital records of seed, weather, cultivation techniques, and the like, from planting to harvest. Such distinctions change the character of the crop from a generic commodity to a differentiated product that may be able to command a better price. Thus far, the separation of non-GMO products still allows movement in bulk with such crops handled on different days at terminals and loaded onto specific barges. Bulk shipping keeps costs down and is desirable to retain. Nevertheless, the future of identity preservation points toward containerized goods as a coming segment in the market. The ability of container-on-barge or container-on-vessel operations to profitably and dependably serve this segment is an open question for the years ahead as is the supply of containers in the agricultural counties of Illinois where they would be needed.

4.2.2 COAL

Outbound coal was by far the largest commodity moving on the IMTS at the time the Illinois State Freight Plan was issued in 2017 (using data from 2014). Three years later, it is not. This is plainly illustrated by **Figure 4.26** from the U.S. Energy Information Administration (USEIA). Growth in coal and natural gas usage grew in tandem from the mid-1980's through around 2007, the approximate start of the fracking boom in the U.S. Thereafter, the usage trends sharply diverge, with natural gas climbing rapidly and coal falling about as fast.

FIGURE 4.26 Trends in U.S. Energy Sources (USEIA)

U.S. Total Energy Consumption (1950-2018) quadrillion British thermal units



The decline in coal is a national and global phenomenon PRECIPITATED BY ITS SULFUR AND GREENHOUSE GAS EMISSIONS AND ESPECIALLY BY THE RISE OF CHEAP, PLENTIFUL SOURCES OF DOMESTIC NATURAL GAS.



Illinois has around 15 percent of the nation's economically recoverable coal reserves, and is second only to Montana in this respect.⁵ Coal in the United States is employed almost entirely for the generation of electric power. This use and the declining demand for it can be seen in **Figure 4.27**. Even so, the trend in Illinois coal production has gone somewhat differently, as **Figure 4.28** shows and for several reasons. The first is that one-fifth of the output from Illinois mines is consumed by in-state utilities⁶ with the coal moving short distances by trucks or conveyors. This amounts to captive production with very low delivered cost. The second is that another quarter of Illinois' output goes to export, some of it metallurgical coal for industrial applications.

Third, coal from the Illinois Basin is like Appalachian coal in having high sulfur content, yet it has lower extraction costs than mines in the mountains of Appalachia. Coal from the giant Powder River Basin of Montana and Wyoming has low sulfur content. Electric utilities responding to air quality regulations began using scrubbers to remove sulfur but also mixing coal from high and low sulfur sources. This tended to favor the Illinois Basin over Appalachia because of its production cost advantage, and output in Illinois started to rise in 2011, reaching a peak in 2014 before falling back somewhat. Nevertheless, the future brings more challenges to demand, as **Figure 4.29** helps to explain.

FIGURE 4.27 Trend in Coal Use (USEIA)

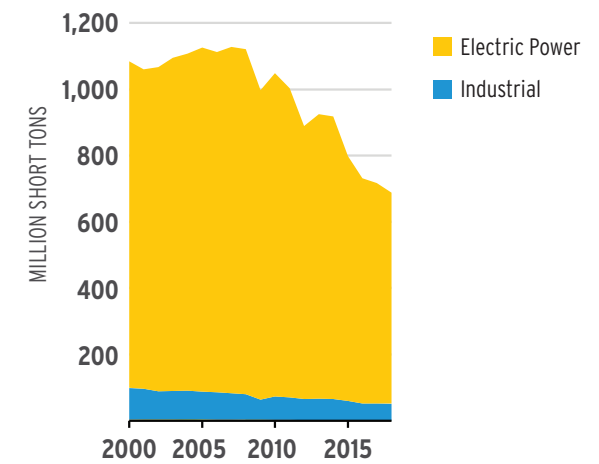


FIGURE 4.28 Illinois Coal Production Trend (USEIA)

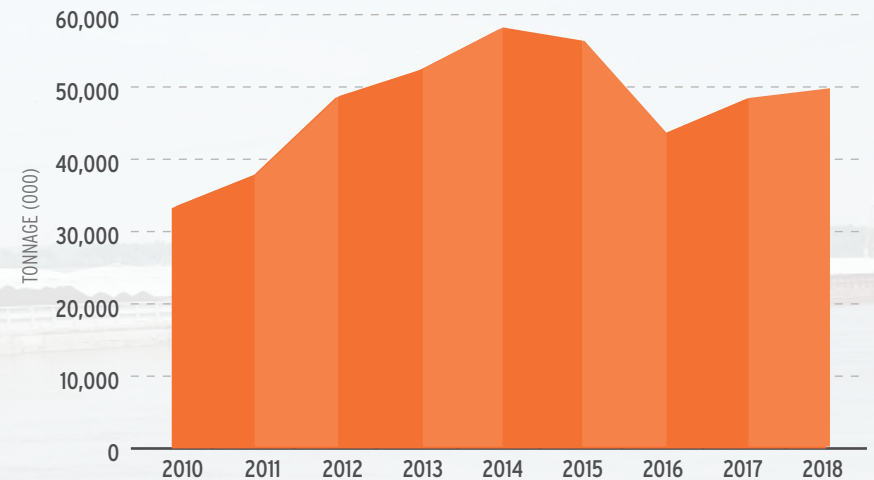
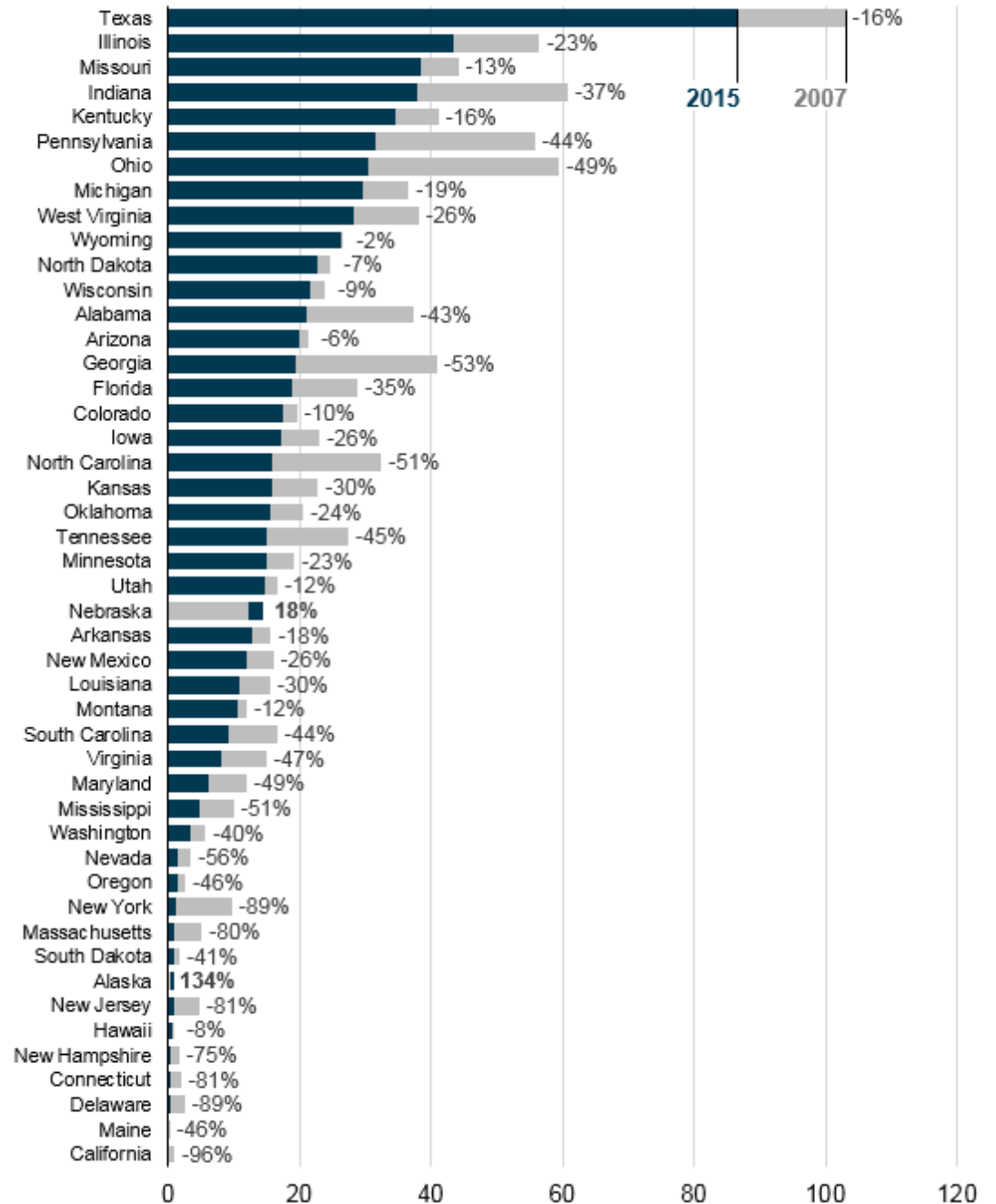




FIGURE 4.29 Declining Consumption Among IL Waterborne Coal Receivers

Electric power consumption of coal by state, 2007 and 2015
million short tons



Public utilities in eight states received Illinois coal by water in 2018 which accounted for 95 percent of Illinois waterborne coal shipments. Four of them – Florida, Kentucky, Ohio, and Tennessee – represented 91 percent of utility demand, and Ohio shipments largely were discontinued in the second half of the year. The eight states are highlighted in **Figure 4.33** which shows that between 2007 and 2015 – the latest year for which this chart has been produced – coal consumption in every one of the eight had declined, in most cases by at least 30 percent. Looking ahead, U.S. Energy Information Administration (USEIA) projects continuing and significant retirements of coal-fired utilities nationally through 2025 (depicted in **Figure 4.30**), with replacement by natural

gas and renewables. While retirements of coal-fired utilities in states served by Illinois’ waterborne coal are not specifically identified, the market outlook is not favorable.

The Illinois Basin coal fields are in southern Illinois, southwestern Indiana, and northern Kentucky. The majority of Illinois mines are south of the Kaskaskia River and stretch across the state as indicated by the map in **Figure 4.31**. This part of Illinois is enveloped by the Mississippi and Ohio rivers making access to water reasonably easy. Major companies in this sector are Peabody Energy, Foresight Energy, Williamson Energy, Alliance Resource Partners, and Turris Coal Company.

FIGURE 4.31 Illinois Coal Mines (USEIA)

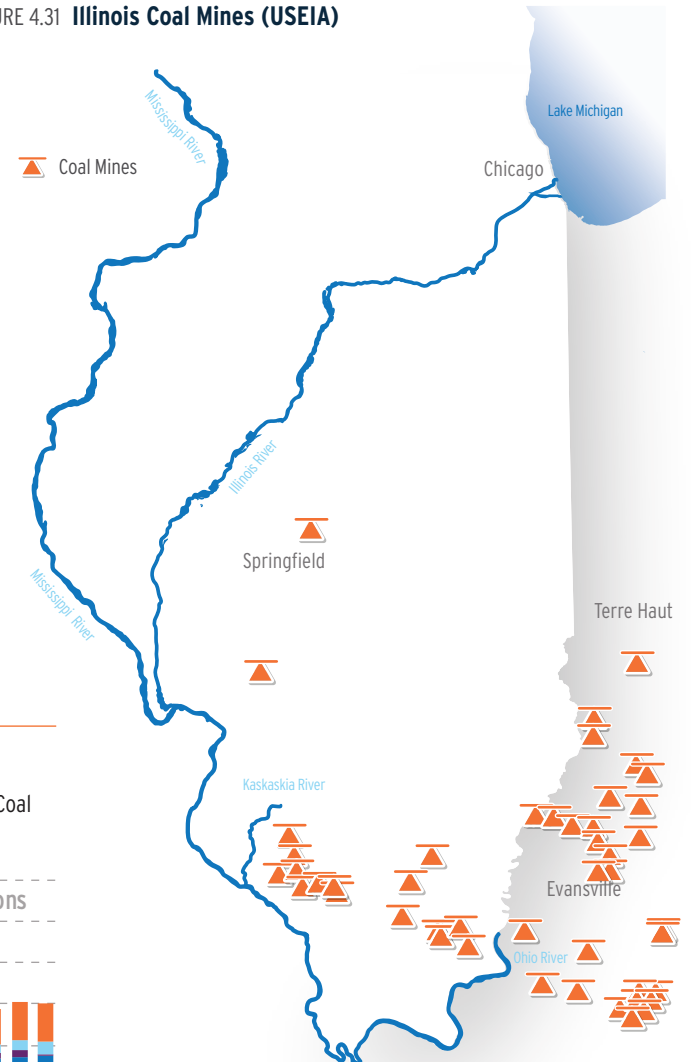
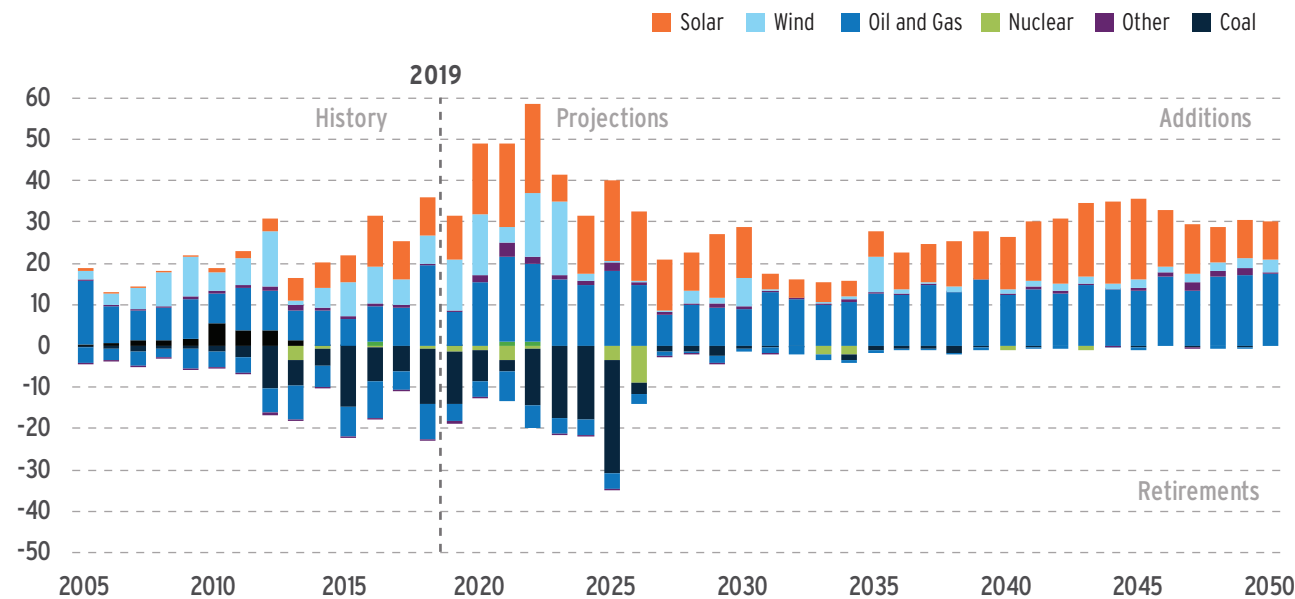


FIGURE 4.30 Electric Utility Retirements and Additions by Fuel Type (USEIA)



Source: USEIA

4.2.3 PRIMARY METAL PRODUCTS

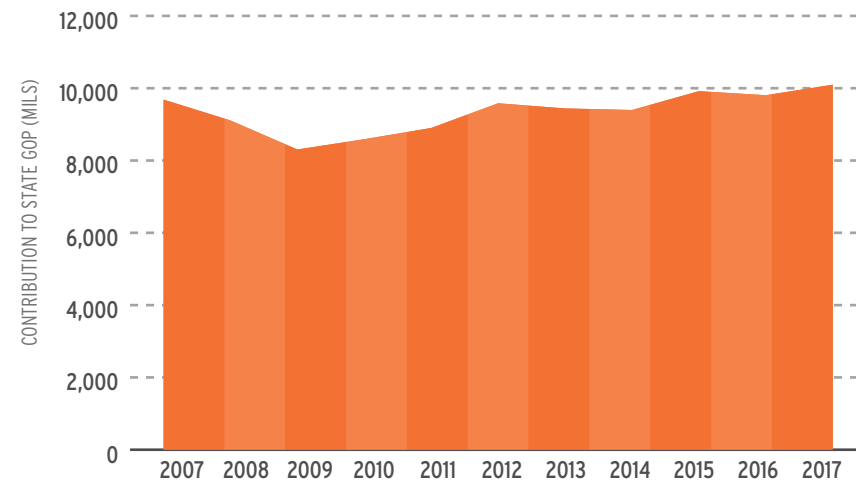
Primary Metal Products moving on the waterway system are chiefly iron and steel. On the IMTS, they are almost entirely an inbound commodity, implying that the key source of demand is among the users instead of the producers of these products. Usage is highly diverse involving such major Illinois industries as construction, machinery, electrical, and transportation equipment. However, supplies to these sectors tend to be processed components and not primary materials. Processing can be done by steel mills and mill services companies converting semi-finished goods into useful forms. However, the principal supply chain intermediary creating processed components is the fabricated metals industry.

Primary Metals MANUFACTURING CONTRIBUTE LESS THAN 2% OF ILLINOIS' GDP BUT HAS BEEN GROWING

According to the U.S. Department of Commerce, primary metal manufacturing (which includes steel mills) represented less than 2 percent of the private goods producing sector in 2017 Illinois GDP and had declined more than 20 percent over the previous decade. Fabricated metals manufacturing represented more than 7 percent and had grown by 4 percent in the preceding decade (the trend is illustrated in **Figure 4.32**). Fabricated metals manufacturing processes range from forging, cutting, and stamping of metals to bending, forming, galvanizing, machining, and welding. Among the components of the industry are toll processors, who act as intermediaries between steel mills or importers and various end users and are contracted by the end user to fabricate metal to their specifications. In essence, they are customizers of bulk steel into practicable shapes and quantities on behalf of the buyer. This business is suited to barge transport because the inbound quantities can be large and concentrated, and the processor can be selected for proximity to the buyer as well as for its types of service. These aspects hold down the transportation costs in what for the buyer is an extra step needed to obtain raw materials in a form they can use.

The outlook for fabricated metal products is a function of its end uses. Capital spending plans are important, and in 2020, they are being approached

FIGURE 4.32 IL Fabricated Metal Products Output Trend



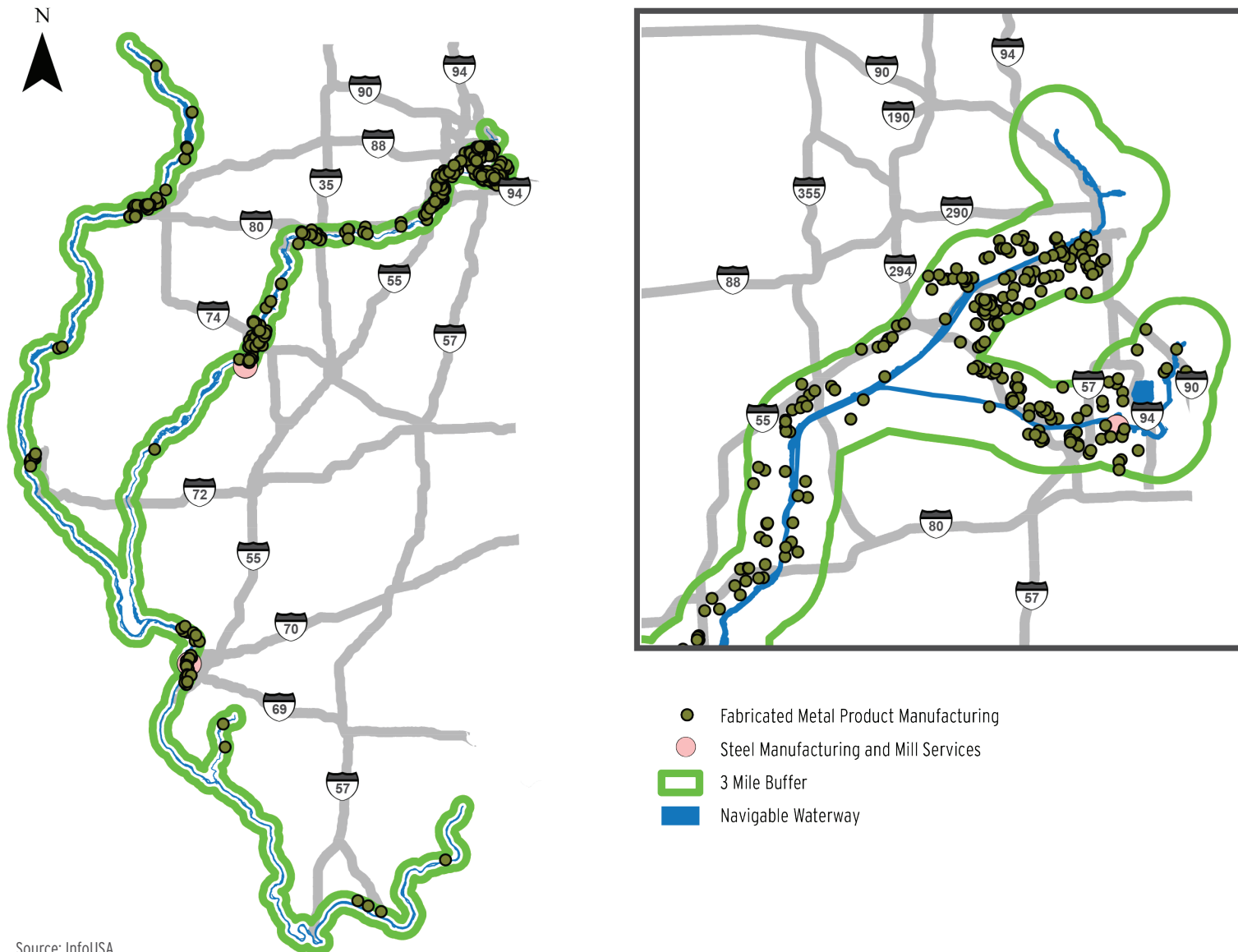
Source: U.S. Dept. of Commerce

cautiously. The diversity of the industry suggests it will move with the overall manufacturing economy, but that means it will have stronger as well as weaker segments. Infrastructure investment is likely to be a meaningful source of demand in the next few years, both from federal stimulus spending and from construction of e-commerce facilities which already was a growth market before the 2020 pandemic provided an extra boost. Infrastructure can require large volumes of goods creating dense transportation lanes which is efficient for fabricators and conducive to inbound supplies shipped by water when companies are adjacent to the IMTS.

There are several thousand facilities engaged in metal fabrication within three miles of the IMTS, employing over 12,000 people. The map in **Figure 4.33** on the following page, illustrates several steel mills and mill service firms but is comprised mostly of fabricated metal manufacturers. The figure also has a close-up of the concentration of establishments near the IMTS in the Chicago region. Chicago in fact is a primary center for fabricated metals. According to World Business Chicago, this sector is the largest component of the manufacturing industry in the metropolitan area, and Chicago production of fabricated metal is greater than any other urban area in the country.

Many of the firms depicted in this figure are not receiving shipments from the waterway, for reasons ranging from their type of fabrication and their need for barge-load volumes, to the location of their suppliers for inbound product and the delivered cost of supplies. Nevertheless, the map is a good indication of producers in proximity to the IMTS for this major industry in the state and leading commodity on the waterways – and may be an indication of opportunities for attracting new users to the system.

FIGURE 4.33 **Metals Manufacturing Facilities Along IMTS**



Source: InfoUSA

4.3 CARRIER/OPERATOR PROFILES

There are numerous in-state and out-of-state carriers and operators that serve the IMTS every day, including barges on Illinois' rivers and ships on the Great Lakes. While marine transportation remains a large industry in the State of Illinois, many users believe there is room for improvement. This section provides brief company-specific profiles of carriers and operators that serve the IMTS, as well as commentary from consultations on strengths, weaknesses, and opportunities on the system. The types of marine stakeholders are profiled to the right.

Throughout the consultation process, many carriers and operators expressed similar interests resulting in a few key themes. In particular, there were two primary takeaways that users repeatedly brought up:

- Educating the public about freight transportation and improving general awareness of the marine system.** Many stakeholders expressed frustration with a lack of public understanding or appreciation of the importance of freight transportation in general and especially marine transportation. This lack of awareness is important because public support is needed to secure funding for continued investment. Additionally, several stakeholders expressed a desire for IDOT to assume a role as an educator for the public.
- The need to provide adequate and regular infrastructure funding.** Many vessel operators stated that the infrastructure at ports and harbors in Illinois is outdated. Consequences of this outdated status include broken docks falling into the water, narrowing channels leading up to ports and harbors, and fluctuating water levels – all resulting in delayed and reduced operations. Therefore, many stakeholders have stressed that continued investment in infrastructure is critical to maintaining the marine system's reliability, safety, and availability. Not only is funding needed to maintain infrastructure to its current specifications or condition, but many users also stressed the value of investing in improvements such as increasing draft of water bodies, improving connections between land and water, and investing in port terminals.



4.3.1 BARGE CARRIERS

Illinois' river system is served by a wide range of barge carriers. These operators have different specializations and roles within the system. Specialization by equipment type is frequent, reflecting different commodity types, handling characteristics and requirements, and industry clientele. Dry bulk versus liquid bulk equipment is the most common distinction, and there are segments within each, such as petroleum carriers within the liquid bulk group. While barges for dry and liquid goods obviously differ in construction, there are operational limitations as well: for instance, equipment used for certain commodities cannot be used for others because of contamination concerns. A list of barge carriers that are represented by the Illinois River Carriers Association (IRCA) can be viewed in Appendix D. **Note: This list does not include IRCA members who are not carriers, such as terminal operators.*

Some barge companies are multi-line carriers with large, diverse fleets and operations throughout the inland waterway system; from the IRCA list, American Commercial Barge Lines and Ingram Barge are examples of this type. Others are subsidiaries of businesses that are not mainly in transportation: American River Transportation Company is part of the

agribusiness giant ADM, and Middle River Marine is part of the Chicago construction aggregates and ready-mix provider Ozinga. Still others have circumscribed geographic ranges: Kindra Lake Towing with regional operations around Chicago is an example. Profiles of most of the IRCA carriers are presented in Appendix D, with brief descriptions of their services, facilities, routes, commodities, and other characteristics.

STRENGTHS, WEAKNESSES, ISSUES AND OPPORTUNITIES

Select barge carriers were consulted to collect feedback on the needs and issues of Illinois' waterways. In order to protect carriers' confidentiality, feedback on the system's needs and issues are summarized here.

- A strength of the system is the **large number of operators** which introduces competition and ensures that barge transportation remains an affordable option for shippers.
- There is an opportunity for increased barge shipping through the Port of Chicago; however, some operators noted a weakness: current infrastructure at the port is believed insufficient for increased operations.

- A threat or weakness is the ongoing **discussion of closure of lock and dams at Brandon Road in Joliet, IL** to prevent the spread of aquatic invasive species. Carriers were concerned that the public does not understand the importance of the IMTS has in commerce.
- A strength is **facilities and operations located across the entire river system**, not just in certain areas. This makes it easier for potential customers to utilize the marine system, regardless of location on the river.
- A weakness is a **potentially-limited service or space for oversize-overweight loads** in some areas. One operator noted that they had to transport mobile cranes to some river terminals making the handling of oversize-overweight loads more complex and expensive. A similar concern is the **BNSF railroad bridge in Lemont** which restricts the movement of "megaloads" by barge on the Sanitary and Ship Canal.

It is important to note that the above are key points made by stakeholders, though they do not constitute a full strengths and weaknesses discussion.

4.3.2 LAKE AND OCEAN CARRIERS

Like the river system, Illinois' Lake Michigan ports are served by a variety of carriers with different cargo and geographic specialties. U.S. and Canadian vessels conduct trade within the Great Lakes, while foreign-registered vessels carry goods for import and export to overseas markets. Domestic operators focus on movement of dry bulk commodities, while foreign-flag carriers are handling dry bulk as well as break-bulk and project cargo like grain, steel, and machinery.

Illinois' Great Lakes marine system is relatively small in geographic scope compared to the inland river system, with activity focused on ports in Chicago and Waukegan. Despite a small Great Lakes shoreline, Illinois and the Chicago area in particular play an important role in Great Lakes trade, especially since Chicago's waterways provide the only navigable link between the Mississippi River and Great Lakes. By comparison, Waukegan's commercial navigation role is currently more limited, as the majority of the port's commercial traffic is incoming gypsum from Michigan.

There are two main groups of users at Illinois' Great Lake Ports: (1) domestic-registered and Canadian-registered carriers and (2) foreign carriers. These distinctions between users relate to a ship's registration (or "flag," as flags indicate the country of registration) and related laws. In the U.S., the Jones Act prohibits foreign-flag vessels from moving cargo between two points in the U.S.. Canada has a similar regulation prohibiting foreign-flag vessels from moving cargo

between two Canadian ports. These regulations mean that U.S.- and Canadian-flag vessels handle trade between ports on the Great Lakes system while foreign-flag vessels handle imports and exports from overseas trading partners like Europe.

|||||||

Types of Great Lakes Vessels Using Illinois Ports

Different types of vessels are used for Great Lakes shipping depending on the flag of the carrier, service area for the vessel, type and volume of cargo being carried, and loading or unloading capabilities of customers. Ultimately, there are three major types of vessels operating on the Great Lakes: lakers, tug-barge combinations, and "salties."

- **Lakers** make up the bulk of U.S.- and Canadian-flag shipping capacity on the Great Lakes and were often built specifically for operation on the Great Lakes - and for specific customers such as steel or cement manufacturers. The U.S.-flag fleet has some of the largest lakers by size, including the 1000+ foot "thousand footers" which were designed to maximize the amount of cargo carried through the Soo Locks in Michigan. By comparison, Canadian-flag lakers are often smaller, as they are often constructed to fit within the smaller dimensions of the St. Lawrence Seaway locks. Lakers most often handle dry bulk materials, and therefore, most are equipped with self-unloading equipment that allows them to unload materials at unimproved dock areas.

- **Tug/Barge** units are also used by U.S.- and Canadian-flag carriers, particularly for customers that require smaller shipments. Most of these tug/barge units are larger than single inland barges and designed to handle the rougher waters of the open lakes.

- **Salties** are vessels used for trade with overseas ports and are almost exclusively operated by carriers flagged in other countries. The size of these vessels is limited by the dimensions of locks on the St. Lawrence Seaway, and they handle a wide range of goods for international trade.

|||||||

Select Domestic (US-Flag) Carriers

Domestic (or U.S.-flag) carriers are carriers with vessels registered in the US. On the Great Lakes, domestic operators primarily handle dry bulk commodities such as iron ore, coal, limestone, cement, and salt. Together, domestic operators carried about 83.7 million tons of commodities like these in 2018.⁷ The operations of Great Lakes domestic carriers are usually limited in scope to the Great Lakes, and the largest domestic-flag vessels are too large to navigate the Welland Canal into Lake Ontario. Most of the U.S.-Flag Great Lakes Carriers are members of the Lake Carriers Association, whose membership roster is listed in Appendix D.

IIII

Select Canadian Carriers

Like U.S. Carriers, Canadian-flag carriers on the Great Lakes often specialize in dry bulk commodities, such as grain, ore, coal, and limestone. However, there are some differences in U.S. and Canadian Great Lakes fleets:

- Canadian fleets service Canadian customers on Lake Ontario, which lies downstream of the Welland Canal. Therefore, the average vessel size of Canadian fleets must be smaller in order for vessels to pass through the Welland's locks.
- Canadian fleets have a greater capacity for the movement of liquid bulk such as petroleum and asphalt.
- Canadian fleets often have newer vessels as Canadian firms can purchase vessels built at lower cost shipyards overseas. By comparison, the Jones Act requires that U.S.-flag fleets only use vessels constructed in the U.S. where construction costs are higher. U.S. carriers have chosen to invest capital in modernization and overhaul work that can keep existing vessels operating longer.

As a result, Canadian carriers have a large fleet of medium- and small-sized vessels. Appendix D lists some of the major Canadian Great Lakes carriers.

IIII

Select Foreign-Flag Carriers

For the purposes of Great Lakes discussions, foreign flag carriers are synonymous with carriers registered in nations other than the U.S. and Canada. Considering that both the U.S. and Canada prohibit foreign-flag carriers from carrying cargo between

domestic ports; and since U.S. and Canadian lakers are often purpose-built for Great Lakes operations, foreign flag vessels handle the majority of Great Lakes' ports trade with overseas ports. In particular, Europe is a key trading partner for Great Lakes ports due to the direct sailing routes from the St. Lawrence River over to Europe. Trade with other regions including South America, Africa, and Asia does occur, but not as frequently. The Great Lakes' trade with foreign ports is often described as "steel in, grain out" as Salties delivering specialty loads of steel often carry grain outbound for export. Other major imports include higher-value machinery, such as mining equipment, construction equipment, generators, boilers, refinery parts, and wind turbines.

Given the wide variety of goods moving in and out of the Great Lakes in foreign trade, Salties must be able to carry a wide variety of cargos. Subsequently, the size of St. Lawrence Seaway locks limits the size of Salties entering the Great Lakes, and vessels entering the Seaway must be equipped with select elements of mooring equipment for passage through Seaway locks. Given the size restraints and gear requirements associated with passage, not all foreign-flag vessels can enter the system, and some carriers have specialized in serving the Great Lakes. An illustrative list of common foreign-flag operators is provided in Appendix D.

IIII

Select Shipping Agents

Shipping agents can be thought of as marine concierges; they provide logistical and administrative support to carriers visiting a port, handling tasks like booking of pilots, filing of Customs and Border

Patrol paperwork, interfacing with port authorities in advance of a port call, and arranging for resupply of vessels. Two examples of agents serving Great Lakes carriers are profiled in Appendix D.

STRENGTHS, WEAKNESSES, ISSUES, OPPORTUNITIES

Based on consultations with carriers and industry publications, the Great Lakes commercial navigation needs and issues that are directly relevant to Illinois include:

- **The need for continued infrastructure investment.** This includes the need to continue investments in dredging the Calumet River and Waukegan Harbor, as well as repairs to aging breakwaters and other protective structures. Additionally, system-wide there is a need for continued investment in bottlenecks like the Soo Locks in Michigan which are critical to the movement of commodities like iron ore. Infrastructure investment is becoming particularly important as historically high lake levels have the potential to damage aging breakwaters and other waterside infrastructure.
- **The desire for improved cruise facilities in Chicago.** Stakeholders noted that Chicago's lack of dedicated cruise tourism docks or infrastructure has meant that the city is left off itineraries for most cruises.
- **Opportunities for short-sea shipping.** Some marine groups have expressed interest in creating cross-lake truck ferry services to bypass road congestion around Chicago.



4.3.3 FACILITY OPERATORS

Facility operators help move cargo between land and water and can provide additional services such as fleeting of barges, maintenance, and shipbuilding, to name a few. The list of facility operators provided in this section each offers a wide variety of services to manufacturers, shippers, and other users of the IMTS. Below is a selection of offerings facility operators may provide:

- **Port and Infrastructure.** Especially on the inland waterway system, operators provide inbound and outbound opportunities for barge, rail, and trucking carriers.
- **Logistics Services.** Many operators offer customers on-time shipping coordination, advanced loading and unloading capabilities, dock crews, and a full suite of logistics offerings.

- **Storage and Warehousing.** Often, operators will provide outdoor (ground) and indoor storage for their own commodities or products of other companies who utilize the terminal.

Profiles of a number of prominent terminal operators in Illinois are presented in Appendix D, and provide additional detail about their services.

STRENGTHS, WEAKNESSES, ISSUES, AND OPPORTUNITIES

Consultations with terminal operators and review of existing materials suggest that some common best practices, needs, and issues include:

- Having a combination of modes onsite is a strength as it can attract customers with varying volumes of freight and can help lower transportation costs through the introduction of competitive modes.

- Adequate maintenance of local roads can be a weakness for truck operations as poorly maintained roads around barge facilities can damage trucks and cargo or require trucks to take longer routes. A related concern is adequate clearances on routes hauling oversize-overweight cargo.
- For some operators of smaller terminals, receiving adequate and timely rail service can be a problem as more Class I railroads implement Precision Scheduled Railroading and focus on higher-volume, longer-distance trade lanes.
- In the case of Great Lakes terminal operators, high water levels are a threat because they increase damage inflicted by storms.



4.3.4 RAIL AND TRUCK CARRIERS

Rail and trucking are critical elements of the marine transportation system because they provide firms and farms without water access the opportunity to ship and receive goods by water. Depending on the geographic location and economic conditions, rail and truck operators can be competitors of barge carriers, vying for bulk traffic on similar trade lanes. In other areas, the land transport and river relationship can be complementary, with a combination of barge, rail, and convenient truck access service attracting new customers. Brief profiles for a number of rail and trucking carriers operating in Illinois are presented in Appendix D, selected because the carriers interface with the marine system or have routes in parallel to the Illinois or Mississippi rivers. Additional information on Illinois' rail network and its operators can be found in the *2017 Illinois State Rail Plan Update*.⁸

STRENGTHS, WEAKNESSES, ISSUES, AND OPPORTUNITIES

The railroads and trucking firms consulted for this project had some common feedback:

- Class I railroads invest a large portion of their capital for infrastructure improvements, particularly in Illinois. While the ability to **sustain large capital investments** each year is a strength, it also translates into high fixed costs. Railroads are financed internally or from public markets, and occasionally receive financial help from the public sector.
- Over the past year, **freight shipping has significantly declined** which has caused Class I's and other shippers to become wary of a possible recession.⁹ This is a significant issue for Illinois' major rail

operators as it is becoming increasingly difficult to plan for operations and determine the long-term viability for capital investments.

- A Class I strength is an **expansive network** which allows railroads to compete against barges for long-distance shipment of bulk commodities.
- **Quick and easy entry into rail-to-river access points** is a competitive advantage for smaller railroads as it can help them appeal to additional customers.

As with previous barge and terminal operators, rail and trucking operators suggested that continued investment in transportation infrastructure was a key role for the state. In particular, rail carriers saw continued investment as an important tool to counteract declining freight volumes.

4.4 ECONOMIC IMPACT ANALYSIS

The IMTS supported 166,628 jobs that generated almost \$17.4 billion in gross state product in 2017. These jobs represent the total range of economic effects: from direct users of the waterways and providers of marine transportation services to indirectly affected supply chains and businesses which benefit from the re-spending of their income in the local economy. These 166,628 workers earned a total of approximately \$10.5 billion in income, which in turn generated \$2.9 billion in federal, state and local taxes. Of the 166,628 jobs in total, 45 percent (~74,600 jobs) can be said to be directly tied to the waterways. The majority of these direct jobs 78 percent (~59,400 jobs), represent the economic activity of businesses who source and ship goods via the waterway with the other 12 percent (~15,400 jobs) representing marine transportation and supporting businesses who render service to all marine traffic and not just Illinois businesses.

The following subsection provides an overview of the systematic accounting of the process that produced this estimation of statewide marine transportation system impacts.

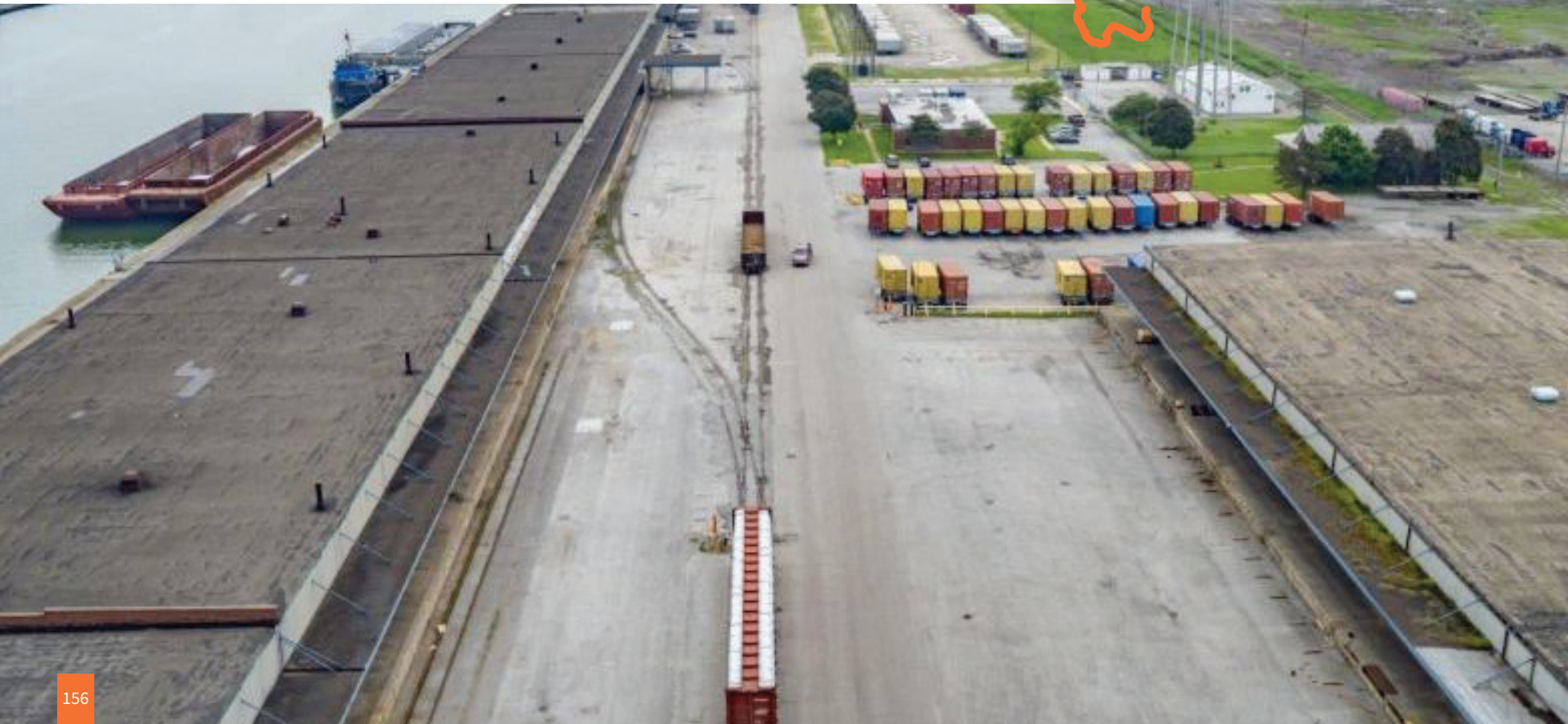


The Economy of the IMTS generates:

\$17.4 billion IN GROSS STATE PRODUCT

\$10.5 billion IN WORKER INCOME

\$2.9 billion IN FEDERAL, STATE AND LOCAL TAXES

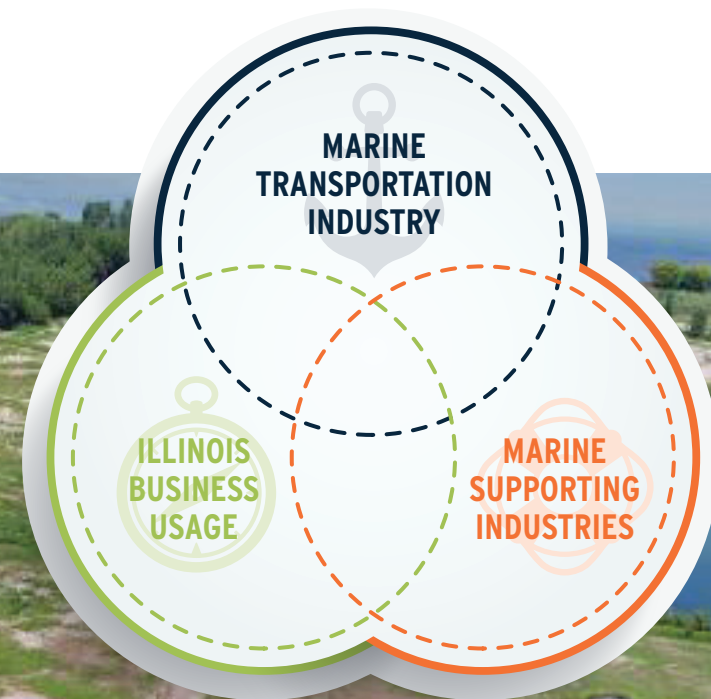


4.4.1 MARINE FREIGHT AND ILLINOIS

The Illinois marine system covers both inland navigable waterways and Great Lakes ports. This system transports a vast amount of cargo, totaling 90.6 million tons in 2017, serving major Illinois industry and supported by an array of freight carriers, as earlier sections of this chapter described. One of the challenges in assessing the importance of a system this large is differentiating between the local (state) economic activity it facilitates and the rest of commerce moving on the waterways. The facilities in Illinois provide benefits to a broader user base that encompasses more than just Illinois businesses, and while non-Illinois businesses are considered out of scope, the local transportation service sectors assisting in the movement of their goods must still be accounted for. The analysis presented in the subsequent pages focuses on freight-only related impacts, emphasizing three classes of waterways-associated activities. **Figure 4.34** shows these three classes.

Central to the work done in quantifying the economic effects is putting forth a transparent methodology that can be repeated as a way of benchmarking the contribution of the IMTS as the Illinois economy continues to evolve. While the impacts estimated in this marine transportation system plan are limited to a current year snapshot of activity, this method of assessing the role the IMTS plays in the economy should be continued to better understand future needs and evolving trends.

FIGURE 4.34 **Components Used to Understand Waterway Activity**



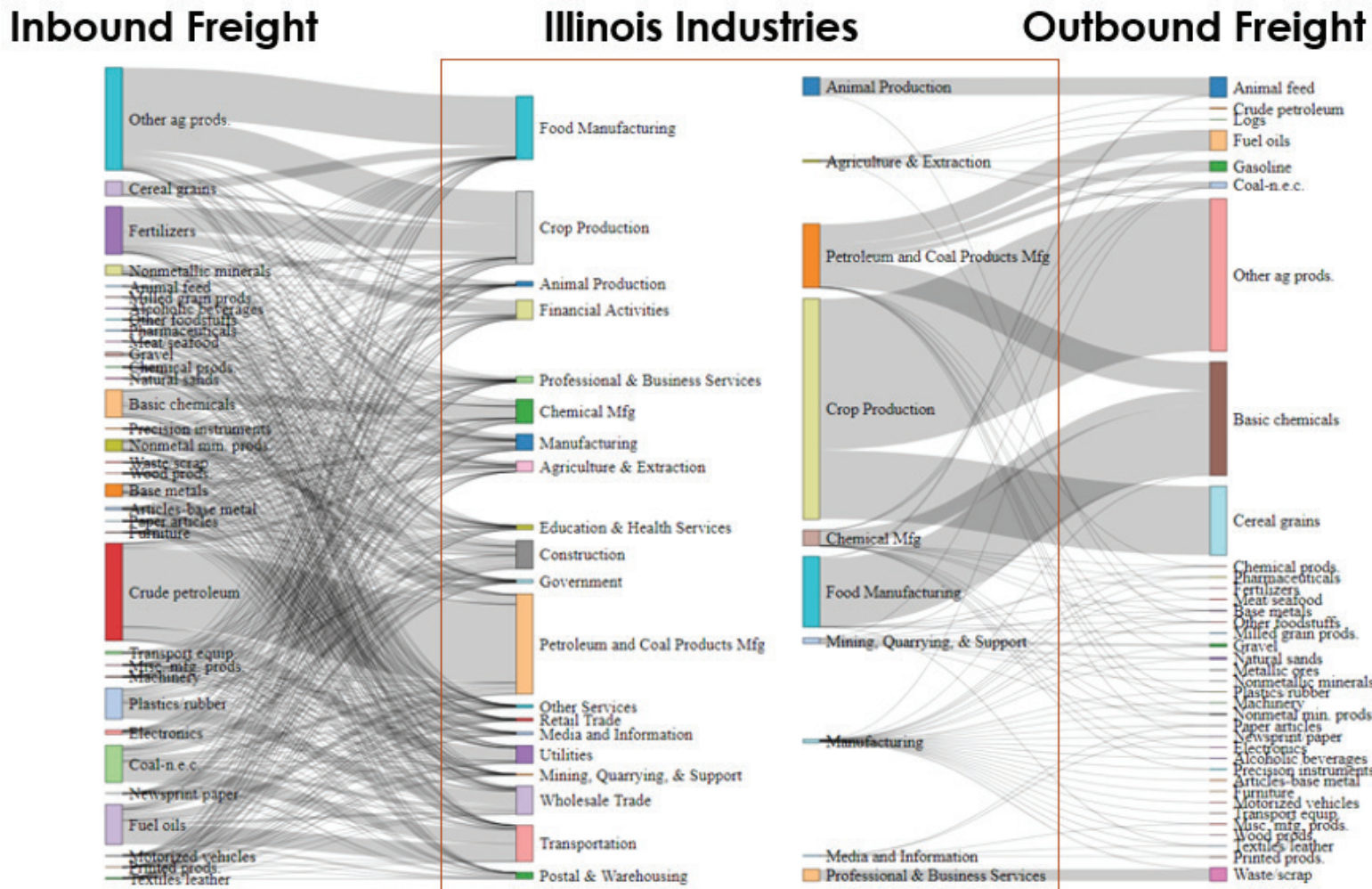
4.4.2 GOODS MOVEMENT AND THE ECONOMY

In describing the importance of freight in the economy, the analysis is referencing the role of the marine economy in moving goods to and from markets as a means of satisfying Illinois industrial needs. Industries are both producers and consumers of goods, and trade between industries for components is what necessitates the use of marine and other modes of transporting goods. The economic

flow diagram of the Illinois economy in **Figure 4.35** serves to explicitly map the movement of marine goods in relation to Illinois businesses.

This diagram conceptually demonstrates the role of marine cargo traffic and helps demystify how freight movement lines up with discussions of the economy.

FIGURE 4.35 Flow of Marine Goods in the Illinois Economy



4.4.3 METHODOLOGY

To capture the diverse set of behaviors enabled by the IMTS, system-associated activities were classified according to three different ways in which they interact with the economy as the marine industry, as marine-supporting industry, and as marine system users (**Figure 4.36**): This section covers the methods of quantifying the waterways role in the economy as a way of cost-effectively transporting goods for each of these three forms of impact.

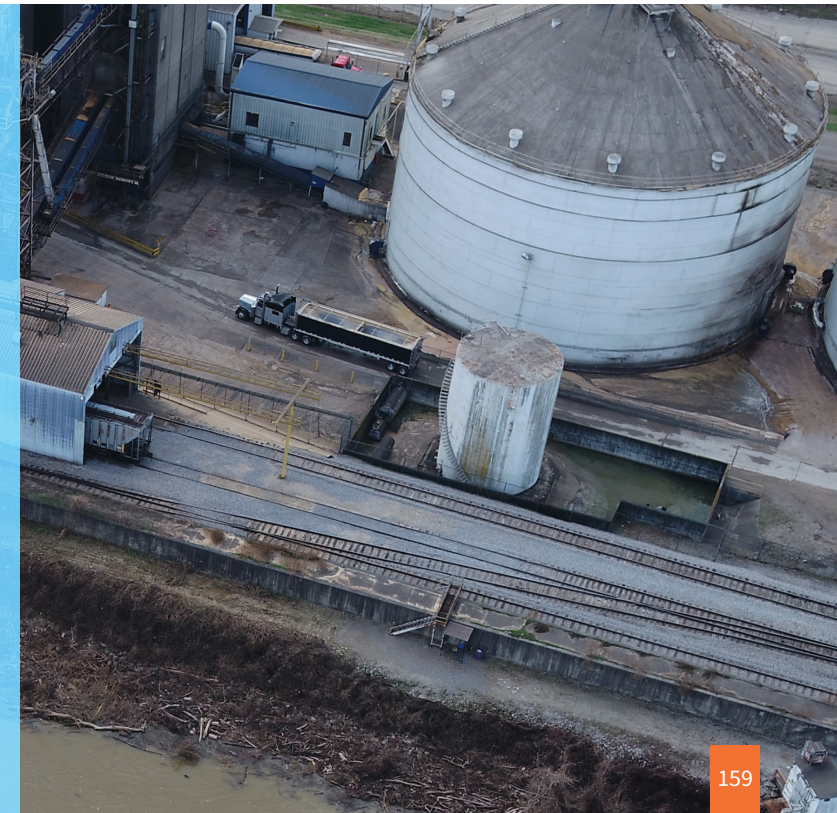
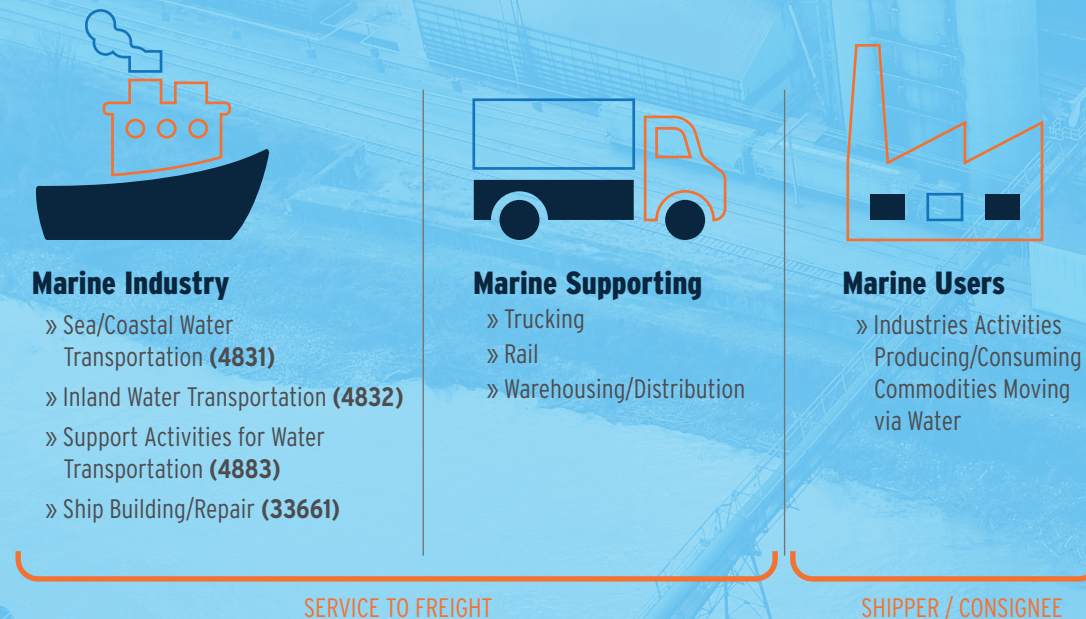
Marine Industry

The following categories comprise aspects of water transportation that is classified as marine industry impacts. These industries comprise the service providers conducting the waterborne services taking place on the waterways:

- **Water Transportation.** Captures both coastal water transportation workers as well as inland water transportation. Includes tug operators, port operators, as well as the cargo handling and harbor operation services. Data sourced from the Quarterly Census of Employment and Wages
- **Support Activities for Water Transportation.** Includes cargo handling and harbor operation services. The data was sourced from the *Quarterly Census of Employment and Wages* to allow for the emphasis to be placed on cargo
- **Ship Building and Repair.** This benefit captures cargo vessel manufacturing and repair. Note that the distinction between ship and boat is that boat emphasizes recreational watercraft which

is outside of the scope of this analysis. Analysis utilized InfoUSA point located businesses involved in ship building and repair, scaled to match IMPLAN state level data. This level of geographic specificity plays a role in successive sections concerned with regionalizing impacts down to a district level. Whereas services can be typically contracted for, and therefore can take place outside of the physical business location contracted from, ship-building and repair activities predominantly take place on site, and so the usage of point locations of businesses was desirable for regionalizing the state impacts.

FIGURE 4.36 Impacts of Marine Transportation System



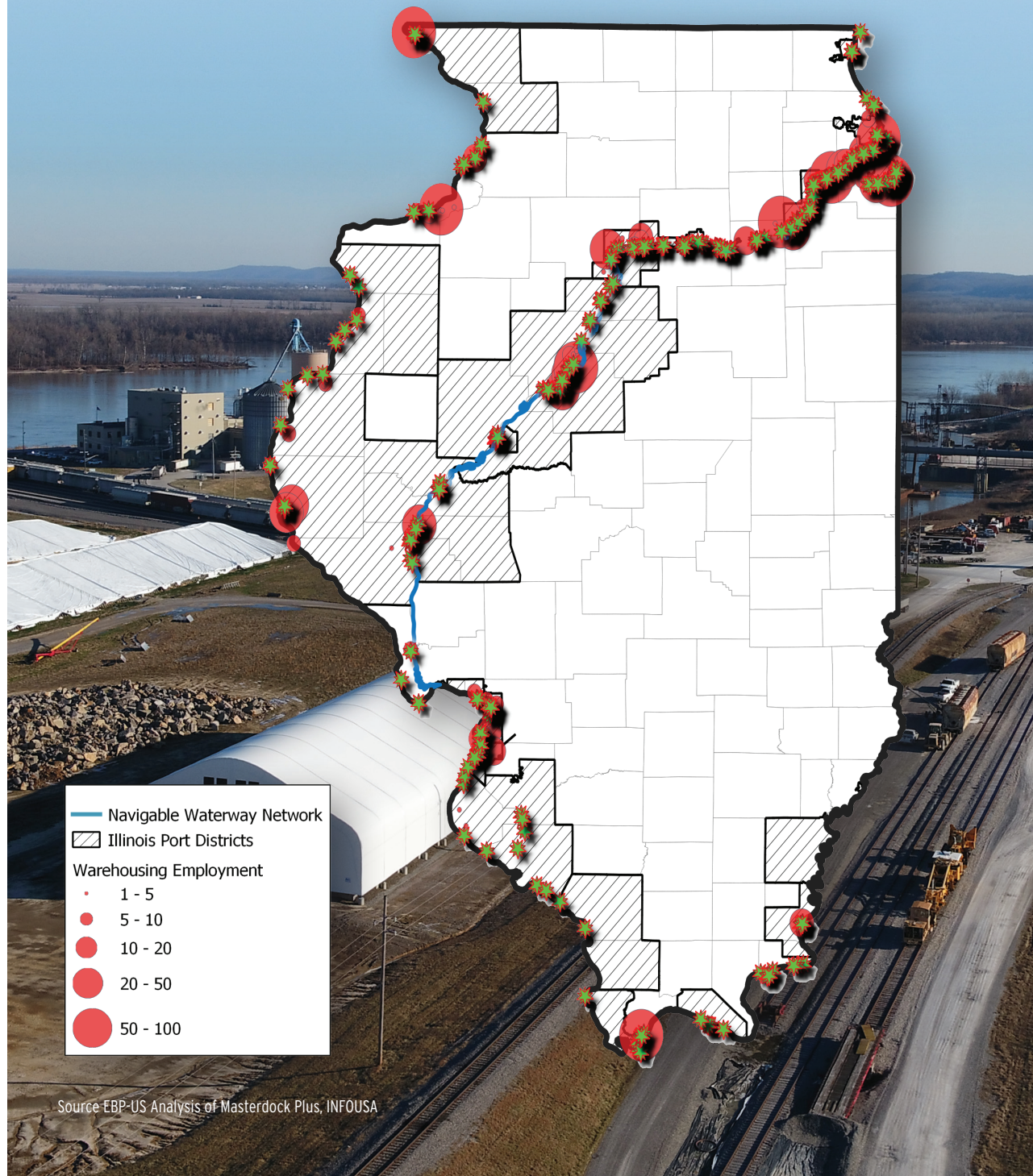
4.4.4 MARINE-SUPPORTIVE AND RELATED IMPACTS

Separate from the physical operators responsible for the provision of transportation services are the supporting industries which provide services to waterways users. This activity encompasses not just warehousing and distribution activities taking place around port premises, but also the truck and rail transportation acting as a feeder service getting goods on and off the water.

- **Warehousing Activity.** Captured by looking at InfoUSA businesses buffering the waterways. This is defined as a 1-to-5-mile zone around the river.¹⁰
- **Supporting Truck/Rail Transportation.** Estimates the magnitude of non-marine traffic responsible for getting goods on and off the waterways.

Note that especially during the off season, port districts may act as traditional truck-rail intermodal yards. This goes beyond the scope of this marine cargo analysis, and as such, should be noted as not part of the IMTS figures. On top of the raw value of a good representing its production cost are value added premiums representing additional costs going into the purchase price due to other supply chain costs such as transportation. Assessment of feeder traffic takes the total volume of traffic getting on and off at county locations (based on the IMTS Commodity Flow tonnage data). From there, the IMPLAN data is used to estimate the associated trucking and rail transportation margins, representing the net economic value to feeder traffic. For quantifying the magnitude of warehousing/distribution activity, the InfoUSA database is used to quantify the magnitude of businesses within a 1 to 5-mile buffer around the waterway (with a 1-mile buffer in the denser areas surrounding Chicago facilities). **Figure 4.37** shows the relation of the identified businesses to the docks identified by the US Army Corp's Masterdock Plus database.

FIGURE 4.37 Relationship of Warehousing to Master Dock Ports



Source EBP-US Analysis of Masterdock Plus, INFOUSA

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Marine Users

Finally, to give a full accounting of the value of marine traffic to the state, the magnitude of industry activity taking place on the waterways is quantified. Note that the value of cargo on the waterways from FAF cannot be used directly, as there is an implicit double count between the value of inbound cargo and the value of outbound cargo. This is primarily because the purchase price of the goods includes both the intermediate inputs (as represented by inbound goods) as well as the value-added activity taking place at facility location by manufacturing businesses. This requires adjusting the value of outbound cargo to only include the value-added portion of activity captured in the valuation of the cargo. Implicit in doing this, all manufacturing components not carried by marine transportation are being discounted.

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Modal Terminology and Understanding the Results

Because the IMTS Plan examines the ways in which the IMTS affects the economy, it is helpful to detail the terminology used to describe the components of IMTS economic impacts.

- **Direct Effects** are the result of expenditures associated with the port-user, port industry, construction, and tourism aspects of a port. All these effects are from the values of initial costs, labor, and materials associated with the port's operation and usage.
- **Indirect Effects** represent the purchasing of goods and services by suppliers, in order to meet the demand of the direct port activity.

- **Induced Effects** – represent the income earned by workers being re-spent in the economy on household goods and services.

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Functional Definitions of Economic Measures

The following are useful definitions to help the reader gain a clearer understanding of what the measures being presented in the following section capture within the various regional economies.

- **Employment** represents the fulltime, or part-time jobs within a region for a given industry. To this extent, one single person working multiple jobs may be represented twice if they work two part time jobs.
- **(Labor) Income** represents not just an employee's level of compensation, but also fringe/benefits and proprietor income. Put simply, a measure of all forms of income gained from employment.
- **Value Added (GDP)** is measured as the difference between an industry's economic output and the value of intermediate inputs to its production process. Value added is the combination of labor costs, taxes, and any other proprietor or property income. It focuses on net new production occurring, and does not include the value of purchased inputs.
- **Output** represents the total measure of economic activity for an industry in a region. This measure is computed as the cost of intermediate inputs of production for the industry, plus any value-added activity.

4.4.5 STATE LEVEL IMPACTS

Altogether the marine waterways are responsible for supporting over 166,000 jobs across the state. These workers earn a combined income of almost \$10.5 billion and contribute approximately \$17.4 billion in GDP to the state's economy, which accounts for 4 percent of Illinois' overall GDP. Of the 166,000+ jobs supported,

some 74,682 of them are directly due to activity enabled by the waterways. **Table 4.5** highlights the impacts by type of activity. Note that some 78 percent of impacts are driven by waterways users, and another 10 percent comprise the water transportation sector itself.

TABLE 4.5 Marine Waterways Impacts by Type

Impact Type	DIRECT IMPACT				TOTAL IMPACT			
	Employment	Income (\$M)	Value Added (\$M)	Output (\$M)	Employment	Income (\$M)	Value Added (\$M)	Output (\$M)
Port User	59,372.9	3,681.5	6,216.1	15,968.5	--	7,815.2	13,286.5	28,035.3
Rail	1,704.7	302.4	368.1	564.1	4,913.2	489.8	689.3	1,109.8
Truck	8,015.9	513.4	617.8	1,314.0	16,581.8	1,013.2	1,472.5	2,749.3
Warehouse	1,831.0	117.9	140.0	216.4	3,299.3	198.6	283.1	446.5
Water	3,757.7	301.2	539.0	1,790.7	14,353.2	966.2	1,629.7	3,683.4
Total	74,682.2	4,916.4	7,880.9	19,853.6	166,629	10,483.1	17,361.1	36,024.4

Source EBP-US

From **Table 4.6**, one can see the breakdown of these impacts in terms of the direct economic effects of the marine transportation system, as well as the indirect purchasing and induced household income re-spending effects within the state. Note that the induced

effects represent household consumption on goods and services. This tends to emphasize more labor-intensive industries, which is why one sees more of a job effect than when looking at the indirect impacts.

TABLE 4.6 Breakdown of Impact by Type

TYPE	EMPLOYMENT	INCOME (\$M)	VALUE ADDED (\$M)	OUTPUT (\$M)
Direct	74,682	\$ 4,916.4	\$ 7,880.9	\$ 19,853.6
Indirect	42,107	\$ 2,993.3	\$ 4,909.1	\$ 8,635.1
Induced	49,840	\$ 2,573.4	\$ 4,571.1	\$ 7,535.7
Total	166,629	\$ 10,483.1	\$ 17,361.1	\$ 36,024.4

Source EBP-US

Table 4.7 displays the impacts on the top 15 industries affected. Based on the mix of commodities, much of the industry reliant on the waterways is associated with agriculture, chemical products manufacturing (including fertilizers), plastics, and rubber products. When one looks at the total impacts by industry, there is more of an emphasis on household services such as healthcare and media.

There is a critical distinction to be made about these impacts concerning their representation as a temporal snapshot, as

opposed to a depiction of continuing industry dependence. Intuitively, it is expected that some businesses would be unable to adapt to the added transportation cost burden to move goods in the absence of the marine waterways system and would either relocate or close-up shop in the state. This study presents a snapshot in time, so it does not attempt to estimate that distinction, although interviews conducted for this study suggest that continuing dependence is real.

TABLE 4.7 Impacts to Industry

Industry	DIRECT IMPACT				TOTAL IMPACT			
	Employment	Income (\$M)	Value Added (\$M)	Output (\$M)	Employment	Income (\$M)	Value Added (\$M)	Output (\$M)
Crop Production	5,635	266	548	1,645	6,337	291	603	1,856
Food Manufacturing	2,124	147	289	1,578	2,439	167	327	1,787
Water Transportation	2,079	192	402	1,510	2,103	194	407	1,527
Truck Transportation	8,560	548	660	1,403	10,593	679	816	1,736
Transportation Equipment Mfg	1,898	144	232	1,368	2,020	153	246	1,438
Construction & Bldgs	6,406	435	617	1,231	7,793	532	748	1,477
Chemical Mfg	1,233	163	377	1,230	1,469	197	473	1,480
Machinery Mfg	2,119	220	388	998	2,221	230	406	1,043
Media & Information	683	62	279	742	2,447	231	657	1,621
Health Care and Social Assistance	5,794	337	401	656	15,884	937	1,082	1,744
Computer and Electronic Mfg	1,582	153	282	655	1,663	159	294	684
Rail Transportation	1,758	312	380	582	2,011	357	434	665
Plastics & Rubber Products Mfg	1,451	110	199	535	1,671	127	229	616
Petroleum and Coal Products Mfg	131	26	144	488	233	47	280	989
Fabricated Metal Mfg	1,801	130	210	488	2,376	172	273	635
Rest of Industries	31,429	1,671	2,473	4,745	105,369	6,010	10,085	16,724
Total	74,682	4,916	7,881	19,854	166,629	10,483	17,361	36,024

Source EBP-US Analysis

Tax Impacts

The \$36 billion in economic impacts represent the magnitude of industry activity in the state that is either directly or indirectly tied to the marine transportation system. This industry activity and household consumption is subject to income and consumption taxes which serve to generate revenue at a federal, as well as state and local level. Using IMPLAN data, one can look at the tax implications and estimate the revenue derived from

the activity supported by the waterways. In total, this amounts to approximately \$2.9 billion in revenue generated each year. Of this \$2.9 billion in revenue, as depicted in **Figure 4.42**, approximately 60 percent of it is in the form of federal tax revenue on businesses and households. The remaining \$1.2 billion represents revenue generated to support Illinois state and local budgets. **Table 4.8** shows the breakout of tax revenue by collector as well as tax type.

FIGURE 4.38 **Split of Tax Revenue Generated**

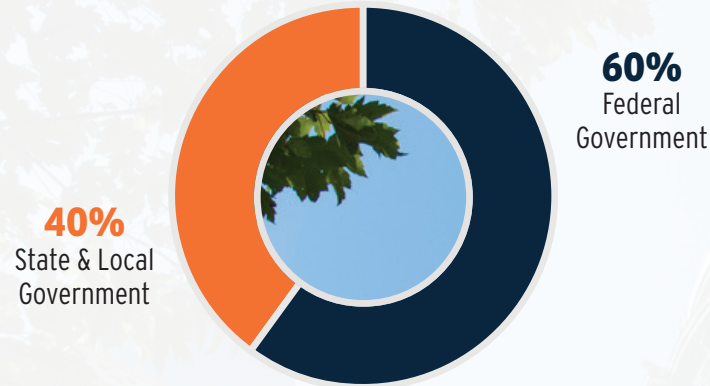


TABLE 4.8 **Tax Revenue by Type**

COLLECTOR	TAX TYPE	TOTAL TAX IMPACT (\$M)
Federal Government	Income/Profits	567.2
	Social Insurance Tax (FICA)	1,057.2
	Miscellaneous Fees & Taxes	106.9
	Total Federal Government	1,731.3
State and Local Government	Motor Vehicle License	17.8
	Income/Profits	123.5
	Miscellaneous Fees & Taxes	61.8
	Sales tax	446.8
	Property Tax	518.7
	Social Insurance Tax (FICA)	0.1
	Total State and Local Government	1,168.8
Total Tax Revenue		2,900.1

4.4.6 PUBLIC PORT DISTRICT IMPACTS

While the impacts of the waterways set forth above are at a state level, it is important to piece out the relative contributions of port districts serving the marine transportation system both as a communications piece to highlight the necessary services that districts provide and as a way of spatially understanding where goods movement takes place. The public port district impacts are presented below in **Table 4.9** (the methodology for regionalizing

port district impacts from the state estimated figures is described in Appendix D). The table shows beneficial impacts occurring across the state, including some outside the individual districts. The Peoria (Heart of Illinois), Chicago (Illinois International), Quincy (Mid-America), St. Louis (America's Central) and Joliet districts emerge with the largest total impacts, representing benefits from marine activity on the Illinois and Mississippi rivers and the Great Lakes.

TABLE 4.9 Economic Impacts by Public Port District

Port District	DIRECT		TOTAL	
	Employment	Output (\$Millions)	Employment	Output (\$Millions)
Outside District	23,371.1	6,318.2	52,690.1	11,437.7
Heart of Illinois Regional Port District	12,922.9	3,196.1	27,623.6	5,797.6
Illinois International Port District	9,915.4	2,797.2	22,851.2	5,068.8
Mid-America Intermodal Authority Port District	6,631.7	1,585.3	13,913.4	2,896.5
America's Central Port District	5,317.0	1,426.8	11,980.4	2,591.5
Joliet Regional Port District	5,205.0	1,313.0	11,320.5	2,377.7
Southwest Regional Port District	3,628.4	1,080.6	8,713.3	1,985.9
Kaskaskia Regional Port District	3,182.3	873.5	7,219.3	1,578.8
Massac-Metropolis Port District	1,070.6	331.2	2,557.3	599.2
Illinois Valley Regional Port District	884.9	241.6	1,992.4	435.7
Upper Mississippi River International Port District	741.5	182.1	1,604.5	331.4
Havana Regional Port District	598.5	171.8	1,384.5	313.3
Ottawa Port District	558.3	147.2	1,253.6	269.0
Jackson-Union Counties Regional Port District	198.6	55.5	453.4	100.5
Alexander-Cairo Port District	193.6	54.8	456.1	100.3
Seneca Regional Port District	162.4	52.8	394.0	94.1
Waukegan Port District	46.4	13.2	106.8	23.6
Shawneetown Regional Port District	53.5	12.5	114.6	22.8
White County Regional Port District	N/A	N/A	N/A	N/A
Mt. Carmel Regional Port District	N/A	N/A	N/A	N/A
Total	74,682.2	19,853.6	166,628.9	36,024.4



4. ECONOMIC VALUE

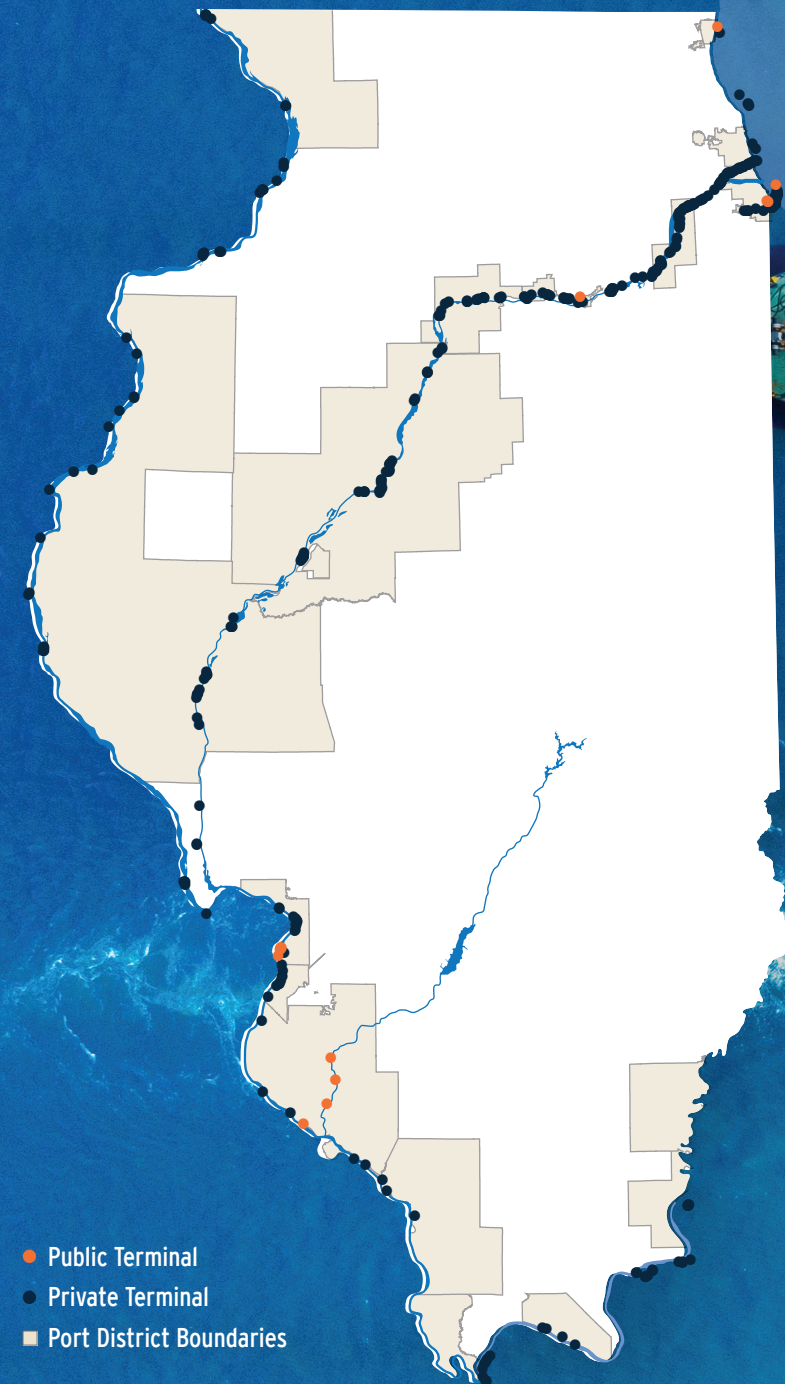
An important aspect of public port district impacts is the role of private terminals in generating benefits. The “Outside District” impacts reported in the table derive entirely from private facilities, and by themselves are responsible for nearly one-third of the total impacts. Inside the port districts, the data sources are unable to separate the activity and benefits attributable to public versus private facilities. That said, an analysis of the Army Corps of Engineers data found that of the 400+ terminals located within Illinois, approximately 96 percent are privately owned. This proportion makes it likely that private terminals – many of them sited within public districts and all using the public waterway - are responsible for the bulk of the state benefits. **Figure 4.39** shows the location of the private and public terminals within the state

A nuance to note is that while district impacts signify the provision of services at a localized level, the impacts attributed to each district are not

necessarily taking place within district boundaries. Rather, the impacts are being enabled by services rendered at the district locations. The businesses which produce and consume goods moving via water are diffuse across the state and make use of truck and rail to get goods on and off the waterways. For activity taking place outside of district boundaries, based on Masterdock Plus terminal locations, we have aggregated the estimated activity as ‘Outside District’ impacts in the following diagram.

In addition to these impacts, interviews with port districts revealed that the services they provide are numerous and benefits go beyond those described here. The emphasis of this section of the IMTS Plan was on capturing Illinois-related contributions to the economy, but the scope of services rendered in the public port districts goes beyond state boundaries. These services should be recognized, even though they are not quantified in this impact summary¹¹.

FIGURE 4.39 Pubic and Private Terminals within Illinois





Endnotes

- 1.....2018 Agricultural Statistics Annual Bulletin - Illinois, U.S. Department of Agriculture
- 2.....Estimated based on USDA factors
- 3.....Port Performance Freight Statistics in 2018, US DOT, Bureau of Transportation Statistics
- 4.....State Exports by Harmonized System Commodities, US Dept. of Commerce
- 5.....Illinois State Energy Profile, USEIA, May 2020
- 6.....Ibid., here and elsewhere in the paragraph
- 7.....Lake Carriers Association. "2019 State of the Lakes," 2019. <http://www.lcaships.com/wp-content/uploads/2019/04/LCA-2019-SOTL-Online.pdf>
- 8.....Illinois Department of Transportation. "2017 Illinois State Rail Plan Updated," 2017. http://www.idot.illinois.gov/Assets/uploads/files/Transportation-System/Fact-Sheets/Rail%20Plan%20Report_12_28_2017_FULL_Final_FRA.pdf
- 9.....USA Today. "A 'Troubling Signal' for the Economy is Fewer Goods Being Shipped Around the Country," July 2019. <https://www.usa-today.com/story/money/2019/07/25/recession-drop-in-shipping-raises-downturn-concerns/1809574001/>
- 10.....To Prevent over-attribution, we used a 5 mile buffer around the river except in the more dense areas are Chicago, where it was tightened to a 1 mile radius.
- 11.....The impact to port users goes well beyond state boundaries, with cargo originating and destined to states across the country