

Chapter 7 | Freight

Introduction

Freight transportation is critical to the regional and national economy. Truck traffic is a significant component, and the highway element of the *RIC Metropolitan Transportation Plan* considers freight needs in the discussion and prioritization of highway recommendations. However, freight is a highly multi-modal sector, with longer and less time-sensitive freight trips made by rail and barge, while the most time-sensitive freight is shipped by air.

Chapter 7 examines the regional freight network in the context of truck, rail, water, and air freight movement. The chapter reviews the West Virginia State Freight Plan, highlights anticipated changes, and concludes with a series of recommendations. While most of the discussion focuses on goods movement – trends in recreation, as well as tourism can affect these transportation modes. As with goods movement, tourism trips are governed in many cases by trends originating outside the Kanawha-Putnam region, but affect transportation needs within the region.

Truck Freight

The Kanawha-Putnam region is located at a critical juncture of freight corridors in West Virginia. I-64 runs east-west through West Virginia and serves as a key corridor connecting markets in Virginia and Ohio. I-77 and I-79 are north-south corridors connecting markets in Ohio, Pennsylvania, Virginia, and North Carolina. As Interstate highways, I-64, I-77, and I-79 are by default included in West Virginia's highway freight network. US 35 and US 60 are two arterial routes identified in the *2018 West Virginia State Freight Plan* due to their high volume of trucks (at least 25% using passenger car equivalents), access to energy production or distribution networks, and connections to the national freight network.

The COVID-19 pandemic drastically impacted the trucking industry throughout 2020 and into 2021. Supply chains around the globe were increasingly strained as logistics and goods movement labor forces were hit hard by coronavirus infections, and the U.S. trucking industry was no exception. The bleak economic outlook and resulting economic downturn partially impacted imports and exports, but the increasing reliance on e-commerce and home delivery kept demand for trucking high as the pandemic progressed.

As commuters increasingly worked from home instead of driving to work, vehicle volumes on some of the most heavily used roadways in the Kanawha-Putnam region dropped during the early stages of the pandemic in the spring and summer of 2020. Figure 7-1, Figure 7-2, and Figure 7-3 show the Average Truck Travel Time Reliability for major U.S., state, and interstate highways in the Kanawha-Putnam region for the month of June in 2019, 2020, and 2021, respectively. Truck Travel Time Reliability is a performance measure used to assess freight

transportation conditions on freeways. The TTTR is defined as the 95th percentile truck travel time divided by the 50th percentile truck travel time using data from the FHWA's National Performance Management Research Data Set (NPMRDS). Figure 7-1 Figure 7-1 represents pre-COVID travel conditions in June 2019. Figure 7-2 represents travel conditions in the early stages of the pandemic when stay-at-home orders were in place and travel restrictions were imposed. There is a noticeable increase in TTTR from 2019 to 2020 as overall vehicle volumes decreased, increasing travel speeds. Figure 7-3 shows travel conditions in June 2021 during the later stages of the pandemic when travel restrictions were eased in West Virginia and surrounding states. There are similarities in high TTTR values between 2019 and 2021, specifically on I-64, US Routes 60 and 119, and State Route 25.

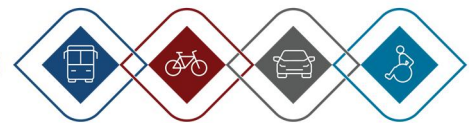


Figure 7-1: Average Truck Travel Time Reliability – June 2019

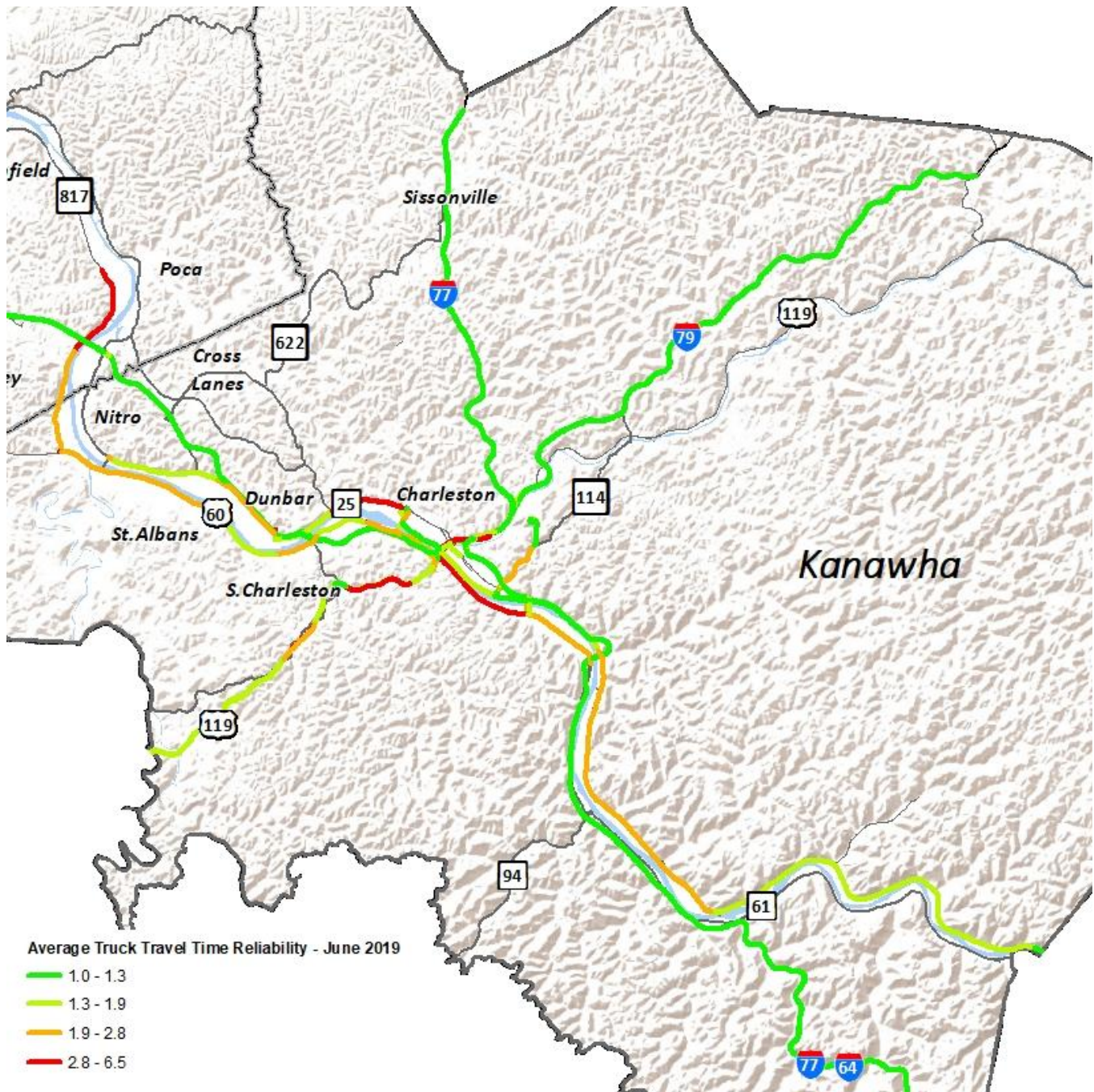
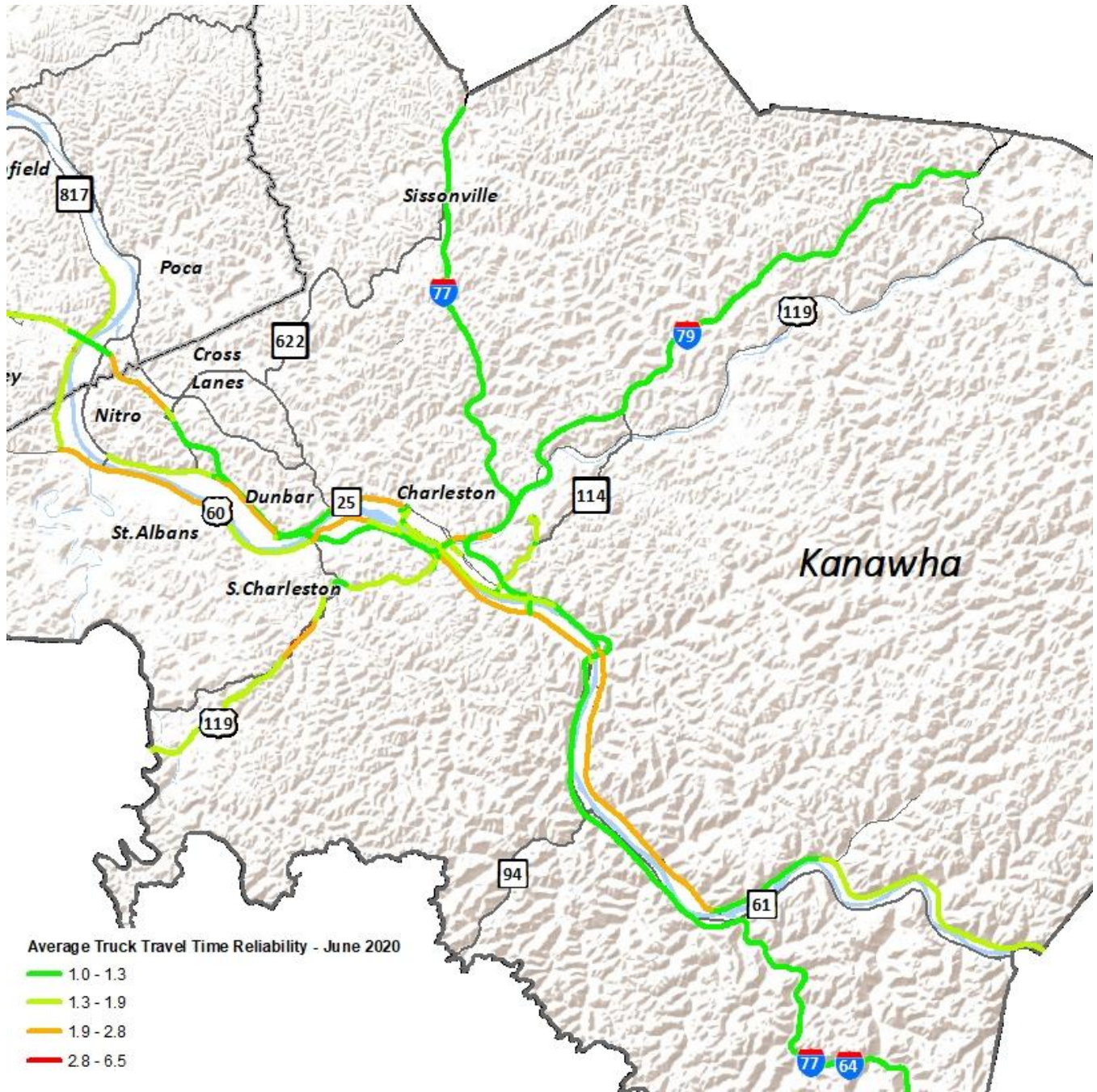


Figure 7-2: Average Truck Travel Time Reliability – June 2020



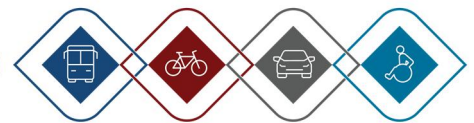
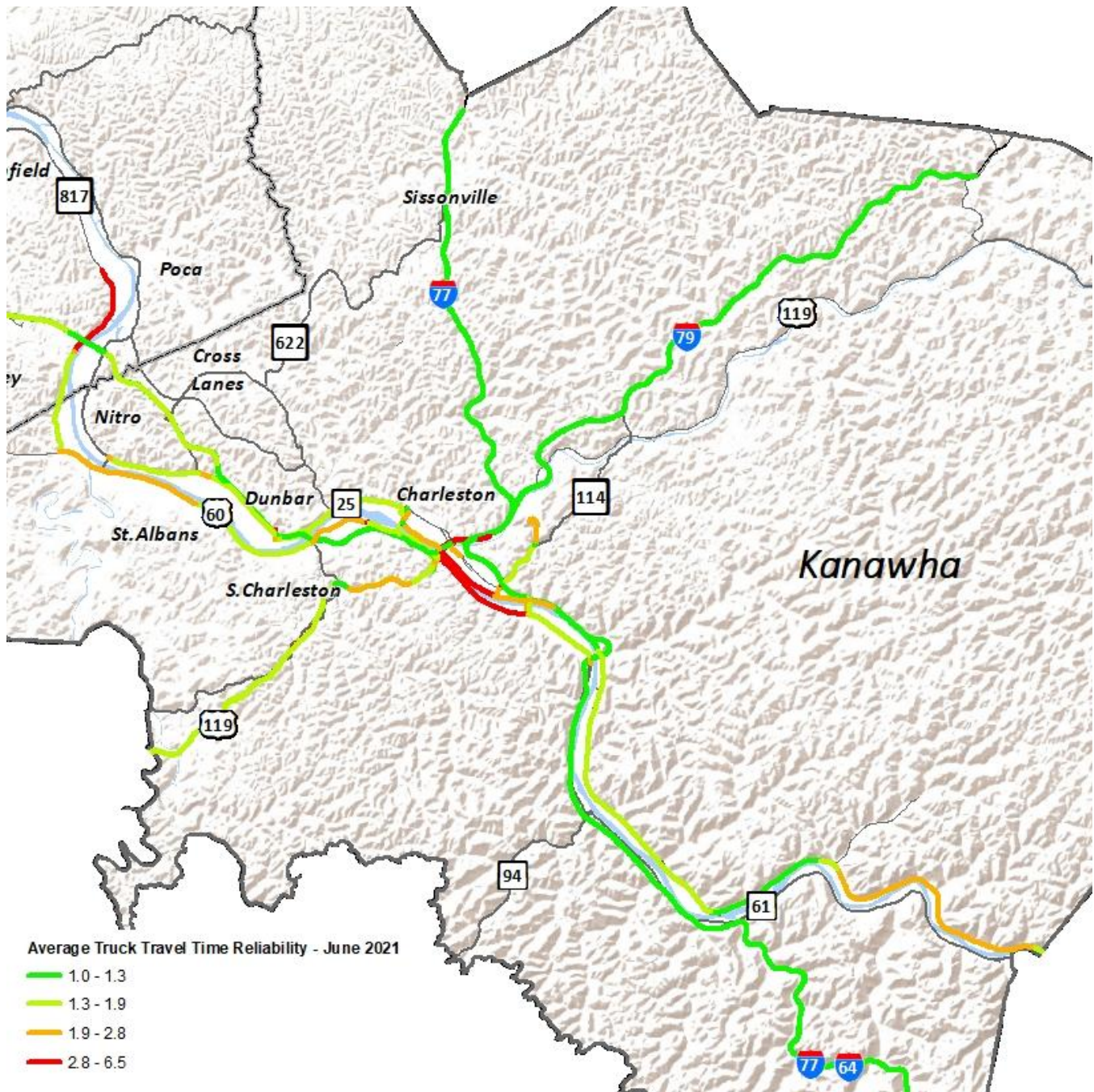


Figure 7-3: Average Truck Travel Time Reliability – June 2021



The FHWA's Freight Analysis Framework (FAF) data provides estimates for the tonnage and value of goods moved to, from, and within the state of West Virginia using 2017 data from the Commodity Flow Survey. These estimates are an indicator of the changing economic conditions in the state over time. Table 7-1 shows goods movements to, from, and within the state using FAF data, and Table 7-2 shows goods movement trends using FAF data. 30-year Commodity flow forecasts and estimates of highway network truck flows will be released later in 2021. According to the 2012 FAF data (the most recent survey year), the region's interstates (I-64, I-77, I-79) handled the bulk of truck traffic in Kanawha and Putnam counties. Sections of I-77 have AADT truck percentages that exceed 30%.

Table 7-1: 2012 West Virginia Commodity Flows

Top Commodities Shipped From West Virginia			
<i>By value moved in billions of dollars (\$2013)</i>		<i>By weight moved in millions of tons (2013)</i>	
Coal-n.e.c.	\$6.2	Coal	84.7
Base metals	\$4.6	Coal-n.e.c.	9.8
Plastics/rubber	\$4.4	Gravel	5.5
Coal	\$3.9	Basic chemicals	4.0
Chemical prods.	\$3.2	Base metals	3.4
Top Commodities Shipped To West Virginia			
<i>By value moved in billions of dollars (\$2013)</i>		<i>By weight moved in millions of tons (2013)</i>	
Fuel oils	\$8.7	Fuel oils	8.0
Mixed freight	\$5.0	Coal	7.5
Plastics/rubber	\$4.1	Gravel	3.8
Base metals	\$3.6	Coal-n.e.c.	3.8
Basic chemicals	\$3.6	Basic chemicals	3.4
Top Commodities Shipped Within West Virginia			
<i>By value moved in billions of dollars (\$2013)</i>		<i>By weight moved in millions of tons (2013)</i>	
Machinery	\$3.8	Coal	24.2
Pharmaceuticals	\$1.3	Gravel	19.0
Coal	\$1.3	Logs	11.2
Unknown	\$1.2	Waste/scrap	4.5
Motorized vehicles	\$1.1	Nonmetal min. prods.	3.8

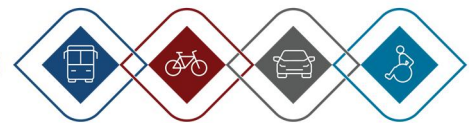


Table 7-2: 2017 West Virginia Commodity Flows

Top Commodities Shipped From West Virginia			
<i>By value moved in billions of dollars (\$2017)</i>		<i>By weight moved in millions of tons (2017)</i>	
Coal-n.e.c.	\$7.2	Coal	104.6
Coal	\$6.9	Coal-n.e.c.	40.4
Pharmaceuticals	\$6.5	Fuel oils	6.6
Plastics/rubber	\$4.3	Wood prods.	4.0
Base metals	\$3.3	Nonmetal min. prods.	2.7
Top Commodities Shipped To West Virginia			
<i>By value moved in billions of dollars (\$2017)</i>		<i>By weight moved in millions of tons (2017)</i>	
Mixed freight	\$6.2	Coal	10.0
Precision instruments	\$5.0	Coal-n.e.c.	10.0
Machinery	\$4.5	Gravel	8.6
Pharmaceuticals	\$4.3	Gasoline	4.7
Plastics/rubber	\$3.5	Fuel oils	2.4
Top Commodities Shipped Within West Virginia			
<i>By value moved in billions of dollars (\$2017)</i>		<i>By weight moved in millions of tons (2017)</i>	
Gasoline	\$4.4	Coal	40.8
Fuel oils	\$3.6	Gravel	11.3
Coal	\$2.1	Gasoline	8.5
Machinery	\$1.6	Logs	7.9
Mixed freight	\$1.2	Fuel oils	7.0

Table 7-3: West Virginia Freight Mode Share

Freight Mode Share From West Virginia				
<i>Mode</i>	<i>By Value (\$2017B)</i>	<i>Mode Value %</i>	<i>By Weight (2017 M of tons)</i>	<i>Weight Mode %</i>
Air (include truck-air)	\$0.4	0.8%	0.0	0.0%
Multiple modes & mail	\$2.6	5.5%	2.1	1.2%
Other and unknown	\$0.1	0.1%	0.1	0.1%
Pipeline	\$6.7	14.1%	39.4	23.0%
Rail	\$3.2	6.8%	52.6	30.7%
Truck	\$32.1	67.4%	30.6	17.8%
Water	\$2.5	5.3%	46.7	27.2%
Freight Mode Share To West Virginia				
<i>Mode</i>	<i>By Value (\$2017B)</i>	<i>Mode Value %</i>	<i>By Weight (2017 M of tons)</i>	<i>Weight Mode %</i>
Air (include truck-air)	\$0.9	1.7%	0.0	0.1%
Multiple modes & mail	\$15.9	29.2%	3.0	5.3%
Other and unknown	\$0.0	0.0%	0.0	0.0%
Pipeline	\$4.0	7.3%	12.8	22.8%
Rail	\$1.8	3.3%	7.2	12.8%
Truck	\$30.9	56.8%	20.1	35.8%
Water	\$0.9	1.6%	13.1	23.3%
Freight Mode Share Within West Virginia				
<i>Mode</i>	<i>By Value (\$2017B)</i>	<i>Mode Value %</i>	<i>By Weight (2017 M of tons)</i>	<i>Weight Mode %</i>
Air (include truck-air)	\$0.0	0.0%	0.0	0.0%
Multiple modes & mail	\$0.3	1.3%	0.2	0.2%
Other and unknown	\$0.0	0.0%	0.0	0.0%
Pipeline	\$0.3	1.3%	1.7	1.9%
Rail	\$1.1	4.8%	12.4	13.5%
Truck	\$20.2	89.4%	62.0	67.9%
Water	\$0.7	3.2%	15.0	16.4%

Rail Freight

Rail also plays an important role in the movement of goods throughout the region and the state. Rail is typically used to transport heavy bulk commodities that do not have a time-sensitive schedule for delivery. Rail freight represents approximately 30% of goods and commodities moved from West Virginia, in large part due to the importance of coal to the state's economy. However, the Statewide Freight Plan indicates that rail freight has decreased in recent years due to the decreased market demand for coal. Other rail-dependent commodities with growth potential in the state, such as oil and gas products and container cars, can satisfy that demand.

CSX Transportation (CSXT) and Norfolk Southern Corporation (NS), the state's two Class I railroads, operate over 2,100 miles of West Virginia's rail infrastructure and two primary routes on the northern and southern banks of the Kanawha River. CSXT operates a primary route through the region, connecting Charleston to Cincinnati, OH and Richmond, VA. Meanwhile, NS operates a secondary route that connects Charleston, WV to Columbus, OH. These railroads also capitalize on the region's intermodal facilities. CSXT serves the TRANSFLO facility in South Charleston, while NS serves the Allied Warehousing facility in Nitro.

Water Freight

The Kanawha River is essential for the movement and exchange of commercial goods in the region. The Kanawha River is joined at Charleston by the Elk River, at St. Albans by the Coal River, and at Poca by the Pocatalico River.

The U.S. Army Corps of Engineers (USACE) estimates that there are 65 port facilities (docks) located throughout the two-county region, 16 of which connect to the region's rail infrastructure. These ports are primarily responsible for the shipment of bulk commodities such as limestone, sand, gravel, coal, petroleum products, and chemicals. Barge transportation accounts for 23% of all goods moved in tons to West Virginia and 27% of all goods moved in tons from West Virginia. As fuel prices rise, barge traffic could potentially become a more attractive shipping mode, particularly since barges are approximately 29% more fuel-efficient than rail and 31% more fuel-efficient than truck (National Waterways Foundation). Barge transit is best suited for commodities that do not have time-sensitive delivery schedules and has the potential to reduce landside freight movement congestion.

The M-70 Marine Highway Corridor (one of 24 national marine highway corridors) includes the Ohio, Mississippi, and Missouri Rivers—as well as connecting commercial navigation channels, ports, and harbors—from Pittsburgh to Kansas City. Additional investments along the Ohio River, located 20 miles from the Putnam County line, could also increase throughput tonnage along the Kanawha River.

Pipeline Transport

West Virginia has been at the center of recent growth in the domestic shale gas industry in the last few years. According to the FAF data, pipeline transportation represents 23% of all goods and commodities moved in tons and 14% by value from West Virginia, behind rail (30.7%) and water (27.2%) as the most used modes to ship goods outside the state. Growing demand for natural gas and petroleum products could offset the decreasing demand for coal. According to the United State Energy Information Administration, in 2016 West Virginia ranked third among U.S. states in natural gas production with over 2.36 billion cubic feet produced. In 2019, West Virginia ranked sixth with 1.97 billion cubic feet produced, representing a slight decline in production relative to other rapidly growing states.

At the time of the development of the Statewide Freight Plan, there were nine pipeline projects at various stages of development underway in the state. Though oil and gas production is centered in the resource-rich northern part of the state, several pipelines carry commodities through the Kanawha-Putnam region, and given its central location in the state, the region could be an ideal site for resource processing plants in the future. For instance, the Appalachian Storage Hub is a proposed pipeline near Huntington, West Virginia that would run along the entire length of the West Virginia and Ohio border. This project would also require several plants in the Charleston area, bringing in-demand jobs and investment to the region.

Air Transport

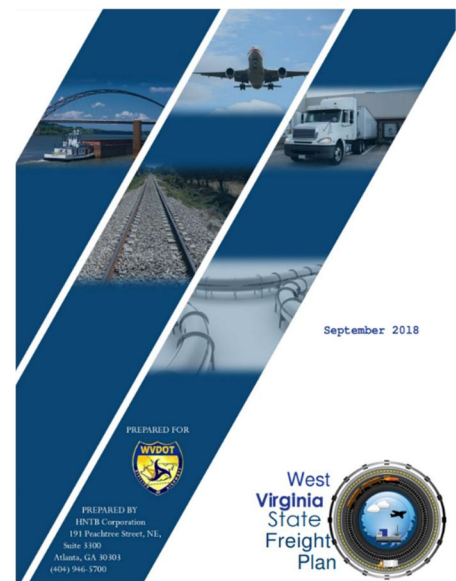
Air freight is typically characterized by low-weight, small volume, high-value cargo shipments that need to be delivered on time-sensitive schedules. Air cargo operations are divided into air cargo freight forwarding companies, integrated carriers (FedEx, UPS), and cargo shipments stored in regularly scheduled commercial passenger flights. Air cargo is typically more prevalent at airports that have strong connectivity and short travel times to domestic and international destinations. Notable air cargo hubs around West Virginia include Memphis, TN, Louisville, KY, and Atlanta, GA.

Yeager Airport in Kanawha County serves five commercial airlines (American Airlines, Delta Air Lines, Delta Connection, Spirit Airlines, and United Express) and provides direct flights to Charlotte, Philadelphia, Washington, D.C., Atlanta, Orlando, Myrtle Beach, and Chicago. Yeager Airport has the largest number of passengers of any airport in West Virginia but has limited air cargo activity. The National Plan of Integrated Airport Systems (2021-2025) listed Yeager Airport as a nonhub commercial service airport, and no air cargo data was found, possibly due to limited activity.

West Virginia State Freight Plan

The West Virginia State Freight Plan was completed in September 2018. This plan provides an understanding of the existing and future freight network in West Virginia through 2040. The goals of the plan reflect the national freight planning goals in the National Freight Policy, which include the following elements: safety, economic competitiveness, maintenance, technology, economic, and environmental impacts. The specific goals of the plan are outlined below:

1. Evaluate existing transportation systems and how they are used by different industry sectors in and through West Virginia;
2. Identify a freight network based on federal guidelines;
3. Develop a freight planning framework that can be used for statewide and Metropolitan Planning Organizations (MPO) plans;
4. Better position West Virginia for federal funding, particularly regarding freight projects; and
5. Strengthens relationships with the freight industry through outreach activities.



Freight Related Improvements

Several of the *RIC Metropolitan Transportation Plan's* financially constrained project recommendations address current and anticipated freight needs. In determining objective scores for projects, proximity to industrial and manufacturing shipping centers was taken into consideration to identify improvements that would benefit freight mobility.

The existing conditions and current forecasts for rail, water, and air transportation modes do not call for additional or distinct transportation improvements. As noted in the discussions above, demand for these modes may be affected by economic trends in commodities (particularly the energy sector) or tourism. These trends should be monitored to determine if distinct future needs arise for rail, water, or air transportation improvements.

Table 7-4: Freight Related Improvements (including Vision projects)

PROJECT ID	ROADWAY NAME	PROJECT DESCRIPTION
RSA-1	Patrick Street	Enhances the 4th Avenue/ Patrick Street Intersection by adding turn lanes to both streets
PC-6A	Teays Valley Road (CR 33)	Widen to 3 lanes between WV 34 and US 35 in areas where two lanes currently exist
RSA-2	WV 34	Install roundabouts at I-64 ramp and Great Teays Blvd. Implement access management
KC-U2	Northern Connector, ALL PHASES	Northern Connector, Sections C, D, E - 4 lane facility from I-64 to I-77.
KC-7	WV 94 (Lens Creek Road)	From Six Mile Hollow Road to Interstate 64: Widen to 3-lanes on steep grades to provide truck passing lanes
RSA-4	I-64 EB Off Ramp	Widen off-ramp to Virginia Street W to provide a drop decision lane