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West Virginia State Freight Plan



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1. INTRODUCTION

The freight transportation system in the United States is the engine that drives the nation's economic competitiveness. Roads, railroads, the inland waterway system, seaports, pipelines, and airports all contribute to connecting agricultural and natural resource areas, population and employment centers, and international gateways.

Maintaining and improving an effective and efficient transportation infrastructure for the movement of people and freight continues to be important in today's global marketplace, especially given projected population growth and increased domestic oil, gas, and agricultural production. Urban goods movement, international supply chains, and logistics are also key to the future economic competitiveness of the country.

Future trends will frame freight planning efforts for the nation and West Virginia. According to the recently released U.S. DOT Beyond Traffic Report,¹ there are several critical choices that must be made regarding freight movements in the future. The report evaluates five major freight trends, including how goods and people currently move and how we can adapt to align decisions and allocate dollars to move people and goods better.

Some of the freight trends highlighted in the report include:

- By 2045, freight volume will increase by more than 40 percent;
- By 2045, America's population will grow by 70 million;
- By 2050, emerging megaregions could absorb 75 percent of the U.S. population; rural populations are expected to continue declining; and
- Strong domestic energy production may enable the U.S. to become a net exporter of natural gas by 2020.

The freight system in West Virginia is diverse and utilizes multiple modes of moving goods. The system comprises highways, waterways, rail, air cargo, pipelines, and intermodal terminals. An efficient multi-modal freight network where all of these system components work in harmony is an essential ingredient for economic development and enhancing West Virginia's competitiveness in the national and global marketplace. This West Virginia Division of Highways (WVDOH) State Freight Plan seeks to guide West Virginia's freight planning and activities toward that goal.

The West Virginia Division of Highways has developed a State Freight Plan to guide freight planning and implementation activities in the state. It provides a snapshot of the state's multi-modal freight infrastructure. It also positions the state to maximize its opportunity to qualify for future funding opportunities that will build projects to enhance the movement of people and goods throughout the state.

¹ U.S. Department of Transportation. *Beyond Traffic 2045: Trends and Choices*. 2015.

1.1 PLAN PURPOSE

The purpose of the WVDOH State Freight Plan is to develop a comprehensive understanding and profile of the existing and future freight network in West Virginia through 2040. The Plan builds on the existing national freight network and identifies facilities that best complement the movement of freight in West Virginia.

Freight-intensive corridors ensure multi-modal connectivity throughout the State and will be identified based on prior freight planning activities to better understand future freight demand on regional and state infrastructure. This multi-modal Plan is intended to support transportation decision makers with current and future funding and investment decisions to address freight needs of the State's transportation network.

This Plan:

- Evaluates existing transportation systems and how they are used by different industry sectors in and through West Virginia;
- Identifies a comprehensive freight route network and a future freight-planning framework for West Virginia;
- Develops a tiered truck route network for West Virginia that meets FAST Act requirements;
- Better positions West Virginia for Federal funding; and
- Strengthens relationships with the freight industry through continued outreach activities.

1.2 PLAN GOALS

A critical component of the WVDOH State Freight Plan is to develop specific goals that provide a planning framework that will guide the development and implementation of the State Freight Plan. Recent federal transportation legislation provides guidance on establishing national goals. This Plan reflects recent developments of the National Freight Policy, which includes the following elements: safety, economic competitiveness, maintenance, technology, and economic and environmental impacts. The freight goals identified in the Moving Ahead for Progress (MAP-21) and the Fixing America's Surface Transportation (FAST) Acts are illustrated in **Exhibit 1-1**.

The basic goals of the Plan are to:

- (1) identify a freight route network that complements the national freight network, and
- (2) develop a future freight planning framework for West Virginia.

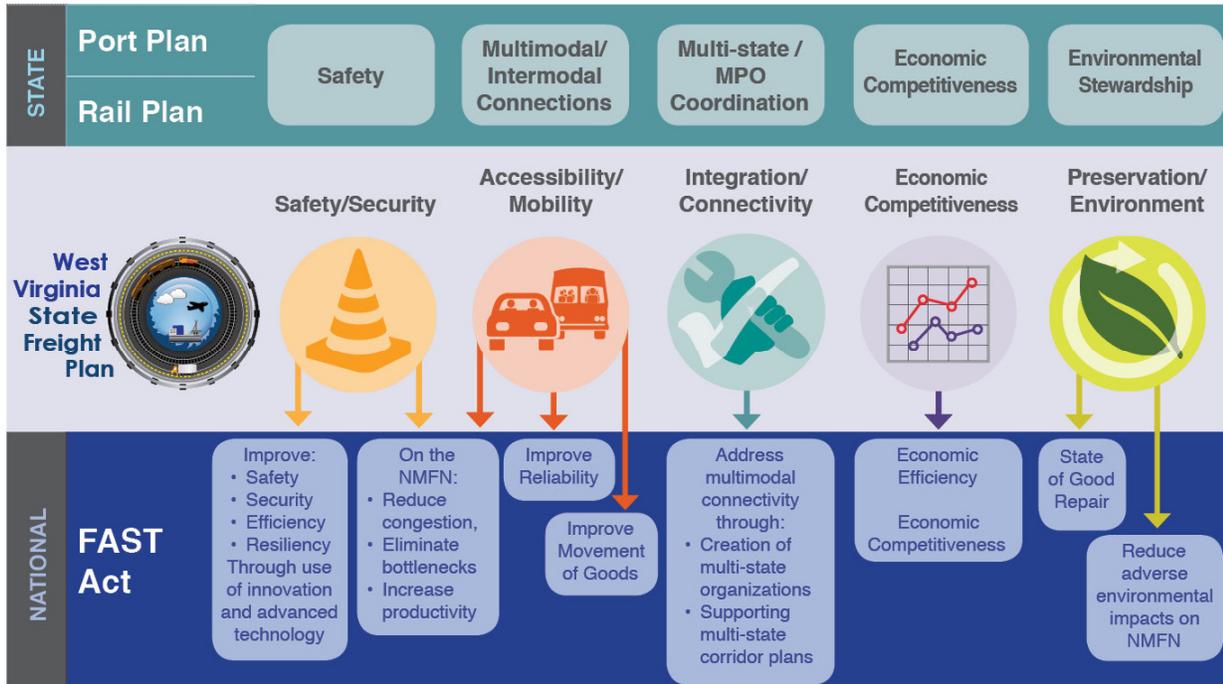
This Plan will:

- (1) Evaluate existing freight 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 Organization (MPO) plans;
- (4) Better position West Virginia for federal funding, particularly regarding freight projects; and

- (5) Strengthen relationships with the freight industry through outreach activities.

This State Freight Plan was developed to meet several goals and objectives. The goals of this Plan are illustrated in **Exhibit 1-1**. These goals are in line with federal, state, and regional strategies and reflect the input gained from freight transportation system stakeholders, while borrowing from freight planning best practices from across the nation.

Exhibit 1-1: Freight Study Goals



1.3 STUDY AREA

The study area for this Plan includes the State of West Virginia as illustrated in **Exhibit 1-2**. The area of influence for this Plan, however, extends into several neighboring states. The State has several multi-state MPOs that, like freight movements, do not terminate at state boundaries. To provide a clearer picture of the freight needs and issues in the State, this study strives for a coordinated freight plan that accounts for the influences of the broader Appalachian Region as they apply to West Virginia.

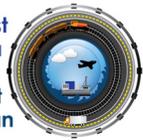
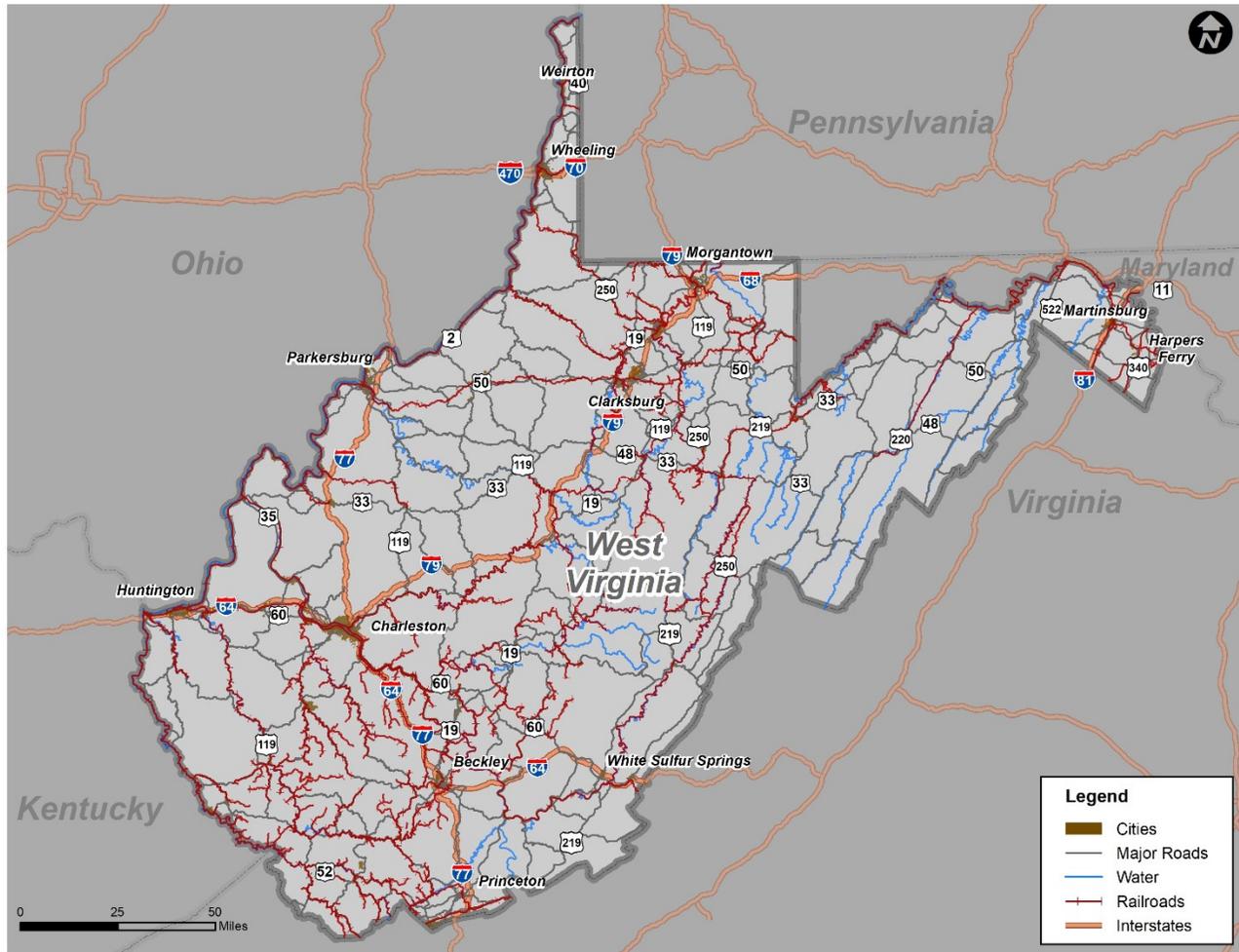


Exhibit 1-2: Study Area Map



2. PREVIOUS FREIGHT PLANS AND STUDIES

A variety of modal freight plans and studies have been prepared in West Virginia over the years to evaluate and identify solutions for the State’s transportation network. Most of them are presented as part of long-range planning efforts or corridor studies. The following section summarizes previous and existing studies and literature on the freight system in West Virginia.

2.1 FREIGHT PLANNING IN WEST VIRGINIA

Over the past several years the State has conducted several modal freight plans. These include the recently completed Statewide Strategic Port Master Plan (WV Public Port Authority), the Statewide Rail Plan (WV State Rail Authority), the Multi-Modal Statewide Transportation Plan (WVDOH), and individual MPO plans. Additionally, the Coal Resource Transportation System (CRTS) was reviewed and is illustrated in **Exhibit 2-1**. These documents provide an understanding of the roadway system as well as the railway, airway, pipeline, and waterway movements for freight, and how these various modes interact with one another.

Exhibit 2-1: West Virginia Coal Resource Transportation System (CRTS)

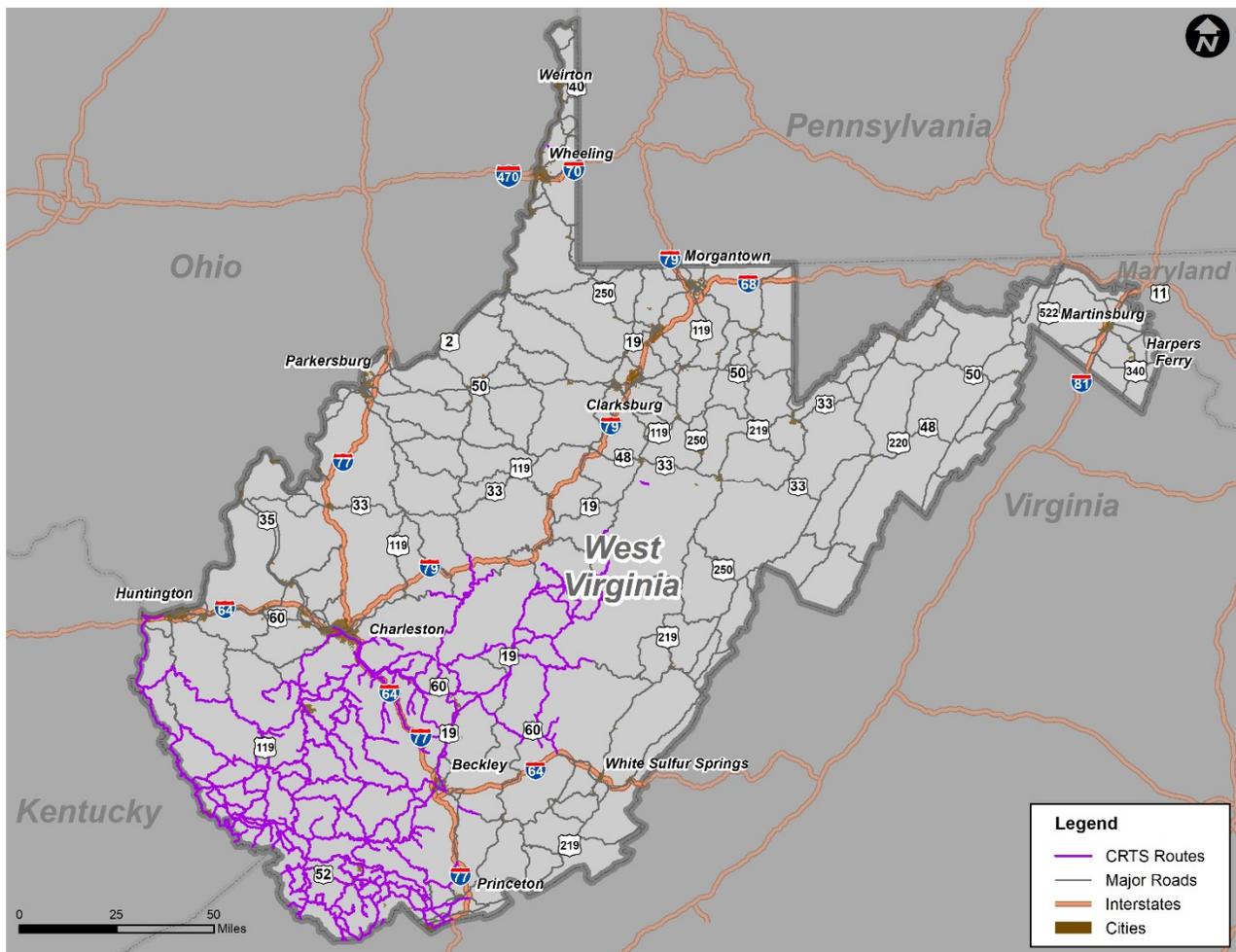
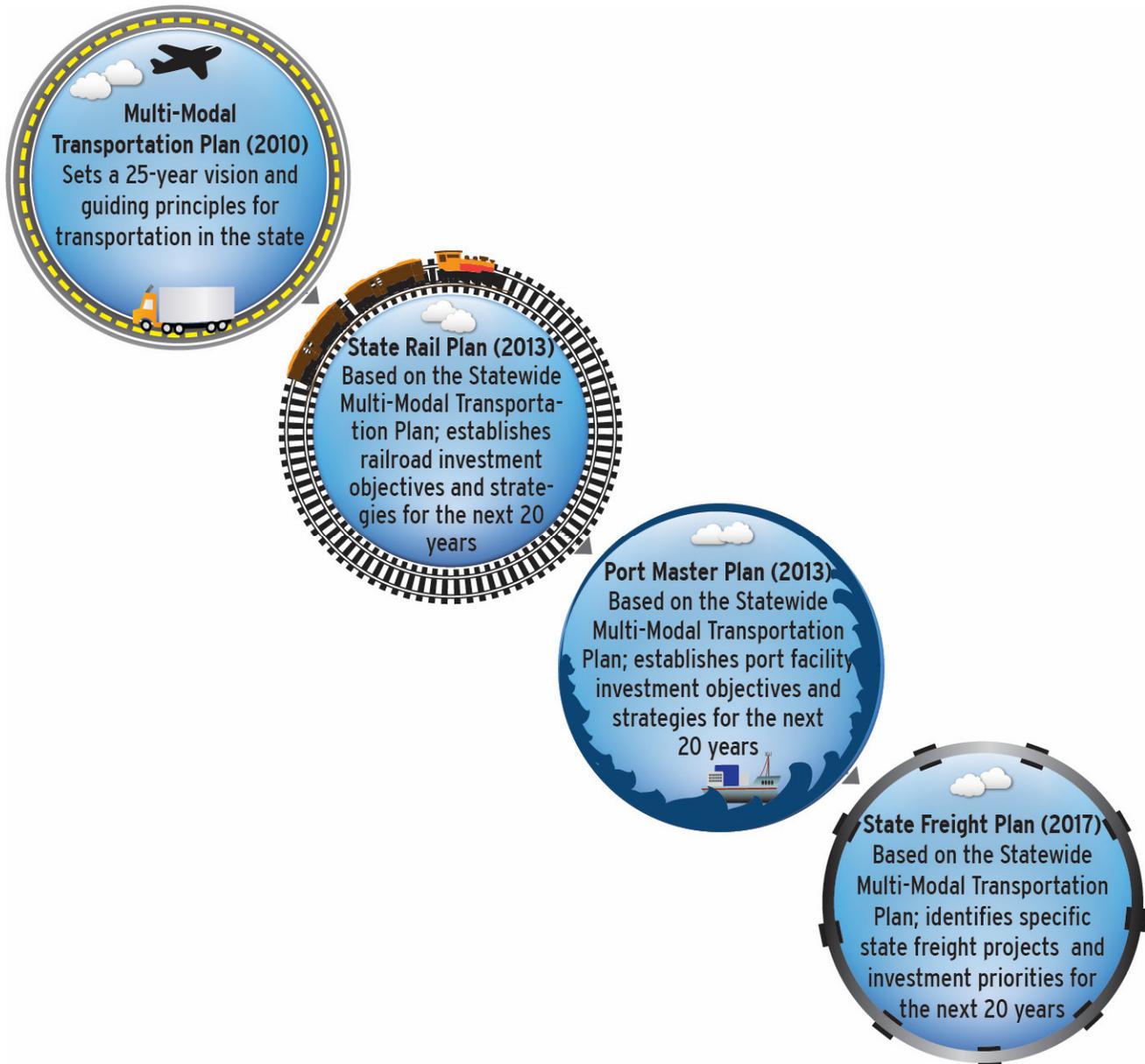


Exhibit 2-2: West Virginia Freight-Planning Efforts



2.1.1 Statewide Multi-Modal Transportation Plan

West Virginia’s Multimodal Statewide Transportation Plan was completed in 2010. The plan evaluated existing conditions of all transportation modes and conducted a needs analysis based on system deficiencies. The plan identified projected needs between 2010 and 2035 for each mode (except air, which had a 10-year planning horizon). The needs analysis focused on system deficiencies for highways and bridges, which make up a large part of the unconstrained needs list, where bridge and highway needs totaled \$4 billion (in 2007 dollars).

The unconstrained needs list included:

- Bridge needs - \$2.5 billion;

CHAPTER 2 – PREVIOUS FREIGHT PLANS AND STUDIES

- Highway needs - \$1.5 billion;
- Transit needs - \$57.28 million;
- Port Facility needs - N/A (the study evaluated three proposed facilities: Prichard, Point Pleasant, and Weirton Steel);
- Air Project needs (2010-2020) - \$30.9 million; and
- Freight Rail needs - N/A (the study focused on passenger rail).

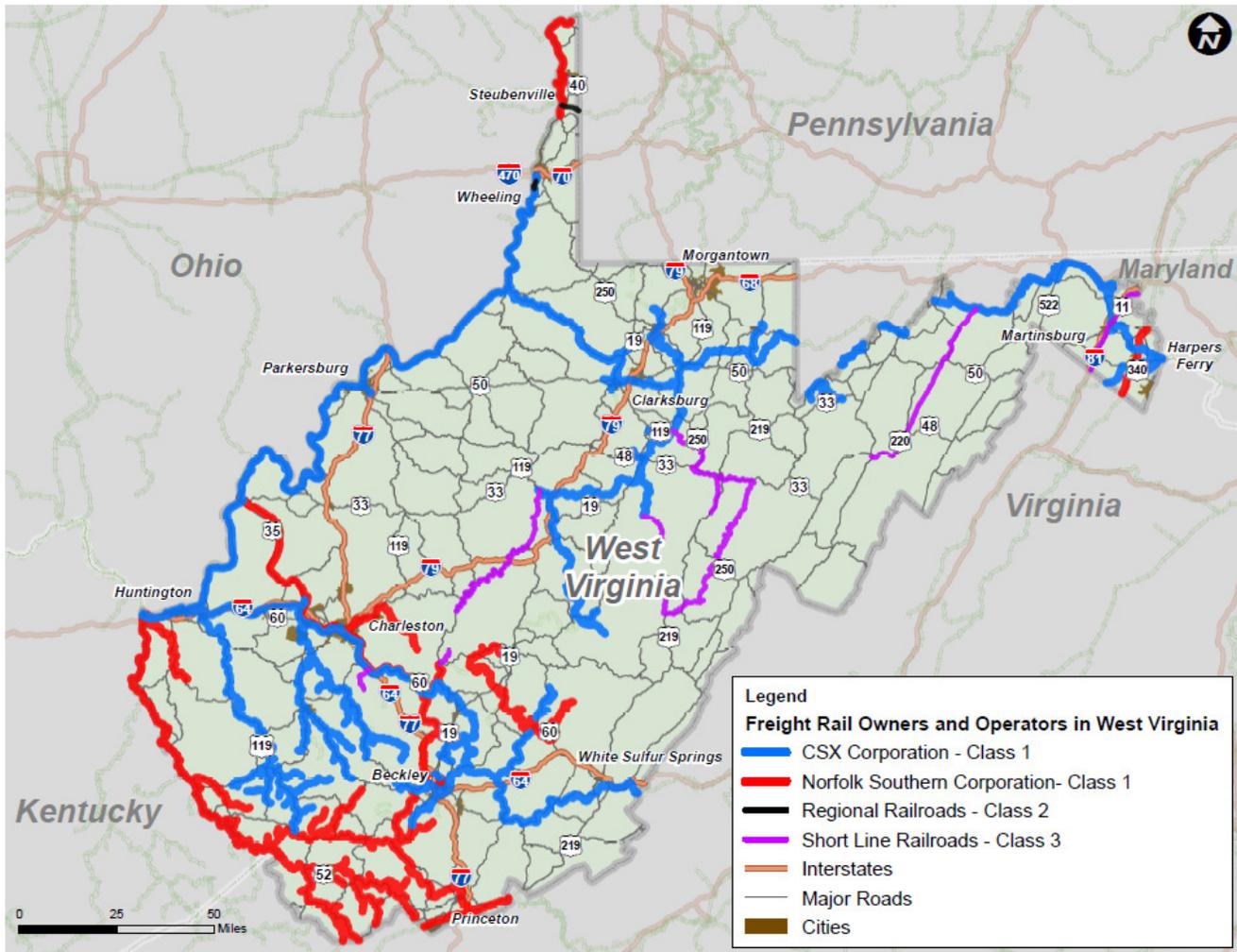
2.1.2 State Rail Plan

The Department of Transportation completed the State Rail Plan in 2013. The plan's freight rail forecasts found that by 2040, rail freight tonnage in West Virginia will remain comparable to what it is today. By that time, however, the composition and directional movements are expected to change as the State's coal shipments decline and other commodity movements expand. The State can expect increased natural gas and intermodal rail movements, due to recent investments in intermodal corridor clearance and capacity projects.

Exhibit 2-3 illustrates the State rail network. Only one Class I rail line, the Mountain Subdivision (Huntington-Cumberland, MD), approached capacity based on current trains per day. Two additional lines – CSX Transportation's Metropolitan/Cumberland Subdivisions between Brunswick, MD, and Cumberland, MD, and Norfolk Southern Railway's Hagerstown District (Hagerstown, MD – Front Royal, VA), approached 85 percent capacity. No short-line railroads expressed the need for additional line capacity during the railroad interview process.

The plan identified short- and long-term rail projects that are proposed for state-owned, short-line railroads that mostly focus on improving service quality and expanding services to entice economic development. On the South Branch Valley Railroad (SBVR), the plan proposed upgrading several SBVR properties, upgrading locomotives, and re-decking several rail bridges. The West Virginia Central Railroad also proposed rail bridge and property improvements at the Dailey Branch. The plan also recommended upgrading more than 40 at-grade rail crossings throughout the State.

Exhibit 2-3: West Virginia Freight Rail Network²



2.1.3 Port Master Plan

The West Virginia Public Port Authority (WVPPA) completed a Statewide Strategic Port Master Plan in 2013. The plan was intended to help the WVPPA plan for future growth of the State’s multi-modal system by integrating transportation initiatives into policy, planning, and investment strategies. The study identified the State’s existing freight transportation infrastructure, analyzed market conditions, and evaluated business opportunities for successful freight logistics services, specifically for four selected regions within the State.

The plan recommended several action plans on which the WVPPA will focus its efforts over the next 20 years. The plan identified four regions as focal points for potential site developments. The four regions include the Huntington/Prichard/U.S. Highway 35 Corridor, Martinsburg, Weirton, and Clarksburg. For the Huntington/Prichard Region, the plan recommended developing highway and logistics infrastructure, and services to support the business clusters surrounding the Prichard Intermodal Terminal, as well as adopting the smart port

² West Virginia State Rail Plan. West Virginia Department of Transportation. December 2013.

model and improving waterside transfer and information technology capacity. For the Martinsburg Region, the plan recommended that it promote its industrial parks and improve its position as a warehousing and distribution center for the State. The plan recommended that the Weirton Region develop itself as a trans-shipment point for the Marcellus Shale extraction industry that has grown across the northern part of the State. Finally, the plan recommended that the Clarksburg Region focus on developing its freight infrastructure to support future growth in the natural gas industry, as well as investigating plans for a potential bulk-transfer facility.

2.1.4 Local-Level Freight Planning in West Virginia

2.1.4.1 Huntington Intermodal Transportation Planning Study

The KYOVA Interstate Planning Commission completed the Huntington Intermodal Transportation Study in 2009. The study evaluated the existing and future conditions for the region, with specific focus on the Huntington Tri-State (HTS) Airport. The purpose of the study was to evaluate and analyze the need for developing an intermodal facility at the HTS Airport and to advance recommendations for the project into the National Environmental Planning Act (NEPA) planning process.

Additionally, the study evaluated public transit service and parking at the airport. Ultimately, the study found a lack in long-term parking at the airport and recommended construction of an auxiliary parking facility. The study also recommended the intermodal facility accommodate personal vehicles, provide public transportation services, improve safety, and provide handicap access. The study proposed the facility, estimated at \$18.6 million, be developed to capture unique economic development opportunities in the region.

2.2 FREIGHT PLANNING IN SURROUNDING STATES

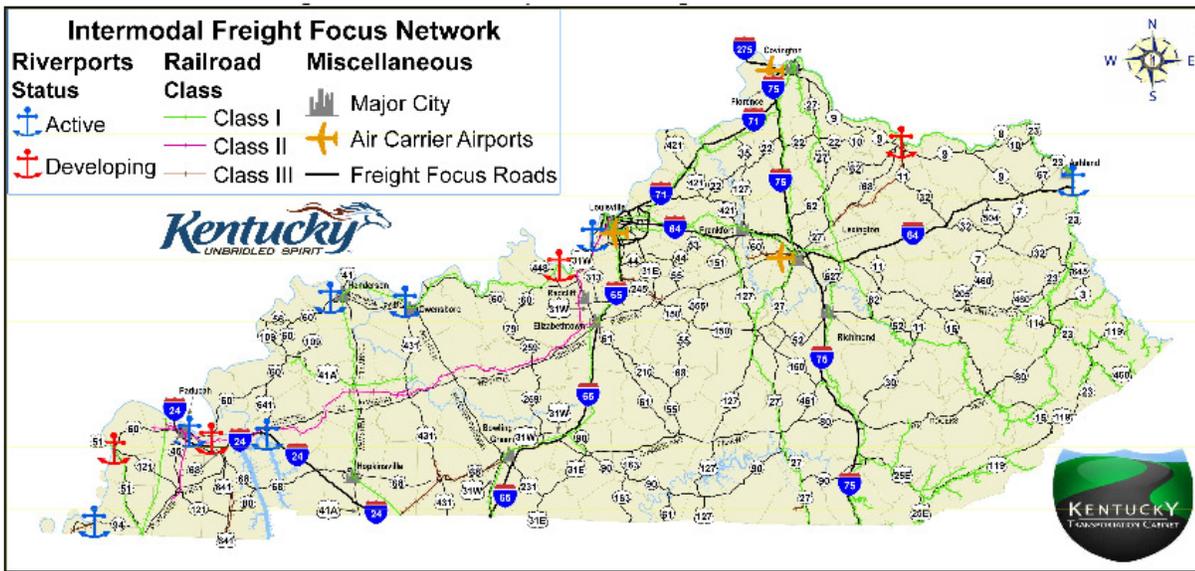
Freight planning typically involves several agencies that oversee implementing multi-modal freight improvement projects. West Virginia is part of the larger Appalachian Region, which includes all of West Virginia and parts of several of its neighboring states including Kentucky, Maryland, Ohio, Pennsylvania, and Virginia. This plan evaluated the existing freight plans available in each neighboring jurisdiction to evaluate their recommendations and the impacts they may have on freight planning in West Virginia and for the broader region. The following sections summarize the recently completed plans for states with which West Virginia should coordinate its future freight planning efforts.

2.2.1 Kentucky Statewide Intermodal Freight Plan



The Kentucky Statewide Intermodal Freight Plan was completed in 2016. The plan identified a priority freight network for the Commonwealth that included roadways, railroads, airports, river ports, and waterways. The State’s freight network was designated so that the State could focus its resources and future freight investments on the facilities that have the most significant impacts on freight. This priority network was called Kentucky’s freight focus network, and it limited future investments to certain facilities that expedite freight movement. For example, for future railroad investments, the freight focus network would prioritize investments on Class II and III railroads before Class I carrier investment opportunities. Kentucky’s freight focus network is illustrated in **Exhibit 2-4**.

Exhibit 2-4: Kentucky Freight Focus Network³



2.2.2 Maryland Statewide Freight Plan



The Maryland Department of Transportation completed the Maryland Strategic Goods Movement Plan in 2015. The plan evaluated the State’s highway, railway, port, and airport freight infrastructure and the impacts

that current and projected future freight flows will have on goods movement and the economy in the State. The plan identified many multimodal freight project investments that are anticipated to be implemented as part of the State’s ongoing freight planning efforts. Projects were weighted and prioritized based on stakeholder priorities and given corresponding scores of “high,” “medium,” and “low” that guided their prioritization in the statewide planning process.

2.2.3 Ohio Statewide Freight Study



The Ohio Department of Transportation completed the Ohio Statewide Freight Study, Access Ohio 2040, in November 2013.

The study evaluated various components of Ohio’s multimodal freight system, which included rail, maritime, highway, air cargo, and intermodal container facilities. **Exhibit 2-5** illustrates the roadway network that was designated for the State. The study developed freight investment and market strategies for each individual mode, or modal sector. For example, the study developed maritime strategies for both Lake Erie ports as well as separate investment strategies for Ohio River freight terminals. Finally, the study outlined an implementation strategy for state freight planners to designate a roadway freight network for Ohio as well as other ongoing freight planning activities.

³ 2006 Kentucky Statewide Intermodal Freight Plan. Kentucky Transportation Cabinet, Division of Planning. 2006.

2.2.4 Pennsylvania Comprehensive Freight Movement Plan



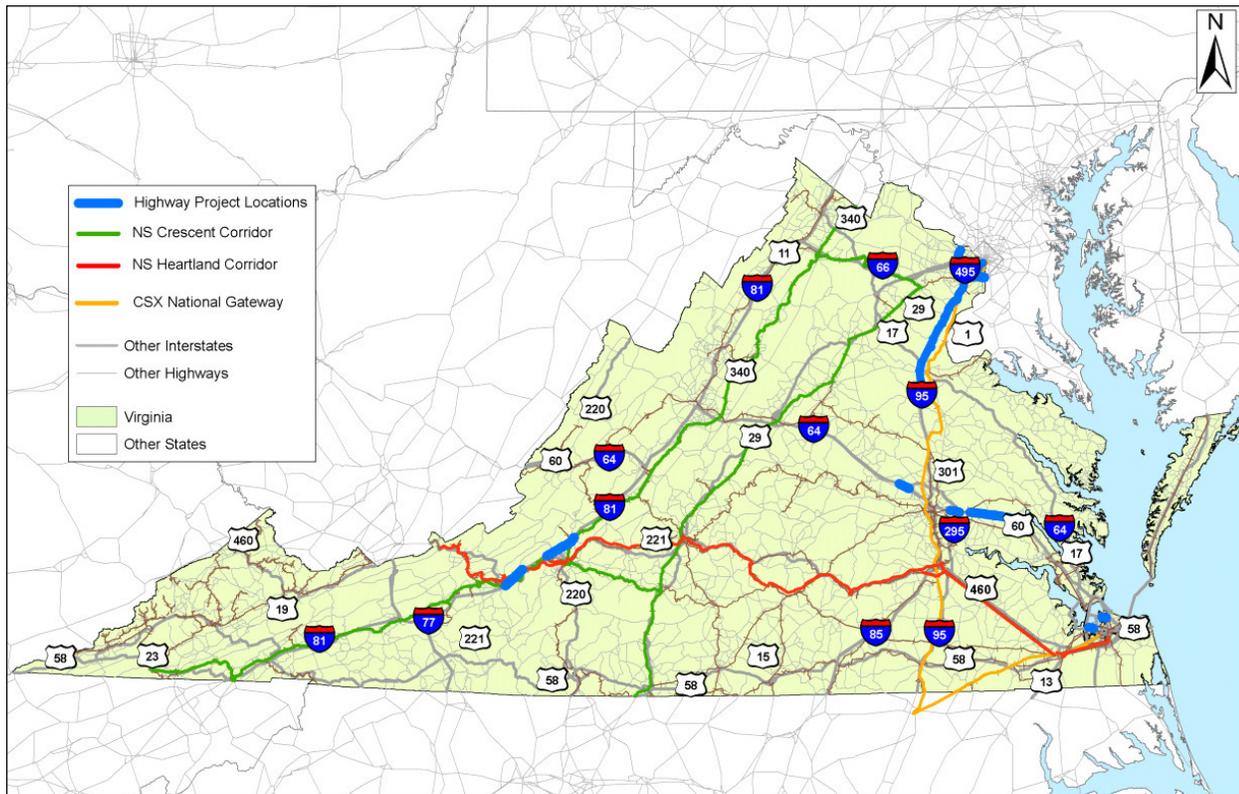
In June 2015, the Pennsylvania Department of Transportation completed the Pennsylvania Comprehensive Freight Movement Plan. The plan outlined goals and investment strategies to meet those goals, with heavy influence from federal freight goals and MAP-21 legislation. The plan was fueled by the increased maximum federal funding share for projects that demonstrate an improvement in the efficiency of freight movements. The Pennsylvania plan concluded with actionable items and opportunities for implementable projects that address critical freight challenges across all modes in the State.

2.2.5 Virginia Statewide Multimodal Freight Study



In 2010, the Virginia Department of Transportation completed the Virginia Statewide Multimodal Freight Study. The study developed 11 multimodal freight corridors and four sub-regional freight profiles to direct local freight planning efforts in the State. The study identified \$5.6 billion in near-term and \$14.6 billion in long-term freight projects, and it considered policies, actions, and initiatives that supplemented the capital projects that were recommended. The study prioritized projects based on a cost-benefit analysis tool that accounted for both transportation and economic benefits of freight. **Exhibit 2-6** illustrates the near-term projects in Virginia.

Exhibit 2-6: Virginia Freight Study Near-Term Projects



3. FREIGHT AND THE ECONOMY

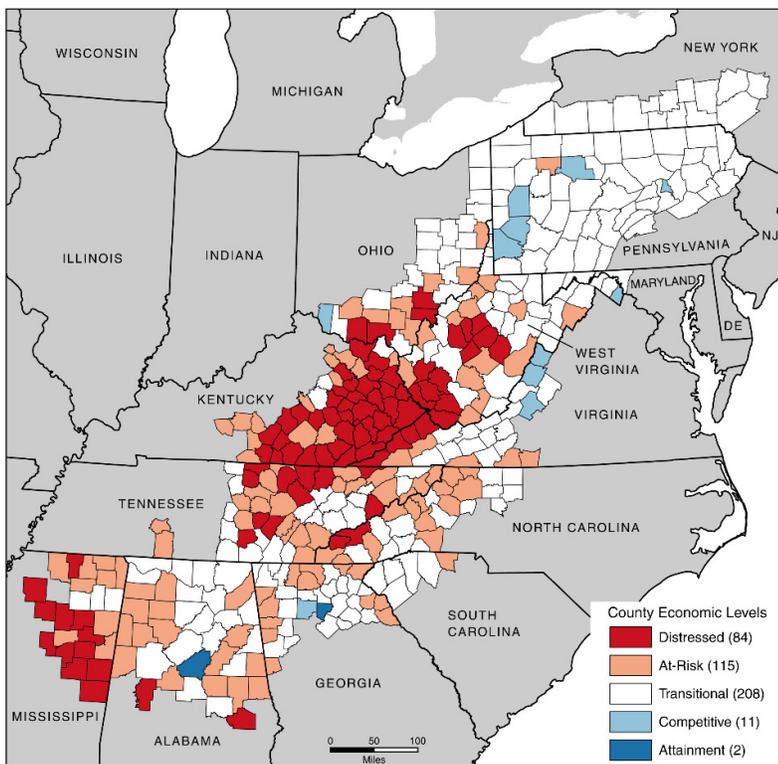
West Virginia's transportation network carried approximately 156 million tons and \$1.44 billion of goods to, from, and within the state in 2012.

West Virginia's economy is driven not only by industrial growth or decline, but also by employment patterns, population growth, and economic development in the State.

West Virginia's economy, once highly dependent on mining, forestry, agriculture, and heavy industries, has become more diversified in recent years and now includes manufacturing and professional service industries. West Virginia continues to be impacted by economic distress and high poverty, unemployment, and educational disparities. Recent data shows

that the State, as well as the surrounding Appalachian Region, has more slowly rebounded from the recent recession than the rest of the nation. **Exhibit 3-1** below shows the economic levels of the Appalachian Region. According to the Appalachian Regional Commission (ARC), several counties in West Virginia are currently distressed or at-risk. Only Jefferson County is considered to have a competitive economy.

Exhibit 3-1: County Economic Levels⁵



Created by the Appalachian Regional Commission, August 2017
 Data Sources:
 Unemployment data: U.S. Bureau of Labor Statistics, LAUS, 2013–2015
 Income data: U.S. Bureau of Economic Analysis, REIS, 2015
 Poverty data: U.S. Census Bureau, American Community Survey, 2011–2015

Effective October 1, 2017 through September 30, 2018

The U.S. Bureau of Economic Analysis estimated West Virginia's current-dollar Real Gross Domestic Product (GDP) in 2016 at \$73.4 billion, ranking the State as 40th in the United States.⁶ In 2006, West Virginia GDP was \$56.9 billion and it ranked 40th in the United States. The State has also lagged behind its neighboring states, which have seen real GDP grow at much faster rates overall.

Investing in a safe, efficient, and reliable freight network that will link West Virginia to state, regional, and global markets is key to fostering the State's economic development. The following sections discuss the economic impacts of freight in West Virginia and how freight-intensive industries will continue to drive the economic growth of the State in the future.

⁵ Appalachian Regional Commission: https://www.arc.gov/research/MapsofAppalachia.asp?MAP_ID=137

⁶ U.S. Bureau of Economic Analysis. BEARFACTS.

3.1 WEST VIRGINIA DEMOGRAPHICS

Overall, the State can expect its population’s employment and income to be stronger in the coming five years compared to the past decade. However, it is expected that the State will continue to lag behind the nation in terms of employment, income, and population growth over the next several years.

According to the U.S. Census Bureau, the total population in 2016 in West Virginia was 1,831,102; down 21,892 (1.2 percent) since 2010. **Exhibit 3-2** below illustrates population change in West Virginia since 2010.

Exhibit 3-2: West Virginia Population⁷

Year	Population
2010	1,852,994
2011	1,854,972
2012	1,856,560
2013	1,853,231
2014	1,848,514
2015	1,841,053
2016	1,831,102

After consistent and healthy job growth between 2010 and mid-2012, the State has seen population and employment decline for much of the last five years; with a cumulative loss of more than 25,000 residents since 2012. According to the U.S. Census

Bureau, 47 of the State’s 55 counties lost residents between 2015 and 2016, with Kanawha County seeing the largest absolute decline in population.

Exhibit 3-3: West Virginia Employment⁸

Year	Employment
2008	689,601
2009	671,950
2010	670,260
2011	679,054
2012	690,571
2013	684,294
2014	682,397
2015	678,232
2016	665,272

Exhibit 3-3 illustrates the employment in the State. West Virginia experienced a large loss of jobs between 2012 and 2016, with a cumulative decline of approximately 25,000 jobs over that period. Much of the decline was due to losses in government employment (10,900), construction (4,200), and the leisure and hospitality sector (2,200). Unemployment in the State is currently higher than 45 other states.⁹ The most recent U.S. Census employment estimate shows that West Virginia employed

According to the US Census Bureau, only 53 percent of the state’s adult population is either working or looking for work.

And while significant job losses have occurred in the coal mining industry in the state’s southern coalfields, the state’s oil and gas producers in the Northern Panhandle and northwestern section of the state have added jobs in recent years to help offset the losses in the coal mining industry.

GDP growth in recent years can be mostly attributed to developments in the oil and gas production industries.

⁷ U. S. Census Bureau, *West Virginia Quickfacts*. 2017

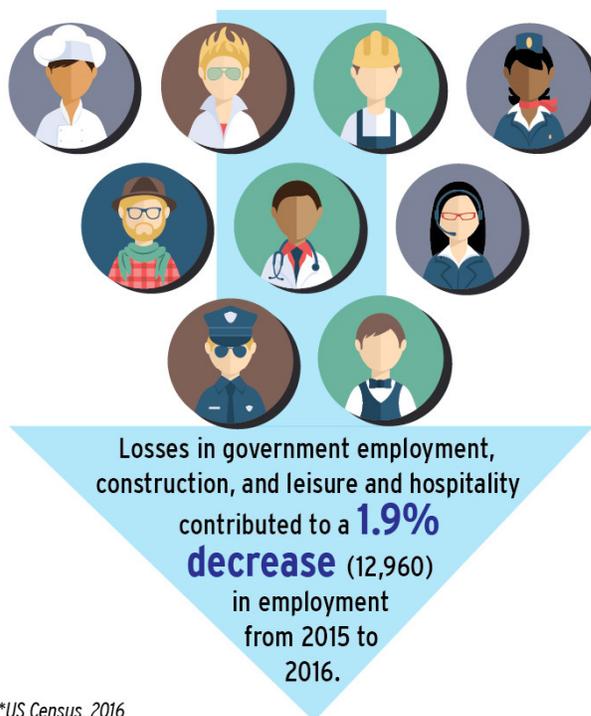
⁸ *QWI Explorer*. U.S. Census Bureau. 2017

⁹ *West Virginia Economic Outlook 2018-2022*. Bureau of Business and Economic Research. 2016

CHAPTER 3 – FREIGHT AND THE ECONOMY

approximately 665,272 paid employees as of November 2016.¹⁰ The largest industry sectors in the State, based on employment, included healthcare and social assistance (131,183), retail trade (85,067), accommodation and food services (62,287), and manufacturing (47,499).

Total personal income (TPI) has remained steady over the past ten years. In 2006, the TPI of West Virginia was \$51,923,737, ranking it 39th in the United States. In 2016, West Virginia had a TPI of \$67,061,987, ranking it 39th in the United States. In 2016, West Virginia had a per-capita personal income (PCPI) of \$37,400.¹¹ This PCPI ranked 49th in the United States and was 75 percent of the national average (\$49,246). The state 2016 PCPI reflected an increase of 1.5 percent in 2016. Low household income translates into poverty, and approximately 17.9 percent of West Virginia’s population is currently classified as living below the poverty level.¹² Only 53 percent of West Virginia’s adult population is either working or looking for work; which is the lowest labor force participation rate among all 50 states. Additionally, the State’s residents are significantly less educated compared to the rest of the nation with only 19.2 percent of the State’s persons, age 25 years or more, receiving a bachelor’s degree or higher, as compared to almost 30 percent nationally.



*US Census, 2016

West Virginia employment estimate: approximately **665,272 paid employees***
The largest industry sectors in the state, based on employment, include:



3.2 WEST VIRGINIA’S ECONOMY

Freight-intensive industries are driving change in West Virginia. Changes in the industrial composition of the State’s economy directly affect the demand for freight transportation. West Virginia has traditionally thrived on energy and manufacturing industries such as coal, chemicals, automotive, and wood products. Today, however,

¹⁰ U.S. Census Bureau, 2013 County Business Patterns. Does not include Government Employees.

¹¹ U.S. Bureau of Economic Analysis. BEARFACTS.

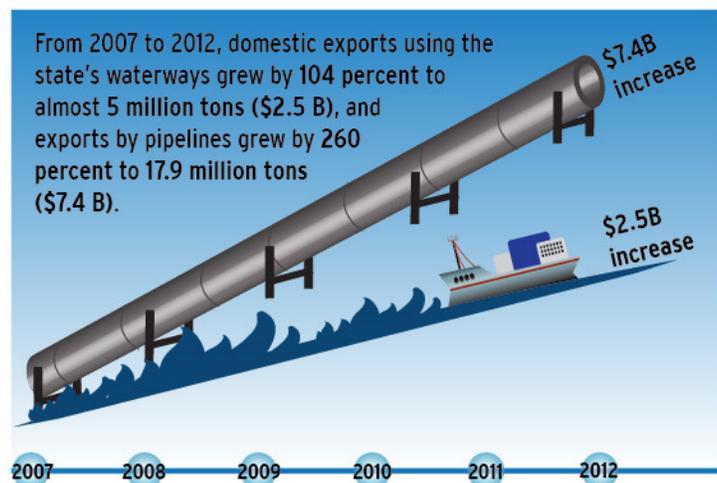
¹² U.S. Census Bureau. Quick Facts.

CHAPTER 3 – FREIGHT AND THE ECONOMY

West Virginia’s economy is driven by innovative, technology-based businesses, and an increasingly skilled workforce. The State’s emerging industry sectors include biotech and other clean energy services. The State is a national leader in advanced energy research and has a diverse energy grid that includes coal, natural gas, biomass, hydrogen, hydroelectric, wind, and solar power. After experiencing consistent job growth between 2010 and 2012, the State has seen employment decline for much of the last five years, with a cumulative job loss of around 17,000 jobs.¹³ In the past, the State’s largest contributor to real GDP growth was the mining industry, the second largest contributor was professional and business services.

The West Virginia economy today has seen continued losses in coal jobs traced to the downturn in the coal industry and an extended slowdown in natural gas production. A key bright spot in West Virginia’s economy in recent years has been the growth of several export markets. In 2000, exports accounted for 5.4 percent of West Virginia’s GDP. By 2012, that figure grew to 16.3 percent.

While rail exports (mostly heavy coal transported by rail) in West Virginia have declined by 34 percent from 2007 to 2012, the State’s waterway and pipeline exports have experienced significant recent growth. During the same five-year period, domestic exports using the State’s waterways grew by 104 percent to almost 5 million tons (\$2.5 B), and exports by pipelines grew by 260 percent to 17.9 million tons (\$7.4 B).¹⁴



Intermodal exports from West Virginia have exploded during the same time period and are expected to experience continued growth with recent capacity improvements at the Heartland Intermodal Gateway. The total exports leaving West Virginia using several modes of transportation (including intermodal and parcel shipments) are growing in both tonnage and value. From 2007 to 2012, intermodal exports grew 740 percent to nearly 6.7 million tons (\$948 M).

As states across the nation decrease their dependence on coal-fired power, the value of West Virginia coal exports is expected to continue to dwindle. Therefore, it will be essential for the future economic wellbeing of the State to invest in the most prominent modes of transportation that will be moving the State’s goods in the future. More details on the tonnage of freight transported to, from, and within West Virginia are in **Chapter 5**.

3.2.1 West Virginia Freight Industry Outlook

West Virginia is home to a wide variety of industries. The abundance of coal and shale resources provide easy access to fuel sources and feed stock. Major rail, river, and interstate connections help to move the State’s natural resources such as timber, coal, limestone, and steel. West Virginia’s deep supply of resources and its strategic location appeal to a broad range of industries.

¹³ *West Virginia Economic Outlook 2018-2022*. Bureau of Business and Economic Research. 2017

¹⁴ U.S. DOT. Federal Highway Administration. *Freight Analysis Framework, FAF-4 Data*. 2015.

West Virginia has a large building products industry, illustrated in **Exhibit 3-4** below. The State has almost 12 million forested acres (94 percent of which are hardwoods), and is the third most forested state in the nation.¹⁵ The State has also designated the Hardwood Alliance Zone, which consists of nine counties in the eastern part of the State that is home to 200 hardwood manufacturing, processing and other wood product operations.

Exhibit 3-4: WV Forest Producers¹⁶



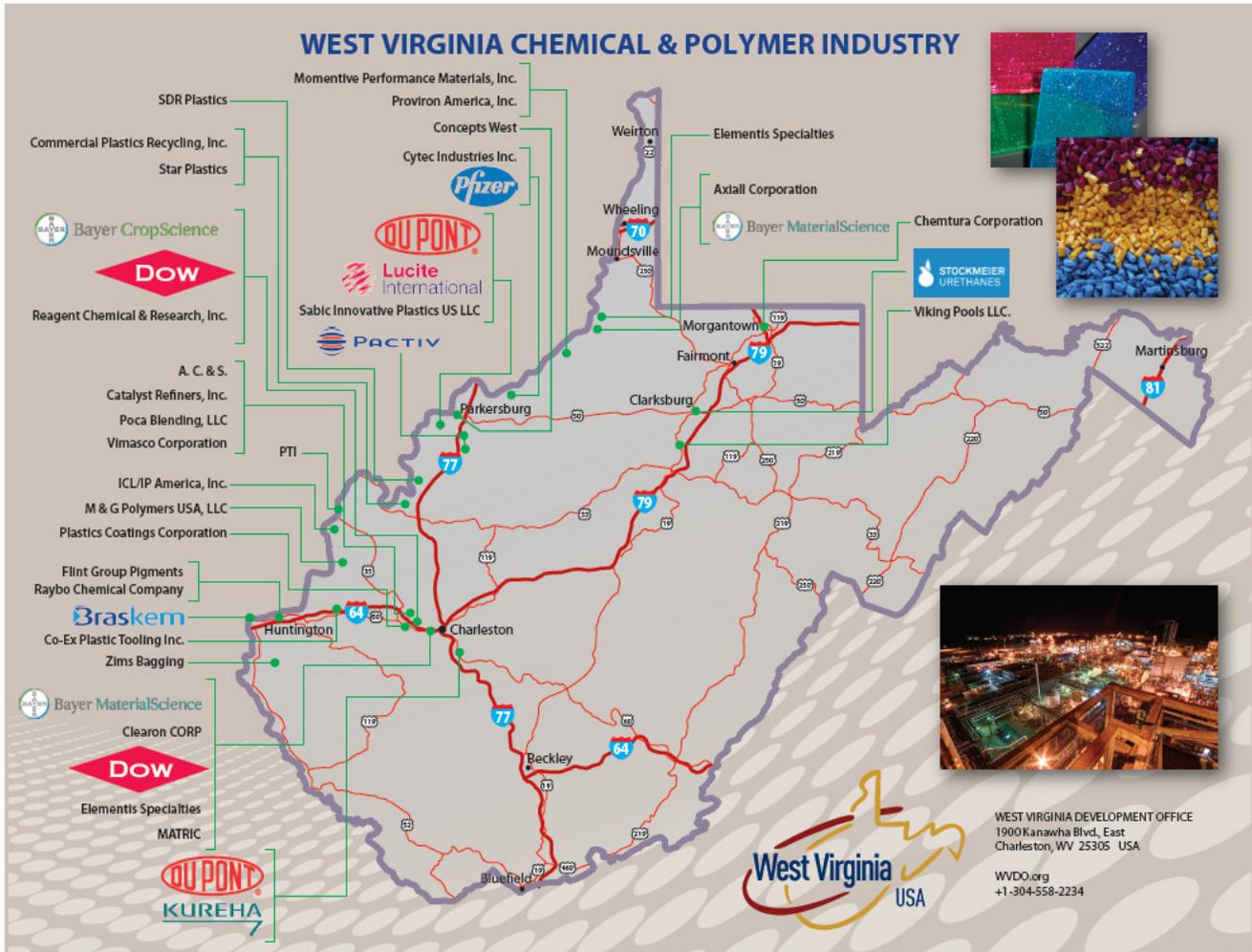
¹⁵ West Virginia Department of Commerce. <http://westvirginia.gov/building-products.html>

¹⁶ www.WVDO.org

CHAPTER 3 – FREIGHT AND THE ECONOMY

West Virginia is a hub for chemical and polymer production facilities. **Exhibit 3-5** illustrates the concentration of chemical plants and industrial parks that line the Ohio, Kanawha, and Monongahela Rivers. The Marcellus and Utica shale natural gas reserves rely heavily on the states inland waterways for transportation as well as to provide water for mixing and cooling of chemicals.

Exhibit 3-5: WV Chemical and Polymer Producers¹⁷

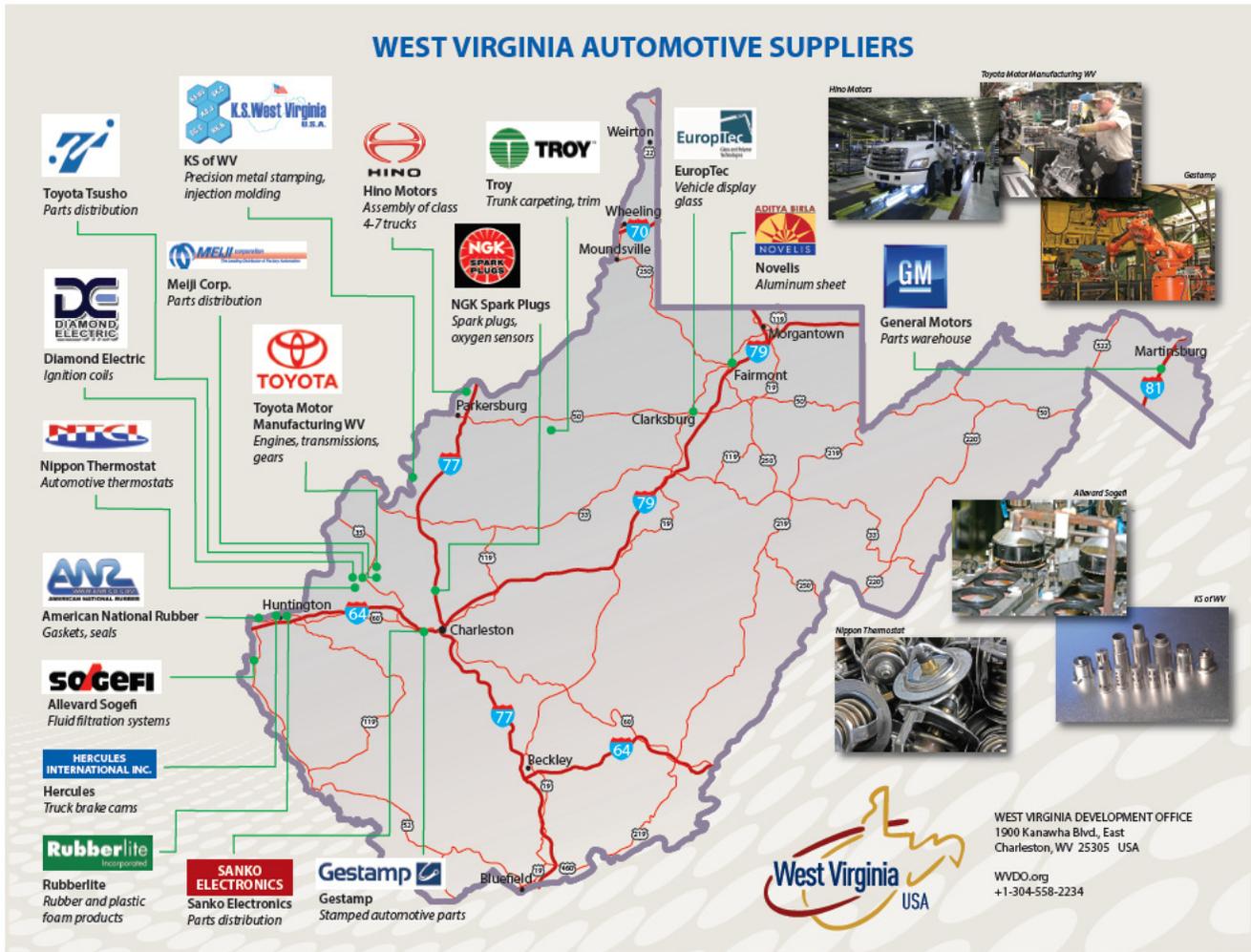


¹⁷ www.WVDO.org

CHAPTER 3 – FREIGHT AND THE ECONOMY

Another important freight generating industry in West Virginia is the automotive industry. **Exhibit 3-6** shows the locations of the auto industry businesses in West Virginia. Manufacturers that supply and support the automotive industry rely on the State’s raw materials to foster current and future growth in this industry. In 2014, the automotive industry contributed more than \$277 million to the State’s economy. The State is also conducting advanced automotive research through the National Research Center for Alternative Fuels, Engines, and Emissions at West Virginia University.

Exhibit 3-6: WV Automotive Suppliers¹⁸



¹⁸ www.WVDO.org

4. STAKEHOLDER COORDINATION AND OUTREACH

The WVDOH, together with several federal, state, regional, and corridor-planning authorities, as well as freight associations, economic development agencies, universities, and private-sector businesses, participated in the development of this State Freight Plan. The Plan solicited input from these stakeholders to gain a better understanding of the freight demands on the State’s transportation infrastructure.

4.1 TECHNICAL ADVISORY COMMITTEE

The WVDOH met with several stakeholders and agency groups to gain meaningful input into the State Freight Plan. A technical advisory committee (TAC) was formed comprising freight-related agencies and stakeholders throughout the State. The TAC included representatives from the following organizations:

- WV Public Port Authority;
- WV State Rail Authority;
- WV Oil and Natural Gas Association;
- WV Coal Association;
- WV Manufacturers Association;
- WV Bureau of Business and Economic Research;
- WV Economic Development Authority;
- WV Chamber of Commerce;
- I-81 Coalition;
- WV Trucking Association;
- WV Clean Cities;
- WV Division of Energy;
- Rahall Transportation Institute;
- Institute for Trade and Transportation Studies;
- FHWA; and
- MPO’s throughout the State:
 - Bel-O-Mar Regional Council;
 - Brooke-Hancock Jefferson MPO;



CHAPTER 4 – STAKEHOLDER COORDINATION AND OUTREACH

- Fayette-Raleigh MPO;
- KYOVA Interstate Planning Commission;
- Regional Intergovernmental Council;
- Wood-Washington-Wirt Interstate Planning Commission;
- Morgantown/Monongalia County Transportation Planning Organization; and
- Hagerstown/Eastern Panhandle MPO.

TAC meetings were often held to coincide with stakeholder outreach efforts. TAC meetings were held as follows:

- TAC #1: August 20, 2015 – Overview of study;
- TAC #2: December 7, 2015 – Update on study progress and identification of a draft freight network;
- TAC #3: February 17, 2016 – Received feedback on draft network and formalized study goals that will become inputs to the project prioritization process; and
- TAC #4: June 22, 2017 - Projects and prioritization.

Each meeting utilized the opportunity to engage project stakeholders and team members to gain meaningful input into each step of the project, including the development goals that led the initial tasks of the Plan, as well as testing a variety of evaluation criteria that was developed to identify and analyze future freight investments in the State. Techniques employed at each meeting varied from PowerPoint presentations to interactive mapping exercises, in addition to roundtable discussions and break-out groups. For example, the TAC participated in an exercise to identify major gaps in the existing freight network and propose projects that could help to fill those gaps.

4.2 STAKEHOLDER OUTREACH

The Plan solicited input from industry trade groups including the WV Trucking Association and encouraged its members to participate in the online survey. Stakeholder meetings were held on the following dates covering the major milestones of the project, as listed below:

- West Virginia Freight and Logistics Summit: August 20, 2015 – Overview of study;
- KYOVA Freight Summit: February 17, 2016 – Study update and presentation of draft freight network; and
- West Virginia DOH Planning Conference: September 20, 2016.
- West Virginia DOH Planning Conference: September 20, 2017.

4.2.1 Online Survey Tool

Stakeholder surveys are a fundamental way of collecting primary information about conditions, challenges, and expected changes. They also provide first-hand observations of the operating environment and help decision

Involving private-sector stakeholders is especially important for freight planning because:

1. They understand commodity flow patterns and their importance to regional and state economies;
2. They recognize where high-accident locations are; and
3. They know where the state should focus investments for truck parking capacity and commercial vehicle staging.

CHAPTER 4 – STAKEHOLDER COORDINATION AND OUTREACH

makers recommend key policy and planning amendments to alleviate their considerations. The goal of the freight survey tool was to understand priorities, identify needs, and provide input on the importance of freight modes for the efficient movement of freight in West Virginia. **Exhibit 4-1** shows the MetroQuest survey tool that was developed for this Plan.

Exhibit 4-1: Freight Survey Tool

Using input and guidance from the TAC, the project team developed a web survey to engage stakeholders in West Virginia. A variety of stakeholders, with focus on the freight industry, were encouraged to participate in the survey and study efforts. Stakeholders included but were not limited to: shipping companies, fleet carriers, logistics companies, economic development agencies, short line and Class 1 railroad representatives, barge operators, and air cargo shippers. The major purpose of this outreach effort was to determine industry reflections of the State’s freight infrastructure and how it is expected to handle the State’s future freight volumes. The survey questions focused on identifying deficiencies or safety issues along key freight routes, as well as access or service needs. The survey asked participants to:

1. Rank which common freight issues were most important to their organization;
2. Identify locations across the State on a map that would benefit from freight improvements; and
3. Explain the importance of each freight mode to their business/industry.

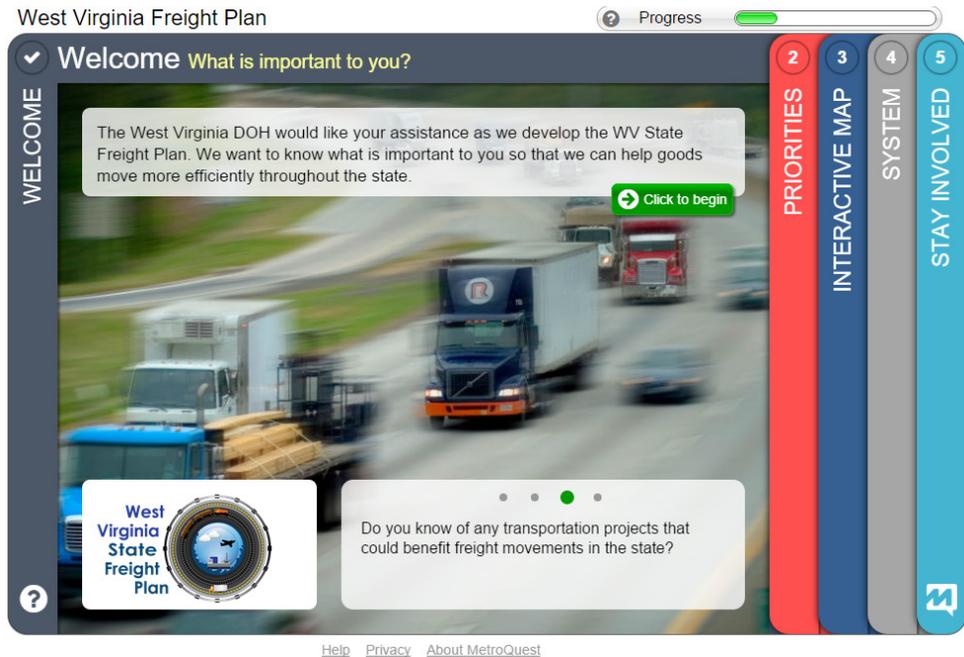
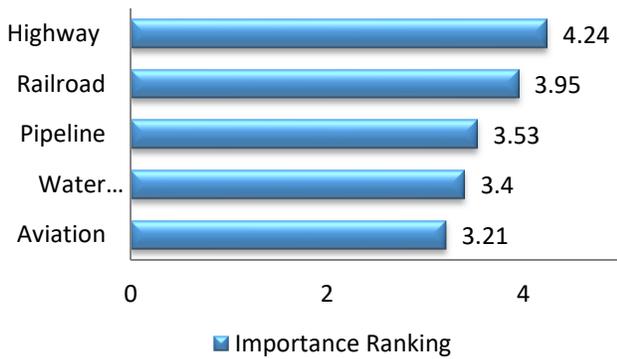


Exhibit 4-2: Importance of Freight Modes

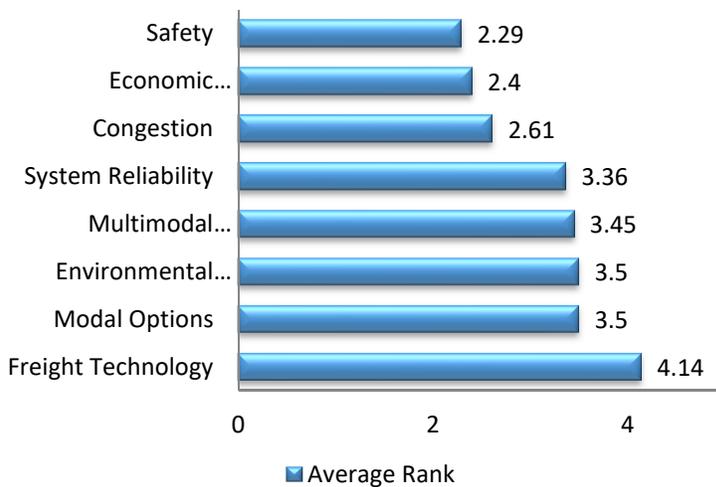


In total, 80 stakeholders responded to the web survey from a variety of organizations and industry sectors across the State. Of those, 50 respondents provided information on the type of company they worked for. Response categories included: economic development, owner/operators, freight shippers/receivers, freight service providers, and other.

Respondents first ranked the importance of the various freight modes. **Exhibit 4-2** shows the

average ranking given to each freight mode in the State, with “5” being “most important,” and “0” being “unimportant.” The most important mode for survey respondents was the highway system, followed by the railroads, pipelines, waterways, and aviation, respectively.

Exhibit 4-3: Most Pressing Freight Issues



Survey respondents also ranked which of several common freight issues were most important to their organization, with “1” being “most important.” According to the survey responses, safety, economic development, and congestion are the most important freight issues, followed by system reliability, modal options, multimodal connections, environmental impacts, and freight technology.

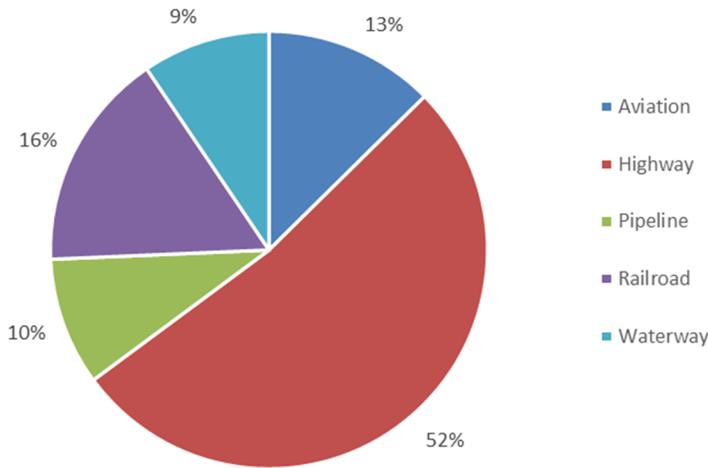
Exhibit 4-3 illustrates the average importance ranking of freight issues in WV. These ratings will aid in decision

making as projects move into the prioritization process. The WVDOH offered survey respondents a chance to be involved in the State’s freight-planning efforts after the conclusion of this Plan. Several respondents showed a willingness to be involved in future outreach efforts.

4.2.1.1 Identify Freight Needs

The West Virginia Freight Plan relied on local knowledge of existing freight conditions to locate areas that may be hindrances to freight flows across the State. It was important to engage stakeholders early in the study to assist in identifying local freight needs where projects may be justified. **Exhibit 4-4** illustrates the freight needs that were identified from the stakeholder and survey efforts, by mode.

Exhibit 4-4: Freight Needs Identified in the Survey, By Mode



The survey resulted in more than 222 locations where issues were identified across the state. The transportation modes where a freight need was identified are illustrated in **Exhibit 4-4**.

The most common survey responses identified safety concerns or freight bottlenecks and congestion on roadway segments serving freight industries. Other common freight needs included system reliability, improving multimodal transportation options, and implementing better connections between the modal networks.

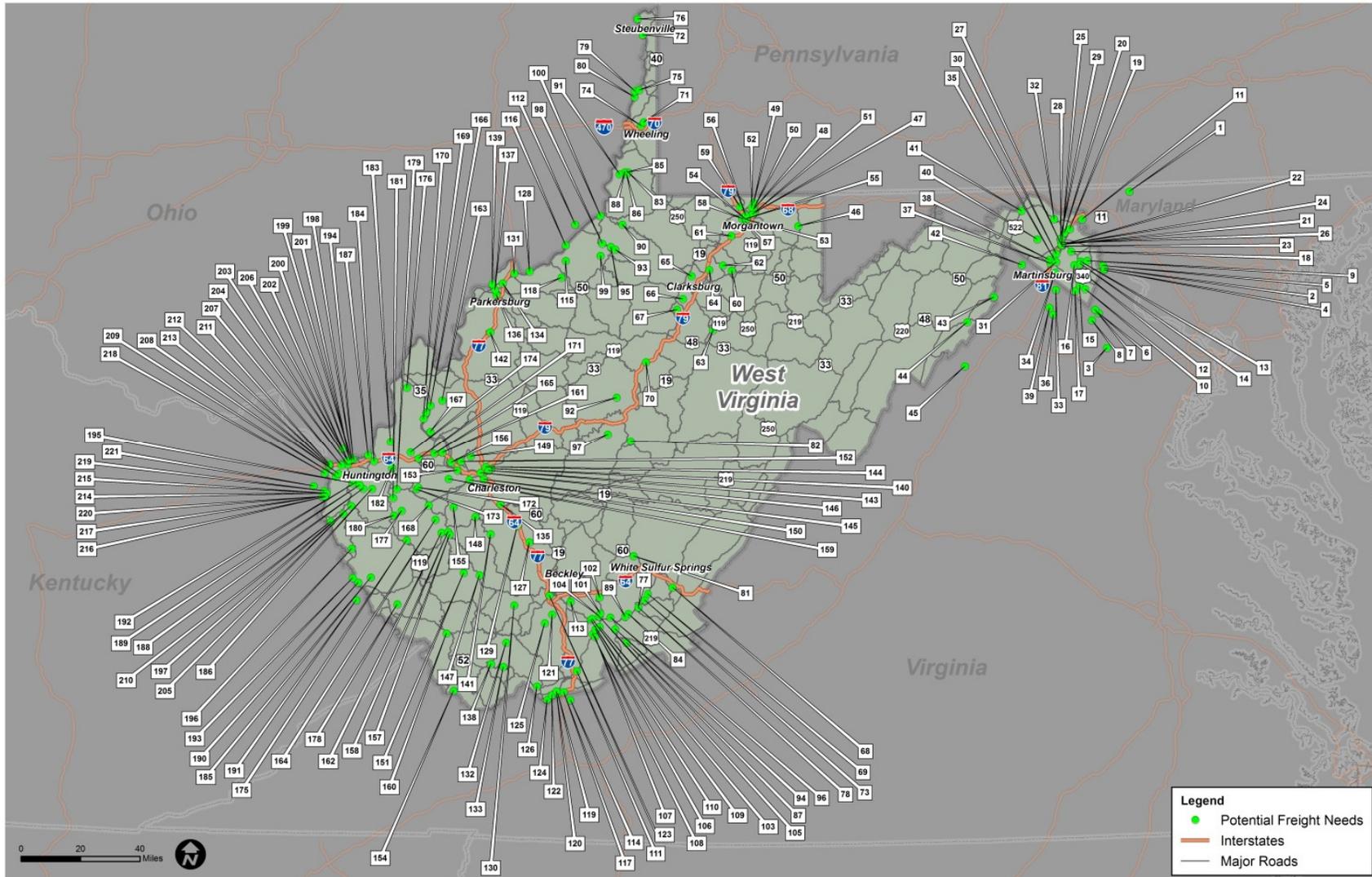
The condition of the various components making up the freight network are another important

factor to consider when identifying freight project needs. The NHS bridge and pavement inventories are good sources of information to evaluate and understand the current characteristics and conditions of the freight network. The data included in the State’s bridge inventory showed there were no restrictions on bridge heights or weight limits on the designated freight network. Freight bottlenecks can severely limit the performance and capacity of the highway system by delaying freight shipments across the State. Common freight bottlenecks include congestion-based delay (such as low truck speeds) and non-congestion based delay (such as at-grade railroad crossings, low clearance or weight-restricted bridges, road restrictions, busy intersections, steep road grades, queues at aging locks and dams, or geometric design issues such as poor turning radius or lack of operating room). Freight-related traffic can also result in delays and congested road conditions for passenger and emergency response vehicles. For example, highway-rail grade crossings can lead to lengthy delays. Traffic to and from ports and other major freight centers can increase traffic on local roads and affect neighboring communities through noise and air pollution. The stakeholder identified freight need locations are illustrated in **Exhibit 4-5** and listed in a table in **Appendix A**. Additional analysis of freight bottlenecks is described in Chapter 7.

The West Virginia State Rail Plan identified investments that could address the State’s freight rail needs. According to the plan, the CSXT Mountain Subdivision from Huntington, WV to Cumberland, MD is the only Class I railroad in the State that approached the limit of available capacity based on the number of trains per day. Two additional lines, CSX Transportation’s Metropolitan/Cumberland Subdivisions between Brunswick, MD, and Cumberland, MD, and Norfolk Southern Railway’s Hagerstown District fell within 85 percent of available capacity. CSX identified several railroad needs that will help to accommodate future growth including increasing the siding capacity and signals on the Ohio River Subdivision, installation of radio control switches on the Coal River and Logan Subdivisions, and adding yard tracks at the Benwood, Grafton, and Keyser Yards. CSX also will rehabilitate track at its Clarksburg TRANSFLO facility and will construct additional interchange tracks to address increased business growth at Martinsburg. Norfolk Southern has no major capacity projects planned for West Virginia in the near term. A large portion of the State’s short line railroad network is owned by the State through its control of the South Branch Valley Railroad (SBVR) and West Virginia Central Railroad (WVCR). The State has focused much of its rail investments on improving service and expanding railroad users on these two lines, as well as facility and track upgrades.



Exhibit 4-5: Freight Needs/Bottlenecks Map



4.2.2 Developing a Freight Advisory Committee

Often, the most difficult stakeholders to engage in public freight planning efforts are shippers/receivers, carriers/service providers, warehouse/distribution facilities, and third-party logistics providers who are actually using the freight network on a daily basis. As freight planning efforts in West Virginia progress, it is important to capitalize on the relationships developed with stakeholders. It is also important to continue to engage these private-sector freight stakeholders in future planning efforts in the State, as they provide important first-hand knowledge of the network and its importance to their businesses and the regional economy. Private-sector input can help to:

- Establish freight planning goals and objectives;
- Understand key issues or legislation affecting freight transportation;
- Generate political and public support for investments in freight transportation improvements; and
- Bridge the gap in making contact with other important freight stakeholders.

Recent federal legislation outlined in MAP-21 and the FAST Act encourages state DOTs to develop a formal freight advisory committee (FAC). A FAC is a group of freight stakeholders that helps to inform transportation representatives on issues that impact freight safety and mobility, and provide a voice for freight industries in the development of freight-related policies, processes, and projects. The Morgantown/Monongalia County MPO has recently formed a FAC to guide local freight planning discussions.

Currently, the TAC is fulfilling the role of the FAC. Moving forward the WVDOT intends to create the FAC as a subset of the TAC. It has been noted among the freight stakeholders that a smaller group would be more sustainable for long term commitments/participation.

4.3 ADDITIONAL COORDINATION

In addition to engaging stakeholders identified above, it is also important to engage a wider audience of stakeholders from across the region. Coordination efforts with MPOs helped the freight Plan in evaluating needs and prioritizing projects on the State's freight network. As part of the future freight planning process, the following topics should be considered:

- Defining participants' roles;
- The distribution of federal funds;
- Best practices; and
- Any areas of concern identified by the states when coordinating multi-state MPO activities.

5. DATA COLLECTION

As part of this State Freight Plan, the WVDOH compiled existing available data to assist with the identification of freight needs along the freight network in the State. The WVDOH also reviewed previous studies to gain a better idea of planned and programmed projects and to assist with needs identification. The project team collected data from various public sources to guide the prioritization of potential freight projects. The data collected for this Plan is summarized in **Exhibit 5-1**.

Exhibit 5-1: Data Sources

Mode	Description	Purpose	Source
Highway	Appalachian Development Highway System	Network	WV Department of Highways
Highway	Coalfields Expressway	Network	WV Department of Highways
Highway	King Coal Highway	Network	WV Department of Highways
Highway	Interstate, State, and U.S. Highways	Network	WV Department of Highways
Highway	Freight Analysis Framework	Flows	Federal Highway Administration
Highway	Commodity Flow Survey	Flows	Bureau of Transportation Statistics
Highway	Energy Facilities	Facilities	U.S. Energy Information Administration
Highway	WV Businesses	Facilities	WV GIS Technical Center
Highway	Intermodal Terminals	Facilities	WV GIS Technical Center
Highway	Truck Crashes	Performance	WVDOH Traffic Counts
Highway	Truck Crashes	Performance	Fatality Analysis Reporting System
Highway	Fatality and Injury Crashes	Performance	US DOT Bureau of Transportation Statistics
Highway	Highway Speeds	Performance	National Performance Measures Research Dataset
Highway	Annual Average Daily Traffic (AADT Volume)	Performance	WV DOT Traffic Counts
Highway	Truck Volume (% trucks)	Performance	WV DOT Traffic Counts
Highway	National Performance Measures Research Dataset (NPMRDS)	Performance	Federal Highway Administration
Rail	WV Class I, II, and III RR's	Network	WV GIS Technical Center
Rail	RR Crossings	Network	WV GIS Technical Center
Rail	Freight Analysis Framework	Flows	Federal Highway Administration
Rail	Intermodal/Container Facilities	Facilities	WV GIS Technical Center
Rail	Crude Oil Rail Terminals	Facilities	U.S. Energy Information Administration
Rail	Highway Rail Accidents	Performance	FRA Office of Safety Analysis
Rail	Railroad Casualties	Performance	FRA Office of Safety Analysis
Waterway	West Virginia Inland Waterways	Network	WV GIS Technical Center
Waterway	Total Statewide Waterway Flows	Flows	Federal Highway Administration
Waterway	Waterborne Commerce Statistics	Flows	U.S. Army Corps of Engineers
Waterway	Up Stream/Down Stream Flows	Flows	American Association of Port Authorities
Waterway	Locks and Dams	Facilities	U.S. Army Corps of Engineers
Waterway	Port Facilities	Facilities	U.S. Army Corps of Engineers

Mode	Description	Purpose	Source
Waterway	Intermodal Terminals	Facilities	WV GIS Technical Center
Pipeline	Crude Oil Pipelines	Network	U.S. Energy Information Administration
Pipeline	HGL Pipelines	Network	U.S. Energy Information Administration
Pipeline	Liquefied Natural Gas Pipelines	Network	U.S. Energy Information Administration
Pipeline	Freight Analysis Framework	Flows	Federal Highway Administration
Pipeline	LNG Terminals	Facilities	WV GIS Technical Center
Pipeline	Energy Processing Terminals	Facilities	U.S. Energy Information Administration
Air	Airports	Network	WV GIS Technical Center
Air	Air Cargo Data > 100 M lbs.	Flows	Federal Aviation Administration

6. WEST VIRGINIA’S FREIGHT NETWORK AND FLOWS

While the economy has been affected by the economic downturn, it is recovering and will continue to grow resulting in even greater demand for freight transportation. In the next 30 years, changes in demand, shipping, manufacturing, logistics, technology, and energy production will continue to transform the transportation system in West Virginia, the nation, and throughout the globe.

Well-planned, multimodal freight networks provide opportunities for companies to locate in the state and foster future business growth due to efficient and reliable freight connections with major markets and facilities. The freight network in West Virginia is made up of an extensive network of highways, railroads, waterways, and pipelines. The State’s expected trade growth will put increasing pressure on West Virginia’s freight network and facilities to efficiently move goods from origin to destination. **Exhibit 6-1** lists the mileage for the various modes in the State. **Exhibit 6-2** illustrates the multimodal sections of the State’s freight network, which was designated by the US DOT in 2015.

Exhibit 6-1: Miles of Infrastructure by Transportation Mode¹⁹

Mode	Miles
Highway	2,139
Railroad	2,226
Inland Waterways	274
Pipelines	2,310

¹⁹ <https://www.fhwa.dot.gov/policyinformation/statistics/abstracts/2013/state.cfm?loc=wy>

CHAPTER 6 – WEST VIRGINIA’S FREIGHT NETWORK AND FLOWS

- be a principal arterial roadway;
- have at least 25 percent trucks (using passenger car equivalents (PCE’s));
- provide access to energy production or distribution areas; or
- Connect to the national freight network.

Exhibit 6-3 below illustrates the highway network tally analysis results. Roadway segments that meet only one qualifier are green, segments that meet only two qualifiers are blue, roadway segments that meet only three qualifiers are red, and segments that met all qualifiers are coded in purple. Next, the State identified the West Virginia highway freight network, which is illustrated in Exhibit 6-4.

Exhibit 6-3: West Virginia Freight Network Tally Map

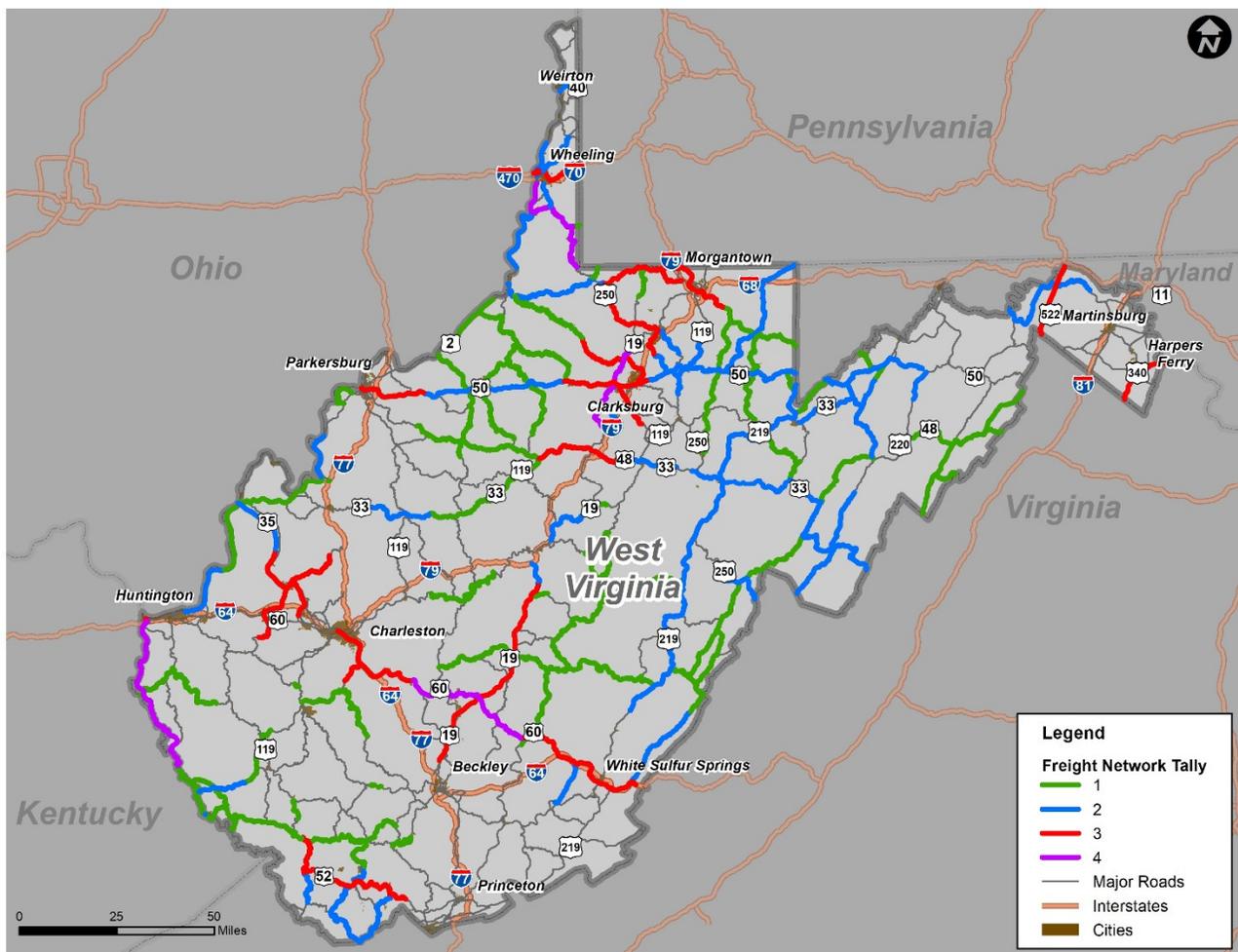
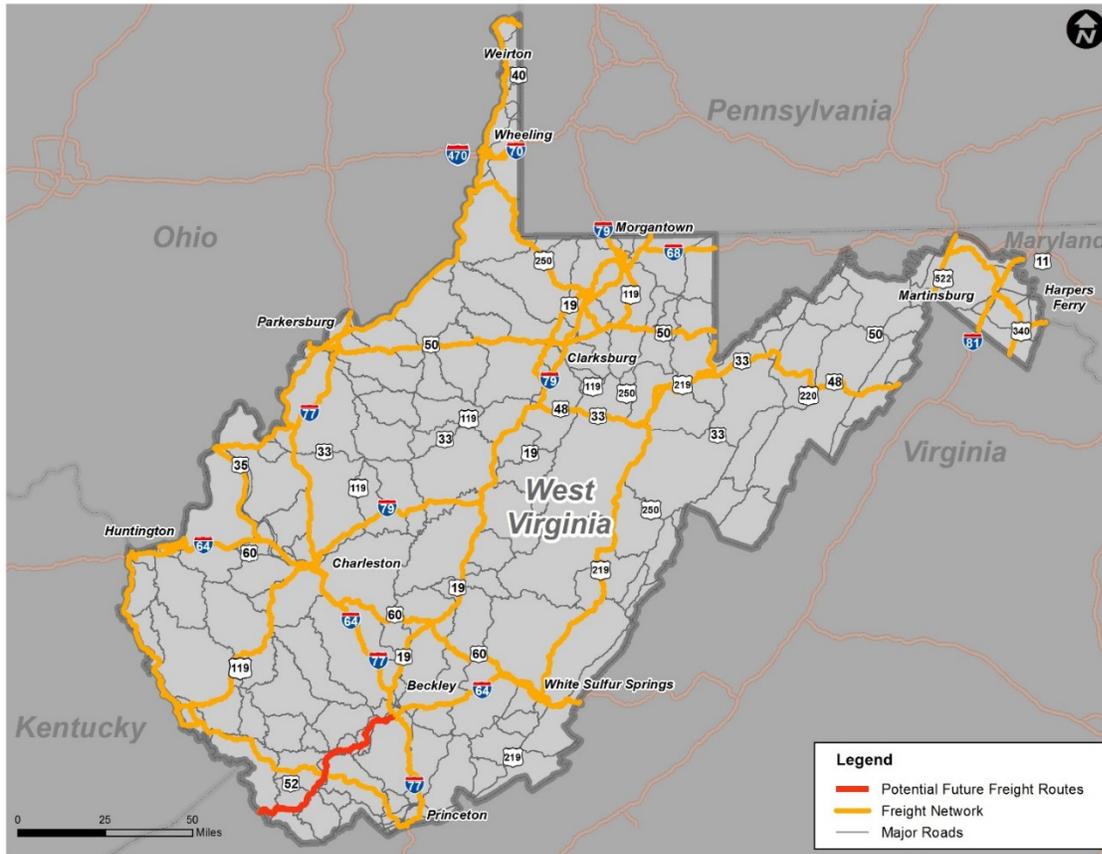


Exhibit 6-4: West Virginia Highway Freight Network



6.1.1 West Virginia Highway Freight Network Components

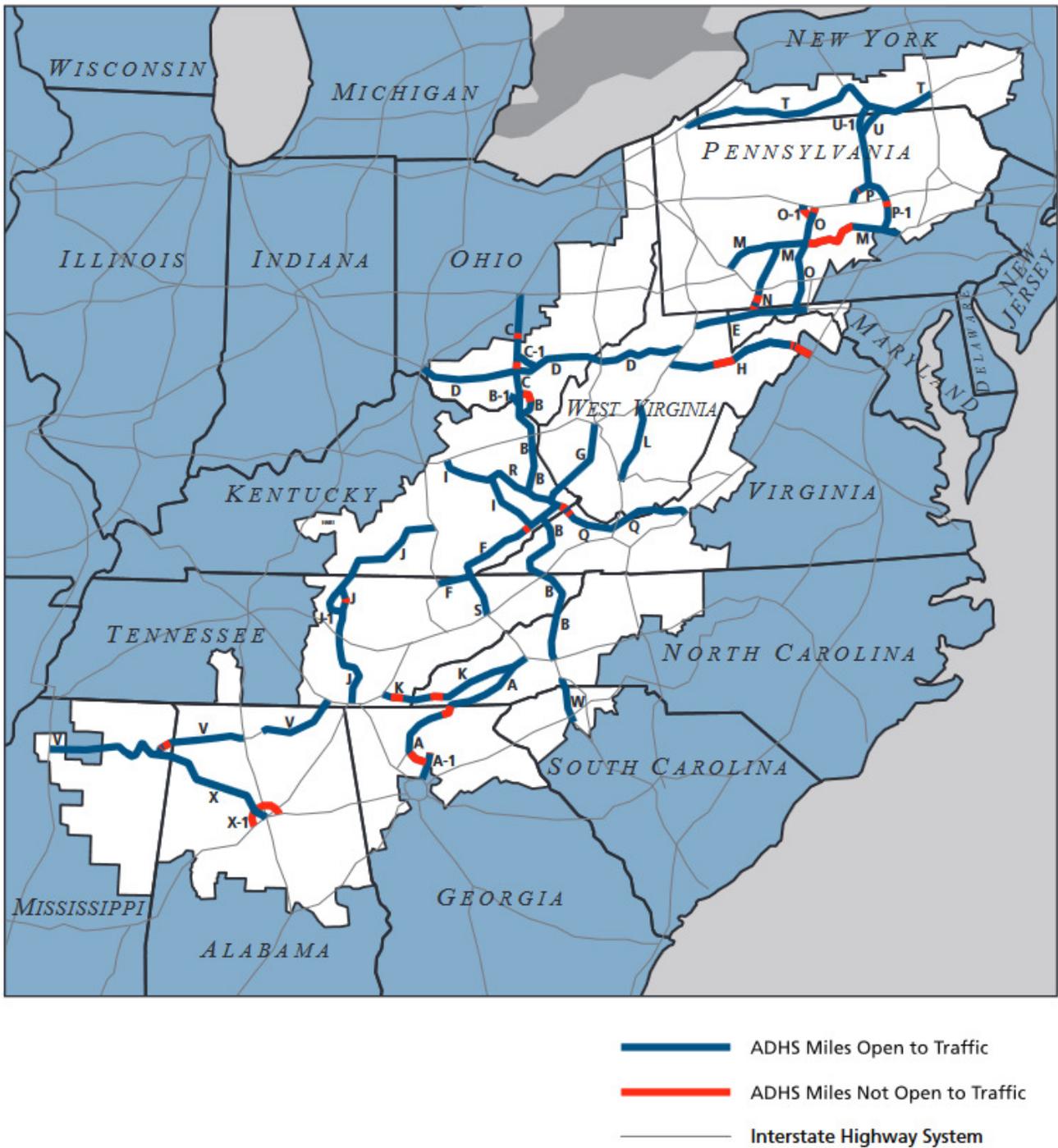
6.1.1.1 Appalachian Development Highway System

In addition to freight carried on interstates and NHS routes, agencies may also designate special-use corridors that can accommodate significant freight volumes. Congress authorized the construction of the Appalachian Development Highway System (ADHS) in the Appalachian Development Act of 1965. The ADHS highway routes have been chosen to enhance vehicle safety and increase economic development and tourism throughout the Appalachian region while avoiding the many cultural and historical sites of the area. Currently, 2,793 miles of the ADHS (90.4 percent of the miles authorized) are complete, and 206 miles are under construction.

In a study completed in July 2017, the Appalachian Regional Commission found that the total transportation efficiency savings due to the ADHS amounts to 360 million vehicle hours annually. While these annual savings are widely distributed geographically across the ARC region, the ADHS is particularly important for long-distance freight movements. Even though trucks carrying freight accounted for only 4.3 percent of all traffic in the 13 states region, they represented 14 percent of all vehicle-hours of travel time savings on ADHS routes.²⁰ **Exhibit 6-5** illustrates the ADHS, which spans from New York to Mississippi.

²⁰ Appalachian Regional Commission. *Economic Analysis of Completing the Appalachian Development Highway System*. July 2017.

Exhibit 6-5: Appalachian Development Highway System²¹

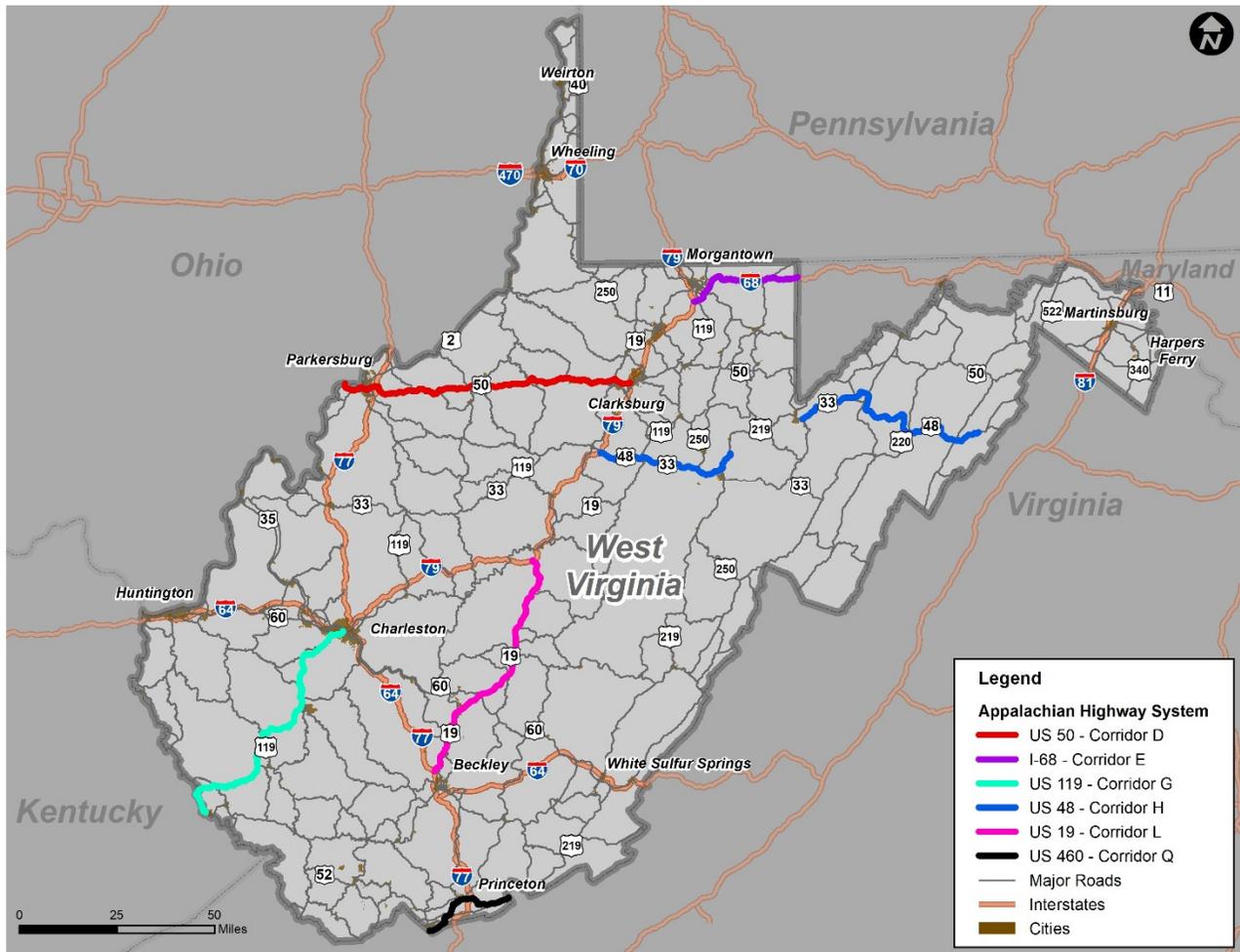


Several corridors of the ADHS are located in West Virginia, including corridors G, E, D, H, L and Q. **Exhibit 6-6** illustrates the ADHS in the State. Much of the ADHS corridors’ construction in West Virginia has been

²¹ Appalachian Regional Commission. ADHS Miles as of September 30, 2016. http://www.arc.gov/program_areas/MapoftheADHS.asp

completed, except for Corridor H, which is currently under construction and nearing completion. Once complete, the route will be a major East-West route for the State and will provide much-needed freight access to eastern Virginia ports.

Exhibit 6-6: Appalachian Development Highway System in West Virginia²²



6.1.1.2 Coal Resource Transportation System

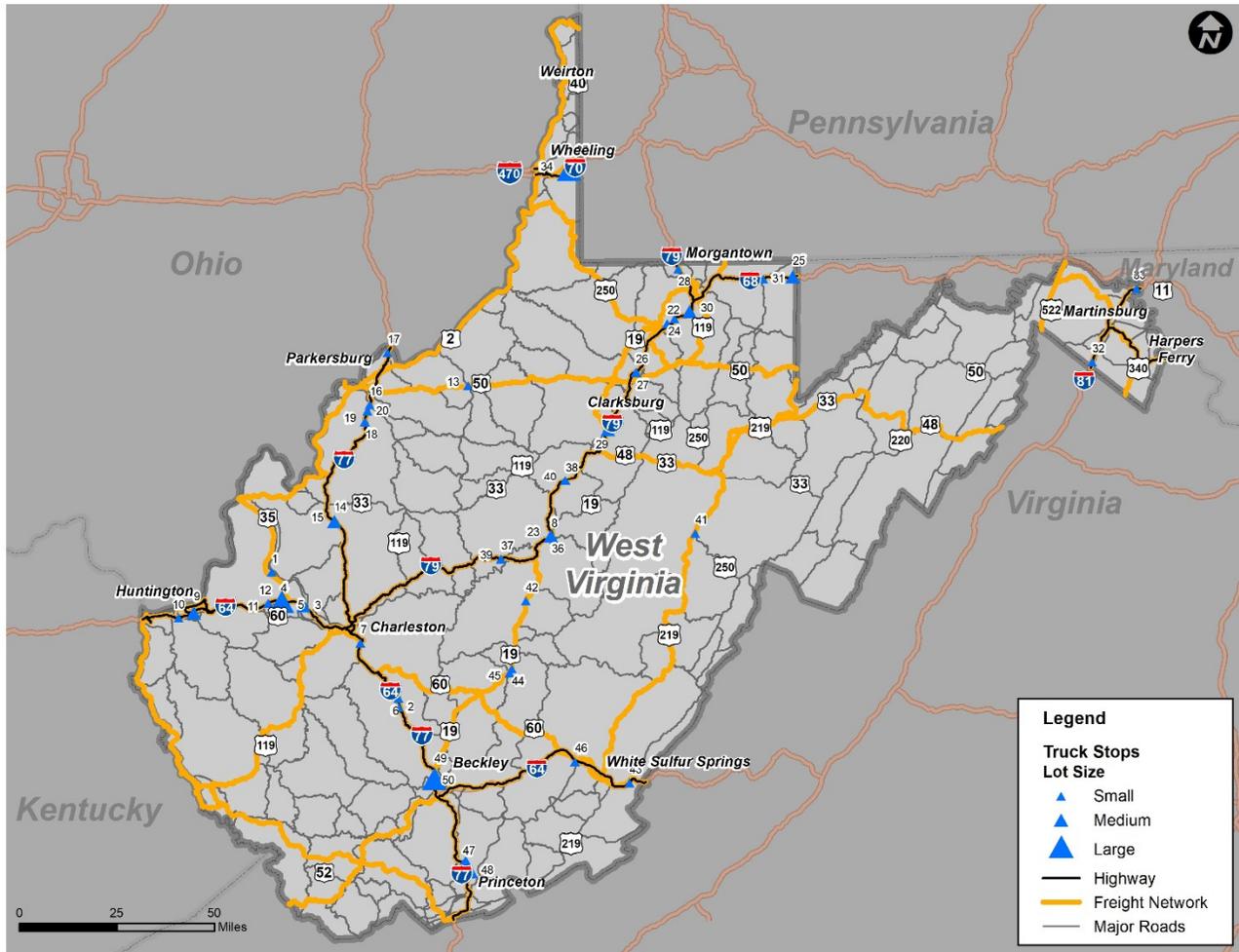
Another special network in West Virginia was designated in March 2003, when the Senate established the Coal Resource Transportation System (CRTS) in fifteen southern West Virginia counties. On these designated routes illustrated in **Exhibit 6-7**, coal haulers may purchase a permit that will allow for a Gross Vehicle Weight (GVW) of up to 120,000 pounds depending on their truck configuration. In April 2005, House Bill 3089 was passed, which expanded the CRTS and created the Coal Resource Transportation Designation Committee (CRTDC), the purpose of which is to approve the designation of additional CRTS routes outside the following ten counties:

²² Appalachian Regional Commission. ADHS Miles as of September 30, 2015. http://www.arc.gov/program_areas/MapoftheADHS.asp

Exhibit 6-8 Truck Parking Facilities ID and Size

ID	Name	Size	ID	Name	Size
1	COUNTRY ROADS TRUCK STOP	S	26	MEADOWBROOK REST AREA	S
2	TURNPIKE SB REST AREA	S	27	MEADOWBROOK REST AREA	S
3	PILOT TRUCK STOP	M	28	I-79 WELCOME CENTER	S
4	GO MART TRUCK STOP	S	29	I-79 TRUCK STOP	M
5	TA TRAVEL CENTER	L	30	PILOT STATION	M
6	I-77 Turnpike Welcome Center (Morton)	S	31	LITTLE SANDY TRUCK STOP	S
7	GO MART	S	32	I-81 NB WELCOME CENTER	S
8	Big Otter Go Mart	S	33	I-81 SB WELCOME CENTER	S
9	GO MART GAS STATION	M	34	TA TRUCK STOP	L
10	I-64 Welcome Center Huntington	S	35	WV WELCOME CENTER	S
11	I-64 WB REST AREA	S	36	GO MART	S
12	I-64 EB REST AREA	S	37	I-79 SERVIA NB REST AREA	S
13	ELLENBORO GO MART TRUCK STOP	S	38	BURNSVILLE NB REST AREA	S
14	GO MART #33	S	39	I79 Servia Rest Area SB MP 49	S
15	LOVE TRUCK STOP	M	40	I-79 BURNSVILLE SB REST AREA	S
16	Liberty Truck Stop	S	41	Par Mar Store #45	S
17	I-77 Exit 185 WV 31 Welcome Center (Rest Area)	S	42	Dille Turnout	S
18	MINERAL WELLS REST AREA NB	S	43	White Sulphur Springs Welcome Center	S
19	MINERAL WELLS REST AREA SB	S	44	Go Mart	S
20	MINERAL WELLS WEIGH STATION NB	S	45	U Save	S
21	MINERAL WELLS WEIGH STATION SB	S	46	ALTA STATION	S
22	K&T TRUCK STOP	S	47	I-77 SB Rest Area	S
23	PILOT TRUCK STOP	M	48	BLUESTONE	L
24	I-68 WEIGH STATION	S	49	BECKLEY Travel Plaza	L
25	I-68 WELCOME CENTER WB	M	50	Go Mart (Neptune Drive)	S

Exhibit 6-9: Truck Parking Facilities in West Virginia

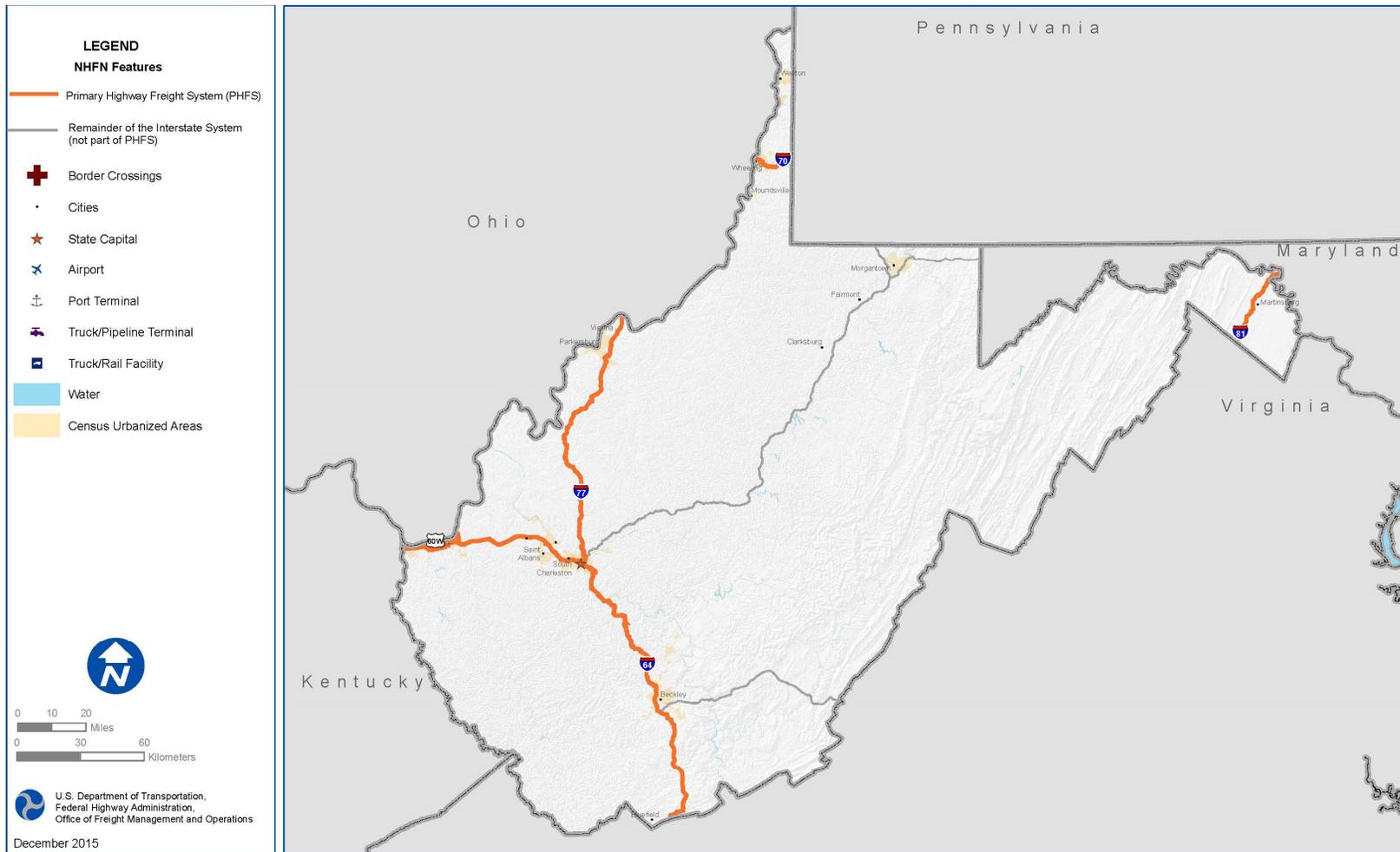


6.1.1.4 Critical Rural and Critical Urban Freight Corridors

The FAST Act created the first dedicated funding program that may be used for a wide range of freight projects on the designated highway freight network. The National Highway Freight Program (NHFP) provides \$6.3 billion apportioned to states by formula. The funds may be used for a wide range of freight projects; however, they must be located on the designated National Highway Freight Network (NHFN).

The NHFN in West Virginia is depicted in **Exhibit 6-10**. The NHFN in West Virginia where FAST Act funds can be used totals 535 miles and has four components as defined in the Act. The first is the Primary Highway Freight System (PHFS) depicted in orange below. Two additional components of the designated network are to be defined by West Virginia, based on formulas in the Act: up to 150 miles of Critical Rural Freight Corridors (CRFC) and up to 75 miles of Critical Urban Freight Corridors (CUFC). The final component of the NHFN is the rest of the interstate system (not included on PHFS). The State is currently finalizing the designation of these corridors and they will be submitted to FHWA for approval under a separate cover once the certification process is complete.

Exhibit 6-10: National Highway Freight Network in West Virginia²⁴



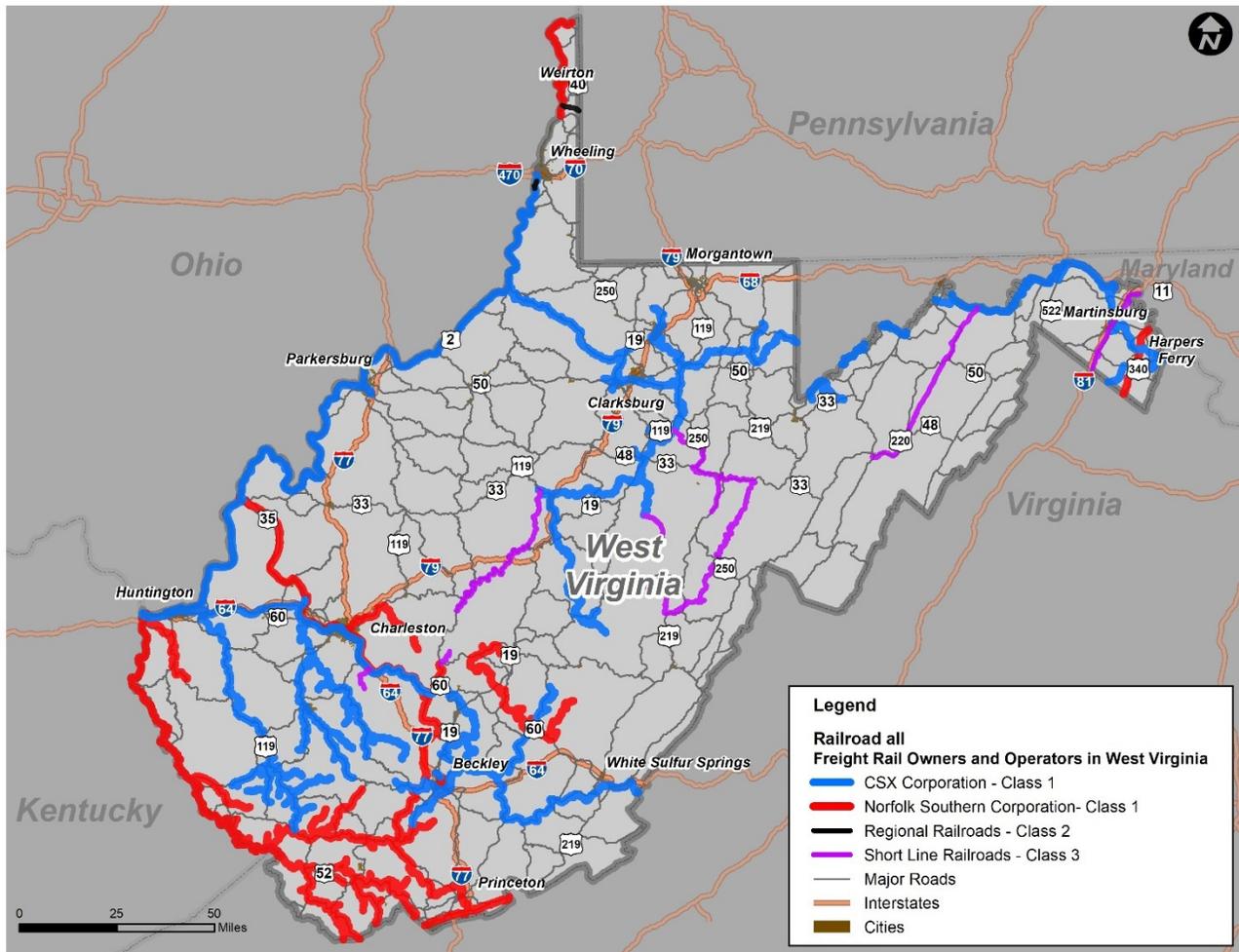
²⁴ US DOT, FHWA. National Highway Freight Network: West Virginia. 2016

6.2 RAILROAD NETWORK



Railroads are classified into Class I, II, and III based on their operating revenue characteristics. Unlike highway infrastructure, railroads own their own private networks, generally control operations and maintenance (O&M), and make investment decisions on the networks, mainly for capacity enhancements. Because of the private ownership of railroad networks, analysis of the factors affecting railroad routing decisions, as well as detailed rail traffic flows on the network, it can be difficult to collect rail data due to its proprietary nature.

Exhibit 6-11: West Virginia Freight Rail Network²⁵



²⁵ West Virginia State Rail Plan. West Virginia Department of Transportation. December 2013.

CHAPTER 6 – WEST VIRGINIA’S FREIGHT NETWORK AND FLOWS

The rail network in West Virginia, as illustrated in **Exhibit 6-11**, is comprised of 2,226 route miles, which are owned by 13 freight railroads. The majority of rail mileage in the State is owned by the two large Class I railroads: CSX transportation (CSXt) and Norfolk Southern (NS). These railroads own a total of 1,819 miles, or about 80 percent of the total rail mileage in the State. There are 11 regional or short line railroads operating in the State that own the remaining route miles. West Virginia’s freight railroads carry more than 150 million tons of freight, or more than 1 million rail cars, of various commodities which originate or terminate within the State. Coal makes up almost 90 percent of these total rail carloads. Total rail freight tonnage in the State has decreased since 2000; primarily due to reduced coal demand and movements throughout the State.

Through 2040, total rail freight flows in the State are forecast to continue to fall slightly, again primarily due to reduced domestic coal use. However, an increase in a number of rail-dependent commodities could reverse the declining trend in rail traffic and diversify the State’s rail freight commodity base to maintain rail’s competitive position in the marketplace and protect essential freight corridors. these commodities include intermodal traffic (container and trailer movements by rail), oil and gas production commodities to and from the Utica/Marcellus shale region, export coal, and chemicals.

6.2.1 Intermodal Facility Developments

In addition to track mileage railroad terminals and intermodal facilities are important railroad system elements. Intermodal freight shipped in containers is one of the fastest growing sectors of the national freight market. Freight planners and policymakers are increasingly looking to intermodal logistics hubs to improve the efficiency of transfers between multiple freight modes and reduce the negative impacts of freight on local communities. Increased use of practices, such as double-stacking of containers on railway cars, will also increase the capacity and efficiency of the freight system.

The Heartland Intermodal Gateway (HIG) is a recent intermodal facility developed in Prichard, West Virginia that significantly improves container access for the State. The Heartland Rail Corridor which runs from Norfolk, Virginia to Chicago, Illinois, provides on-dock rail at the Ports of Virginia with double-stack clearance through southern West Virginia to Chicago and provides access to west coast ports and other ports inland. HIG will serve as a cargo-transfer station along the Norfolk Southern rail line. The facility offers industrial and warehousing space, a modern and efficient freight container service and improved access to international rail lines.

6.3 WATERWAY NETWORK



States throughout the Ohio River basin depend on the inland waterways to deliver goods. The main types of marine transportation services include bulk, break-bulk, container, and roll-on/roll-off, depending on the type of commodity carried. Each of these services has its own distinct representation of commodity flows (tonnages, TEUs [Twenty-Foot Equivalent Unit, a standard measure of container volume], number of trucks, etc.), as well as its own analysis of land-side impacts of marine freight flows (e.g., land-side traffic impacts of bulk transport will be different compared to containerized transport due to differences in mode choices, as well as the size of shipments). Waterborne freight directly supports U.S. economic growth by contributing to economic value, earnings, and employment.

“In 2006, Ohio River Basin commercial navigation users saved \$3.1 billion by using the Ohio River System (ORS) waterway to ship coal, steel, chemicals and other commodities by barge. For the entire U.S. inland river system, using an estimated \$10–\$12 per ton shipper savings, national transportation shipper savings would be in the neighborhood of \$7.0 billion. A University of Tennessee Center for Transportation Research study found that barge navigation on the ORS navigable channel contributed a total of \$497 billion in sales and 80,000 annual jobs to the nation’s economy. This \$497 billion in sales, discounted over 44 years at 3 percent, yields an annual \$20.5 billion (of this, \$3.1 billion is shipper savings, leaving \$17.4 billion for the annual economic impact).”²⁶

There are approximately 275 miles of navigable waterways in West Virginia including the Ohio, the Kanawha, and Monongahela Rivers. The combination of rail and inland waterways in the State provide an intermodal option for moving bulk commodities, which comprise a major portion of the State’s economy. In 2015, the US DOT designated the Ohio River on the western border of the State as a marine highway corridor. The M-70 marine highway corridor includes the Ohio, Mississippi, and Missouri Rivers, and connects commercial navigation channels, ports, and harbors, from Pittsburgh to Kansas City. It spans Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, Illinois, and Missouri, connecting to the M-55 marine corridor at St. Louis, MO.

Increasing international trade, changing trade patterns, and growing ship sizes will affect some of West Virginia’s ports. The widening and deepening of the Panama Canal enables larger ocean-going vessels, known as post-Panamax ships, to pass through the Canal. Of the cargo passing through the Canal, 64 percent originates in or is destined for the U.S., so the widening is expected to increase container ship freight volume loaded and unloaded at Gulf and East Coast ports.²⁷

6.3.1 Waterway Flows

The U.S. Army Corps of Engineers (USACE) publishes every year the Waterborne Databanks and Preliminary Waterborne Cargo Summary reports, which contain foreign cargo summaries, including value and weight information by type of service on U.S. waterborne imports and exports. These statistics are based on the U.S. Bureau of the Census trade data matched to the U.S. Customs vessel entrances and clearances.

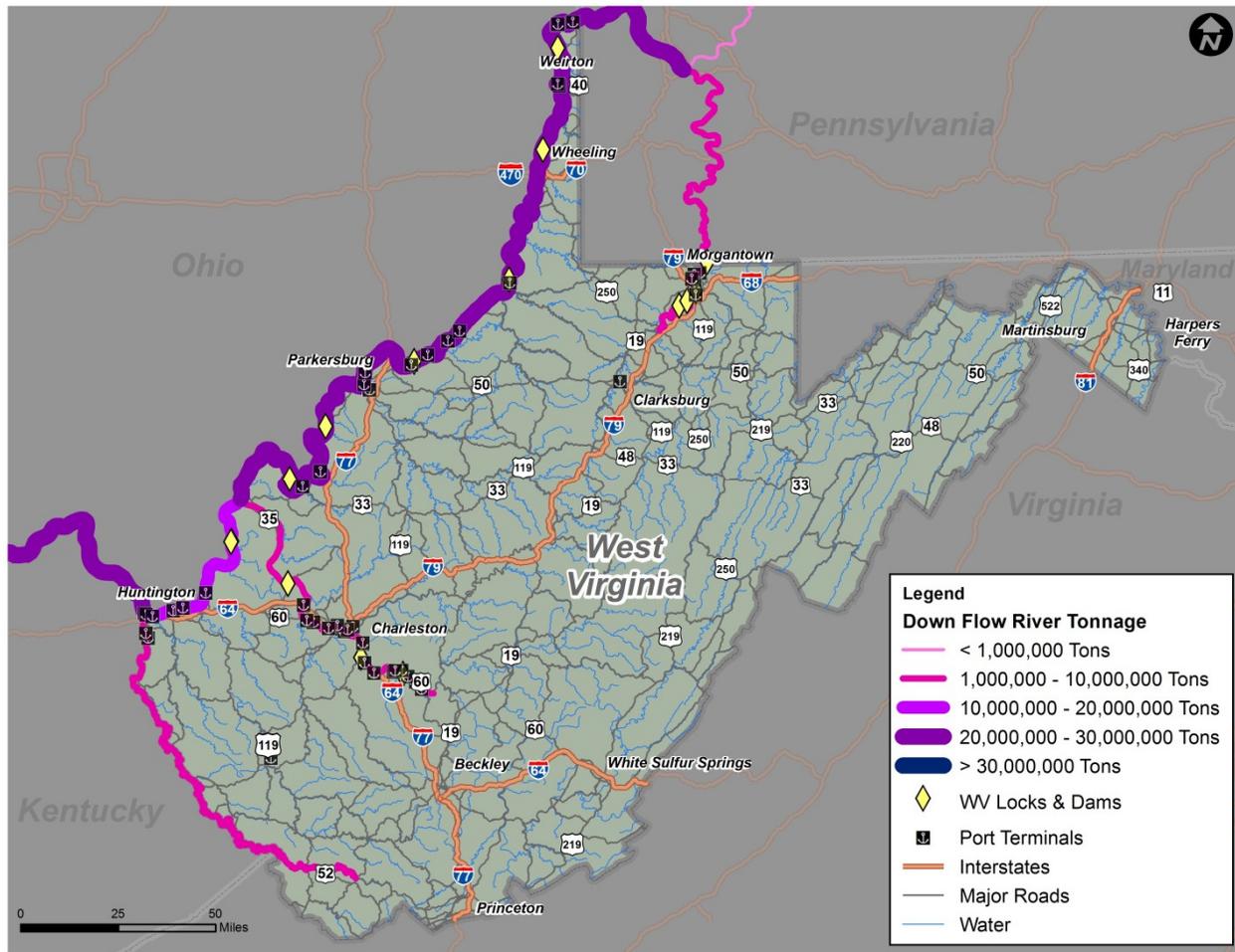
The Waterborne Commerce Dataset presents detailed data on the movements of vessels and commodities at the ports and harbors and on the waterways and canals of the U.S. and its territories. Statistics are aggregated by region, state, port, and waterway for comparative purposes. Data on foreign commerce are supplied to the USACE by the U.S. Bureau of the Census and U.S. Customs, and is purchased from the Journal of Commerce, Port Import Export Reporting Service. **Exhibit 6-12** illustrates the down-river waterway flows in West Virginia and the 12 locks and dams that serve the states riverport terminals on inland waterways.

For further information on the movement of freight via waterways throughout the state of West Virginia please see the WVDOT Public Port Authority’s Port Procedures Manual updated in April 2012, and provides guidelines for port development statewide.

²⁶ *Toward a Full Accounting of the Beneficiaries of Navigable Waterways.* University of Tennessee Center for Transportation Research, January 2011.

²⁷ *U.S. DOT. Beyond Traffic 2045: Trends and Choices.*

Exhibit 6-12: West Virginia Down River Waterway Flows



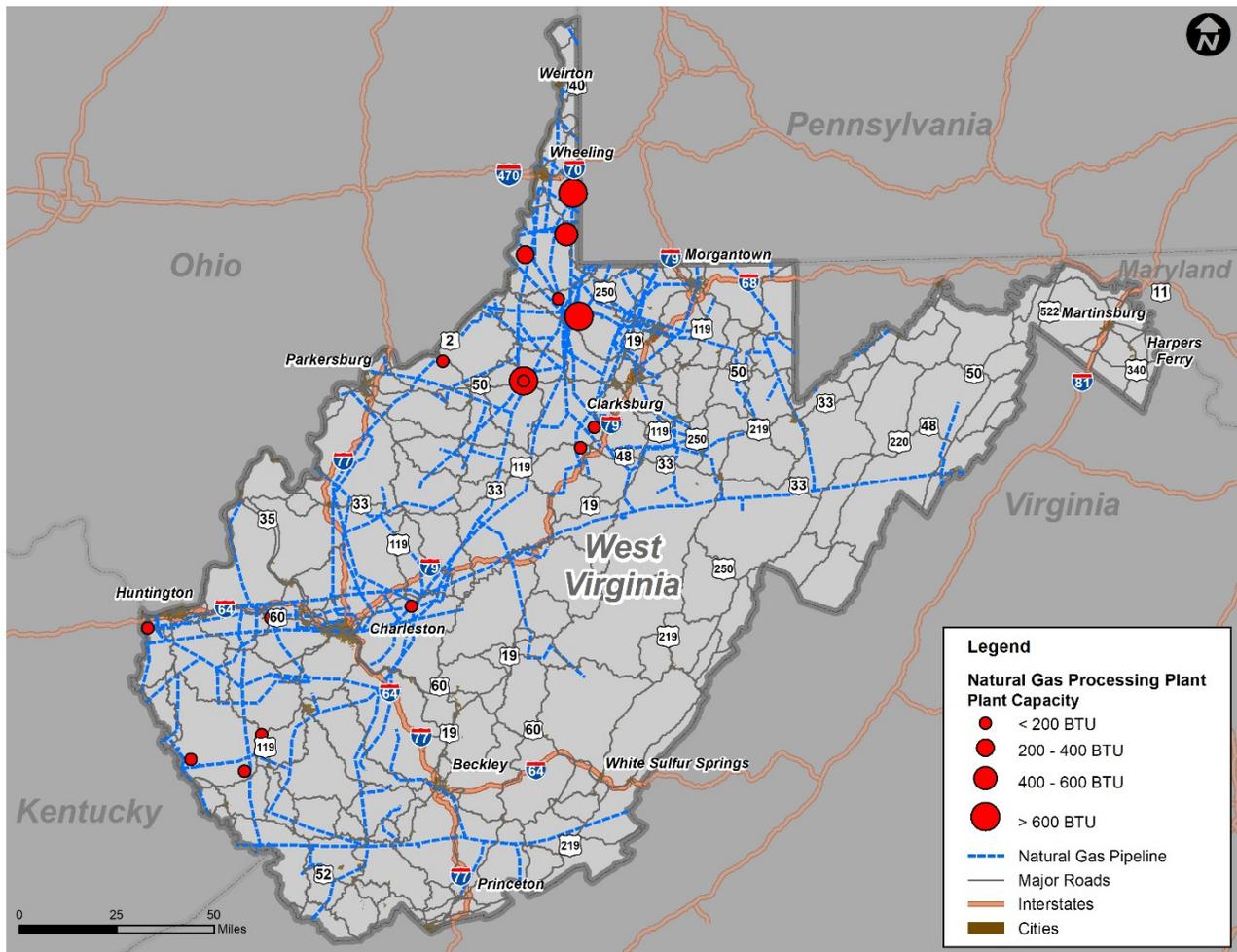
6.4 PIPELINE NETWORK



West Virginia is at the center of recent growth of domestic shale gas over the last several years. The Energy Information Administration (EIA) has predicted that the U.S. will become a net exporter of natural gas before 2020. Because of this growth, pipeline transportation demand in West Virginia has grown. Heavy trucks, drilling, and other production equipment are using the existing roadway network to access production facilities and in some cases, are overwhelming the State’s roadways.

West Virginia’s pipeline network is essential to moving the State’s high-value oil and gas commodities and is illustrated in **Exhibit 6-13**. The current pipeline network, which is regulated by the U.S. DOT’s Pipeline and Hazardous Materials Safety Administration, continues to serve the states natural gas processing plants centered in the Northern part of the State. **Exhibit 6-14** shows the total oil and natural gas production in West Virginia.

Exhibit 6-13: West Virginia Oil and Natural Gas Pipeline Network



West Virginia continues to expand its pipeline infrastructure. There are currently nine pipeline projects in the State in various stages of design or regulatory approval or construction. The Mountain Valley Pipeline (MVP) project is a proposed natural gas pipeline that spans approximately 303 miles from northwestern West Virginia to southern Virginia. The MVP will extend the Equitrans transmission system in Wetzel County, West Virginia, to Transcontinental Gas Pipeline Company’s (Transco) Zone 5 compressor station 165 in Pittsylvania County, Virginia.²⁸ The Atlantic Coast pipeline is a 550-mile-long proposed pipeline passing through the heart of the State. The Western Marcellus Pipeline is a proposed route similar to the MVP joining with the existing Transco pipeline in Virginia. The WB Xpress pipeline is a project that replaces 26 miles of pipeline and 3 miles of new pipeline between Virginia and West Virginia. The Leach Xpress pipeline is undergoing the permitting process and would be a 160-mile line originating in Marshall County. In conjunction with the Rayne Xpress pipeline, the Leach Xpress will flow 1.5 Bcf of Marcellus/Utica gas to the Gulf Coast. The Mountaineer Xpress pipeline would originate in Marshall County and connect to existing line in Milton, WV. The Buckeye Xpress pipeline is still early in the planning stages, but would connect Ohio, Pennsylvania, Kentucky, and West Virginia. The Rover pipeline

²⁸ <https://www.mountainvalleypipeline.info>

CHAPTER 6 – WEST VIRGINIA’S FREIGHT NETWORK AND FLOWS

which is currently under construction will transport up to 3.25 Bcf/day of natural gas from WV to markets across the Midwest and Canada. The ninth proposed pipeline is the Appalachian Storage Hub near Huntington which would originate in Pennsylvania and run along the entire length of the West Virginia and Ohio border, with the pipelines running on the Ohio side of the Ohio river. The hub would include several plants in Charleston and the pipelines near Point Pleasant, WV.²⁹

Exhibit 6-14: West Virginia Oil and Natural Gas Production³⁰

System Type	Total
Gas Production	1,040,250,028,000 cubic ft.
Oil Production	315,994,098 gallons
LNG Production	98,646,756 gallons

6.4.1 Natural Gas

The pipe materials used to build the pipelines in West Virginia are mostly steel or plastic. In 2016, 45 percent of the total mileage of gas distribution pipelines in the State were made of steel, while 55 percent of the State’s gas pipelines are made of plastic. **Exhibit 6-15** lists the gas pipeline miles by system type in 2016.

Exhibit 6-15: Gas Pipeline Miles by System Type (2016)³¹

System Type	System Detail	Miles
Gas Distribution	Main Miles	10,883
	Service Miles	2,262
Gas Gathering	Miles	447
Gas Transmission	Miles	3,504
TOTAL		17,096

6.4.2 Liquefied Pipeline Miles

In addition to natural gas pipeline, the State does also have more than 450 miles of pipelines that transport liquid products such as crude oil and refined petroleum. **Exhibit 6-16** shows the mileage and number of tanks for liquefied products.

²⁹ www.Marcellusdrilling.com

³⁰ U.S. DOT Pipeline and Hazardous Materials Safety Administration.2016.

³¹U.S. DOT Pipeline and Hazardous Materials Safety Administration.2016.

Exhibit 6-16: Liquid Facilities by Commodity (2016)³²

Commodity Type	Miles	Tanks
Crude Oil	4.6	0
HVL	409	0
Refined PP	40	0
TOTAL	454	11

6.4.3 Pipeline Flows

According to the EIA in 2016, West Virginia ranked 3rd in the U.S. in natural gas production, with over 2.36 billion cubic feet produced. Pipelines are the principal means of natural gas transport in West Virginia and the U.S. West Virginia ranked 9th in natural gas production in the U.S. with almost 1.4 trillion cubic feet of withdrawals in 2016.

6.5 AIR NETWORK



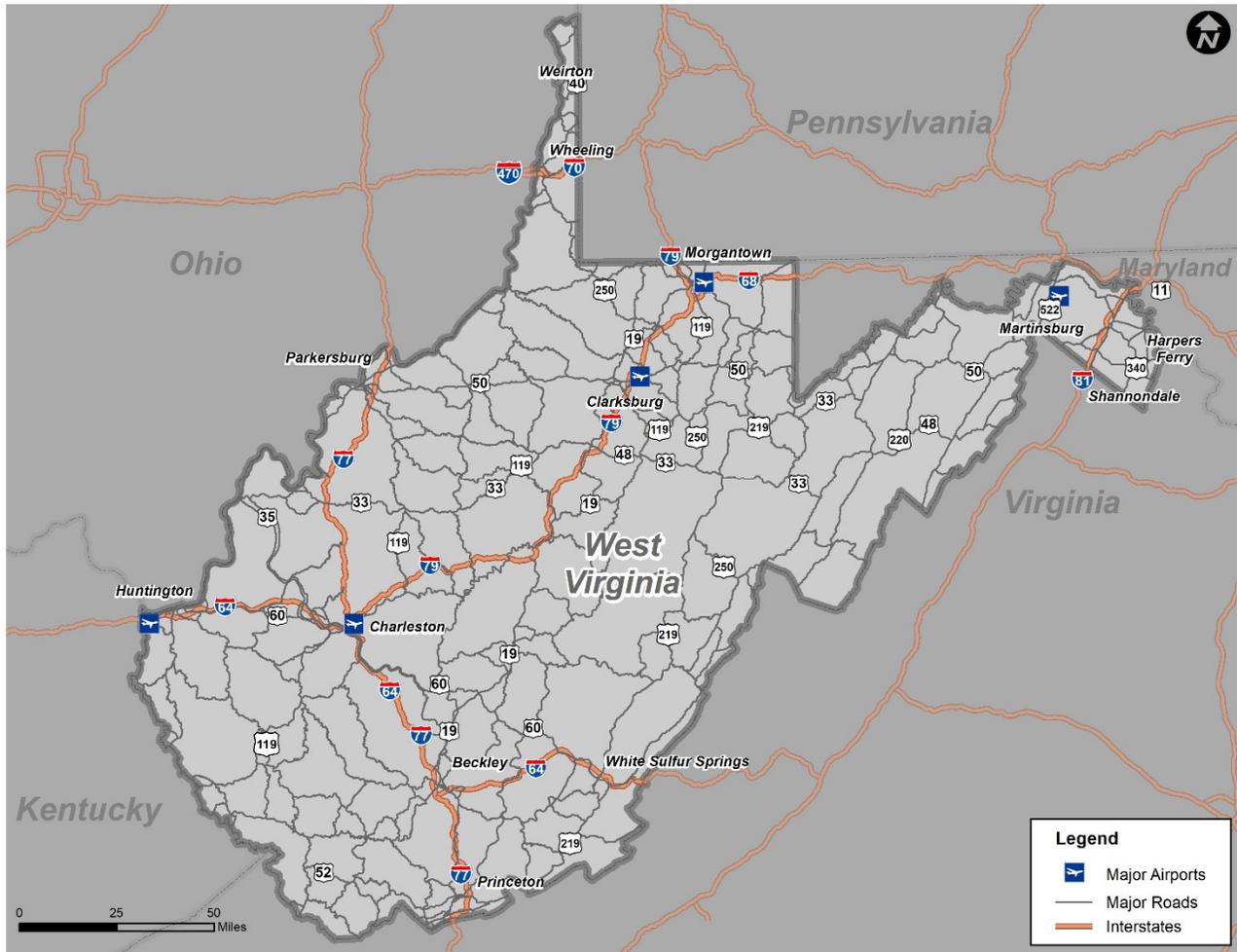
The air freight system is typically characterized by low-weight, small-volume, high-value cargo. Consequently, air cargo constitutes a small fraction of total freight tonnage but a higher fraction of total value of freight in domestic and international trade. Air cargo, due to its high value, also has high travel-time sensitivities, implying that slight changes in transit times can have significant cost impacts for air cargo shippers.

Operationally, air freight transportation tends to concentrate in larger metro-area hubs. However, it also involves freight moving through some regional freight-only airports. Air cargo operations can be divided into air cargo freighters, integrated carriers (e.g., FedEx), and cargo shipments in the belly of scheduled commercial carriers on passenger routes. These operations have distinct routing characteristics and time-of-day patterns, and may be different in their underlying logistics frameworks. Other aviation system elements useful for the analysis of air cargo flows include air cargo terminals and sort facilities. Sort facilities may be located at off-airport sites, which generate truck trips, and impact truck traffic distributions.

West Virginia has 23 airports listed in the Federal Aviation Administrations (FAA) National Plan of Integrated Airport Systems (NPIAS). **Exhibit 6-17** displays the major airports in West Virginia.

³² U.S. DOT Pipeline and Hazardous Materials Safety Administration. 2016.

Exhibit 6-17 West Virginia Major Airports



6.5.1 Charleston Yeager Airport

The Charleston Yeager airport covers 767-acre public-use facility offering scheduled service and has air cargo capabilities but is mainly a hub for commercial passenger airlines in the State. The main runway is 6,802 feet by 150 feet wide of asphalt. Currently, the airport lists four air cargo carriers operating out of the terminal, including: Air Cargo Carriers Inc., Mountain Air Cargo Inc., Quantem Aviation, and Ram Air Freight.³³

6.5.2 Eastern WV Regional Airport

The Eastern West Virginia Regional Airport is a 1,015-acre facility operated by the Eastern West Virginia Regional Airport Authority (EWRVRAA). The airport is home to the largest runway in the State at approximately 9,615 feet long by 200 feet wide. The airport is a public-use facility located four miles south of Martinsburg and is classified as a reliever airport by the FAA. The airport is used mostly for general aviation and there is no scheduled airline service at the airport at this time.

³³ <http://www2.yeagerairport.com/air-cargo/>

6.5.3 Huntington Tri-State Airport

The Huntington Tri-State (HTS) airport is a 1,164-acre publicly owned, public-use facility offering scheduled service, and providing air cargo and general aviation services. It is not a hub for commercial passenger airlines or for air cargo carriers. HTS is owned and operated by the Tri-State Airport Authority and contains two aircraft runways. The main runway runs in an east-west direction and measures 6,517 feet long by 150 feet wide. It has a weight capacity of 140,000 pounds for double-wheel aircraft and 230,000 pounds for double-tandem wheel aircraft. The secondary runway is 3,007 feet long by 60 feet wide and has a weight capacity of 12,500 pounds for single-wheel aircraft only.³⁴

HTS is not a hub for air cargo. Federal Express (FedEx) uses HTS as the regional distribution point for its Huntington operations. They use a Boeing 727 aircraft to fly between HTS and their Memphis, Tennessee, hub. They distribute to Charleston, Parkersburg, and Beckley in West Virginia as well as to Langley, Kentucky using four Cessna 208 aircraft. According to HTS Airport records, FedEx operates approximately 2,900 annual flights from HTS.³⁵

6.6 WEST VIRGINIA STATEWIDE FREIGHT FLOWS

Freight flows and trade patterns are constantly changing. International trade is increasing, global manufacturing centers are shifting, and trade routes are evolving. Online shopping is increasing demand for home delivery of consumer products, and ports worldwide are becoming increasingly automated. Surging domestic energy production is straining infrastructure in oil and gas production regions. Intermodal freight shipped in containers by ships, trains, and trucks is also increasing rapidly.

There are various sources of freight-flow data. Some data is available for free to the public, and some is available for a price, based mostly on geographic extent. The West Virginia State Freight Plan utilizes the FHWA’s freight analysis framework (FAF) database to create a comprehensive picture of freight movement for the State. FAF is produced through a partnership between the Bureau of Transportation Statistics (BTS) and FHWA. The FAF dataset uses data from the 2012 Commodity Flow Survey (CFS) and international trade data from the Census Bureau to evaluate various industry sectors. The 2012 data provides baseline estimates, based on the CFS, and forecasts through 2045.

Freight traffic can be represented in many different ways, depending on the mode, type of vehicle/equipment, commodity, and value. A common representation is in terms of the number of vehicles (for example, number of trucks and carloads, for trucking and rail carload, respectively). Intermodal freight traffic is typically measured in terms of 20-foot equivalent units (TEU), where one TEU represents a standard 20-foot container, while commodity-based representation of freight traffic involves measuring the total weight (tonnage) or value (dollars) of shipments for each commodity group. Special commodity groups have their own measures, such as petroleum (barrels) and natural gas (cubic feet).

Trucks and railroads transport the majority of West Virginia’s goods to domestic markets, but waterways and pipelines carry significant export volumes over longer distances. In the State, trucking accounts for approximately

³⁴ *Flight Planning for General Aviation: Airport Information, Tri-State/Milton J. Fergusson Airport*. 2008. <http://www.fltplan.com/AirportInformation/KHTS.htm>

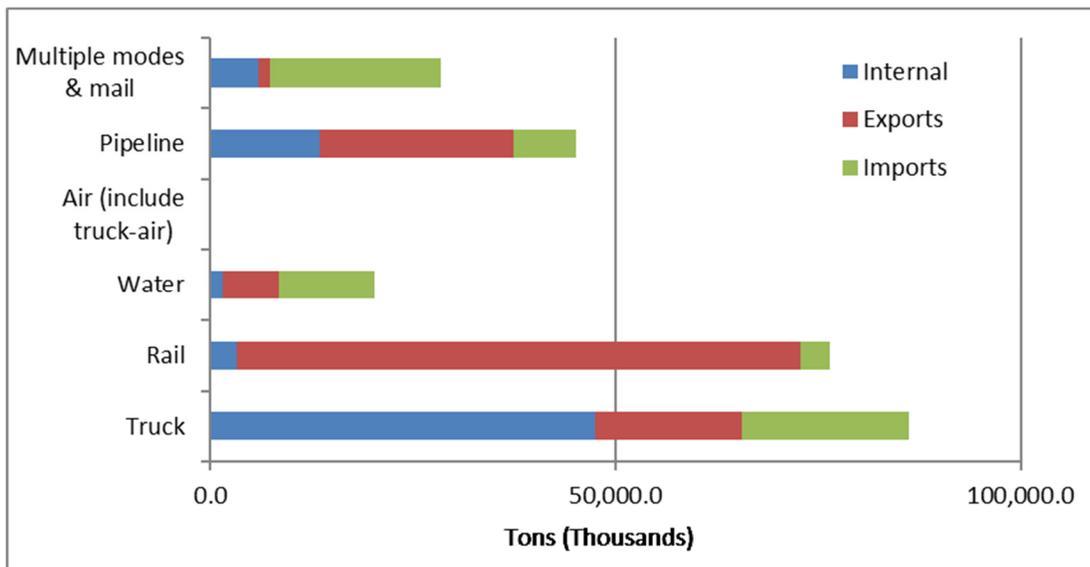
³⁵ *Huntington Intermodal Transportation Planning Study*. KYOVA Interstate Planning Commission. 2009.

CHAPTER 6 – WEST VIRGINIA’S FREIGHT NETWORK AND FLOWS

34 percent of the tonnage moved, in, out and within the State while rail accounts for almost 30 percent. Whether freight is moved by air, rail or water, it is likely to be moved by truck from the point of origin and again by truck to the final destination. Freight movements by truck in West Virginia rely heavily on the Interstate system to facilitate trade. I-64, along with portions of I-70 and I-68 provide east-west access for trucks; while I-77, I-79, and a portion of I-81 provide north-south access. Rail moves a large volume of coal being exported from the State, while the inland waterways also transport significant freight volumes along the Ohio River.

In 2012, trucks hauled 86 million tons of domestic goods worth more than \$75 billion to, from, within, or through West Virginia. **Exhibit 6-18** summarizes the value and tonnage of commodities, for all combined exports, imports, and internal truck shipments. While lumber was the largest commodity by weight, “other durable goods” was the largest commodity category in terms of value. Other durable goods include finished products such as furniture, equipment, and machinery.

Exhibit 6-18: West Virginia Domestic Freight Flows (2012)



In 2012, coal exports from the State totaled nearly \$8 billion but by 2016, coal exports declined to just \$1.3 billion. The coal industry in West Virginia has seen some recent growth however, with coal export shipment values from the state tripling between the first half of 2016 and 2017. Chemical exports represented approximately \$1.5 billion in 2016 and is now the single largest export source from WV companies in 2016.³⁶ Most of the State’s exports are shipped across North America, Europe, and Asia. Canada received more than \$1.5 billion in exports from the State, or approximately 30 percent of total exports.³⁷

³⁶ West Virginia Economic Outlook 2018-2022. Bureau of Business and Economic Research. 2017

³⁷ US International Trade Association.

CHAPTER 6 – WEST VIRGINIA’S FREIGHT NETWORK AND FLOWS

Exhibit 6-19 illustrates the tonnage of freight being transported by trucks on West Virginia highways in 2012. West Virginia interstates handle a large volume of trucks, but the State has other important freight routes as well, including US highway 19 (also Corridor L) between I-77 and I-79, US highway 35 between I-64 and the Ohio border, and State Highway 2.

Exhibit 6-19: Highway Freight Flows (2012)

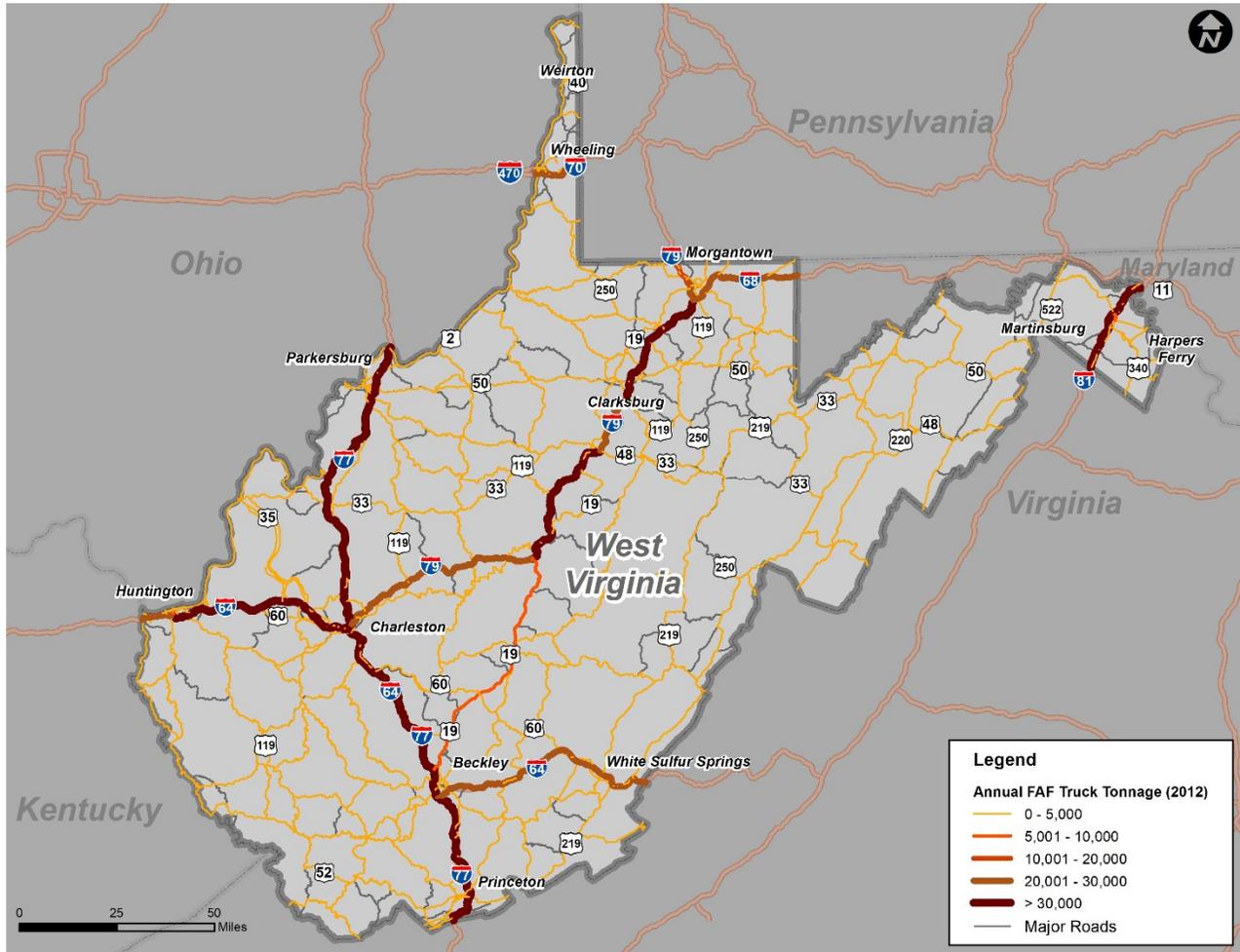
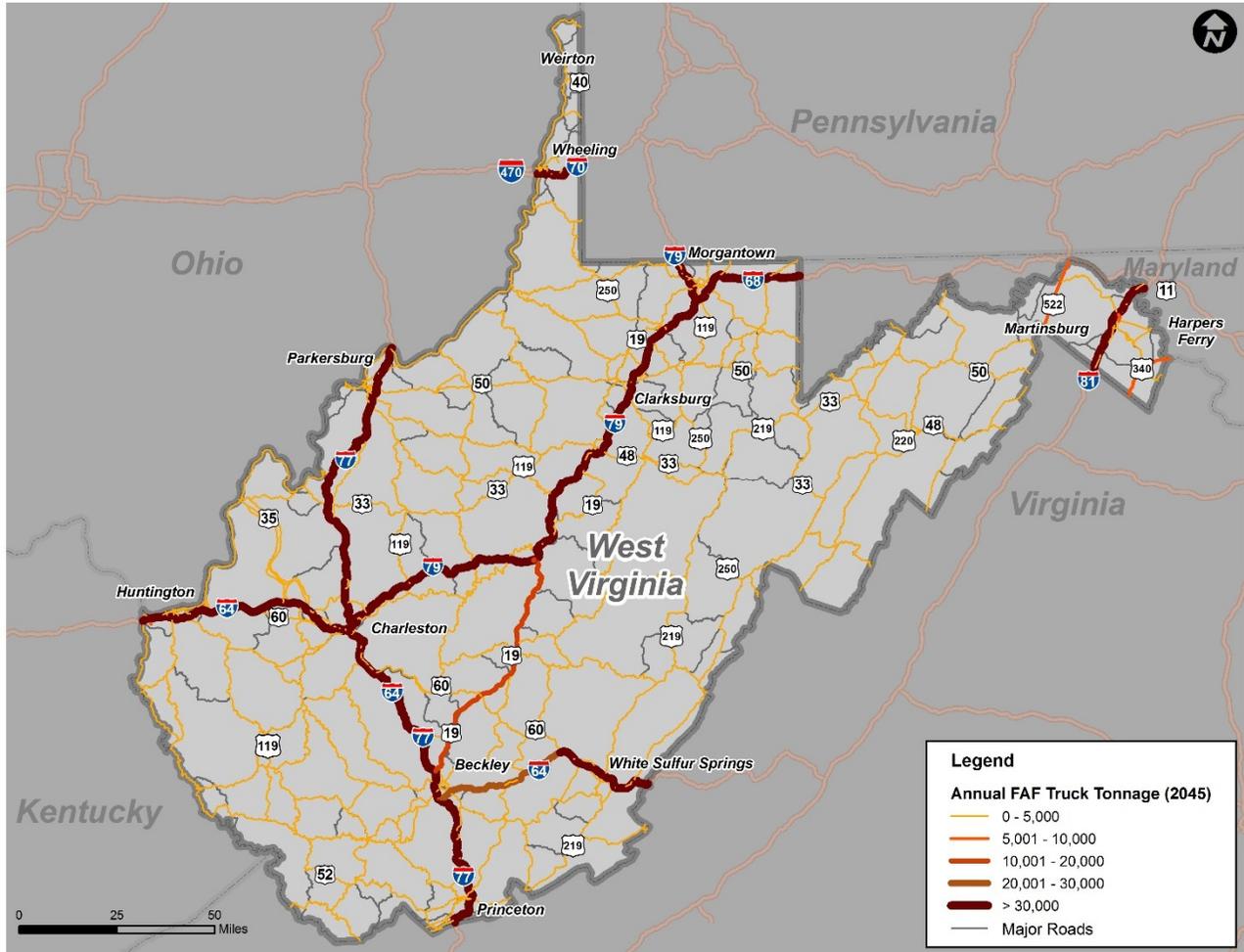


Exhibit 6-20 illustrates the highway freight flows projected in 2045. All West Virginia interstates, except a portion of I-64 near Beckley, are expected to handle more than 30,000 tons of goods annually.

Exhibit 6-20: Highway Freight Flows (2045)



7. IDENTIFY AND EVALUATE FREIGHT PROJECTS

This State Freight Plan will help to inform future transportation plans and investment in the State. West Virginia's current long-range transportation plan process for evaluating projects does not lend sufficient weight to the importance of freight, limiting the potential for freight system investments to enhance the competitive advantage and growth of West Virginia's economy. This Plan, however, provides planners with an opportunity to enhance the standing of freight planning in the WVDOH project planning and programming process.

West Virginia's current long-range transportation planning process does not inherently include freight projects but this Plan provides a fiscally constrained project list to guide future freight project investment.

As discussed in **Chapter 4**, the WVDOH invited a wide assortment of stakeholders to submit their freight priority projects for consideration as part of this State Freight Plan. In addition to the project submissions received through outreach efforts, the project identification process included an evaluation of West Virginia's freight network to identify highway segments that were performing poorly regarding operations and infrastructure condition. Once projects were identified and mapped, quantitative and qualitative performance measures were developed to help evaluate the most beneficial freight projects for the State.

Many States and MPOs have expanded efforts to understand freight movements, engage freight stakeholders, designate freight networks, and incorporate freight projects into existing transportation planning and programming activities. The following sections discuss the process used to identify and evaluate freight projects for the West Virginia State Freight Plan.

7.1 IDENTIFY FREIGHT PROJECTS

This Plan identified 94 transportation projects that will benefit freight movements in the State. The candidate project list was developed through analysis of recommended projects from the State Rail Plan, Statewide Strategic Port Master Plan, and Multimodal Statewide Transportation Plan as well as input provided by stakeholder survey responses. Each of the State's MPOs was involved in the development of this Plan, and contributed a list of potential freight projects from their TIP and long-range plans. Many projects have a regional or statewide impact and require special funding outside of normal WVDOH funding mechanisms.

The candidate projects were overlaid with the bottleneck locations to see which ones would assist in alleviating freight congestion on the highway system. Although these projects may not have been conceived or planned specifically to improve freight movement, the projects have the possibility to greatly improve freight mobility by addressing existing capacity issues where bottlenecks are identified. The candidate project list is located in **Appendix B**.

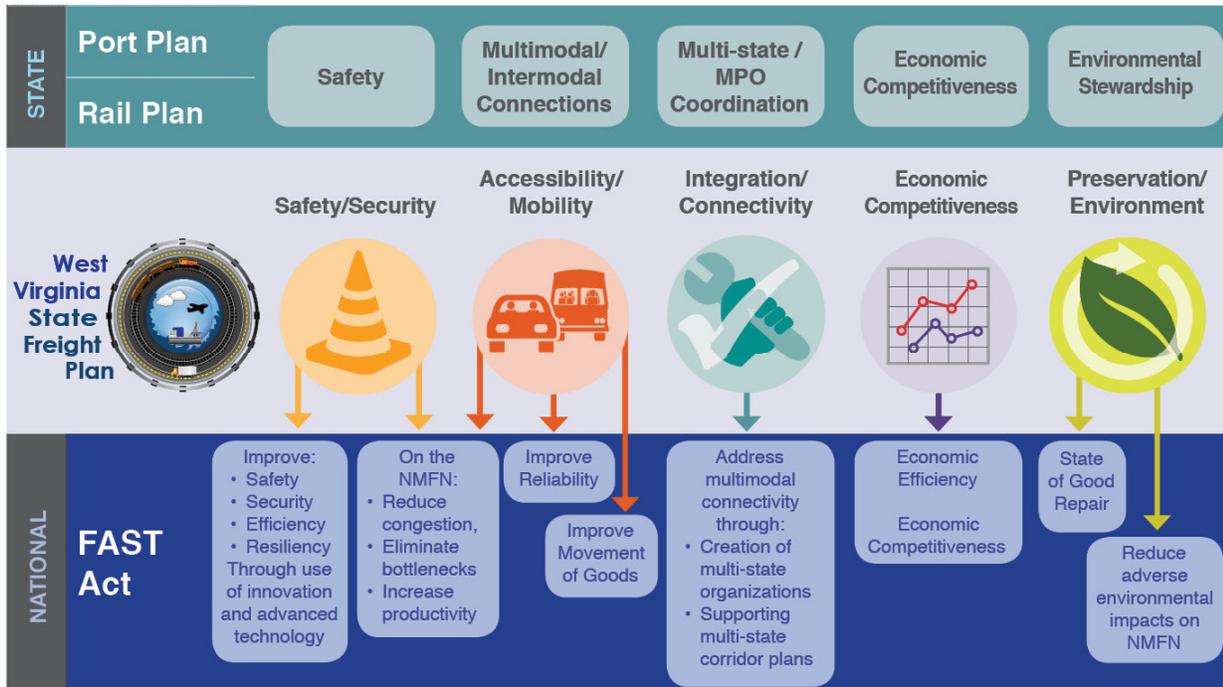
7.2 EVALUATE FREIGHT PROJECTS

Freight transportation system improvements were evaluated using an objective, transparent, and broadly accepted set of criteria directly linked to the goals and objectives set forth at the outset of this Plan. The performance measures developed for this Plan were broken out into several categories that correspond to plan goals and

CHAPTER 7 – IDENTIFY AND EVALUATE FREIGHT PROJECTS

objectives including: safety, operations, economic development, modal options, environmental stewardship, and financial benefit. **Exhibit 7-1** below shows the Plan goals and objectives.

Exhibit 7-1: Goals and Objectives

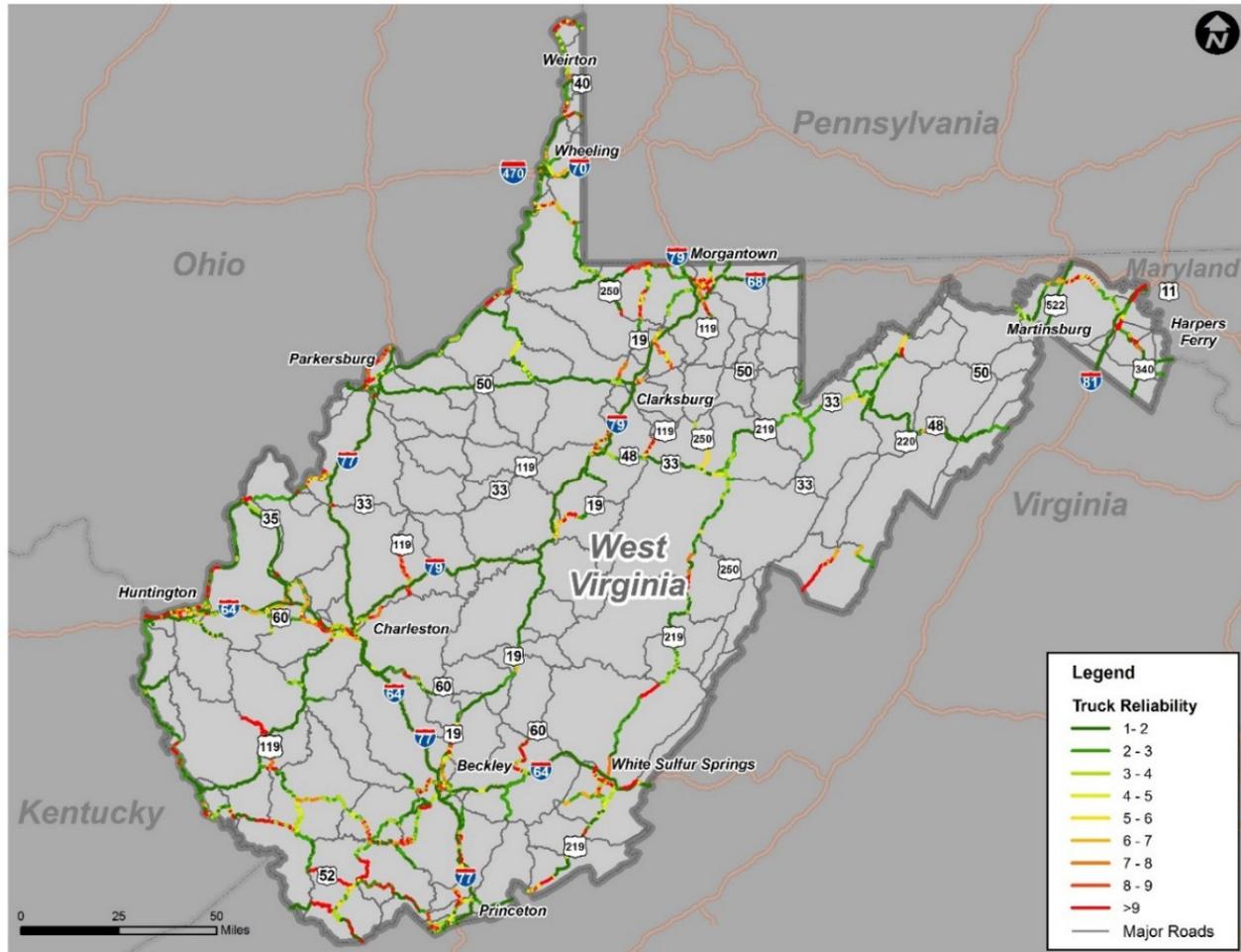


Every effort was made to include multimodal performance measures; however, due to data limitations and policy direction, the performance measures developed for this Plan are highway-centric. This Plan utilizes the National Performance Measure Research Data Set (NPMRDS), developed for the FHWA in 2013, to facilitate performance measurement. The NPMRDS is made available to states and MPOs as a tool for performance measurement. The GIS data set covers 2011 to present and is made available through the Freight Performance Management (FPM) and Urban Congestion Relief (UCR) programs. The NPMRDS provides travel times for the entire National Highway System, by both passenger and freight. The data set includes average travel times for trucks and general purpose automobiles, in five-minute bins, and provides necessary inputs for freight performance measurement, forming the basis of our operational analysis.

NPMRDS data from January 2017 was used to evaluate additional freight bottlenecks across the state. Average truck speeds for weekday peak and mid-day periods as well as for daylight hours on weekends were used to calculate freight performance measures including congested hours, truck travel time index (TTTI), and planning time index (PTI). Congested hours were computed as the average number of hours during specified time periods (including AM and PM peak periods) in which road sections are congested, i.e., travel speeds less than 90 percent of free-flow speed (e.g., 54 mph if free-flow speed is 60 mph). This measure is reported for weekdays from 6 a.m. to 10 p.m. The TTTI is the ratio of the peak-period travel time as compared to the free-flow travel time. This measure is computed for the AM peak period (6 a.m. to 9 a.m.) and PM peak period (4 p.m. to 7 p.m.) on weekdays. The values were then averaged and only highway sections with a speed value of less than 45 miles per hour were selected for further analysis. The poorest performing locations were then identified to better understand the segments of the network that may benefit from future investment.

Exhibit 7-2 shows the TTTI used to measure operational performance and identify additional bottleneck locations across the State. Roadway segments with higher numbers identified in the map below (colored red) represent poor truck travel times and could be good locations for future freight projects.

Exhibit 7-2: Truck Travel Time Index



The PTI is the ratio of the 95th percentile travel time as compared to the free-flow travel time. Higher numbers (colored red) represent roadway segments with below average free-flow travel speeds. Averages were weighted across road sections and urban areas by vehicle miles traveled (VMT) using traffic volumes from FHWA’s highway performance monitoring system (HPMS). The free-flow speed is the 85th percentile of off-peak speeds, where off-peak is defined as weekdays from 9 a.m. to 4 p.m. and 7 p.m. to 10 p.m., as well as weekends from 6 a.m. to 10 p.m. The free-flow speeds are calculated for each traffic message channel (TMC) path and are based on the previous 12 months of data.

Other operational performance measures included truck percent, which was collected by WVDOH statewide count stations and recently resubmitted to FHWA HPMS, as well as a qualitative analysis of system design including turning radius, vertical clearance, and roadway functional classification. This Plan included an evaluation of economic development potential of each proposed project. First, each candidate project was evaluated to determine its potential economic impact based on its connectivity to available industrial sites. The West Virginia

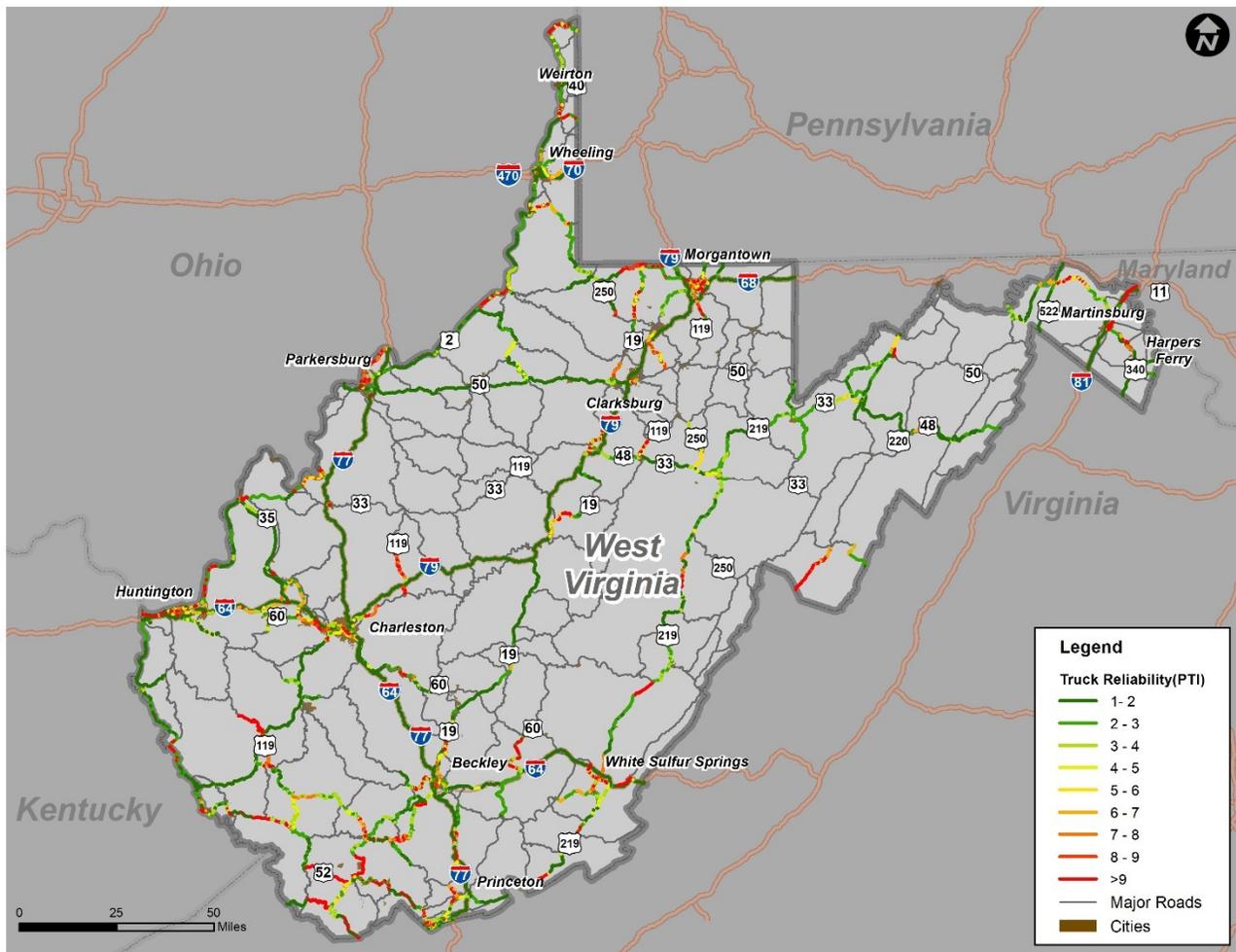
CHAPTER 7 – IDENTIFY AND EVALUATE FREIGHT PROJECTS

Department of Commerce Sites and Buildings search³⁸ was used to identify available economic development properties across the State. Next, FAF volume data was used to identify areas with high freight demand. Intermodal connectivity and access to the primary freight network were performance considerations. These were evaluated using GIS maps to understand a proposed project’s connection to the national freight network, as well as within a 5-mile buffer of intermodal facilities across the State.

There are many ways to analyze and visualize the NPMRDS data set. The map shows the PTI on all interstates in the State based on 2013 freight volumes. This Plan used the same PTI scales between freight and passenger – in part to not obscure their inherent differences, and in part to illustrate observed differences in the NPMRDS.

Exhibit 7-3 shows the PTI used to measure operational performance.

Exhibit 7-3: Planning Time Index



³⁸ Accessed Online at: <http://westvirginia.gov/sites-buildings.html>

CHAPTER 7 – IDENTIFY AND EVALUATE FREIGHT PROJECTS

The table shown in **Exhibit 7-4** demonstrates financial constraint.

Exhibit 7-4: NHFP Funding By Year

Fiscal Year	Carry Over/ Beginning Balance	Apportionment	Obligated	Ending Balance
2018	\$438,942	\$13,009,298	\$13,448,240	\$0
2019	\$0	\$14,967,744	\$14,967,744	\$0
2020	\$0	\$16,673,410	\$16,673,410	\$0
2021	\$0	\$16,673,410	\$16,673,410	\$0
2022	\$0	\$16,673,410	\$16,673,410	\$0

* Assumed 0% annual growth of NHFP Funding after FAST ACT.

Exhibit 7-5 lists the fiscally constrained recommended freight projects and **Exhibit 7-6** illustrates the locations of the recommended projects.

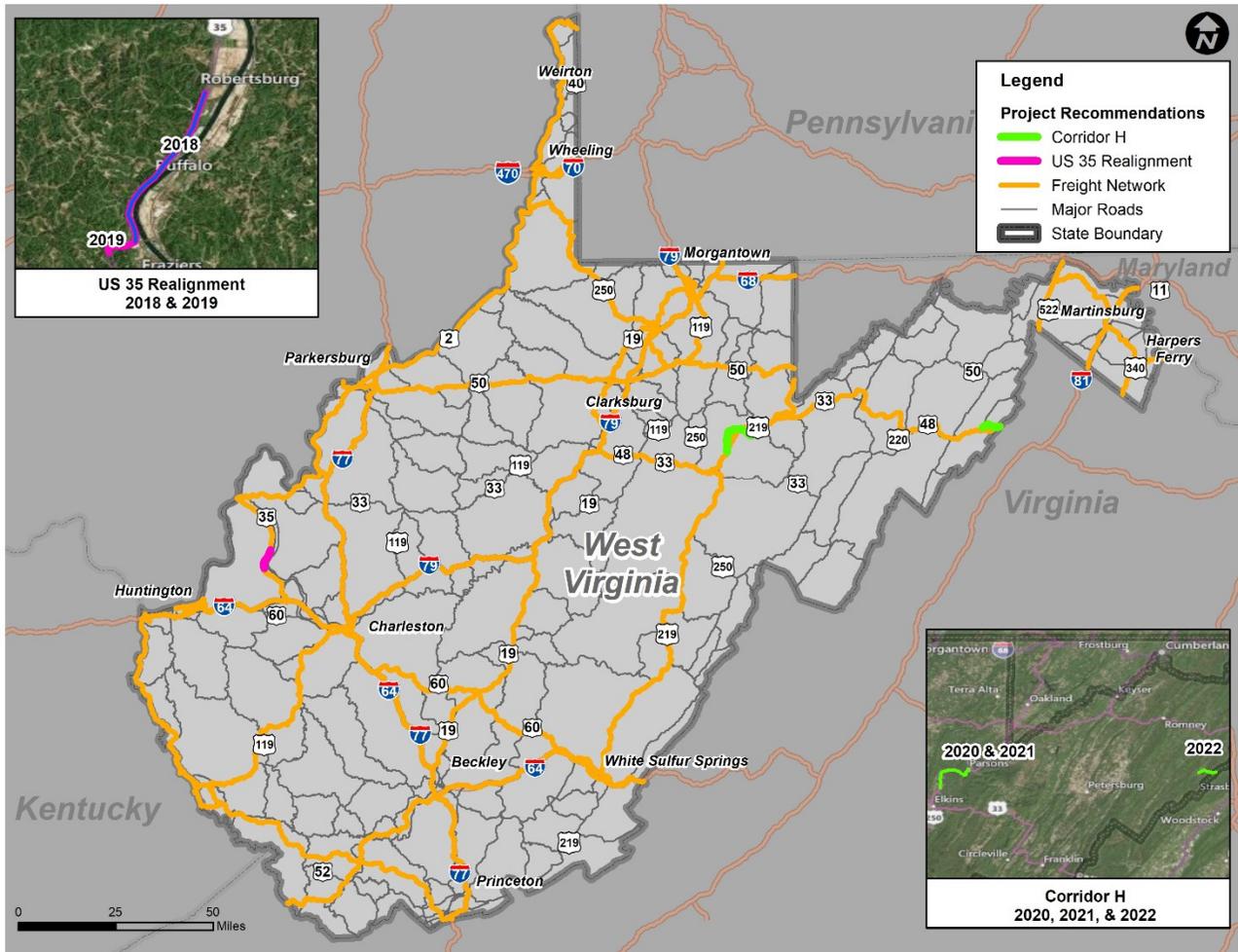
Exhibit 7-5: Freight Project Recommendations

Fiscal Year	Project	Description	Length	NHFP Funding Amount	Other Federal	State Match	Total Project Cost	NHFP %
2018	US 35	4-lane widening from Buffalo Bridge to the Mason County line	7.23	\$13,448,240	\$144,254,922	\$39,425,800	\$197,129,000	7%
2019	US 35	4-lane widening from Putnam Co. line to end of existing 4-lane	9.358	\$14,967,744	\$59,544,256	\$18,628,000	\$93,140,000	5%
2020*	Corridor H	4-lane paving from US 219 Connector to WV 72 I/C	13.88	\$16,673,410	\$4,326,590	\$0	\$21,000,000	80%
2021*	Corridor H	4-lane paving from US 219 Connector to WV 72 I/C	13.88	\$16,673,410	\$4,326,590	\$0	\$21,000,000	80%
2022	Corridor H	4-lane construction from East of Wardensville to VA State Line	6.8	\$16,673,410	\$116,126,590	\$33,200,000	\$166,000,000	10%

* Advanced Construction (AC) pay back over 2 years with a total cost of \$42,000,000.

The WVDOT sees the need to include input from governmental and private stakeholders in the form of the Freight Advisory Committee (FAC) as a tool during the prioritization process moving forward. The goal is to utilize the FAC as a crucial variable within the prioritization of freight projects to ensure the projects have been thoroughly vetted and are addressing real issues within the freight community.

Exhibit 7-6: Freight Project Recommendations Map



The WVDOH has identified the advancement of both the US 35 and Corridor H facilities to 4-lane partial controlled access expressways as the highest priority freight routes statewide. Benefits of the completion of these corridors include the following:

US 35:

US 35 serves as a link to the southeastern portion of the United State via I-64 and I-77. The roadway is vital for commercial traffic not only in West Virginia but for traffic traveling the entire corridor. In West Virginia, the 37-mile section of US 35 is used heavily by commercial traffic and is designated as part of the National Highway System. The project is located within one of the fastest growing counties in West Virginia. Additionally, John E. Amos Power Plant, located between WV 817 (Winfield Rd) and the Kanawha River, is a three-unit coal-fired power plant owned and operated by Appalachian Power, a subsidiary of American Electric Power (AEP). This power plant is the largest generating plant in the AEP system. According to the Regional Intergovernmental Council (RIC) Metro Mobility 2040 plan's regional growth forecast, it is estimated that population and employment will increase along the US 35 corridor over the next 30 years. The Putnam County Economic Development Authority affirms the data, suggesting that the corridor will attract substantial growth and development. As a result, the plan estimates that average daily traffic could increase by approximately 54 percent between 2010 and 2040. The US 35 corridor is a major freight corridor with trucks comprising of greater than 30 percent of the overall traffic on the route. The advancement of upgrading US 35 will prove to be crucial to maintaining and improving the shipment of freight throughout the region.

CORRIDOR H:

Corridor H is the last ADHS corridor to be completed in West Virginia. Currently, several miles have been completed and are under traffic with several more miles that have had the design completed. Corridor H is designed to replace many miles of narrow, twisting two-lane highways that are mountainous, treacherous in bad weather and time consuming to travel, especially in times of emergencies (fire, accident, illness, etc.) West Virginia's portion of the Corridor H alignment crosses very mountainous terrain, some of the most rugged in the eastern United States, and crosses two major rivers. Ultimately, failure to invest in the completion of Corridor H will prove to put continued stresses on an already overly congested interstate system throughout the Appalachia Region. The efficiency of the Appalachia Region's transportation network including the mobility of goods via freight, accessibility and mobility of people who are currently without a viable transportation network connection to existing expressway systems, as well as the economic vitality within this rural region of West Virginia all hinge on the completion of Corridor H.

8. TRENDS, ISSUES, AND NEXT STEPS

This chapter outlines the overarching trends, issues and next steps for West Virginia’s public and private-sector freight stakeholders. This Freight Plan made next step recommendations based on the analysis conducted and findings presented in this document.

8.1 TRENDS AND ISSUES

Trucks carry most of the weight and value of freight that is moved within West Virginia, but railroads and waterways carry significant export volumes over longer distances. Rail moves large, but decreasing volumes of coal being exported from the State; while the inland waterways transport significant freight volumes along the Ohio River.

Through truck traffic is heavy on all of West Virginia’s interstate corridors and deteriorating pavement is a major concern of the State’s highway users and freight stakeholder groups. The State’s freight shippers have also expressed a need for an east-west route through the State. It is anticipated that Corridor H completion will improve connections in this part of the State. Improving the condition of all roadways remains a significant effort for WVDOH.

Rail traffic in the State is decreasing, mainly due to the reduced amount of heavy coal being exported from the State. Intermodal transportation has a potential to grow throughout the State and will impact trucking corridors in the region. Railroad companies have invested in new intermodal transfer facilities such as the Heartland Intermodal Gateway, which improves West Virginia’s intermodal container shipping access.

The air cargo industry in the US is currently experiencing consolidation, and operations at smaller air cargo airports in West Virginia have been impacted. As customer requirements change the industry may see a shift in cargos typically carried by air.

The Ohio River is designated as a marine highway, which may bring much needed investment in the aging lock and dam infrastructure in West Virginia. The initiative will also help to coordinate business owners and shippers along the inland waterway in order to remain competitive with other modes of transportation in the State.

By 2045, domestic freight flows within the State are expected to grow to almost 95M tons, an increase of almost 23M tons from current flows. Over the same time horizon, total (domestic and international) exports from the State are expected to grow to 180M tons while total imports from the State are expected to grow to 120M tons.

8.2 FREIGHT POLICY IMPLICATIONS

Freight policy and regulations have a significant impact on freight flows in a region. For example, safety regulations such as route restrictions, truck size, and weight limitations influence routing patterns of truck movements, types of equipment used, and shipment sizes. Environmental regulations pertaining to emissions will impact equipment types, while hours of service regulations impact time-of-day characteristics.

Land-use regulations may have the most significant impact on freight demand due to the inherent interrelationship between land use and transportation. For example, land-use regulation on the development of warehousing facilities in a region impacts truck traffic patterns and trip length distributions.

Increased surveillance and inspection practices for freight shipments to meet security rules and regulations can potentially find applications in modeling freight demand. For example, border and gateway simulation tools are being developed that can provide key inputs to freight models (such as for model calibration or validation). Security inspections and technology also may create new sources of data that can be used to understand freight flow characteristics and model freight demand.

Connected vehicle and autonomous vehicle (AV/CV) technologies such as driverless truck platooning will have a potentially transformative impact across all transportation modes by increasing productivity, improving safety, and enhancing the capacity of existing infrastructure. Ships could be piloted remotely with a small crew of technicians onboard in case of mechanical failure. Unmanned aerial vehicles will continue to increase in popularity and be considered as a delivery method. Google, Amazon, and DHL have been evaluating delivery of packages by unmanned aircraft for several years. Positive train control (PTC) uses new communication technologies and GPS systems to remotely manage freight and commuter trains. The modern technology has the potential to greatly improve the efficiency and safety on freight rail networks.

Another policy shift that could impact freight is tolling. A variety of options are being considered and implemented across the nation, including tolling interstates; which could have drastic impacts on travel patterns and driver behaviors. Tolling may also create a mode shift where products typically moved on highways may take advantage of efficiencies of moving freight with other modes.

Some policy options to improve the efficiency of the freight transportation system in West Virginia include:

- Adopting policies that shift freight demand to safer, more environmentally sustainable modes;
- Investing in ports and intermodal facilities to make intermodal shipping more efficient;
- Incorporating freight planning into transportation planning and regional economic development decisions;
- Encouraging private investment in freight infrastructure;
- Incentivizing the adoption of alternative-fuel and electric vehicles by freight companies;
- Supporting research of automation technologies; and
- Investing in infrastructure to support the safe and efficient movement of energy supplies.

8.3 FUNDING SOURCES

Various federal funding mechanisms are available for freight projects and each of the programs has its own unique requirements. Several programs have been created recently due to the FAST Act legislation signed into law on December 4, 2015, that authorizes federal highway, highway safety, transit, and rail programs for five years through 2020. Most of the funding for freight-related improvements is administered through the USDOT. Various freight infrastructure funding and financing sources are summarized below.

8.3.1 National Highway Freight Program

The National Highway Freight Program (NHFP) is a new program that is supported by the Highway Trust Fund (HTF) and is funded at an average of \$1.2 billion per year and distributed to states by using a formula, based on the proportion of total designated primary highway freight system (PHFS) mileage in the State to the total mileage

of the PHFS in all States. The purpose of the NHFP is to improve efficient movement of freight on the National Highway Freight Network (NHFN) and support several goals, including:

- Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity;
- Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas;
- Improving the state of good repair of the NHFN;
- Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability;
- Improving the efficiency and productivity of the NHFN;
- Improving State flexibility to support multi-state corridor planning and address highway freight connectivity; and
- Reducing the environmental impacts of freight movement on the NHFN.

NHFP funds may be used in West Virginia on any component of the NHFN. The Federal share for NHFP funds is governed by 23 U.S.C. 120 and is generally 80 percent. The Federal share for projects on the Interstate system (except projects that add lanes that are not high-occupancy-vehicle or auxiliary lanes) is 90 percent. For projects that add single occupancy vehicle capacity, that portion of the project that increases single occupancy vehicle capacity will revert to the 80 percent Federal share participation level. 23 U.S.C. 120. The Federal share for projects that are located on toll roads, and subject to the provisions of 23 U.S.C. 129, is limited to 80 percent.

8.3.2 Nationally Significant Freight and Highway Projects

The Nationally Significant Freight and Highway Projects (NSFHP) established a nationally significant freight and highway projects program to provide financial assistance for projects of national or regional significance. The goals of the program are to:

- Improve the safety, efficiency, and reliability of the movement of freight and people;
- Generate national or regional economic benefits and an increase in the global economic competitiveness of the United States;
- Reduce highway congestion and bottlenecks;
- Improve connectivity between modes of freight transportation;
- Enhance the resiliency of critical highway infrastructure and help protect the environment;
- Improve roadways vital to national energy security; and
- Address the impact of population growth on the movement of people and freight.

8.3.3 National Highway Performance Program

The National Highway Performance Program (NHPP) guides activities related to the condition and performance of the National Highway System (NHS) and provides funding for the construction of new facilities on the NHS. It ensures that investments of federal-aid funds in highway construction are directed to support progress toward the

achievement of performance targets established in a state’s asset management plan for the NHS. The Fast Act continues all prior NHPP eligibilities, and added four new eligible categories:

- Installation of vehicle-to-infrastructure communication equipment [23 U.S.C. 119(d)(2)(L)];
- Reconstruction, resurfacing, restoration, rehabilitation, or preservation of a bridge on a non-NHS Federal-aid highway (if Interstate System and NHS Bridge Condition provision requirements are satisfied) [23 U.S.C. 119(i)];
- A project to reduce the risk of failure of critical NHS infrastructure (defined to mean a facility, the incapacity or failure of which would have a debilitating impact in certain specified areas) [23 U.S.C. 119(j)(3)]; and
- At a state’s request, the U.S. DOT may use the state’s STBG funding to pay the subsidy and administrative costs for TIFIA credit assistance for an eligible NHPP project or group of projects. [23 U.S.C. 119(h)]

8.3.4 Surface Transportation Program

The Surface Transportation Program (STP) provides flexible funding for: projects on any Federal-Aid highway, bridges on public roads, bridge and tunnel inspection, and inspector training. Eligible freight projects also include bridge clearance increases to accommodate double-stack freight trains, capital costs of advanced truck stop electrification systems, freight transfer yards, and truck parking facilities.

8.3.5 Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) is a Federal-aid program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.

The HSIP consists of three main components, the Strategic Highway Safety Plan (SHSP), State HSIP or program of highway safety improvement projects and the Railway-Highway Crossing Program (RHCP), In addition, some states also have a High Risk Rural Roads (HRRR) program if they had increasing fatality rate on rural roads.

8.3.6 Railroad Rehabilitation and Improvement Financing Program

The Federal Railroad Administration’s (FRA) Railroad Rehabilitation and Improvement Financing (RRIF) Program seeks to support railroads in improving or modernizing intermodal and rail equipment and for updating or developing new facilities. The U.S. DOT is anticipating that this program will help to improve railroad connections between port facilities and the landside transportation network.

8.3.7 Transportation Infrastructure Finance and Innovation Act

The Transportation Infrastructure Finance and Innovation Act (TIFIA) provides federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. The goal of TIFIA financing is to leverage federal resources and stimulate private capital investment in transportation infrastructure by providing credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to projects of national or regional significance. TIFIA financing is available for large-scale public or private transportation projects. The program is aimed at large projects with a minimum

value of approximately \$50 million. The maximum TIFIA-financed portion is 33 percent and is administered by the USDOT's TIFIA Joint Program Office.

8.3.8 Congestion Mitigation and Air Quality Program

The Congestion Mitigation and Air Quality (CMAQ) Program provides a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. CMAQ money supports transportation projects that reduce mobile source emissions in areas designated by the U.S. Environmental Protection Agency (EPA) as nonattainment or maintenance of national ambient air quality standards. Eligible activities include those related to rail intermodal freight transportation improvements. To be eligible for funding, the project must reduce emissions of criteria pollutants for which the area is in non-attainment. CMAQ funding is administered jointly by the FHWA and FTA and is allocated among the states based on the severity of their air quality status.

8.3.9 TIGER Grants Program

The Transportation Investment Generating Economic Recovery (TIGER) grant program provides funding for State DOTs to invest in road, rail, transit and port projects that promise to achieve national goals or objectives. Since 2009, Congress has dedicated nearly \$4.6 billion for seven rounds of TIGER to fund projects that have a significant impact on the Nation, a region or a metropolitan area.

The eligibility requirements of TIGER allow State and local sponsors to obtain funding for multi-modal or multi-jurisdictional projects that may be more difficult to support through traditional DOT funding programs. TIGER funds are eligible to support freight projects in West Virginia for projects such as port and freight rail projects, for example, which play a critical role in the State's ability to move freight but may not qualify for typical sources of Federal transportation funds.

8.3.10 INFRA Grants Program

The Infrastructure for Rebuilding America (INFRA) program announced in 2017 was a modification of the existing FASTLANE grant program; which was the first federal source of dedicated freight funding. The INFRA grant program provides dedicated freight funding for projects that address critical issues facing our nation's highways and bridges.

A focus of the INFRA program is to award project funds to construction ready projects that are utilizing innovative delivery, funding, processes, and approaches to significantly reduce the timeline for completing transportation projects and increasing accountability for the projects that are built.

8.3.11 Marine Highway Grant Program

The Marine Highway Grant Program is a dedicated funding source for ports and waterways projects. A Marine Highway Project represents concepts for new services or expansion of existing Marine Highway services that have the potential to offer public benefits and long-term sustainability without long-term Federal support. These projects receive preferential treatment for any future federal assistance from the Department of Transportation

and MARAD. The projects will help start new businesses or expand existing ones to move more freight or passengers along America’s coastlines and waterways.³⁹

8.4 STRATEGIES AND NEXT STEPS

Natural geography played an important role in the region’s settlement and industrial development, but freight transportation infrastructure was, and continues to be, a critical element supporting the region’s growth. Over time, various freight modes played key roles in increasing the State’s population and expanding its industrial base.

Today, the freight transportation system enables the annual transport of millions of tons of goods worth billions of dollars. The region’s residents and many of its industries depend on a robust and effective freight transportation system to live and work and for recreation and trade. The WV DOH understands freight planning as an institution, but it is important to continue to dedicate staff resources to freight planning and further develop relationships with the State’s freight transportation system users.

Planning recommendations will guide the implementation and ultimately, construction, of freight projects that meet the states freight transportation needs in the future. This Plan identifies several freight planning, policy, and programming next steps. They include:

- Utilize MPO freight planning framework to encourage a focus on freight planning at the local government level;
- Update state and regional freight plans, including fiscally constrained investment plans, every five years;
- Collaborate with other state and local departments to implement freight transportation projects that address issues and future needs of the State’s freight network;
- Focus maintenance efforts on designated freight networks throughout the State;
- Continue to engage both public and private-sector stakeholders in freight planning activities;
- Support multi-state coordination of freight infrastructure improvements;
- Expand freight data collection efforts to satisfy performance measurement and project prioritization; and
- Refine freight performance measures and project prioritization framework to guide investments.

8.4.1 Freight Data and Technology

Over the next 30 years, advances in data collection, manufacturing, computing, navigation systems, communication, and mobile technologies have the potential to dramatically change the way goods and services are delivered. Emerging technologies will make West Virginia’s future freight transportation system safer, more reliable, more efficient, more environmentally sustainable, and more convenient.

Transportation users, from truck drivers to ocean-going cargo captains, are utilizing GPS to access location, timing, and navigation services to choose routes based on traffic. Fleet managers of freight companies can track vehicles in real time, maximize vehicle utilization, and select efficient, reliable routes. Applied to aviation, GPS helps pilots navigate, and allows planes to fly more efficient routes more safely. In marine transportation, it

³⁹ <https://www.marad.dot.gov/ships-and-shipping/dot-maritime-administration-americas-marine-highway-program/>

improves the efficiency and security of ports by allowing for the identification and tracking of vessels and containers. Rail systems use GPS for asset management, tracking, and positive train control. For truck safety enforcement, GPS allows inspection sites to be mobile. In the future, GPS may play a large role in enabling the development of automated vehicles and truck parking availability and payment systems.

Among their many uses, GPS and smartphones allow for automatic no-hands tracking, replacing the frequent written journal entries traditionally used by shippers and carriers. Data can be collected from commercial providers, or volunteers, across all modes. Data can also be collected in the field. For example, license-plate scanners and wireless signal detection can collect the data needed to model traffic movement and demand at lower costs and higher volumes than traditional, manual methods.

8.4.2 Engaging Freight Stakeholders

Ultimately, there needs to be support and buy-in to the freight strategies and policies that have been presented in this Plan. Considering and moving forward with the findings and recommendations from this study will be critical to providing a solid foundation for the continued, successful development of the freight Plan.

One of the most important next steps is the creation of a formal freight advisory committee that can advise the department on a variety of freight topics, trends, and policies. Many public and private entities should be involved in this committee including: economic and industrial development offices, logistics providers, industry representatives and associations, and stakeholders. This Plan develops a framework for state and local planners to create an FAC in West Virginia. It is likely that the membership of the FAC will initially consist of many of the stakeholders involved in the development of this Plan, including existing TAC members. A meeting of FAC members typically consists of table discussions or breakout sessions where stakeholders can openly discuss freight needs and issues.

Identifying leadership for the FAC is an important first step. Developing a freight champion in West Virginia will be an ongoing effort as this Plan is implemented. This person is a high-level official that will take a leadership role as chair of the FAC and will assist in developing relationships with current and future members, as well as leading regular, no less than quarterly meetings to discuss ongoing planning efforts and topics of interest to freight stakeholders. This person should understand the importance of freight and can convey the importance of the FAC to other executive-level decision makers. Topics for FAC meetings should include subjects or activities that have direct interest to them, such as new innovations in the industry, freight policy/legislative updates, or solidifying funding for future freight projects in the State. While the development of a FAC is new to West Virginia, several states such as Minnesota, Washington, and Texas have historically strong freight advisory groups, have gone through this process and continue to benefit from including stakeholders in the state planning process.

The State has a great opportunity to capitalize on its strategic location and utilize its abundant supply of raw materials to improve its position as a business destination. The State should work more closely with the Department of Commerce to identify freight-generating businesses and understand their current and future freight transportation needs.

8.4.3 Capitalize on Recent Freight Investments

West Virginia is connected to the East Coast and United States by highways, railways, and navigable waterways. The new Heartland Intermodal Gateway provides access for double-stack clearance for rail cars from Roanoke,

Virginia, through southern West Virginia to Chicago. The State should capitalize on the rail developments made in Prichard, WV and continue to foster business development and growth by investing in freight access and improving freight mobility adjacent to new facilities.

8.4.4 Implementation

The WVDOH will implement projects to advance the goals and objectives outlined in this plan and freight impacts should be evaluated under the State's current project selection and prioritization process. Each agency within WVDOH should be involved in developing freight projects that meet the strategic direction of the Department. In the future, WVDOH and public and private stakeholders should emphasize projects that facilitate safe and efficient freight movement throughout the State.

The WVDOH should continue to engage public and private sector freight stakeholders to continue to build their understanding of freight bottlenecks and needs in the State and region. Stakeholder involvement will remain an important part of the transportation planning process in the State moving forward. Recommended projects should be evaluated cooperatively with neighboring state agencies, MPO's, and other public bodies. The WVDOH should continue to seek input from Class 1 railroad representatives, gas and oil pipeline transportation firms, as well as airports and waterway shippers, and strive for continuous improvement of this State Freight Plan.

APPENDIX A: FREIGHT NEEDS SUMMARY

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ID #	Mode	Description
1	Waterway	Improve waterway freight access
2	Highway	Highway chokepoint
3	Railroad	Expand multimodal rail access in Ranson for MARC
4	Highway	Widen US 340 across Potomac River to 4-lanes
5	Highway	Widen Harpers Ferry Bridge to 4-lanes
6	Highway	US 340 is a highway chokepoint
7	Pipeline	Pipeline Access
8	Highway	US 340 near Harpers Ferry is a safety issue due to rockfall
9	Railroad	Add passenger rail service on MARC line to reduce auto traffic on US 340
10	Pipeline	Pipeline bottleneck
11	Waterway	Improve waterway access
12	Pipeline	Develop new natural gas pipeline
13	Pipeline	Develop new natural gas pipelines to transport gas for economic development
14	Pipeline	Provide pipeline access to Berkeley County and Jefferson County
15	Highway	Complete US 340 as 4-lanes to VA
16	Highway	I-81 safety concerns
17	Railroad	Expand Amtrak service in the Eastern Panhandle
18	Railroad	Develop new rail connection to CSX and/or Norfolk Southern
19	Highway	Safety improvements needed
20	Highway	Improve signage for truck traffic accessing I-81 at Rock Cliff Drive
21	Railroad	Improve railroad access
22	Highway	Extend right-turn lane queue length at the Rt. 11 stop light
23	Railroad	Minimize complex roadway section
24	Aviation	Improve air cargo access
25	Highway	Develop Martinsburg bypass to reduce chokepoint on WV 45, between I-81 and US 11
26	Railroad	Improve railroad service
27	Highway	Traffic improvements on Apple Harvest for traffic coming from I-81
28	Highway	Improve roadway condition
29	Highway	I-81 congestion
30	Highway	Construct access roads to existing truck terminals
31	Highway	Freight bottleneck
32	Pipeline	Improve pipeline network
33	Pipeline	Improve access to energy exploration
34	Aviation	Expand Berkeley County air cargo operations
35	Highway	Trucks accessing the terminal north of here should be required to use exit 8
36	Highway	I-81 congestion and safety
37	Highway	Third lane with no trucks
38	Waterway	Improve truck access to ports
39	Aviation	Improve air cargo access to Eastern WV Regional Airport
40	Pipeline	Access to energy exploration
41	Highway	Eliminate truck traffic choke point in downtown on US 522
42	Highway	Freight bottleneck at Route 9 west & US 522
43	Pipeline	Needs natural gas service for industry
44	Highway	Completion of Corridor H to Virginia state line and ports
45	Highway	Finish Route 48
46	Highway	Improve Highway access
47	Aviation	Support planned runway extension of the Morgantown Municipal Airport
48	Highway	Widen road/add lanes up Easton Hill, as this is safety hazard going up "suicide lane"

APPENDIX A – FREIGHT NEEDS SUMMARY

49	Highway	Morgantown trucks needs to bypass central business districts
50	Highway	Improve signal timing from Hartman Run Road onto Mileground road - extremely long
51	Highway	Improve safety, left turn onto Deckers Creek from Earl Core
52	Highway	Improve unsafe areas of congestion and deplorable roadway conditions
53	Waterway	Increase operating hours/days for Morgantown (and other Mon River) lock systems
54	Railroad	Improve rail access within the Morgantown Industrial Park
55	Waterway	Improve waterway Morgantown Industrial Park for true multimodal service
56	Highway	River Road is not safe as a truck route, and has serious issues with slides
57	Waterway	Improve port development
58	Highway	Develop interchange to improve safety on River Road/Dupont Road
59	Highway	Improve safety and road condition along Route 7 though western Monongalia County
60	Pipeline	Develop pipeline connection
61	Highway	I-79 congestion and safety
62	Aviation	expand reasonably sized airports across the state to promote development
63	Highway	Completion of Corridor H
64	Pipeline	Improve pipeline system
65	Railroad	Increase yard storage space
66	Railroad	Improve Multimodal Connectivity
67	Pipeline	Improve access to energy exploration
68	Railroad	Develop railroad access points
69	Highway	Not wide enough. Half of the road is falling away with corrosion.
70	Highway	Improve highway condition
71	Highway	Roadway condition Improvements are needed to I-70 corridor
72	Railroad	Improve poor railroad condition
73	Highway	Re-pave and widen roadway
74	Highway	Improve poor roadway condition on I-70
75	Waterway	Increase port developments and port access
76	Highway	Develop new RR grade crossing in New Cumberland
77	Highway	Limited space for operating large trucks and roadway condition is poor
78	Highway	Poor pavement condition
79	Railroad	Improve rail access
80	Highway	Upgrade rail condition
81	Railroad	Trucks unnecessarily must stop at multiple RR crossings
82	Highway	Improve roads into rural counties for large truck deliveries
83	Pipeline	Provide safe and environmentally friendly natural gas transport pipelines
84	Highway	Widen roadway. 18 wheelers are hugging the lines everywhere up this route
85	Waterway	Reduce delays at Ohio River locks and dams; port development on Ohio River
86	Highway	Increase turning radius and operating conditions for trucks
87	Highway	Rt. 52 represents many difficulties in road conditions and safety hazards
88	Waterway	Develop new ports
89	Highway	Needs to be widened and paved in several locations
90	Pipeline	Access to energy exploration
91	Pipeline	Improve pipeline safety
92	Highway	Expand freight infrastructure to attract industries to locate here
93	Pipeline	Improve access to market for both natural gas and natural gas liquids
94	Highway	Widen roadway and improve roadway conditions
95	Pipeline	Improve pipeline access
96	Highway	Re-pave and widening needed
97	Railroad	Re-develop RR line that runs through Clay County to Charleston

APPENDIX A – FREIGHT NEEDS SUMMARY

98	Pipeline	Upgraded system to allow transport of gas and gas liquids to market
99	Railroad	increase rail capacity along the Ohio River
100	Highway	Upgrade to four/five-lanes of WV State Route 2
101	Railroad	Improve RR safety
102	Highway	Improve pot holes near old Meadows auto sale location
103	Highway	Develop the Sandstone to Hinton bypass as was initiated with TIGER funds
104	Highway	Re-pave all of Route 20
105	Highway	Improve roadway condition
106	Highway	Complete re-pave necessary south of the bridge due to recent construction work
107	Highway	Improve roadway condition
108	Highway	Narrow and bumpy road tears tires and vehicles up
109	Highway	Re-pave Route 3, recent work has not fixed the issue
110	Highway	Many pot holes and poor roadway conditions
111	Highway	Improve roadway safety
112	Highway	WV 2 roadway condition improvements
113	Railroad	Upgrade RR service
114	Highway	I-77 congestion and safety
115	Highway	Improve the highway system
116	Waterway	Increase port developments
117	Highway	Tunnel accidents cause chokepoints
118	Highway	Improve and modernize the major north-south freight corridor of WV State Rt. 2
119	Pipeline	Gas lines needed to develop area at Exit 1
120	Highway	Complete construction of the King Coal Highway
121	Highway	Improve roadway conditions
122	Aviation	Extension of the runway needed
123	Aviation	Develop additional air cargo facilities/services
124	Railroad	Increase warehousing space
125	Highway	Improve freight bottleneck
126	Highway	Improve safety
127	Highway	Improve safety
128	Highway	Widen to Four lanes
129	Aviation	Develop large regional airport with cargo package capability
130	Highway	Reduce highway crashes
131	Aviation	Increase air cargo shipment frequency
132	Highway	Improve roadway conditions
133	Highway	Increase roadway safety conditions
134	Aviation	Improve air cargo access
135	Highway	Improve roadway access to hundreds of develop-able acres.
136	Highway	Chokepoint
137	Waterway	Port development
138	Highway	Improve highway safety and accidents
139	Waterway	Improve water ports
140	Highway	Highway chokepoint
141	Railroad	RR access
142	Waterway	Port development needed
143	Highway	Safety improvements needed
144	Railroad	RR crossing safety improvements needed
145	Pipeline	expand/develop pipeline capabilities to attract investors into the former chemical valley
146	Highway	Improve this highway chokepoint

APPENDIX A – FREIGHT NEEDS SUMMARY

147	Highway	Road condition is very poor
148	Aviation	Air cargo facility improvements
149	Aviation	Develop Regional Airport
150	Highway	Highway congestion
151	Highway	Traffic congestion contributes to major delays for freight
152	Highway	Widen St. Ablans/Nitro I-64 bridge to remove bottleneck for 3 lanes both directions
153	Railroad	Improve RR system
154	Railroad	Needs to be maintained and build upon the intermodal location like Prichard
155	Pipeline	Expand economic development opportunities
156	Highway	Complete 6-laning from Charleston to Huntington
157	Railroad	Ship items other than coal
158	Waterway	Increase waterway channel depths
159	Highway	Eastbound and Westbound ramps from Corridor G to I 64.
160	Aviation	Develop air cargo service
161	Highway	I-64 Widening
162	Aviation	Develop a new airport that allows larger planes
163	Railroad	Improve rail access points
164	Railroad	Old rail beds here and other areas could be donated to create trails
165	Highway	Highway chokepoint for trucks
166	Highway	Complete 35
167	Highway	Widen Route 35 as quickly as possible. Current unfinished section is a hazard
168	Aviation	Improve air cargo facilities
169	Highway	Highway chokepoint
170	Highway	Freight bottleneck
171	Railroad	RR service needs to be improved
172	Highway	Hal Greer Blvd in Huntington is really congested during morning and evening rush hour
173	Aviation	Reconsider regional airport approach
174	Highway	Improve access points
175	Highway	Poor roadway condition
176	Highway	Finish widening of US 35
177	Aviation	FedEx truck operations at airport are tight and cumbersome
178	Aviation	Improve air cargo operations
179	Highway	Chokepoint
180	Aviation	Need better air service to other markets (NYC)
181	Highway	Add roadway capacity between Huntington and Charleston
182	Aviation	Develop regional airport
183	Highway	Poor road condition
184	Highway	Improve Rt. 60 in Barboursville from Farmdale Rd to the Huntington mall on Rt. 60
185	Highway	I-73/74 completion
186	Aviation	Air cargo access needed to diversify the economy
187	Highway	Improve highway system
188	Highway	Safety
189	Aviation	Improve air cargo operations
190	Highway	Direct line south from Ohio and MI
191	Waterway	Improve Channel depth on Big Sandy River to the Intermodal facility
192	Aviation	Improve air cargo facility
193	Highway	Finish I-73/74
194	Railroad	Underpass improvements in Huntington - 20th street
195	Railroad	Improve RR service

APPENDIX A – FREIGHT NEEDS SUMMARY

196	Highway	I-73/74 needs to be built to Prichard
197	Highway	Widen US 52 to four-lanes from I-64 to Pritchard
198	Railroad	Underpass improvements in Huntington - 16th street
199	Waterway	Port Development
200	Railroad	Underpass improvements in Huntington - 10th street
201	Railroad	Underpass improvements in Huntington - 8th street
202	Railroad	Underpass improvements in Huntington - 1st street
203	Highway	Terrible intersection
204	Railroad	RR access
205	Aviation	Only two-lane access to FedEx cargo facility. Better roadway access is needed
206	Highway	Highway bottleneck
207	Waterway	Connection with port of south point to freight needs in WV
208	Aviation	Access improvements
209	Aviation	Better access to the Tri-State Airport
210	Waterway	Evaluate possible investment near Pritchard intermodal via waterway
211	Waterway	Better dredging of the Ohio River
212	Highway	Highway condition
213	Aviation	Air cargo facility improvements
214	Railroad	RR safety
215	Highway	Complete Tolsia Highway to Prichard
216	Aviation	Air cargo access
217	Highway	Improve highway condition
218	Waterway	Better dredging of the big sandy river
219	Highway	Improve roadway condition
220	Railroad	Improve rail access
221	Waterway	Need to eliminate the West Va. Port Authority and create regional ports
222	Highway	Improve highway system

APPENDIX B: CANDIDATE FREIGHT PROJECTS

APPENDIX B – CANDIDATE FREIGHT PROJECTS



ID #	Project Description	Cost
1	US 340 widening to VA SL (North)	\$60,000,000
2	US 340 widening to VA SL (South)	\$203,043,943
3	US 340 Shenandoah River bridge upgrade	\$3,521,027
4	US 340 turn lane extension	\$4,902,570
5	US 340 frontage road from Jefferson Terrace Rd. to Halltown Rd.	\$9,780,219
6	US 340 frontage road from Rion Hall Farm to Blair Rd.	\$9,780,219
7	US 340 frontage road between Shipley School Rd. and Bakerton Rd.	\$3,996,200
8	US 340 frontage road from Bakerton Rd. to W. Washington St.	\$3,521,027
9	US 340 frontage road from Alstadts Hill Rd. to Old Taylor Ln.	\$3,176,968
10	US 340 interchange improvement at Country Club interchange	\$30,643,728
11	I-81 widening from Berkeley CL to WV 45	\$273,697,893
12	WV 9 widening from Morgan CL to CR 1	\$25,403,829
13	WV 9 widening from CR 1 to Industrial Park	\$13,800,497
14	NB US 11 signing and lane improvements at WV 9	\$552,000
15	WV 9 / Fairfax Blvd. intersection improvements	\$226,991
16	WV 9 / 5th Ave. intersection improvements	\$2,496,896
17	WV 45 widening from I-81 to WV 9 (Queen St.)	\$19,702,687
18	US522 Berkeley Springs truck bypass	\$40,000,000
19	Martinsburg truck bypass	\$47,685,138
20	Corridor H (WV 55) construction completion	\$55,221,000
21	Hartman Run Connector construction	\$17,000,000
22	Hartman Run Rd. / Mileground Rd. intersection improvements	\$552,000
23	Mileground Rd. trucklane	\$1,931,132
24	Morgantown Runway Extension	\$30,500,000
25	Lazzelle - Union Road (WV 100) improvements	\$22,000,000
26	I-79 Interchange construction near WV 46/3	\$45,000,000
27	I-79 interchange construction at WV 45	\$25,000,000
28	I-79 interchange improvements at Chaplin Hill Road (US 19)	\$22,000,000
29	Beechurst Ave. improvements	\$7,000,000
30	Greenbag Rd. improvements	\$15,000,000
31	WV 7 / WV 857 intersection improvements	\$810,000
32	Airport Industrial Rd. extension	\$12,000,000
33	WV 7 improvements (South of I-68)	\$9,000,000
34	WV 7 improvements (North of I-68)	\$9,000,000
35	Ohio River bridge construction	\$17,000,000
36	WV 2 widening from 10th St. to 12th St.	\$8,961,000
37	WV 2 excavation from Corporate Limit to Bruin Dr.	\$22,644,000
38	WV 2 widening from 6th St. to US 250	\$11,991,000
39	WV 2 widening from .12 miles S of CR 29 to .33 miles S of CR 27	\$12,467,000
40	WV 2 widening from CR 78 to .3 miles N of CR 29	\$14,945,000
41	WV 2 operations improvements from Huntington to Point Pleasant	\$392,500,000
42	WV 2/68 widening from SR 31 to Wood CL	\$18,249,000
43	I-70 Widening from Elm Grove/Tridelphia interchange to Cabela Dr.	\$44,400,000
44	I-70 EB Off Ramp/US 40 intersection improvements	\$213,000
45	Kruger Street/US 40 intersection improvements	\$750,000
46	US 250 / Jefferson Avenue intersection improvements	\$562,000
47	Hinton - Sandstone truck bypass	\$28,000,000
48	King Coal Highway construction completion	\$1,930,500,000

APPENDIX B – CANDIDATE FREIGHT PROJECTS

49	US 52 / Old US 52 intersection improvements	\$1,604,000
50	US 52 / CR 20 intersection improvements	\$552,000
51	US 52 / CR 19 intersection improvements	\$552,000
52	US 52 / CR 8 intersection improvements	\$552,000
53	US 52 / WV 75 intersection improvements	\$828,000
54	US 52 / I-64 intersection improvements	\$540,000
55	US 52 airport connector construction	\$17,800,000
56	US 60 operations improvements from 5th St. to Cyrus Creek Rd.	\$2,500,000
57	US 60 operations improvements from 5th St. to 8th Ave.	\$1,800,000
58	I-64 interchange construction at Benedict Rd. (CR61/21)	\$29,141,200
59	1-64 widening from W. 17th St. Bridge to Barboursville	\$168,000,000
60	1-64 widening from Barboursville to Hurricane	\$149,000,000
61	1-64 widening from Cow Creek Road to WV 34	\$29,600,000
62	1-64 widening from US 35 (Winfield) to Nitro	\$118,560,000
63	US 35 construction from Buffalo Bridge to Mason CL	\$98,400,000
64	US 119 (Corridor G) widening from Cantley Dr. to MacCorkle Ave.	\$5,600,000
65	US 119 (Corridor G) widening from Lawndale Ln. to MacCorkle Ave.	\$40,300,000
66	US 119 (Corridor G) widening from WV 601 (Jefferson Rd.) to Emerald Rd.	\$24,900,000
67	WV 94 truck passing lanes	\$4,700,000
68	WV10 / Hal Greer Blvd / 16th Street improvements	\$11,000,000
69	US 60 widening from Farmdale Rd. (CR 6/5) to West Mall Rd.	\$6,000,000
70	US 60 widening from Chelyan Bridge to CR 81 (Kelly's Creek Rd.)	\$31,300,000
71	US 60 turn lane improvements from CR 81 (Kelly's Creek Rd.) to WV 6	\$14,400,000
72	Coalfields Expressway paving	\$1,150,000
73	WV 307 (Airport Road) truck lane	\$3,220,000
74	US 19 intersection improvements from WV 16 to Wood Mountain Rd.	\$10,550,000
75	US 19/WV 16 access improvements from Pinewood Dr. to McCulloch Dr.	\$715,800
76	US 19 / Glen Jean intersection reconstruction	\$17,892,000
77	US 19 truck lanes on significant grades from WV 41 to I-64	\$1,195,000
78	US 19 / Beaver truck bypass	\$58,915,000
79	US 60 widening from Hawks Nest lookout to New River campground	\$509,400
80	US 60 intersection improvements at Hawks Nest Golf Course intersection	\$48,000
81	East Beckley truck bypass	\$183,960,000
82	I-64/77 access management from Fork Rd. to Old Eccles Rd.	\$406,000
83	I-77 Widening from Mineral Wells to Camden Ave.	\$11,028,000
84	I-77 Widening from US 50 to Emerson Ave.	\$20,000,000
85	I-77 Widening from Emerson Ave. to SL	\$51,310,000
86	Emerson Avenue (WV 68) widening from N of Spruce Rise Rd. to North Hills	\$12,646,000
87	Emerson Avenue (WV 68) widening from North Hills to I-77	\$24,300,000
88	SR 2 / SR 31 intersection improvements	\$1,500,000
89	US 35 Widening to four lanes from Putnam Co. line to end of existing 4-lane	\$275,000,000
90	US 19 Widening and re-alignment from Shady Springs to Beaver	\$35,000,000
91	Construct Coalfields Expressway from WV 16 to Welch	\$55,000,000
92	Widen WV 2 to five lanes from CR 3/8 to .2 mi. north of WV 31	\$36,000,000
93	WV 14 Widening in Pettyville from Parkersburg city limits to WV 14	\$15,000,000
94	Construct Corridor H from US 219 to WV 72	\$90,000,000