Big Sandy River

Marine Highway

M-23

New Route Designation Request

February 2025

TEAM KENTUCKY®
TRANSPORTATION CABINET

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Executive Summary

The Kentucky Transportation Cabinet is proposing to designate the Big Sandy River ("the Big Sandy") between river mile marker (MM) 0 and MM 20 as a Marine Highway (MH) through the Maritime Administration's (MARAD) United States Marine Highway Program (USMHP). This designation would make local public and private entities eligible for MARAD's discretionary grant program, which is intended to promote the movement of freight along inland waterways through the facilitation of infrastructure maintenance and development along navigable waterways.

The Big Sandy River flows generally north from its source at the confluence of two main tributaries: the Tug Fork and the Levisa Fork. The river's headwaters flow from Louisa, Kentucky, where it continues north until it joins the Ohio River (MH M-70) at Catlettsburg, Kentucky. The Big Sandy has historically served as an important commercial asset for the Huntington-Ashland Metropolitan area, and for eastern Kentucky and southwestern West Virginia. The northernmost area of the riverfront near its confluence with the Ohio River in Catlettsburg, Kentucky and Kenova, West Virginia, is a highly concentrated industrial hub with many industrial facilities including petroleum, coal, and chemical manufacturing. The proposed route is well served by highway, rail, and air freight facilities. Further recognition and investment in the marine capacity of the Big Sandy will improve the efficiency of freight moving in and out of the region and spur new economic opportunity in this critical commercial hub in the heart of Appalachia.

A bulk commodity barge string navigates the Big Sandy River near Catlettsburg, KY.

Acronyms / Abbreviations

AEP	American Electric Power
DMTF	West Virginia Division of Multimodal Transportation Facilities
FAF	Freight Analysis Framework
FHWA	Federal Highway Administration
KTON	Kiloton - a unit of weight or capacity equal to 1,000 metric tons. 1 metric ton = 2,000 pounds
KYOVA	Kentucky Ohio West Virginia Interstate Planning Commission
KYTC	Kentucky Transportation Cabinet
MARAD	United States Maritime Administration
MH	Marine Highway
MM	Mile marker
NHTSA	National Highway Traffic Safety Administration
NPMS	National Pipeline Mapping System
PHFS	Primary Highway Freight System
USACE	United States Army Corp of Engineers
USMHP	United States Marine Highway Program
WVDOT	West Virginia Department of Transportation

1. About the Applicant

The Kentucky Transportation Cabinet (KYTC) is the lead applicant for requesting the designation of the Big Sandy River as a United States Marine Highway Program (USMHP) route. The KYTC serves the Commonwealth of Kentucky and its neighbors through a mission to provide a safe, efficient, environmentally sound, and fiscally responsible transportation system that delivers economic opportunity to enhance the quality of life for residents in Kentucky and beyond. In addition to planning, managing, and maintaining nearly 28,000 miles of federal and state highways including 9,000 bridges, the KYTC also provides planning, coordination, and support for all of Kentucky's vital transportation modes. The KYTC's Modal Programs Branch in the Division of Planning provides support and administers grants and funding opportunities for the ten public riverports located along Kentucky's approximately 1,020 miles of commercially navigable inland waterways. The team also coordinates intermodal freight resources to identify opportunities for economic development and congestion relief.

As the proposed route for the new USMHP designation on the Big Sandy River serves as the boundary between the Commonwealth of Kentucky and the State of West Virginia, the West Virgina Department of Transportation (WVDOT) Division of Multimodal Transportation Facilities (DMTF) is partnering with the KYTC to co-sponsor this application and to coordinate engagement with West Virginia stakeholders. The WVDOT includes more than 6,000 men and women who work in the Division of Highways; Division of Motor Vehicles; the Parkways, Economic Development and Tourism Authority (W.V. Turnpike); and DMTF. Their mission is to create and maintain for the people of West Virginia, the United States, and the world, a multi-modal and inter-modal transportation system that supports the safe, effective and efficient movement of people, information, and goods that enhances the opportunity for people and communities to enjoy environmentally sensitive and economically sound development.

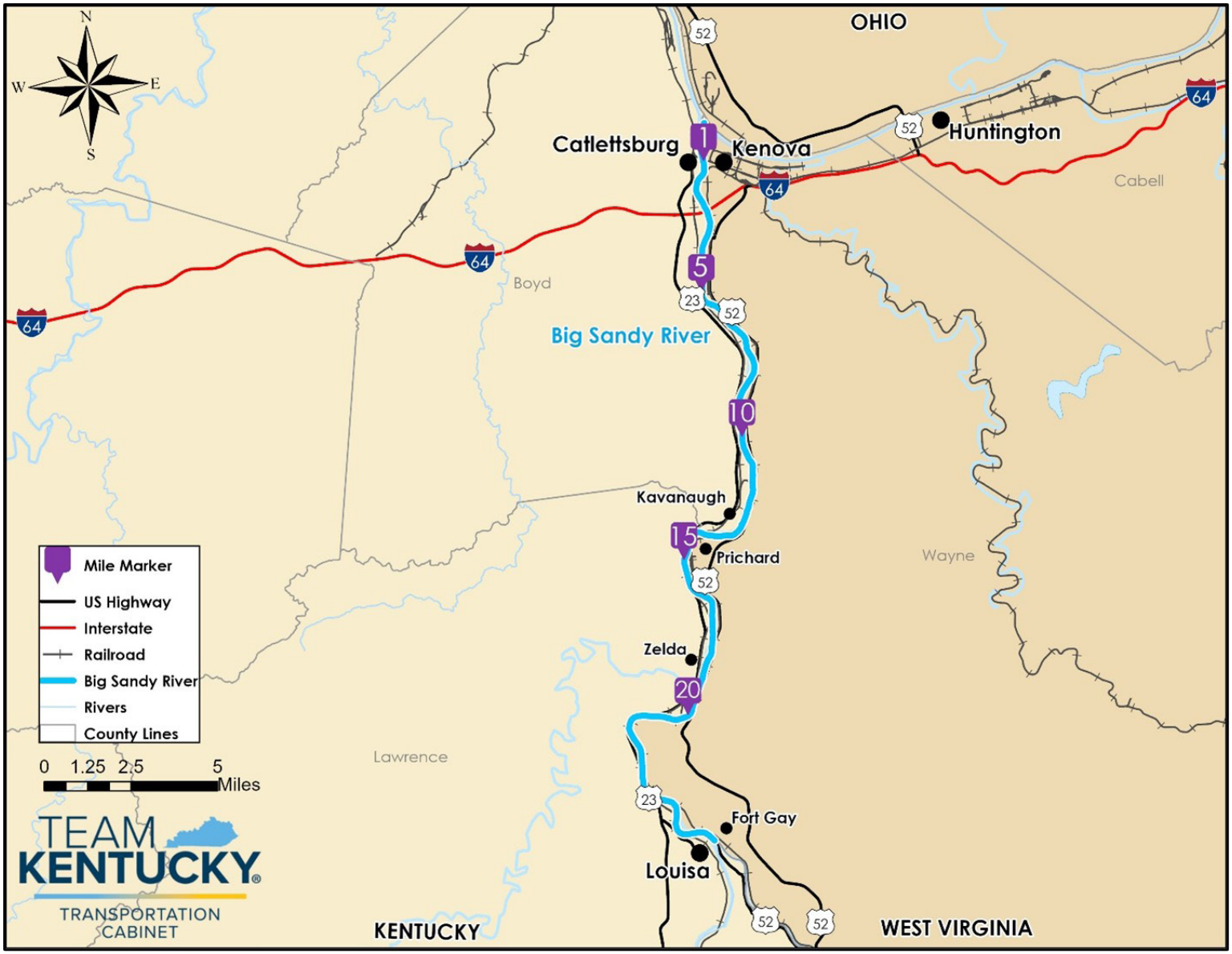
2. Description of the Proposed Route

The Big Sandy River extends from the Ohio River at Catlettsburg, Kentucky and Kenova, West Virginia, to the confluence of Levisa Fork and Tug Fork at Louisa, Kentucky and Fort Gay, West Virginia. The Big Sandy River is approximately 27 miles long and has a watershed area of 4,283 square miles within the Appalachian foothills of Kentucky, Virginia, and West Virginia. Together, the Tug Fork and the Big Sandy River represent the border between Kentucky and West Virginia.

The proposed USMHP route along the Big Sandy River begins on the north end of the route at MM 0 where the river meets the Ohio River (U.S. Marine Highway M-70). At the mouth of the River, the Big Sandy separates the cities of Catlettsburg, Kentucky on the west bank and Kenova, West Virgina on the east bank. The route continues upstream (south) within a narrow valley surrounded by foothills. Rail lines closely follow both riverbanks, along with US 23 in Kentucky and US 52 in West Virginia. The river passes several unincorporated hamlets before the commercially navigable segment ends at MM 20 at a point adjacent to American Electric Power's (AEP) Big Sandy Power Plant in unincorporated Zelda, Kentucky. The proposed route is presented in **Figure 1**.

The northern portion of the proposed route near the Ohio River is located within the urban core of the Huntington-Ashland Metropolitan Statistical Area, which spans parts of northeastern Kentucky, western West Virgina, and southeastern Ohio. This section of the Big Sandy contains concentrated heavy industry, including petroleum refining, chemical manufacturing, and intermodal coal distribution between rail and barge. Outside this urban area, the Big Sandy flows through rural, rolling terrain with smaller nodes of industrial activity. The United States Army Corps of Engineers (USACE) designates the first nine miles of the river as commercially navigable, with river depths of at least nine feet, which is acceptable for accommodating barge traffic. The width of the Big Sandy within the proposed route ranges from 180 to 350 feet.

Figure 1. *Proposed Marine Highway Route along the Big Sandy River*



Note: The proposed USMHP route for the Big Sandy River is between MM 0 and MM 20

3. Historical Lock and Dam Systems on the Proposed Route

There are currently no operable lock and dam systems within the proposed USMHP route between MM 0 and MM 20. Historically, there were three operable locks and dams that controlled water levels along the Big Sandy. Lock and Dam Number 1 was located near MM 0 at the mouth of the river in Catlettsburg[1]. The facility opened in 1904 and operated until 1952 and has been entirely removed from the waterway. Lock and Dam Number 2 near MM 13 in Kavanaugh, Kentucky operated from 1905 to 1947 and only a small foundational support in the middle of the channel remains. Lock Number 3 is located at MM 26 in Louisa, just downstream of the river's confluence of the Levisa Fork and Tug Fork. The lock was completed in 1897 and operated until 1947. It remains in place as an impassable obstacle for river navigation.

Big Sandy Lock and Dam No. 3 *Source: AbandonedOnline.net,*

[1] https://abandonedonline.net/location/big-sandy-river-locks-dams/

4. Freight Movement, Commodities & Tonnage

Commerce and industry on the Big Sandy River have a rich history that continues today. The timber industry was the original economic driver along the Big Sandy with logs transported downriver by binding them together to float to sawmills in far-away cities. During this time, attempts to transport coal down the river using small wooden barges proved largely unsuccessful. The first major coal boom occurred at the turn of the 19th century, leading to the development of company coal towns along the river and throughout the region. The Big Sandy supported significant commercial navigation, especially for transporting coal. The advent of steamboats allowed for bidirectional traffic, greatly increasing the variety and volume of transported goods both up and downstream, spurring industrial growth along the waterway. In 1872, the new Big Sandy Railroad provided an efficient method for transporting coal delivered from upstream coalfields to cities and states outside the region.

In 1889, Major Lockwood proposed an expansive plan for navigation improvements on the Big Sandy River and its primary tributaries, leading to the construction of five locks and dams along the Big Sandy, Levisa Fork, and Tug Fork between 1897 and 1910. However, the development of short-line railroads farther into the surrounding coalfields diminished the rivers' commercial significance. By 1947, most of these locks were abandoned with the last one closing in 1952.[2] Nonetheless, the downstream section of the Big Sandy River remains a commercially navigable waterway and continues to serve as a distribution hub for the local coal industry as well as other industries located on the river.[3]

4.1 Freight Movement in Kentucky

Kentucky lies within 600 miles of over 60% of the nation's population and manufacturing centers, making it a central hub for manufacturing and logistics industries and a critical link in our national freight transportation network. Major river systems such as the Ohio and Mississippi rivers all border Kentucky and contribute to the state's 1,020 miles of commercially navigable waterways, including the Big Sandy River. In addition to navigable waterways, Kentucky's freight system includes:

- **Highways.** Kentucky contains over 616 miles of federally designated Primary Highway Freight System (PHFS) routes, which is the network of highways considered as most critical to freight movements based on an assessment of heavy commercial average daily traffic volumes. These include six primary interstates and 10 state parkways. Interstate I-65 and I-75 are critical north-south manufacturing corridors, most notably for the automotive industry. In addition, Kentucky has 3,600 miles of federal and state-designated truck routes, with heavy trucks averaging 11 percent of total traffic. According to the 2022 Kentucky Freight Plan, more than 379 million tons of freight were moved by truck along Kentucky's highways in 2017.
- **Rail.** There are five Class I, one Class II, and nine Class III railways that operate in the state of Kentucky. Class I operators CSX, Norfolk Southern, and Canadian National maintain almost 2,300 miles of track in Kentucky along with multiple Class II and Class III feeder railroads. In addition, the Burlington Northern Santa Fe and Union Pacific Class I railroads operate track in western Kentucky under lease agreements. Six of Kentucky's seven active public riverports have rail access. Railroads have been historically linked with the coal mining industry, but also support the major manufacturing and industrial centers in central and northern Kentucky with major intermodal operations in the state. In 2021, 22.6 million tons of freight and 366,400 carloads originated in Kentucky and 19.4 million tons and 269,400 carloads terminated in Kentucky.[4]

2 https://bridgestunnels.com/2023/11/30/navigating-history-the-big-sandy-rivers-canalization-efforts/.
3 https://www.hydroshare.org/resource/95ca7017864b464fb6114035e4f974ce/
4 Association of American Railroads https://www.aar.org/wp-content/uploads/2021/02/AAR-Kentucky-State-Fact-Sheet.pdf

- **Air.** Kentucky has six commercial service airports with major freight logistics hubs for United Parcel Service (UPS) in Louisville and Amazon and DHL in Covington (Cincinnati/Northern Kentucky International Airport). Louisville International Airport is ranked third in the U.S. for annual air freight tonnage handled. Ashland Airport in Worthington, Kentucky, is located along the Ohio River, approximately 13 miles from the Big Sandy.
- **Pipelines.** The underground pipeline network in Kentucky spans approximately 41,000 miles and plays a significant role in the movement of oil, natural gas, and other commodities throughout the state. The National Pipeline Mapping System (NPMS) shows natural gas and hazardous liquid (most likely petroleum product) pipelines crossing the Big Sandy at multiple locations within the proposed route, with a high concentration between MM 2 and MM 5.

4.2 Freight Movement in West Virginia

In 2019, 326 million tons of freight valued at $127 billion was transported to, from, and within West Virginia. Riverports and waterways in West Virginia support 138,200 jobs and in 2019, transportation via waterways moved approximately $3.8 billion of freight.[5] If moved by truck, approximately 3.2 million truck trips would be required to carry the 72 million tons of freight moved on West Virginia's inland waterways in 2019. In addition to marine transportation, the movement of freight within the state of West Virginia is accomplished by the following modes:

- **Trucks.** The majority of West Virginia's goods are moved on highways. In 2019, truck-based freight accounted for the largest modal share by tonnage (38 percent), and the highest value (66 percent).
- **Railroads.** 11 freight railroads operate in West Virginia covering a total of 2,123 route miles.[6] While coal has been the primary export via rail on a tonnage basis, other rail-oriented industries, including chemicals and automotive, are expected to grow. In 2020, 75 million tons of cargo were shipped via rail through West Virginia. CSX and Norfolk Southern maintain about 1,900 miles of track in West Virginia. Eight short line railroads, including two state-owned railroads, operate 467 additional miles of rail lines. In 2020, 45.7 million tons of freight and 425,300 carloads originated, and 7.6 million tons and 75,900 carloads terminated in West Virginia.[7]
- **Air.** There are no major cargo airports within West Virginia; however, the state has five airports with air cargo service. Huntington Tri-State Airport in Huntington, West Virginia is located approximately two miles from the Big Sandy and is the closest commercial airport with air cargo service to the surrounding area. Two additional West Virginia general aviation airports are located within 20 miles of the Big Sandy.
- **Pipelines.** West Virginia contains nearly 3,300 miles of pipelines that carry both natural gas and crude oil. One of the longest contiguous pipelines in West Virginia bisects the state, crossing the Kentucky border to the west and Virginia border to the east. This pipeline is operated by Columbia Gas Transmission and traverses the Big Sandy. The NPMS shows several natural gas pipelines crossing the Big Sandy.

5 West Virginia Department of Transportation, West Virginia State Freight Plan, 2023.
6 https://www.aar.org/wp-content/uploads/2021/02/AAR-West-Virginia-State-Fact-Sheet.pdf
7 West Virginia Department of Transportation, West Virginia State Freight Plan, 2023.

4.3 Big Sandy Freight Flows and Commodity Mix

The Freight Analysis Framework (FAF) is a product of the Federal Highway Administration (FHWA) and the Bureau of Transportation Statistics (BTS).[8] The most recent version (5.6.1) of the FAF provides data on freight movements by mode for 132 domestic regional zones. The Big Sandy River traverses along the border of two FAF zones including:

219 Remainder of Kentucky (not including Louisville metro or northern Kentucky)

540 West Virginia

While both FAF Zone 219 and 540 include a geographical area with parts of other key navigable rivers (FAF Zone 219 includes parts of the Ohio River, Tennessee River, and Cumberland River and FAF Zone 540 includes parts of the Ohio River, the Kanawha River, and the Monongahela River), understanding how freight moves within these rural FAF zones is relevant to understanding how shorter rivers are utilized to support more diverse commodity flows by providing marine-based connectivity to industrial facilities that would otherwise only be accessible to land-based modes of transportation. In 2023, approximately 379,000 kilotons of freight worth an estimated $249 billion were transported to, from, or within Zone 219. Of this total tonnage, approximately 43 percent for inbound freight, 31 percent accounted for outbound freight, and 26 percent accounted for internal freight. Approximately 46 percent of the total freight tonnage in Zone 219 was transported by truck and the remaining freight was moved by pipelines (32 percent), rail (10 percent), water (9 percent), or other mode.

In 2023, approximately 309,000 tons of freight worth an estimated $127 billion were transported within Zone 540. Of this total tonnage, approximately 18 percent accounted for inbound, 52 percent accounted for outbound, and 30 percent accounted for freight flow within FAF Zone 540. Approximately 70 percent of the total freight tonnage in Zone 540 was transported by truck and the remaining freight was moved by water (14 percent), rail (12 percent), and pipelines (4 percent).

The FAF also identifies commodities that are shipped within, out, and into a particular FAF Zone. Excluding coal and petroleum-based products, **Table 1** presents the top five commodities by tonnage that are shipped within, out, and into FAF Zones 219 and 540, respectively for 2023. This table shows that gravel is the most commonly shipped commodity outside of coal and petroleum-based products in both FAF Zones.

[8] https://www.bts.gov/faf

Table 1. *Top Commodities Shipped Within, Out, and Into FAF Zones 219 and 540, 2023*

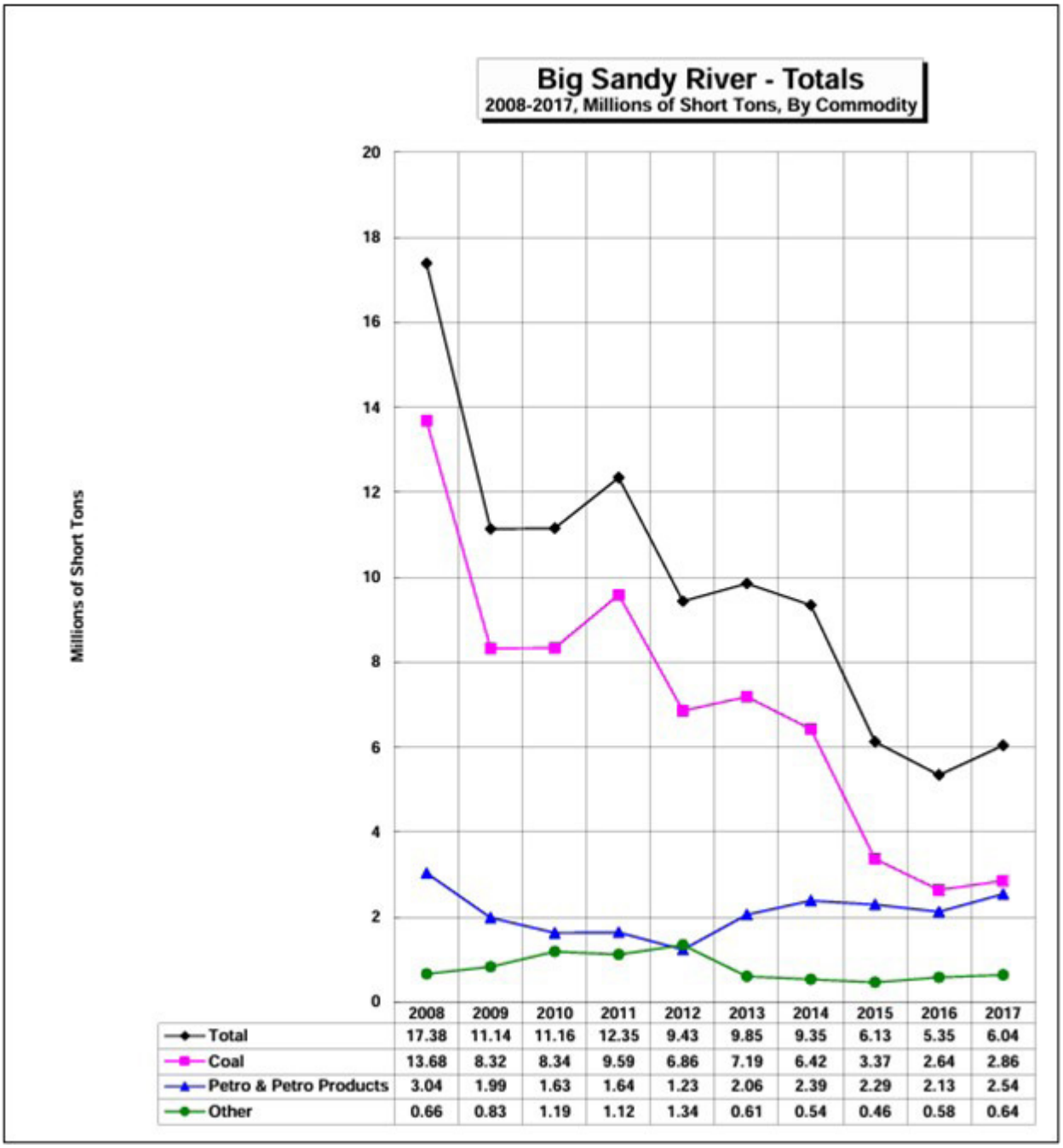
FAF Zone 219—Rest of Kentucky					
Commodity	**KTONs Within**	**Commodity**	**KTONs Out**	**Commodity**	**KTONs In**
Gravel	29,135	Gravel	9,414	Base metals	6,375.3
Cereal grains	10,191	Cereal grains	5,398	Gravel	4,909.6
Logs	7,244	Motorized vehicles	3,516	Natural sands	4,452.4
Waste/Scrap	4,018	Basic chemicals	3,397	Mixed freight	3,008.8
Animal feed	3,302	Base metals	3,209	Plastics/rubber	2,765.6
FAF Zone 540—West Virginia					
Commodity	**KTONs Within**	**Commodity**	**KTONs Out**	**Commodity**	**KTONs In**
Gravel	10,565	Wood prods.	4,350	Gravel	9,290
Cereal grains	9,991	Nonmetal min. prods.	2,517	Base metals	2,253
Logs	3,529	Base metals	1,935	Mixed freight	2,134
Waste/Scrap	2,111	Basic chemicals	1,591	Plastics/rubber	1,121
Animal feed	1,518	Plastics/rubber	1,248	Basic chemicals	2,103

Source: Bureau of Transportation Statistics, FAF
https://faf.ornl.gov/faf5/dtt_total.aspx

The USACE Waterborne Commerce Statistics Center provides tonnage data on waterways by commodity group over time. In 2017, the Big Sandy River supported the movement of 12 million tons of cargo. Upbound commodities primarily include petroleum-based products such as gasoline, diesel fuel, and asphalt, whereas downbound commodities primarily include coal.

Figure 2 illustrates the shifts in commodity tonnage transported along the Big Sandy between 2008 and 2017. After 2011, coal shipments began to decline along the Big Sandy, while shipments of petroleum-based products have steadily increased. In 2017, coal remained the most commonly shipped commodity; although, petroleum-based products have become a close second being within 0.5 million short tons of coal.

Figure 2. *Commodities and Tonnage Handled on the Big Sandy River (2008-2017)*



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	17.38	11.14	11.16	12.35	9.43	9.85	9.35	6.13	5.35	6.04
Coal	13.68	8.32	8.34	9.59	6.86	7.19	6.42	3.37	2.64	2.86
Petro & Petro Products	3.04	1.99	1.63	1.64	1.23	2.06	2.39	2.29	2.13	2.54
Other	0.66	0.83	1.19	1.12	1.34	0.61	0.54	0.46	0.58	0.64

Source: USACE Waterborne Commerce Statistics Center

5. Surface Transportation Interchanges

5.1 Network Connections

The proposed Big Sandy USMHP route runs southwest and roughly parallels US 23 and US 52 from MM 0 at the Big Sandy's confluence with the Ohio River, to MM 20, approximately 3.5 miles north of Louisa, Kentucky. I-64, which is the primary east-west route in Kentucky and West Virginia, crosses over the Big Sandy between MM 2 and 3. Additionally, both US 23 and US 52 have interchanges with I-64 between MM 2 and MM 3. US 23 and US 52 serve as the primary connectors between I-64 and the various industries and terminals along the Big Sandy and both sides of the Ohio River. The Huntington Tri-State Airport is located just over a mile away from the river and is accessible via US 52.

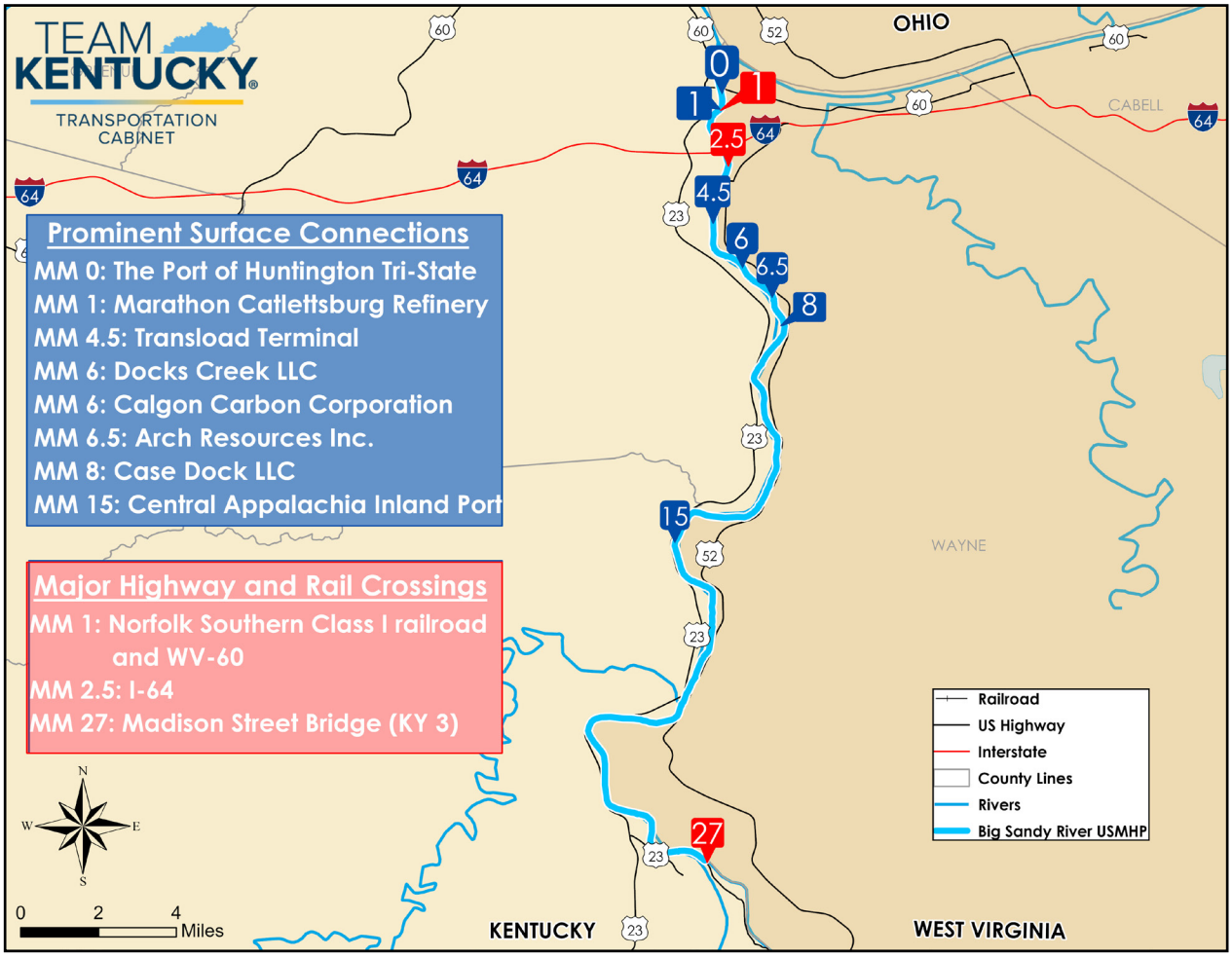
In the year 2000, the Port of Huntington Tri-State in West Virginia became the first port in the nation to adopt a statistical boundary definition to include 100 miles of the Ohio River, nine miles of the Big Sandy River and 90 miles of the Kanawha River in West Virginia, Ohio and Kentucky.[9] After Cincinnati, it is the second-largest inland port in the U.S. with port facilities on all three rivers. The port is served by several freight railroads, making it a major multimodal transportation hub for the region. The port includes multiple locations for loading and unloading barges with modern cargo handling equipment and extensive terminal storage facilities. In 2020, the port moved 30 million tons of freight, making it among the top 25 ports by tonnage, dry bulk, and container shipping, although no intermodal container facilities are located within the proposed USMHP route for the Big Sandy River.

Norfolk Southern's mainline runs along the Big Sandy's West Virginia shoreline and the CSX mainline runs along the Kentucky shoreline. The two Class I railroads provide freight service to the various industries along both sides of the Big Sandy. Beyond the confluence of the Big Sandy and the Ohio Rivers, Norfolk Southern and CSX lines also connect to the riverfront terminals and industries along the Ohio River.

While many industrial facilities are concentratedly located along both banks of the proposed Big Sandy USMHP, about half of the coal-handling facilities are permanently closed, leaving behind docks and other essential infrastructure aiding in the multi-modal transfer of commodities. The following identified active surface connections are indicated by mile marker and are presented in **Figure 3**.

[9] https://www.waterwaysjournal.net/2021/01/22/huntington-tri-state-tops-inland-ports-in-new-ranking/

Figure 3. *Surface Connections and Crossings*



MM 0:

The Port of Huntington Tri-State operates multiple berths for barge loading and unloading. The facilities are also served by rail connections with close access to I-64.

MM 1:

The Marathon Catlettsburg Refinery operates three docks and has close connection points to US 23, I-64, and US 52. Pipelines, barges, transport trucks, and rail are used to distribute products.

MM 4.5:

The Transload Terminal is a transportation service that maintains a dock on the west bank of the Big Sandy for coal shipments. This facility has direct access to US 23 and is immediately adjacent to the CSX railway.

MM 6:

Docks Creek LLC operates barge loading and docking facilities which are also served by Norfolk Southern with direct access to US 52.

MM 6:

Calgon Carbon Corporation operates a dock on the west bank of the Big Sandy with access to US 23.

MM 6.5:
Arch Resources Inc. (previously Arch Coal) maintains barge dock operations on the west bank of the Big Sandy with direct access to US 23.

MM 7:
Case Dock LLC is an exporter of coal that operates a facility on the west bank of the Big Sandy with direct access to US 23.

MM 15:
Central Appalachia Inland Port at Prichard, formerly the Heartland Intermodal Terminal, is a 65-acre facility that was designed as a truck to rail intermodal yard. It has recently been leased by the RJ Corman Railroad to serve as a repair hub, with plans to expand to other services. Although it is located directly adjacent to the river, it does not currently have a marine component.

In addition to these surface connections, major highway, and railroad crossings over the Big Sandy occur in a couple locations, currently without commercial access to the river. These include:

MM 1:
Norfolk Southern Class I railroad and WV 60, Catlettsburg, Kentucky.

MM 2.5:
I-64, Catlettsburg, Kentucky (direct connection to US 23, located 0.7 miles west of the Big Sandy and US 52, located 1.25 miles east of the Big Sandy).

MM 27:
The Madison Street Bridge (KY 3) in Louisa, Kentucky crosses the Levisa Fork and the Court Street Bridge crosses the Tug Fork. This bridge serves as the first crossing between Kentucky and West Virginia south of I-64 at MM 2.5.

5.2 Highway Safety

Table 2 presents fatal crash statistics for Kentucky and West Virginia from the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System. Outside of the metropolitan area of Catlettsburg and Kenova located at MM 0 through MM 1, the proposed Big Sandy USMHP route is predominately located in relatively uncongested rural areas. However, fatal crashes can and do occur in both rural and urban areas for all roadway classes. While fatality rates in Kentucky and West Virginia have declined steadily over time, they currently rank 12th and 11th in the nation, respectively, for highway fatality rates. Diverting freight traffic from the regional highway network to the Big Sandy USMHP route will help reduce the interaction and potential collisions between large commercial vehicles and passenger vehicles.

Table 2. *2022 Fatal Crash Statistics*

	Fatalities by Vehicle Class			% Rural	
	Fatality Rate*	All Vehicles	Large Trucks	Passenger Vehicles	Large Trucks
Kentucky	1.55	744	96	72%	75%
West Virginia	1.72	264	38	66%	69%
United States	1.33	42,514	5,936	59%	54%

** Fatalities per 100 million Vehicle Miles Travels (VMT)*

Source: NHTSA Fatality Analysis Reporting System

The highway corridors that will benefit most directly from the diversion of freight traffic to the Big Sandy USMHP are the congested interstate highways that interchange around the Huntington Tri-State area. I-64 is a heavily traveled east-west corridor that connects the industrial and manufacturing areas of West Virginia, Kentucky, Indiana, and Missouri. It is considered one of the most dangerous roadways in both Kentucky and West Virginia. The high levels of traffic it carries contribute to the highway fatalities in the region. In 2023, the Big Sandy Area Development District documented 44 highway fatalities.[10]

5.3 Roadway Congestion

Roadway congestion poses significant hurdles to the economic vitality of Kentucky and West Virginia. Increased congestion on roads presents a variety of challenges not only with the movement of freight, but with commuter and general highway users as well.

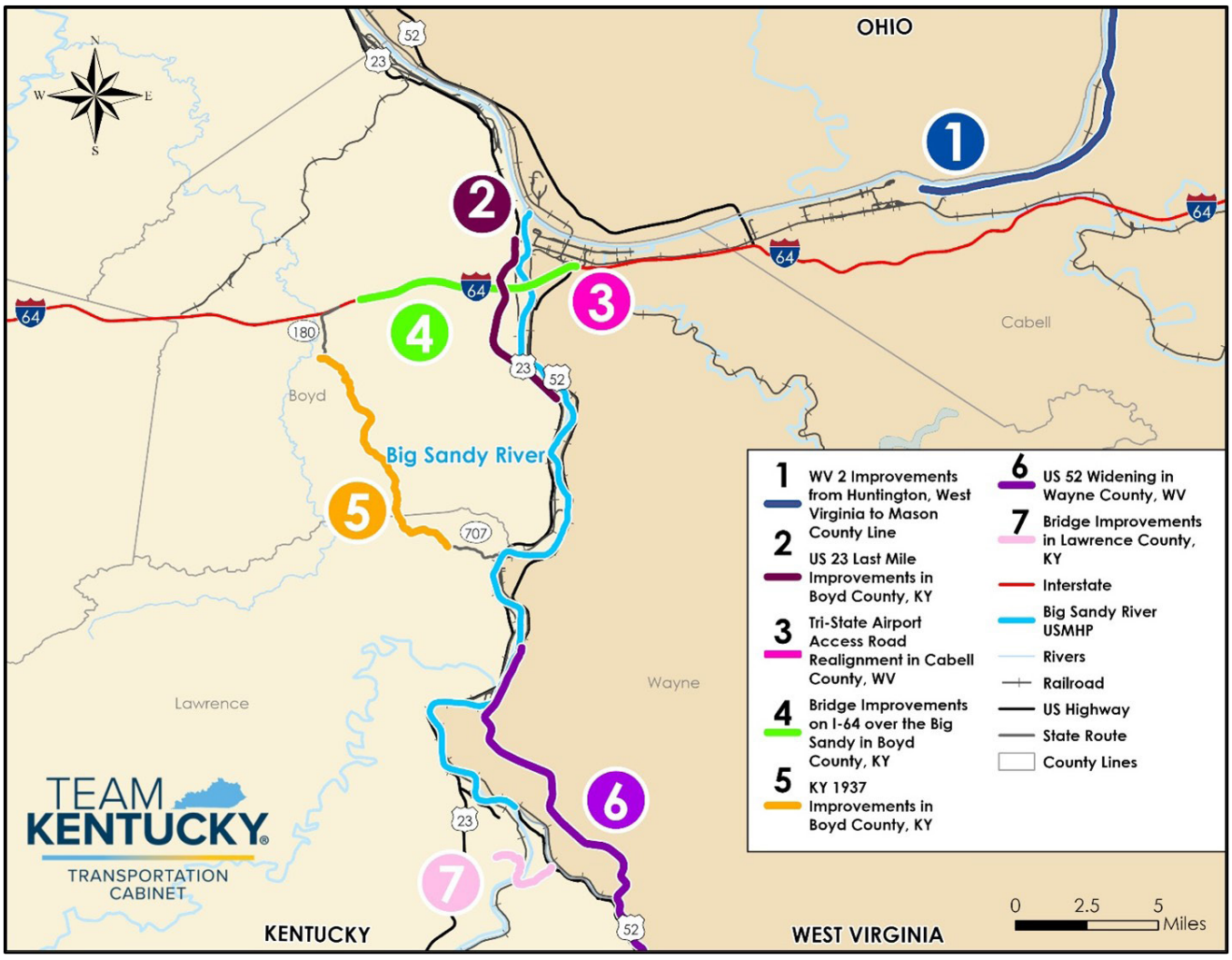
Eastern Kentucky's roads, highways, and bridges form a vital connection for the prosperity of the state's economy. In 2020, the state's transportation system carried 46.5 billion vehicle miles of travel. When roads are congested, it creates challenges for residents, business access, and freight mobility. According to National Transportation Research Nonprofit (TRIP), congested roads cost Kentucky drivers $1.8 billion each year in the form of lost time and wasted fuel. In addition, increasing levels of traffic leading to congestion also imposes increased costs on business, shippers, and manufacturers. In addition, the West Virginia State Freight Plan identifies I-64 from Exit 28 to Exit 59 within the Huntington Tri-State region as one of the 10 most severe truck freight bottlenecks in the state.[11]

10 https://transportation.ky.gov/HighwaySafety/DailyFatalitySummaryReportFinal/2023_as_of_2024-08-01.pdf
11 https://transportation.wv.gov/highways/Planning/Documents/Freight%20Plan/WV%20State%20Freight%20Plan%202023.pdf

6. Current & Planned Transportation Improvements Near the Big Sandy USMHP

Figure 4 presents several prominent transportation improvement projects or programs that will likely have significant beneficial impacts on access and efficiency for the communities and industries along and adjacent to the proposed Big Sandy River USMHP route. Descriptions for each project are described below.

Figure 4. *Notable Transportation Improvement Projects*



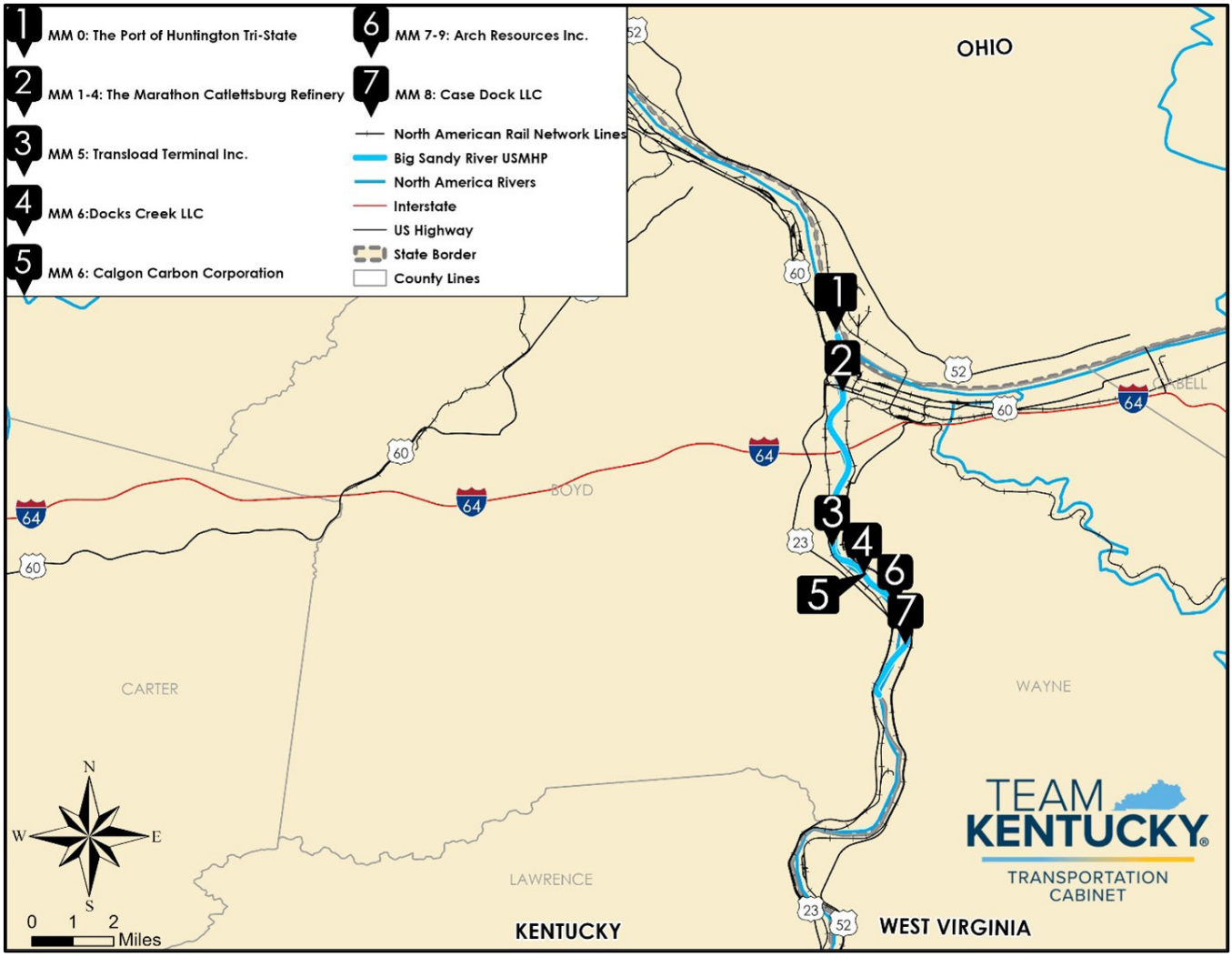
1. **WV 2 Improvements from Huntington, West Virginia to Mason County Line**
   Intersection enhancements and truck pull-out lanes on this 18-mile section of WV 2 will improve freight mobility, serve growing industrial centers, and enhance regional connectivity.
2. **US 23 Last Mile Improvements in Boyd County, Kentucky**
   This project will improve last mile roadway connections along US 23 near the Big Sandy in Catlettsburg. This project was recommended in KYOVA's Greenup and Boyd County Freight Plan to improve freight mobility in the region.[12]
3. **Tri-State Airport Access Road Realignment in Cabell County, West Virginia**
   This long-term project will realign the access road to the Tri-State Airport in Wayne County, WV and provide a new parking structure. Intermodal freight connections will be better served by establishing improved access to the airport from I-64, US 52 and the industries located on the eastern riverbank of the Big Sandy.
4. **Bridge Improvements on I-64 over the Big Sandy in Boyd County, Kentucky**
   The Perry Gentry Bridge carries I-64 over the Big Sandy River between MM 2 and 3, south of downtown Catlettsburg and Kenova. Built in 1998, the bridge sees an average daily traffic of 11,703 vehicles with 20% being truck traffic. KYTC's joint improvement project with WVDOT will address current deficiencies on the crossing, which are part of a larger I-64 corridor improvements project in Boyd County that began in March 2022. The bridge work includes fixing embankment slides, repairing ditch lines, and conducting in-depth pavement repairs at key locations and bridge ends. Additionally, the project involves widening the existing bridge and either rehabilitating or replacing the deck.
5. **KY 1937 Improvements in Boyd County, Kentucky**
   This estimated $127 million project will correct deficiencies along this 10-mile section of state highway that connects I-64 in Kentucky with the Big Sandy River near MM 14, creating a more efficient access for industries along the western riverfront. A separate $25 million widening of KY 752 from KY 1937 to US 23 along the river will further the economic goals presented in the Greenup and Boyd County (KY) Freight Plan.
6. **US 52 Widening in Wayne County, West Virginia**
   US 52 has been identified as the future alignment for the proposed I-73/I-74 corridor through the southwestern region of West Virginia. Widening of US 52 to a four-lane divided facility is currently in the design and right-of-way acquisition phase for a 34-mile section from Hubbardstown, West Virginia (MM 18) south to Kermit, West Virginia. The Kentucky Ohio West Virginia Interstate Planning Commission (KYOVA) has included the project in its 2050 Metropolitan Transportation Plan. The King Coal Highway, a new major 95-mile high-speed corridor connecting I-77 in Bluefield, West Virginia to Williamson, West Virginia is also under development within the existing US 52 corridor to the south of this section.
7. **Bridge Improvements in Lawrence County, Kentucky**
   This project addresses deficiencies of the Madison Street (KY 3) bridge over the Levisa Fork just upstream of the Big Sandy. This project is part of the Kentucky Transportation Cabinet's efforts to enhance safety and infrastructure in the region.

[12] http://www.kyovaipc.org/Greenup_Boyd_County_Freight_Plan_Final.pdf

7. Notable Marine Enterprises

Notable marine enterprises are identified in **Figure 5** and are discussed below. **Appendix A** includes a photo sheet of each marine enterprise discussed in this section.

Figure 5. *Notable Industrial Operations and Enterprises*



1. **The Port of Huntington Tri-State** operates multiple berths for barge loading and unloading, extensive storage facilities, and modern cargo handling equipment on several rivers in the Huntington region, including facilities near the confluence of the Ohio River and Big Sandy River at MM 0. The port is the second-largest inland port in the U.S., handling dry and liquid bulk commodities such as limestone, coal, gasoline, and crude oil. The facilities are also served by rail connections with close access to I-64.
2. **The Marathon Catlettsburg Refinery** between MM 1 and 4 processes sweet and sour crude oils into gasoline, distillates, asphalt, natural gas liquids and petrochemicals, propane and heavy fuel oil. Marathon Petroleum Corporation completed construction of a condensate splitter in 2015,

increasing the refinery's capacity to process condensate from the Utica shale region. Pipelines, barges, transport trucks and rail are used to distribute products such as crude petroleum, gasoline, jet fuel, kerosene, distillate, other fuel oils, coke, asphalt, other chemicals and related products.

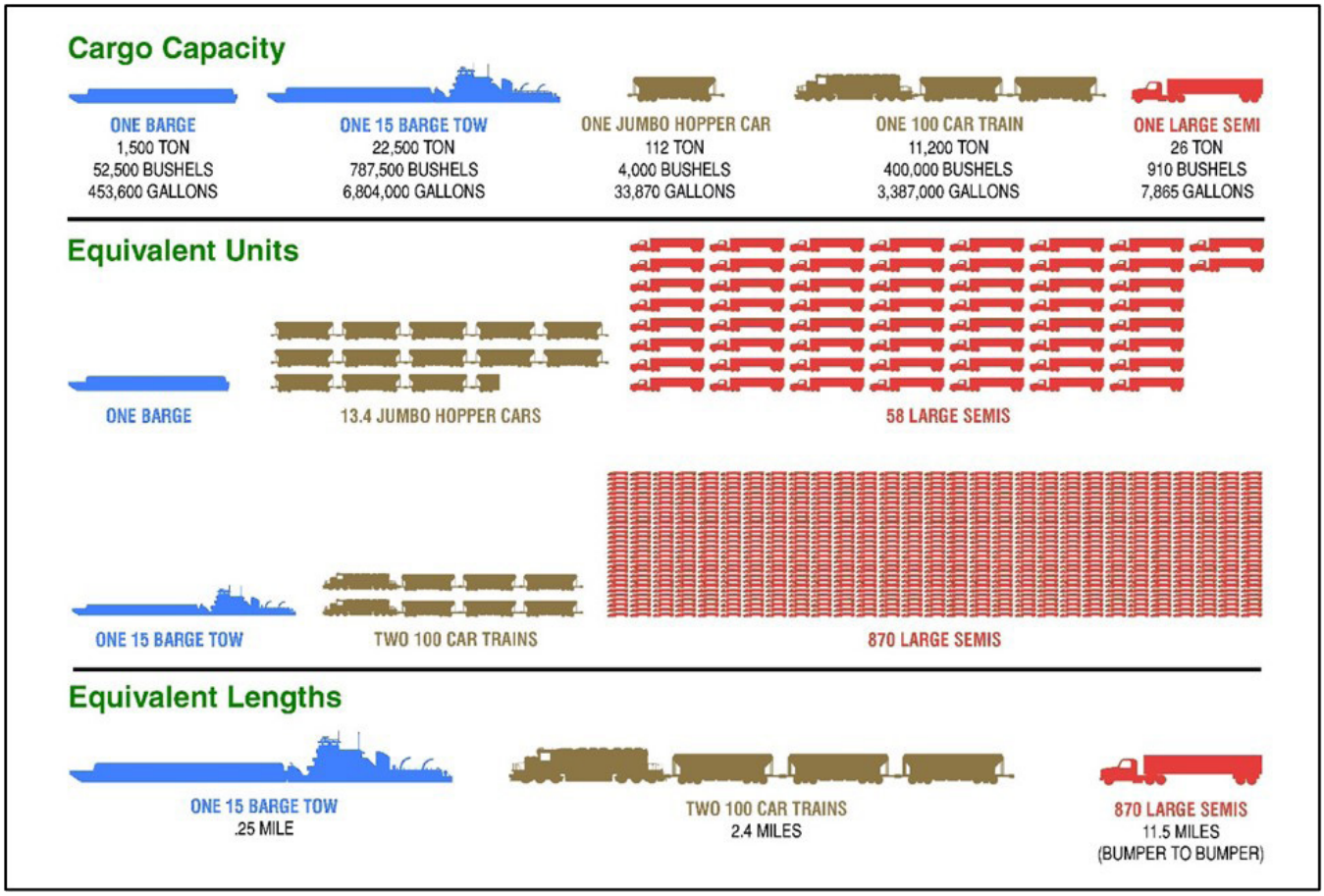
3. **Transload Terminal Inc.** is a logistics company specializing in the transfer and distribution of goods and materials, specifically coal, lignite and coal coke near MM 5. This facility offers a range of services that support various industries including warehousing, storage, and providing space for storing goods before they are transported to their destination. Additionally, they offer transloading services, which involve transferring goods from one mode of transportation to another, such as from barge to truck or vice versa. The company ensures efficient and reliable transportation, moving goods to meet the needs of their clients effectively.
4. **Docks Creek LLC** operates a full-service coal and material handling facility near MM 6. The dock offers a wide range of reliable, cost-effective handling, blending, and storage options to the utility and industrial markets. The facilities are also served by Norfolk Southern and have direct access to US 52.
5. **Calgon Carbon Corporation** is a global manufacturer and supplier of activated carbon and innovative treatment systems, that provides value-added technologies and services for optimizing production processes to safely purify the environment. This company operates a dock on the west bank of the Big Sandy near MM 6 with access to US 23.
6. **Case Dock LLC** is a privately owned company that operates a facility located on the west bank of the Big Sandy River near MM 8. They are an exporter of coal and provide coal loading from truck to barge. Case Dock LLC has transportation contracts with several barge lines to various locations throughout the Unites States and internationally.
7. **Arch Resources Inc.** (previously Arch Coal) is an American coal mining and processing company that operates a dock along the Big Sandy near MM 7 and 9, which is used for shipping and receiving coal. The company mines, processes, and markets bituminous and sub-bituminous coal with low sulfur content in the United States. Arch Resources is the second-largest supplier of coal in the United States, behind Peabody Energy. As of 2011, the company supplied coal to 15% of the domestic market.

While the AEP Big Sandy Power Plant at MM 20 historically received coal shipments via waterway and rail, the plant's conversion to natural gas was completed in 2015 and no longer requires these deliveries.

8. Public Benefits of Moving Freight via Rivers

Trucking and rail are the primary modes of freight transportation in both Kentucky and West Virginia. Improving the number and capacity of Big Sandy USMHP network connections will provide valuable transportation alternatives and reduce congestion-related commercial truck traffic. For example, as shown in **Figure 6** below, the amount of freight from 58 large semi-trucks could fit into one barge, which could dramatically decrease roadway congestion when scaled.

Figure 6. *Cargo Equivalents by Mode*



Source: KYTC

Additional benefits include the following:

- **Cost** - In 2019, the U.S. Inland Waterways System moved more than 500 million tons of freight, saving between seven to nine billion dollars in transportation costs as compared to shipping freight by truck or rail. While most barge cargoes are bulk commodities, new port facilities and river barges capable of handling containerized freight offer a pathway for additional cost savings for more industries.[13]
- **Safety** – While heavy trucks are only involved in 15 percent of all fatal vehicular crashes, the fatality rate per million miles traveled are 40 percent higher for heavy trucks than for passenger vehicles.[14]

[13] Waterways System: Learn about the Future of our Waterways
[14] https://www.fmcsa.dot.gov/safety/data-and-statistics/large-truck-and-bus-crash-facts-2021#A3

- **Efficiency** – Inland waterways transport the equivalent of more than 43 million truck trips annually on US roadways. Barge transport offers greater fuel efficiency, averaging 675 ton-miles per gallon of fuel compared to 470 ton-miles for rail and 151 ton-miles per gallon for trucks[15].
- **Road Maintenance** – Heavy trucks are the primary cause of deterioration and damage to interstate and other major highways. A semi truck can weigh up to 80,000 pounds when fully loaded, and the typical rural interstate road segment carries approximately 960 heavy trucks per lane per day. In addition to reducing congestion, diverting any portion of these trucks from roadways to waterways would prolong roadway life and reduce maintenance costs.
- **Redundancy** – With the consistently increasing demands placed on aging U.S. transportation infrastructure, expanded marine highway networks offer increased options and redundancy in the overall freight network.
- **Economic Benefits** – New and increased access to riverport facilities strengthens local and regional economies, particularly in rural areas lacking major transportation infrastructure alternatives. These facilities provide new business and employment opportunities for localized production and processing of agricultural, energy, and other industrial products and services.
- **Social Benefits** – Directly tied to economic benefits, river-based commercial activity creates more opportunities for local communities to remain economically viable and maintain critical community institutions through an expanded population and tax base. Local employment centers also increase local social interaction and stronger community identity.
- **Strategic Benefits** – Improved waterway commercial access and capacity contribute to a stronger fabric of benefits that reduce systemic risks associated with higher freight transportation costs, dependency on limited and over-stressed networks and supply chains, and the preparedness for natural disasters and climate resilience. These benefits contribute to national and regional security.

[15] https://railroads.dot.gov/rail-network-development/freight-rail-overview

9. Potential Impediments

While there are clear benefits and strong potential for increased economic opportunity and commercial activity on the Big Sandy River, it is important to note the current market trends for coal production and shipping in the region. Coal mining has played a significant role in the economy of both Kentucky and West Virginia. Kentucky is one of the largest coal-producing states in the U.S. and is the second highest nationally in terms of employed miners. Approximately 68 percent of the state's utility-scale electricity utilizes coal as an energy source. However, due to the competitive price of natural gas, the coal industry in West Virginia and Kentucky has significantly declined over the years. Along the Big Sandy, this has become evident as the AEP Big Sandy Power Plant ceased burning coal in 2015 after its conversion to natural gas.

A covered coal barge travels upstream near MM 3 of the Big Sandy River *Source: Eagleview CONNECTExplorer*

The decreased transport of coal along the Big Sandy River is not a new trend. The Waterborne Commerce Statistics Report from 2017 indicates that the transport of coal along the Big Sandy River has been trending downward since 2008. Many coal-driven enterprises along the river have permanently closed; however, industrial infrastructure and network connections are still present. This presents a unique opportunity for economic diversification and the development of alternative energy sources, leading to new investments and industries along the Big Sandy.

10. Community Engagement and Support

The KYTC project team recognizes the many benefits that this designation would have to users of the Big Sandy River. In addition to congestion alleviation on roads in Kentucky and West Virginia, this marine highway designation will allow industrial enterprises along the river to utilize a cheaper mode of transportation by taking advantage of the funding opportunities made possible by the Marine Highway designation. The project team is currently coordinating efforts to request letters of support from a variety of elected officials, organizations, industrial enterprises along the river, and planning agencies.

11. Conclusion

The Kentucky Transportation Cabinet and the West Virginia Department of Transportation would like to thank the U.S. Department of Transportation's Maritime Administration for the opportunity to propose adding a new United States Marine Highway Route, the M-23, to the USMHP system. Compared to other rivers in the USMHP system, the Big Sandy River may appear relatively small, but its role in the economies of the Huntington-Ashland metropolitan area, eastern Kentucky, and southwestern West Virginia is immense. The industries that currently utilize the river's connections to the rest of the USMHP system and the investments in local port facilities demonstrate the vital role that marine transportation has in connecting the region's industries to broader national and international markets. As the most efficient mode of freight transport, commodity shipments by barge will continue to help our shared regional economies grow, creating new business opportunities and jobs while reducing highway congestion and saving lives from congestion-related accidents. The designation of this route as a United States Marine Highway will help increase the recognition and visibility of the Big Sandy and spur further investment in its potential.

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Appendix A:

Notable Marine Enterprises along the Big Sandy River by Mile Marker

The Port of Huntington Tri-State (MM 1 in Catlettsburg, KY and Kenova, WV)

Source: Eagleview CONNECTExplorer

Commodities Handled: dry and liquid bulk commodities such as limestone, coal, gasoline, and crude oil

The Marathon Catlettsburg Refinery (MM 1-4 in Catlettsburg, KY)

Commodities Handled: crude petroleum, gasoline, jet fuel, kerosene, distillate, other fuel oils, coke, asphalt, other chemicals and related products

Source: Eagleview CONNECTExplorer

The Marathon Catlettsburg Refinery (MM 1-4 in Catlettsburg, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled: crude petroleum, gasoline, jet fuel, kerosene, distillate, other fuel oils, coke, asphalt, other chemicals and related products

Transload Terminal Inc. (MM 5 in Kenova, WV)

Source: Eagleview CONNECTExplorer

Commodities Handled:
coal, lignite and coal coke

Docks Creek LLC (MM 6 in Kenova, WV)

Commodities Handled:
coal

Source: Eagleview CONNECTExplorer

Docks Creek LLC (MM 6 in Kenova, WV)

Source: Docks Creek LLC

Calgon Carbon Corporation (MM 6 in Catlettsburg, KY)

Commodities Handled:
activated carbon

Source: Eagleview CONNECTExplorer

Case Dock LLC (MM 8 in Catlettsburg, KY)

Commodities Handled:
coal

Source: Case Dock LLC

Case Dock LLC (MM 8 in Catlettsburg, KY)

Commodities Handled:
activated carbon

Source: Eagleview CONNECTExplorer

Arch Resources, Inc. (MM 7 and 9 in Catlettsburg, KY)

Commodities Handled:
coal

Source: Eagleview CONNECTExplorer