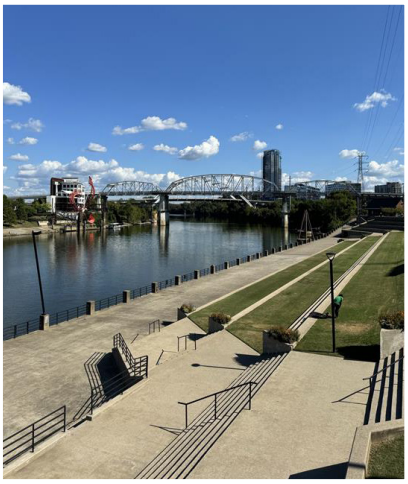
Cumberland River
Marine Highway
M-24



New Route Designation Request

February 2025

TEAM KENTUCKY®
TRANSPORTATION CABINET

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Executive Summary

The Kentucky Transportation Cabinet (KYTC), in partnership with Tennessee Department of Transportation (TDOT), is proposing to designate the Cumberland River ("the Cumberland") between river mile marker (MM) 0 and 382 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 movement of freight along inland waterways through the facilitation of infrastructure maintenance and development along navigable waterways.

The Cumberland flows generally from its headwaters in southeast Kentucky into central Tennessee before flowing north through western Kentucky until its confluence with the Ohio River (MH M-70) near Smithland, Kentucky. There are four lock and dam systems within the proposed USMHP route, with the three most downriver systems conveying barge and other commercial traffic. All navigable commercial activity in Kentucky occurs in western Kentucky between the river's confluence with the Ohio River (M-70) and the Tennessee state line, and is predominantly related to major quarry operations. Commercial activity in Tennessee is dispersed and includes two major TVA coal-fueled power generating stations in Cumberland City and Gallatin, Tennessee. Major activity nodes are in Clarksville, Ashland City, and Nashville, Tennessee. The major commodities conveyed on the river are bulk stone and aggregate materials, coal, and other petroleum-based fuels and related products. This application identifies the major commercial operations on the proposed route.

Given their central location, Kentucky and Tennessee's freight and transportation networks are extensive and the Cumberland River intersects with various rail lines and interstate highways, notably I-24, I-69, and I-65. Congestion, particularly in the Nashville region, is a notable concern and several major transportation projects are planned, including the widening of I-24 and I-65. The designation of the Cumberland River as a new United States Marine Highway will bring the commercial role of the river increased recognition and visibility, with further investments serving to increase its capacity to strengthen redundancies and reduce congestion and its related costs from the surrounding highway and rail systems.

Cumberland River at McGregor Park, Clarksville, TN (MM 126)

Acronyms / Abbreviations

EPA	Environmental Protection Agency
FARS	Fatality Analysis Reporting System
FAF	Freight Analysis Framework
IIJA	Infrastructure Investment and Jobs Act
INRIX	Intelligent Traffic Information Exchange
ITS	Intelligent Transportation Systems
IWS	Inland Waterways System
KTONS	Kiloton - a unit of weight or capacity equal to 1,000 metric tons. 1 metric ton = 2,000 pounds
KYTC	Kentucky Transportation Cabinet
MARAD	Maritime Administration
MM	Mile marker
NEPA	National Environmental Policy Act
NHFN	National Highway Freight Network
NHTSA	National Highway Traffic Safety Administration
NPMS	National Pipeline Mapping System
PHFS	Primary Highway Freight System
TDOT	Tennessee Department of Transportation
TVA	Tennessee Valley Authority
UPS	United Parcel Service
USACE	United States Army Corp of Engineers
USDOT	United States Department of Transportation
USMHP	United States Marine Highway Program
WRDA	Water Resources Development Act

1. About the Applicant

The Kentucky Transportation Cabinet (KYTC) is the lead applicant for requesting the designation of the Cumberland River as a 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 Cumberland River includes over 300 river miles located within Tennessee, the Tennessee Department of Transportation (TDOT) Passenger Transportation, Rail, and Freight Division is partnering with the KYTC to co-sponsor this application and to coordinate engagement with Tennessee stakeholders.

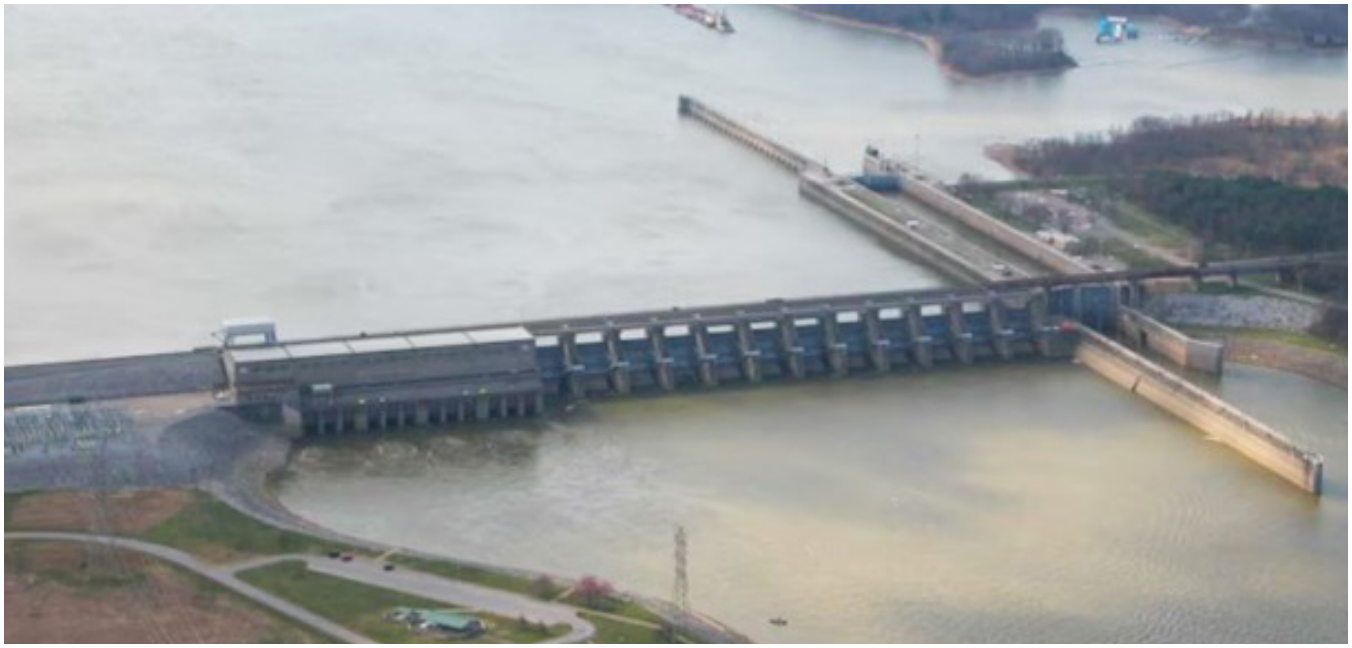
2. Description of the Proposed Route

The proposed USMHP route along the Cumberland River includes all navigable segments of the river beginning upstream at MM 382 near Celina, Tennessee, and ending downstream at MM 0 at its confluence with the Ohio River in Smithland, Kentucky. The full Cumberland River covers a watershed area of 17,750 square miles within southern Kentucky and northern Tennessee and is 688 miles long, making it the 21st longest river in the United States. From the confluence of Martins Fork and Clover Fork in Harlan, Kentucky, the Cumberland flows west through Kentucky's southeastern foothills. It is joined by several tributaries before forming Lake Cumberland, the 9th largest reservoir in the United States, with a maximum pool capacity of 6.1 million acre-feet and 65,500 surface acres. In addition to producing hydroelectric power, the 1.1-mile-long and 258-foot-high Wolf Creek Dam on the southwestern edge of the lake also regulates downstream water levels to ensure year-round navigation on the section of the Cumberland below the dam.

From the Wolf Creek Dam, the Cumberland flows southwest into Tennessee. In Tennessee, the United States Army Corps of Engineers (USACE) officially classifies the Cumberland as a navigable waterway beginning at MM 382, approximately three miles south of the Kentucky state line and one mile north of Celina, Tennessee. The Obey River is received by the Cumberland River at this location, just downstream from a hydroelectric dam forming the 27,700-acre Dale Hollow Reservoir. The Cumberland continues west through two major impoundments: the Cordell Hull Lock and Dam (MM 313), and the Old Hickory Lock and Dam (MM 216). From Old Hickory Lake, the Cumberland meanders through the Nashville metropolitan area (MM 216-172) before turning northwest towards Ashland City (MM 158), the Cheatham Lock and Dam (MM 149), and the City of Clarksville (MM 135). At Dover, Tennessee (MM 88), just south of the Kentucky state line (MM 75), the river turns north to form Lake Barkley (MM

86 to MM 31), which is located along the eastern boundary of the Land Between the Lakes National Recreation Area. The Barkley Canal on the north side of the lake (MM 33) connects Lake Barkley with the Tennessee River, which is impounded by the Kentucky Dam to form Kentucky Lake, on the western boundary of the Land Between the Lakes National Recreation Area. The Barkley Lock and Dam (MM 31) is the final impoundment before the Cumberland reaches the Ohio River.

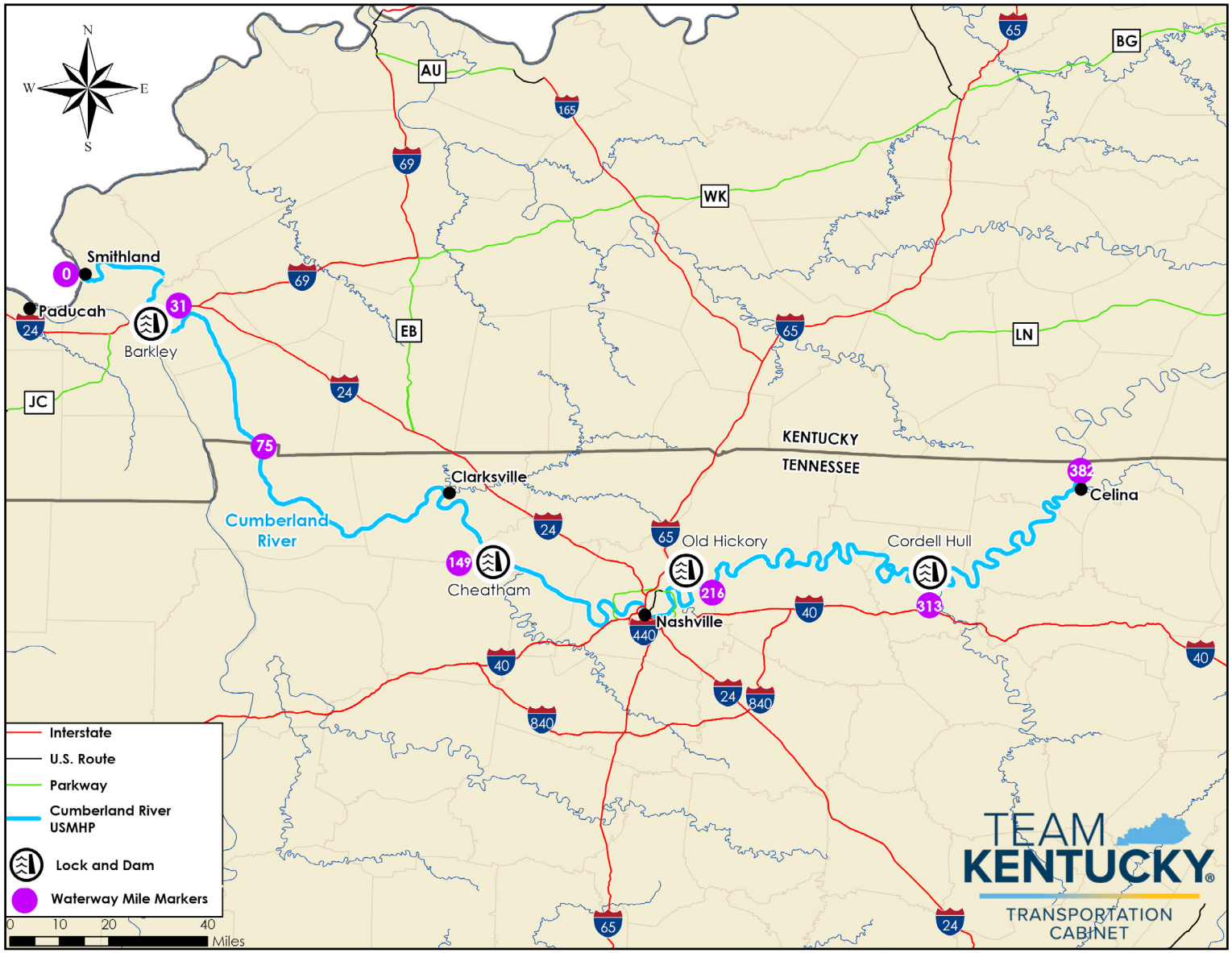
Outside the urban areas of Nashville, Ashland City, and Clarksville, the Cumberland flows through rural, rolling terrain. Outside Cordell Hull Lake, Old Hickory Lake, and Lake Barkley, the typical width of the Cumberland is 400 feet or greater in almost all locations, except for in a few locations near Nashville and Celina, where it narrows to 300 feet wide. The USACE classifies the waterway as having a nine-foot control depth, acceptable for accommodating barge traffic.



Barkley Lock and Dam, Grand Rivers, KY (MM 31) *Source: USACE*

Figure 1 presents a map of the proposed Cumberland River Marine Highway Route and the four lock and dam systems located within it.

Figure 1. *Proposed Marine Highway Route along the Cumberland River*



3. Lock and Dam System along the Proposed Route

Within the 382 river miles proposed for the USMHP route on the Cumberland, there are four locks and dams that provide for navigation. **Table 1** describes each of these four locks.

Table 1. *Lock and Dam Systems on the Proposed Route*

Name	Mile Marker (MM)	Closest Municipality	Year Completed	Lock Chamber Dimensions (feet)	Lift (feet)
Barkley Lock and Dam	31	Grand Rivers, KY	1966	800 x 110	57
Cheatham Lock and Dam	149	Ashland City, TN	1951	798 x 110	26
Old Hickory Lock and Dam	216	Nashville, TN	1957	400 x 84	60
Cordell Hull Lock and Dam	313	Carthage, TN	1978	400 x 84	59

All four lock systems include a single lock chamber equipped to accommodate recreational and commercial vessels, particularly barges. The Old Hickory Lock located east of Nashville has the highest volume of commercial traffic of all the locks along the Cumberland River. In 2023, the Old Hickory Lock handled approximately 3.4 million tons of commodities, equivalent to approximately 2,300 barges.[1]

Like most lock and dam systems, the locks and dams along the Cumberland provide benefits to a broad range of stakeholders, including the following:

- Recreational uses (boaters and recreation facilities)
- Hydropower generation
- Municipal and industrial water supply
- Wastewater discharges
- Congestion and safety benefits
- Reduced environmental impacts

[1] MarineLink https://www.marinelink.com/news/old-hickory-lock-drained-maintenance-515624

4. Freight Movement, Commodities & Tonnage

Commerce and industry have a rich history on the Cumberland River that continues to thrive today. During the pre-Civil War flatboat era, the Cumberland served as a primary conveyer of agricultural exports to major downstream markets on the Mississippi River. The advent of steamboats in the early 19th century allowed for bi-directional traffic, greatly increasing the variety and volume of transported goods both up and downstream, and spurring the growth of Nashville and other river towns. Timber logs floated from the upper Cumberland region upstream to sawmills in Nashville, providing construction materials to build riverside communities. By the 20th century, the construction of lock and dam systems stabilized river levels and introduced the Cumberland to the modern era of commercial barge traffic.

Western Kentucky and northern Tennessee generate substantial amounts of raw materials and components, serving key industries including power generation, manufacturing, and agriculture. In addition, the region surrounding the Cumberland River is a key distribution point for finished products, which are transported to customers or distribution centers across the country. This includes goods from manufacturing plants, agricultural products, and other commodities. As not all freight moved by water is generated or consumed along the river, intermodal connections with other modes of transportation is considered essential to fully integrate the Cumberland River with the regional economy.

While many inland cities have seen industrial and commercial economic centers migrate away from their central riverports to cheaper, undeveloped land near peripheral highway interchanges, Nashville and other areas in middle Tennessee made a commitment to repurpose riverfront land historically used by heavy industry for new light manufacturing, warehousing, and other freight-reliant uses. These riverfront areas have good access to highways, rail, and water and have supportive land use controls, resulting in important freight nodes ideally situated along the Cumberland River.

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 border Kentucky and contribute to the state's 1,020 miles of commercially navigable waterways, 75 of which are located on the Cumberland River. Within Kentucky, commercially navigable sections of the Cumberland River and adjacent Tennessee River are identified in **Figure 2**. 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 ten state parkways. 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% 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. In addition, the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) Class I railroads operate track in Kentucky under lease agreements. Six of Kentucky's seven active public riverports have rail access. Railroads have been historically

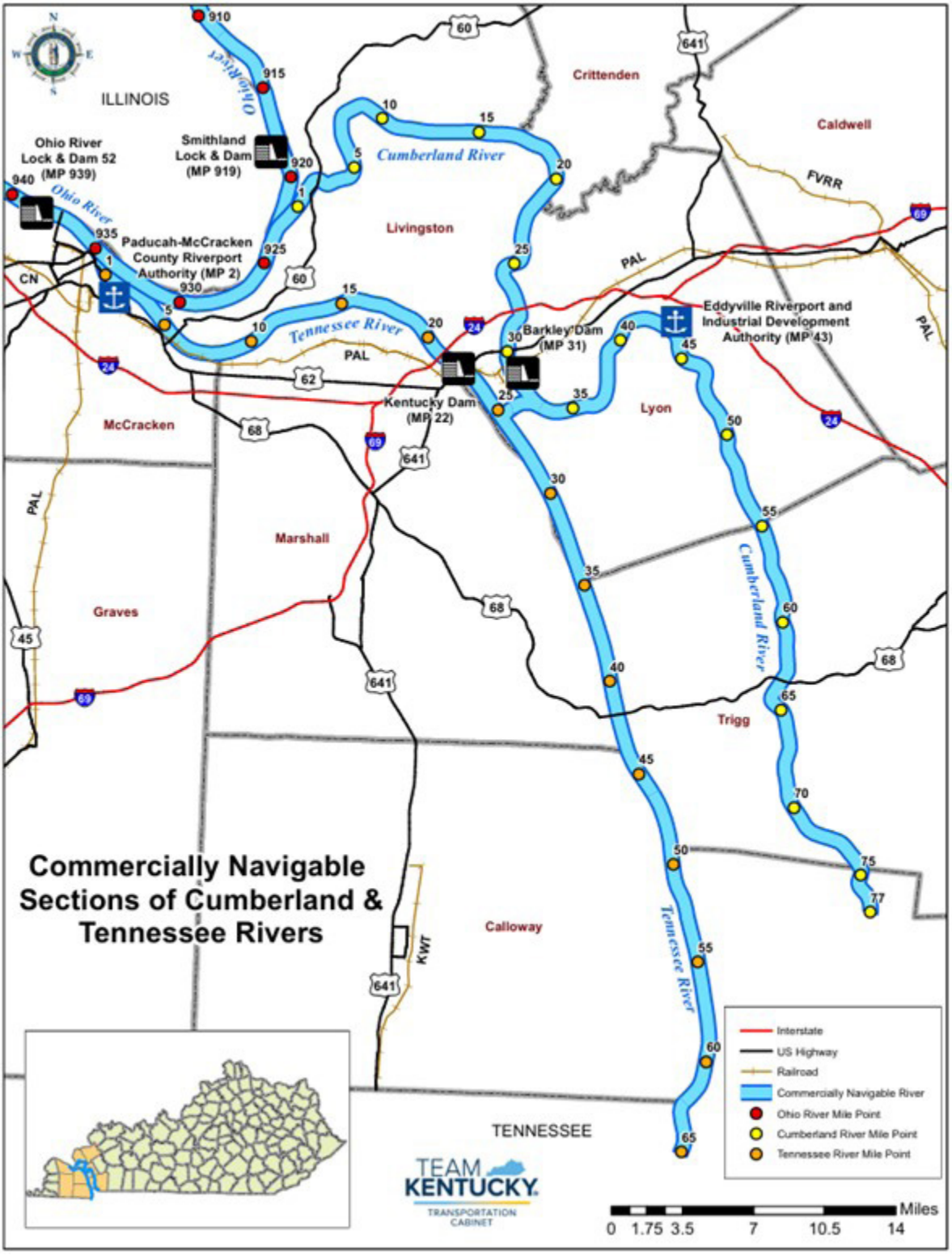
linked with the coal mining industry, but also support the major manufacturing and industrial centers in central and northern Kentucky with major intermodal operations in the state. In 2021, 22.6 million tons of freight and 366,400 carloads originated in Kentucky and 19.4 million tons and 269,400 carloads terminated in Kentucky.[2]

- **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. Barkley Regional Airport in Paducah, located approximately, 35 miles from the Cumberland, is the closest Kentucky commercial airport to the river. Additionally, four Kentucky general aviation airports are within 30 miles of the Cumberland.
- **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 pipelines crossing the Cumberland River at MM 26 and Lake Barkley at MM 55.[3]

[2] Association of American Railroads https://www.aar.org/wp-content/uploads/2021/02/AAR-Kentucky-State-Fact-Sheet.pdf

[3] https://pvnpms.phmsa.dot.gov/PublicViewer/

Figure 2. *Commercially Navigable Sections of Cumberland and Tennessee Rivers*



4.2 Freight Movement in Tennessee

In 2018, approximately 430 million tons of freight were moved through Tennessee's transportation infrastructure. Tennessee ranks 11th in the nation with approximately 950 navigable waterway miles. Riverports and waterways in Tennessee support 81,000 jobs and create an $13.2 billion in economic impacts in the state.[4] It would require approximately 770,000 truck trips to carry the 30.8 million tons of freight moved on Tennessee's inland waterways in 2018. In addition to marine transportation, the movement of freight within the state of Tennessee is accomplished by the following modes:

- **Trucks.** Over 10,000 trucking companies move approximately 90% of Tennessee's freight. The state is ranked 9th in the nation for transportation and logistics employment opportunities and 3rd for trucking employment opportunities.
- **Railroads.** In 2020, 208 million tons of cargo were shipped via rail through Tennessee. CSX, Norfolk Southern, BNSF, and Canadian National maintain over 2,100 miles of track in Tennessee and 21 Class III operators maintain 950 additional miles. In 2021, 14.7 million tons of freight and 531,300 carloads originated, and 25 million tons and 636,000 carloads terminated in Tennessee.[5] Nashville is a nexus for most rail lines that run north/south through Tennessee, and CSX maintains a large intermodal freight terminal southwest of Nashville. Intermodal containers represent the largest designated commodity segment, representing 11.5 million tons and 836,600 carloads.
- **Air.** Freight transportation via aviation in Tennessee has strong roots in Memphis. As a hub for FedEx, Memphis is home to the 2nd busiest cargo airport in the world. The Nashville International Airport is the second largest cargo airport in Tennessee.
- **Pipelines.** Tennessee contains nearly 76,000 miles of pipelines that carry both natural gas and crude oil. Several major pipelines of national significance cross through the state, notably the Mid Valley Pipeline, which carries crude oil from the Gulf of Mexico to Michigan and crosses the Cumberland River near Palmyra at MM 115. The NPMS shows several natural gas pipelines crossing the Cumberland north and east of Nashville.

4.3 Cumberland 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).[6] The most recent version (5.6.1) of the FAF provides data on freight movements by mode for 132 domestic regional zones. The Cumberland River traverses through three FAF zones including:

219 Remainder of Kentucky (not including the Louisville Metropolitan Region at MM 0)

472 Nashville-Davidson County-Murfreesboro Metropolitan Region

479 Remainder of Tennessee (not including the Knoxville, Memphis or Nashville Metropolitan Regions)

[4] Tennessee Statewide Multimodal Freight Plan 2023, Tennessee Department of Transportation

[5] Association of American Railroads https://www.aar.org/wp-content/uploads/2021/02/AAR-Kentucky-State-Fact-Sheet.pdf

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

FAF Zone 472 (Nashville Region) is the only region in which the Cumberland River is the only commercially navigable river, and it also contains the preponderance of commercial riverfront activity within the proposed USMHP route. In 2023, approximately 430 million tons of freight worth an estimated $320 billion were transported within Zone 472. Of this total tonnage, approximately 42% accounted for inbound and 58% accounted for outbound freight flow. Approximately 72% of the total freight tonnage in Zone 472 was transported by truck and the remaining freight was moved by pipelines (15%), water (8%), and rail (5%).

The FAF also identifies the origin and destination of marine-based freight to and from Zone 472. Excluding coal and petroleum-based products, **Table 2** presents the top 10 commodities by domestic origin zone (includingports of entry for international freight) and the six destination zones for outbound freight for 2023 for Zone 472 (Nashville). The table shows that for natural sands and waste scrap commodities, the highest marine traffic is internal to Zone 472.

Table 2. *Top Marine Commodities by Origin and Destination, 2023*

Origin	Code	Description	KTONS
Nashville	11	Natural sands	344
Rest of KY	12	Gravel	336
Rest of TN	12	Gravel	280
Rest of IL	32	Base metals	264
New Orleans*	14	Metallic ores	85
Rest of MO	31	Nonmetal min. prods.	43
Nashville	41	Waste/scrap	43
Hampton Roads VA*	22	Fertilizers	23
New Orleans*	24	Plastics/rubber	12
Hampton Roads VA*	32	Base metals	6
Destination	**Code**	**Description**	**KTONS**
Nashville	11	Natural sands	344
Nashville	41	Waste/scrap	43
Arkansas	41	Waste/scrap	37
Arkansas	32	Base metals	31
Rest of KY	11	Natural sands	17
Nashville	37	Transport equip.	1

**may include international origins via port of entry*

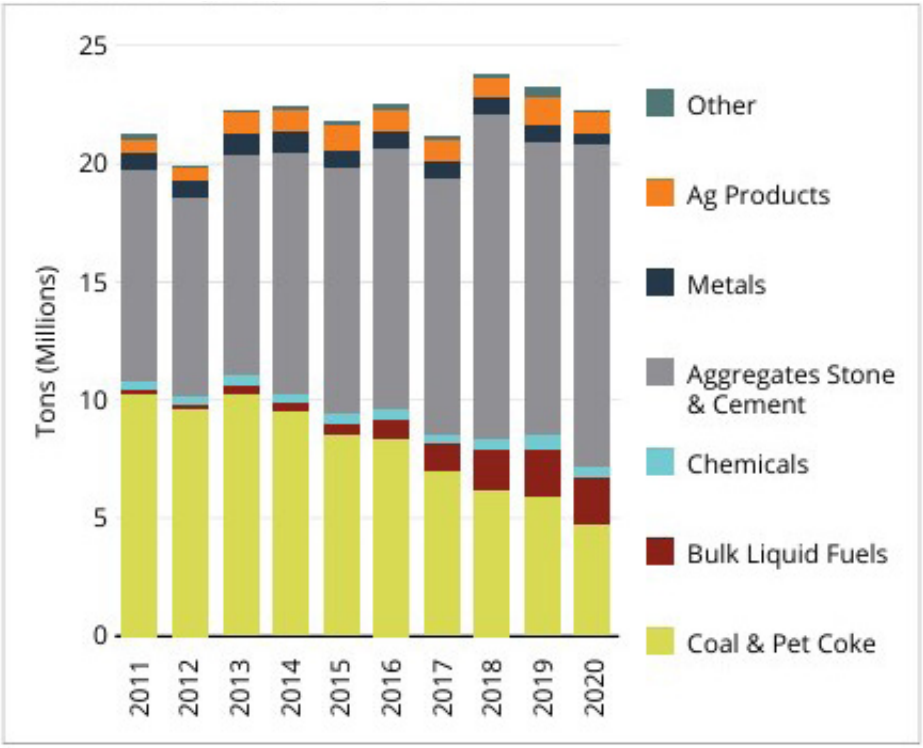
Source: Bureau of Transportation Statistics, FAF
https://faf.ornl.gov/faf5/dtt_total.aspx

The USACE Geospatial database provides link tonnage data on waterways by commodity group over time.[7] In 2020, the Cumberland River supported the movement of 22.25 million tons of cargo. Upbound commodities include stone and sand aggregates, coal, petroleum products, grains such as corn and soybeans, and chemicals used in various industrial processes. Outbound commodities from these regions include agricultural products like tobacco, soybeans and corn, automotive parts due to the presence of manufacturing plants, chemicals produced locally and shipped to other regions, and minerals and aggregates such as sand, gravel, and limestone.

The most widely dispersed commodity group delivered on the Cumberland River is petroleum-based products such as gasoline, diesel fuel, asphalt, etc., which are primarily inbound to the Nashville metropolitan area. Coal is another major inbound commodity; although, coal shipments are expected to continue declining as planned power plant closures and conversions to natural gas occur. This trend creates new opportunities and capacity for the movement of other bulk commodities in addition to more manufacturing inputs and finished goods.

Figure 3 illustrates the shifts in commodity tonnage transported between 2011 and 2020. In 2011, coal accounted for nearly 48% of cargo shipped along the Cumberland River; however, by 2020 coal dropped to 21%, while the transport of other commodities, notably stone and cement aggregates and liquid fuels, increased.

Figure 3. *Commodities and Tonnage Handled on the Cumberland River (2011-2020)*



Source: U.S. Army Corps of Engineers

[7] https://geospatial-usace.opendata.arcgis.com/datasets/2f90f830c8f641b59353ac5ce128da7a_0/explore

The USACE also provides monthly tonnage reports for locks on the Cumberland River.[8] While the Barkley lock at MM 31 is the furthest downstream, it does not capture all upriver freight movements, as commercial traffic from the Ohio and Tennessee Rivers can access the Cumberland River upstream of the lock via the Barkley Canal at MM 33. The Cheatham lock at MM 149 captures all traffic between Clarksville and the east side of Nashville, while the Old Hickory lock at MM 216 includes all remaining traffic upstream from Nashville. No commercial freight is currently recorded to transit the Cordell Hull lock at MM 313, although USACE declares the river navigable to MM 382.

Table 3 presents the cumulative upbound and downbound tonnage by major commodity group for each of the three locks with freight traffic for 2023. While not representative of all freight traffic, it provides a general representation of the relative proportion (by weight) and direction of goods on the river. Upstream tonnage is significantly higher than downstream traffic, with no downstream traffic reported from the Old Hickory lock.

Table 3. *2023 USACE Cumulative Tonnage Reports by Commodity and Lock*

Code	Common Description	Upbound Tons (KTONS)			Downbound Tons (KTONS)			Total Tons (KTONS)		
	Lock	Barkley	Cheatham	Old Hickory	Barkley	Cheatham	Old Hickory	Barkley	Cheatham	Old Hickory
10	Coal, Lignite and Coke	306	3,017	2,739	5	74	0	312	3,091	2,739
20	Petroleum and Petroleum Products	1,740	2,084	6	120	23	0	1,861	2,107	6
30	Chemical and Related Products	249	409	8	25	4	0	275	413	8
40	Crude Materials, Inedible, except Fuels	4,313	5,891	627	518	474	0	4,831	6,365	627
50	Primary Manufactured Goods	495	1,921	0	37	5	0	532	1,926	0
60	Food and Farm Products	104	15	0	142	6	0	246	21	0
70	All Manufactured Equipment and Machinery	14	16	0	10	2	0	24	18	0
80	Waste Material, Garbages, Landfill, Sewage Sludge and Waste Water	3	0	0	0	3	0	3	3	0
	TOTAL TONS	**7,225**	**13,354**	**3,382**	**857**	**591**	**0**	**8,082**	**13,944**	**3,382**

Source: https://ndc.ops.usace.army.mil/ords/f?p+108:6

[8] US Army Corps of Engineers Lock Performance Monitoring System, Monthly Tons Report

5. Surface Transportation Interchanges

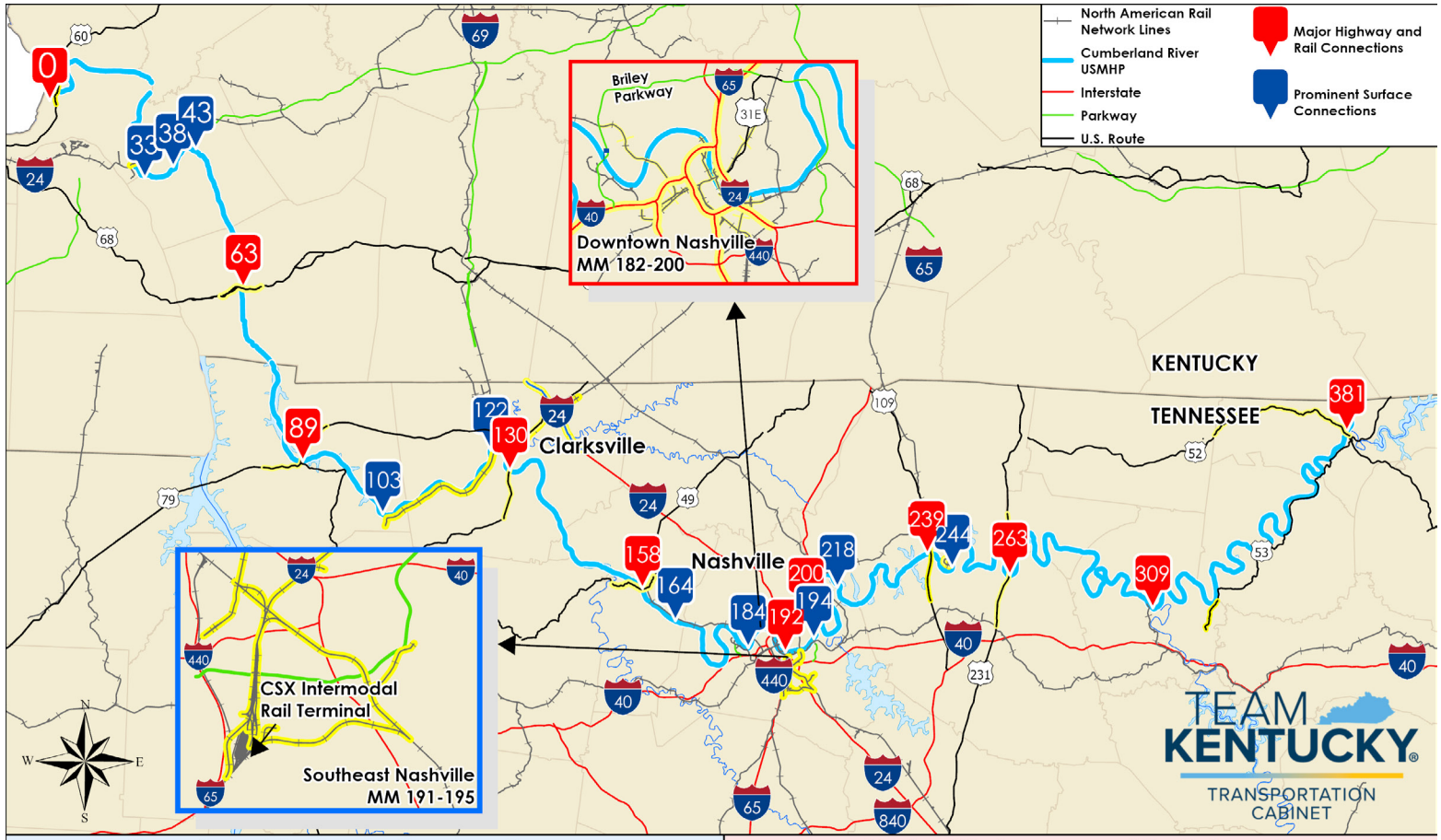
5.1 Network Connections

The proposed Cumberland USMHP route flows southwest and roughly parallels I-24 from MM 0 at the Cumberland's confluence with the Ohio River to MM 192 in Nashville. Near Eddyville, Kentucky (MM 42-44), I-24 interchanges with I-69 and US-62. In western Tennessee, US-79 crosses the Cumberland at MM 89 in Dover and connects to downtown Clarksville at MM 126. TN-12 connects Clarksville to Ashland City (MM 158) and the Briley Parkway (TN-155) (MM 180) on the west side of Nashville. In Nashville (MM 189-192), I-24 interchanges with I-65 and I-40. East of Nashville, the Cumberland generally runs parallel with I-40 and US 70N towards Carthage and Gordonsville. North of the river, US 31E and TN-386 run parallel between I-65 and Gallatin, where TN-25 continues and crosses the river in Carthage.

Several railroad lines run parallel adjacent to the Cumberland at multiple locations. In Grand Rivers, KY, the Class II Paducah & Louisville Railway (MM 31) connects the river to Class I lines to the west (Canadian National) and to the east (CSX). In Tennessee, R.J. Corman railroads run parallel to the Cumberland from Cumberland City (MM 104) to Clarksville (MM 126) and from Ashland City (MM 162) to Nashville (MM 185). In Nashville, CSX and R.J. Corman spurs connect many riverfront industrial sites to CSX mainlines and the CSX Nashville Intermodal Terminal, four miles south of the river. East of Nashville, R.J. Corman's Nashville & Eastern Railroad runs to the south and parallel to the Cumberland to Gordonsville, which is four miles south of the Cumberland at Carthage (MM 309).

Korean War Veterans Memorial Bridge, Nashville, TN (MM 191) *Source: Adobe Stock*

Figure 4. *Surface Connections and Crossings*



Prominent Surface Connections

- MM 33: The Grand Rivers Quarry
- MM 38: Marathon Petroleum
- MM 43: Eddyville Riverport
- MM 103: TVA Cumberland Fossil Plant
- MM 122: Nyrstar
- MM 123-127: Clarksville
- MM 164: Ashland City
- MM 175-184: West Nashville
- MM 185-194: Central Nashville
- MM 218: former Dupont site in Old Hickory
- MM 240-244: The TVA Gallatin Power Plant

Major Highway and Rail Crossings

- MM 0: US 60
- MM 63: US 68
- MM 89: US 79
- MM 127-130: RJ Corman RR and TN 13
- MM 158: TN 49
- MM 182 and MM 200: Briley Parkway (TN 155)
- MM 185-192: Downtown Nashville
- MM 239: TN 109
- MM 263: US 231
- MM 309: TN 53
- MM 381: TN 52

The following identified surface connections are located by mile marker and are presented in **Figure 4**.

MM 33:

The Grand Rivers Quarry maintains barge loading and docking facilities on the Tennessee River, which is accessible to the Cumberland via the Barkley Canal. The quarry is also served by Paducah & Louisville Railway, which has a spur adjacent but unconnected to a barge docking area. The quarry has good access to I-24 and US-62.

MM 38:

A Marathon Petroleum tank storage facility maintains a dock with connections to I-24 via US 62.

MM 43:

The Eddyville Riverport includes multiple barge operations with close access to I-24.

MM 103:

The R.J. Corman railroad serves the Tennessee Valley Authority (TVA) Cumberland Fossil Plant and related businesses. The TVA plant also maintains significant truck and barge loading and unloading operations.

MM 122:

The R.J. Corman railroad serves the Nyrstar zinc smelter, which also maintains a riverside loading terminal.

MM 123-127:

Multiple aggregate facilities and other industries maintain barge dock operations near Clarksville's downtown riverfront. I-24 has several interchanges within five miles of the riverfront.

MM 164:

Barge manufacturer Arcosa Marine and the new Nashville Marine Terminal in Ashland City have barge docks and are connected to Nashville by TN-12 and the R.J. Corman railroad.

MM 175-184:

An industrial zone in a horseshoe bend in West Nashville (MM 175-184) includes several aggregate loading facilities on both sides of the Cumberland. The area also includes several large manufacturing and truck distribution centers, with connections to a CSX rail spur and Briley Parkway (TN-155), which interchanges with I-40, I-24, and I-65.

MM 185-194:

The riverfront in in central Nashville includes multiple riverside facilities for loading aggregate and petroleum products. There are several large riverside distribution warehouses and truck yards that do not currently use the river. Multiple interstate access points and railroad spurs serve this dense urban area, and CSX's Nashville Intermodal Terminal is connected via rail, four miles south of downtown.

MM 218:

Several industrial operations use the former DuPont site in Old Hickory, which has a dock facility and is served by a R.J. Corman rail line, located five miles from I-65.

MM 240-244:

The TVA Gallatin Power Plant and an aggregate producer have riverside liquid and bulk loading/unloading facilities that are served by a CSX rail line.

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

MM 0:

US 60, Smithland, Kentucky (indirect connection to I-24, located 16 miles west of the Cumberland)

MM 63:

US 68, Canton, Kentucky (direct connection to I-24, located 15 miles east of the Cumberland)

MM 89:

US 79, Dover, Tennessee

MM 127-130:

R.J. Corman railroad and TN-13, Clarksville, Tennessee

MM 158:

TN-49, Ashland City, Tennessee

MM 182 and MM 200:

Briley Parkway (TN-155), Nashville, Tennessee (direct connections to I-40, I-24, and I-65)

MM 185-192:

Three railroad and seven highway crossings, including I-24 and I-65 in Nashville, Tennessee.

MM 239:

TN-109, Gallatin, Tennessee (direct connects to US 31E and I-40 11 miles to the south)

MM 263:

US 231, Hunters Point, Tennessee (direct connection to I-40, located eight miles south of the Cumberland)

MM 309:

TN-53, Carthage, Tennessee (direct connection to I-40, located five miles south of the Cumberland)

MM 381:

TN-52, Celina, Tennessee

5.2 Highway Safety

Table 4 presents fatal crash statistics for Kentucky and Tennessee from the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS). Outside of the metropolitan area of Nashville located between MM 172 and MM 218, the proposed Cumberland USMHP route is predominately located in relatively uncongested rural areas. However, unsafe conditions occur in both rural and urban areas for all roadway classes. While fatality rates in Kentucky and Tennessee have declined steadily over time, they currently rank 12th and 14th in the nation, respectively, for highway fatality rates. Diverting freight traffic from the regional highway network to the Cumberland USMHP route will help reduce the interaction and potential collisions between large commercial vehicles and passenger vehicles.

Table 4. *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%
Tennessee	1.58	1,314	154	51%	50%
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 Cumberland USMHP are the congested interstate highways that interchange in Nashville. Traversing the entire state from east to west, I-40 in Tennessee is statistically among the most crash-prone highways in Tennessee, averaging 52 fatalities per year[9]. In addition, I-65 is a heavily congested north-south industrial and manufacturing corridor for the Midwest and nation. I-65 near Nashville experiences about 0.53 deaths per 100 million vehicle miles traveled per year (2019-2023).[10] I-24 near Nashville has been recorded as one of Tennessee's "Deadliest Highways" with 0.60 deaths per 100 million vehicle miles traveled per year (2019-2023).

5.3 Roadway Congestion

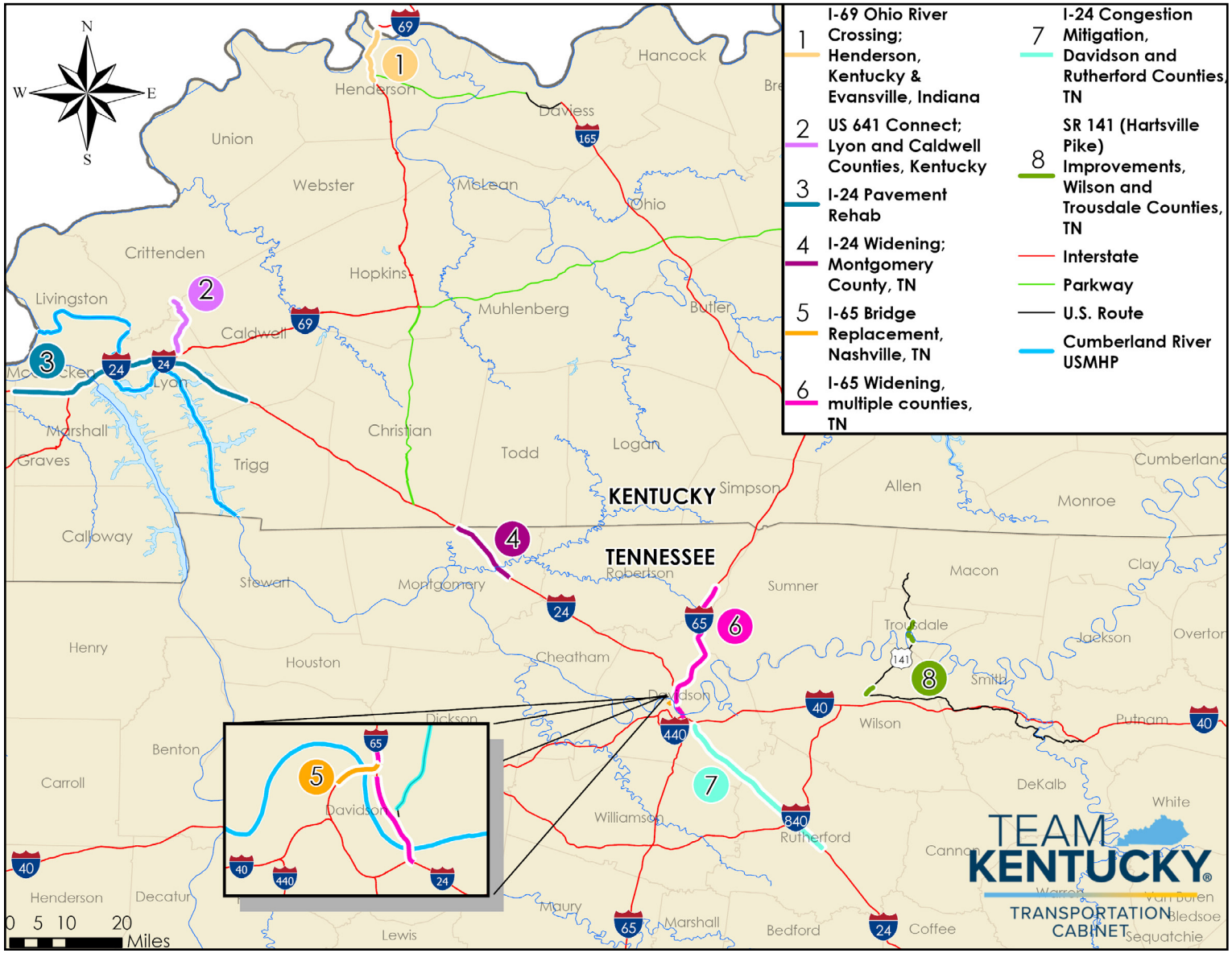
Roadway congestion poses significant hurdles to the economic vitality of Kentucky and Tennessee. Increased congestion on roads presents a variety of challenges not only with the movement of freight, but with commuter and general population travel as well.

Western 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. Without this infrastructure, access would be significantly limited by Kentucky's diverse geography and the economy would not be able to flourish. When roads are congested, it creates challenges for residents, business access, and freight mobility. According to National Transportation Research Nonprofit, 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, and shippers and manufacturers.

Mitigating roadway congestion is critical for fast-growing cities like Nashville. According to Intelligent Traffic Information Exchange (INRIX)[11], Nashville is ranked 39 on the Global Traffic Scorecard of the world's most-congested areas, with resident drivers losing 56 hours to congestion in 2022.
The TDOT and the University of Memphis published research in 2024 exploring the most effective use of Tennessee waterways to account for competing uses and freight congestion. The goal of the study was to support safe, reliable, and resilient use of Tennessee's waterways while maximizing economic impact, supporting investment decisions, and fostering workforce preservation and development.

[9] Deadliest highway in every state. https://www.cbsnews.com/pictures/deadliest-highway-in-every-state/42/.
[10] Which Tennessee highway has the most deaths? How interstates rank
[11] https://inrix.com/scorecard/

Figure 5. *Notable Transportation Improvement Projects*



5.4 Current & Planned Transportation Improvements Near the Cumberland USMHP

Figure 5 presents several prominent transportation improvement projects or programs that will likely have significant beneficial impact on access and efficiency for the proposed USMHP route on the Cumberland River, with descriptions for each project described below.

1. **I-69 Ohio River Crossing; Henderson, Kentucky and Evansville, Indiana**
   The KYTC and the Indiana Department of Transportation are jointly planning and constructing a new interstate crossing over the Ohio River at Henderson, Kentucky and Evansville, Indiana. Construction of the bridge approaches that connect to existing sections of I-69 in each state is underway, and construction of the new bridge is anticipated to commence in 2027. I-69 will be completed in Kentucky by that time, and TDOT has identified their plans.[12]
2. **US 641 Connect; Lyon and Caldwell Counties, Kentucky**
   The KYTC is relocating a 4.5-mile section of US-641 from US-62 in Eddyville to Fredonia, replacing the current two-lane facility with a four-lane divided highway, and linking it to the recently widened segment between Fredonia and Marion, Kentucky. This project will allow US-641 to be included in National Truck Network and will improve the linkage between the Cumberland and industries in Marion and the limestone quarry in Fredonia.
3. **I-24 Pavement Rehabilitation and Bridge Crossing Improvements; multiple counties, Kentucky**
   Through 2030, the KYTC will perform pavement rehabilitation and minor bridge improvements for most of I-24 in Kentucky from Tennessee to Illinois. This includes the section which crosses the Cumberland at MM 28 and interchanges with I-69 and US-62, which is a primary interstate access point for river-based industries in Grand Rivers and Eddyville Kentucky. A separate strategic planning study of the full I-24 Kentucky corridor is scheduled to begin in 2025.
4. **I-24 Widening; Montgomery County, Tennessee**
   The TDOT plans to widen a 12-mile section of I-24 from the Kentucky state line to TN-76 east of Clarksville, Tennessee. Construction is scheduled to commence in 2033.
5. **I-65 Bridge Replacement; Nashville, Tennessee**
   The TDOT is in the Preliminary National Environmental Policy Act (NEPA) Engineering and Design phase for a transportation improvement project on the I-65 Lyle H. Fulton Memorial Bridge in downtown Nashville. The Fulton Memorial Bridge carries I-65 over the Cumberland River and is part of the “downtown loop” of I-24, I-40, and I-65 segments which encircle downtown Nashville. The project proposes to replace the I-65 bridge from east of the Metro Center Boulevard to the I-24 interchange. .
6. **I-65 Widening; multiple counties, Tennessee**
   Among other improvements, the TDOT is widening 25.8 miles of I-65 to six lanes from Nashville to the Kentucky state line in five phased segments, two of which are now complete and the third being scheduled for construction in 2025. A separate road widening project is planned at the I-24/I-65 interchange from the southern limits of the current project through the eastern side of the “downtown loop” and to the interchange with I-40. This project is in preliminary planning stages.
7. **I-24 Congestion Mitigation; Davidson and Rutherford Counties, Tennessee**
   The TDOT has initiated several major congestion mitigation projects for the I-24 corridor between Nashville and Murfreesboro. These initiatives include the Interstate 24 SMART

[12] https://www.tn.gov/tdot/projects/region-4/interstate-69-corridor.html

Corridor, an advanced Intelligent Transportation Systems (ITS) project coordinated with the parallel US-42/ TN-1 and the connector routes between them. The *Interstate 24 Southeast Choice Lanes* project will add new variable tolling lanes in the same corridor. The first-of-its-kind *I-24 Mobility Technology Interstate Observation Network (I-24 MOTION)* will equip a six-mile section of I-24 with over 300 ultra-high-definition cameras, converting the resulting images into a digital model of how all vehicle types interact with unparalleled detail.

8. **TN-141 (Hartsville Pike) Improvements; Wilson and Trousdale Counties, Tennessee** The TDOT is constructing improvements on the TN-141 corridor between Lebanon, Tennessee and the eastern portion of the Cumberland USMHP route. These improvements include a new five-lane realignment in Lebanon and a new two-lane bridge crossing of the Cumberland and direct connection with TN-10 east of Hartsville, Tennessee. The improved corridor will increase capacity, safety, and connectivity between this rural area of the Cumberland and the major east-west highways of US-70N and I-24 in Lebanon.

6. Notable Marine Enterprises

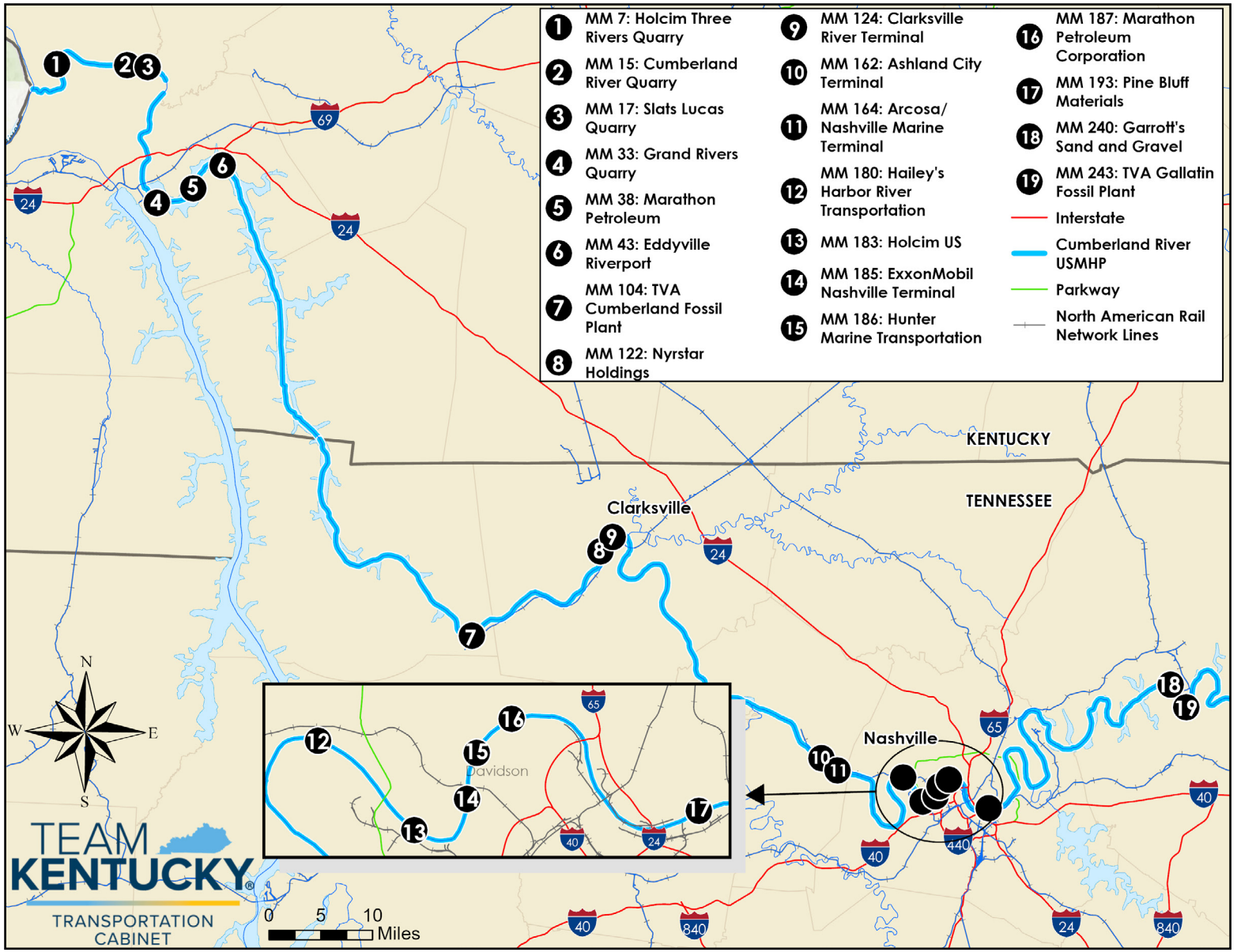
Commercial marine activity along the Cumberland River can be grouped into four general geographic clusters:

1. Western Kentucky between the confluence with the Ohio River and the top of Lake Barkley;
2. Upper Tennessee west of Nashville;
3. The greater Nashville metropolitan region; and,
4. Upper Tennessee east of Nashville.

Notable marine enterprises are identified in **Figure 6** and are discussed below. **Appendix A** includes a photo sheet of each marine enterprise discussed in this section.

1. **Holcim Three Rivers Quarry** near Kentucky is one of three active quarries downstream from the Barkley lock and is closest to the confluence with the Ohio River. The quarry produces aggregates such as gravel, sand, and crushed stone used in construction and infrastructure projects. Materials are loaded onto barges using conveyers directly from mining haul trucks. Flotillas of empty barges are fleeted along the opposite riverbank. While US 60 is relatively close by, there is no onsite rail service and barge traffic is the predominant method of shipment to destinations via the Ohio River and upstream on the Cumberland River to the Nashville area.
2. **Cumberland River Quarry** near Salem, Kentucky is operated by Pine Bluff Materials, which operates several facilities along the river in Tennessee. This quarry produces limestone products including crushed stone used for construction and infrastructure products. The quarry loads barges directly from its mine haul trucks via riverbank ramps. Barge flotillas are fleeted along the riverbank just downstream of the quarry.
3. **Slats Lucas Quarry,** located two miles upstream from the Cumberland River Quarry, is operated by Warren Paving and supplies limestone aggregate for the company's asphalt plants in Mississippi and for other customers. It produces more than 3.5 million tons of aggregate annually and employs over 100 workers onsite. Warren operates a fleet of 175 barges, which are loaded via a conveyer directly from its mine haul trucks via riverbank ramps.
4. **Grand Rivers Quarry** is located between the Tennessee River and the Cumberland River near the Kentucky Dam and Barkley Dam. The Grand Rivers Quarry is one of the largest crushed stone quarries in the United States and is the leading producer of stone in Kentucky. It is operated by Vulcan Materials, the nation's largest producer of construction aggregates. The quarry maintains

Figure 6. *Notable Industrial Operations and Enterprises*



multiple large barge loading and docking facilities on the Tennessee River, which are accessible to the Cumberland River via the Barkley Canal at MM 33. The quarry is also served by the Paducah & Louisville Railway, which has as spur adjacent to but not connected to a barge docking area.

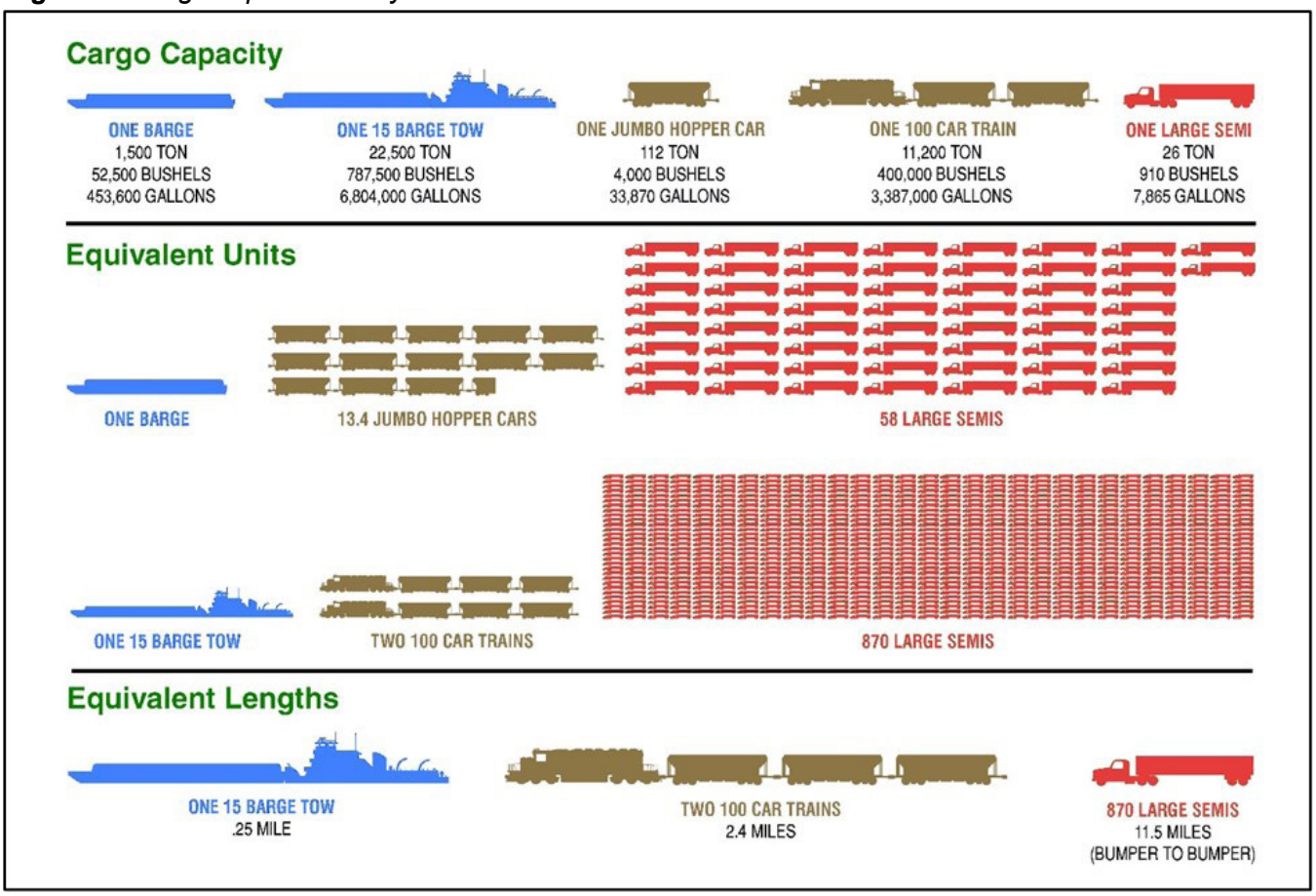
5. **Marathon Petroleum** operates an asphalt terminal near Kuttawa, Kentucky. The tank storage facility has a conveyer dock on the Cumberland River and truck loading facilities with close connections to I-24 via US 62.
6. **Eddyville Riverport** is located in a natural harbor on Lake Barkley. Operated by the Eddyville Riverport and Industrial Development Authority, it is the only operating Kentucky public riverport on the Cumberland River. The riverport is advantageously located in close proximity to I-24 and I-69 and has a nearby industrial park with rail access. The riverport includes amenities such as a Viterra grain storage and barge loading facility and the Paducah Barge shipyard and drydock.
7. **TVA Cumberland Fossil Plant**, is a power generation facility located in Cumberland City, Tennessee near MM 104. The TVA Cumberland Fossil Plant uses the Cumberland River primarily for coal shipments and cooling purposes. Water from the Cumberland River is drawn into the plant to absorb and dissipate heat generated during electricity production. This process helps maintain the efficiency and safety of the plant's operations. By 2026, TVA plans to replace one unit with a 1,450-megawatt combined-cycle natural gas facility by 2026, which will significantly reduce carbon emissions and reduce coal shipments to the plant. Also operating at the site is SEFA® Group, which converts coal ash waste into fly ash, a product concrete and other construction materials. SEFA® distributes the fly ash via their truck fleet.
8. **Nyrstar Holdings'** manufacturing plant across the river from Clarksville, Tennessee is the only primary zinc producer in the United States. Nyrstar is planning to expand the plant to also process gallium and germanium. The proposed $90 million facility could make Clarksville the top provider of those materials in the United States. The Cumberland River provides a crucial source of water for various industrial processes, including cooling and other operational needs, and is used to transport raw materials and finished products via an extended conveyer loading system. To protect the river's ecosystem, Nyrstar maintains a one-kilometer-wide buffer zone of wetlands and farmland between the river and the plant's operating areas and treats all used water before being discharged back into the river.
9. **Clarksville River Terminals** on the western edge of Clarksville's riverfront includes several marine-based operations. **Arcosa Aggregates** produce sand and gravel at the Clarksville Quarry and operate a river terminal for loading barges. The quarry also has on-site rail service. Hopkinsville Elevator operates two sets of grain elevators, one that loads barges directly at the river and a larger facility that loads via a conveyer..
10. **Ashland City Terminal** is a planned intermodal marine cargo transfer facility that will primarily unload barges containing non-hazardous break bulk and bulk commodities that can be stored on site pending final delivery to manufacturing plants and industrial sites throughout middle Tennessee. The terminal is being developed by the Ingram Barge Company, which operates nearly 4,000 barges with a fleet of over 80 linehaul vessels and over 30 tugboats throughout the eastern United States.
11. **Arcosa Marine** is a leading manufacturer of barges and marine products, specializing in the production of hopper, tank, and deck barges that are essential for transporting cargo on U.S. inland waterways. Arcosa launches new barges from their assembly plant near Ashland City directly into the Cumberland River for delivery around the country. Arcosa Marine also uses the river and on-site rail service for the delivery of materials and supplies. Directly upstream from Arcosa is the new **Nashville Marine Terminal** operated by **Parker Towing**. The intermodal terminal includes a dock, warehouse space, and outdoor storage space for bulk and breakbulk cargoes.

12. **Hailey's Harbor River Transportation** operates a barge terminal on the Cumberland River in Nashville, Tennessee, near MM 180. This terminal is involved in the offloading and handling of aggregate materials, such as sand, gravel, and crushed stone used for construction projects. The terminal is close to the Briley Parkway (TN-55), which provides strategic access to all of central Nashville's interstate systems. The terminal is part of a network of barge terminals in the Nashville area, including those operated by Pine Bluff Materials. These terminals collectively enhance the region's capacity to manage and distribute construction aggregates.
13. **Holcim US (formerly LaFarge)** is a leading provider of building materials in the United States, including cement, aggregates, ready-mix concrete, and other construction materials. They use this location on the Cumberland River in central Nashville to transfer bulk materials to trucks for delivery to customers throughout the region.
14. **ExxonMobil Nashville Terminal** is located in central Nashville near MM 185. This centrally located terminal is used for storage and to transfer petroleum products, including gasoline, diesel, and jet fuel to trucks for distribution to regional customers. Although located near a rail line, it does not have direct rail connections.
15. **Hunter Marine Transportation**, now a part of **Hines Furlong Line**, is a prominent inland river transportation company offering a diverse fleet of barges and towboats that operate on major U.S. rivers, including the Cumberland, Ohio, Mississippi, Illinois, and Tennessee Rivers. They operate a fleet of towboats and barges on the Cumberland River, providing third-party towing services and harbor tug operations in Clarksville and Nashville. Hines Furlong Line has a fleeting area on the Cumberland River, where barges are temporarily moored while waiting to be loaded or unloaded. This area helps manage the logistics of barge movements and ensures efficient operations along the river.
16. **Marathon Petroleum Corporation (MPC)** is a leading American petroleum refining, marketing, and transportation company. In Nashville, MPC operates two riverfront terminals. At MM 185, Marathon's Bordeaux Terminal receives, custom blends, and distributes a variety of fuels by over-the-road transport, pipeline, and inland-waterway barges. At MM 187, Marathon's asphalt terminal stores and distributes asphalt and emulsion products used for paving and roofing.
17. **Pine Bluff Materials** use modern dredges to extract sand from owned and leased deposits and operates a network of distribution yards across the Ohio, Cumberland, and Tennessee river systems, allowing them to efficiently support large-scale orders throughout the southern and central United States. The facility at MM 193 uses a conveyor system and truck loading platform to receive and distribute sand. Pine Bluff Materials has barge fleeting areas at two locations near Nashville for barges waiting to unload aggregate for asphalt and paving production. **Mid-South Wire** and **Ergon Terminaling** operate neighboring operations, using the Cumberland to receive manufactured wire and distribute petroleum products.
18. **Garrott's Sand and Gravel,** part of Garrott Brothers Continuous Mix, is a family-owned business based in Gallatin, Tennessee. They specialize in providing ready-mix concrete and various construction materials, including sand and gravel. The company has been serving the Southern Kentucky, Middle Tennessee, and Upper Cumberland regions for over 70 years. Garrott's Sand and Gravel utilizes the Cumberland River primarily for the transportation of sand and gravel. They operate a river terminal near MM 240 where these materials are received and shipped via barge.
19. **TVA Gallatin Fossil Plant** at MM 243 consists of four coal-fired units and eight natural gas turbines with a combined generating capacity of over 1,600 net megawatts. It consumes approximately 10,000 to 12,500 tons of coal per day, which is offloaded from barges via an extensive conveyor system. The plant is transitioning to a more sustainable energy mix, including the retirement of some coal units and the addition of renewable energy sources.

7. Public Benefits of Moving Freight via Rivers

Trucking and rail are the predominant modes of freight transportation in both Kentucky and Tennessee. Improving the number and capacity of Cumberland USMHP network connections will provide valuable transportation alternatives and reduce congestion related to commercial truck traffic. For example, as shown in **Figure 7** below, the amount of freight from 58 large semi-trucks could fit into one barge, which could dramatically decrease roadway congestion when scaled.

Figure 7. *Cargo Equivalents by Mode*



Additional economic benefits include the following:

Source: KYTC

- **Cost** – the U.S. Inland Waterways System (IWS) 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% of all fatal crashes, the fatality rate per million miles traveled are 40% higher for heavy trucks than for passenger vehicles.[14]
- **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].

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

- **Road Maintenance** – Heavy trucks are the primary cause of deterioration and damage to interstate and other major highways. An 18-wheel 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 river port 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 reduces 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.

8. Potential Impediments

There are several potential obstacles to the growth of freight and industry development along the proposed USMHP route on the Cumberland River. Potential impediments are discussed in greater detail in the following sections.

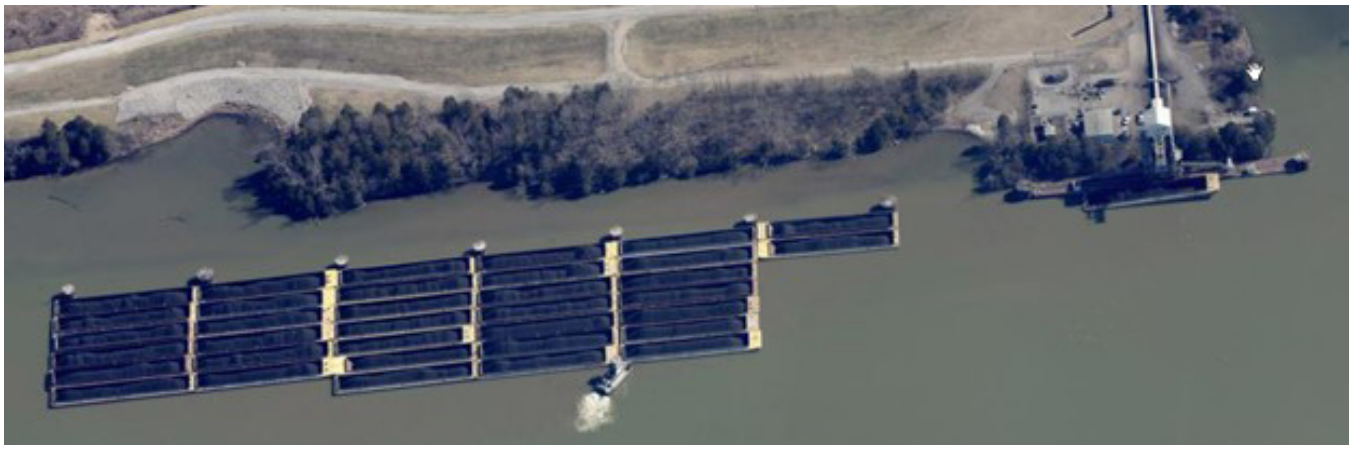
8.1 Market Trends for Coal

Coal mining has played a significant role in the economy of both Kentucky and Tennessee. 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% of the state's utility-scale electricity utilizes coal as an energy source. However, Tennessee no longer harvests coal and is scheduled to shut down all coal-fired plants in the state by 2035.[16]

The Cumberland Fossil Plant is located on 1,425 acres of land along the shores of Lake Barkley in Stewart County, Tennessee. The Cumberland Fossil Plant was constructed in 1973 and annually generates 16 billion kilowatt-hours of electricity, supplying electricity to more than 1.4 million homes. However, TVA plans to retire Cumberland Fossil Plant by the end of 2026. After retirement of the coal-fired facilities on site, the Cumberland Fossil Plant will be transitioned into a 1,450-megawatt natural gas facility. As of December 2024, transition plans for the TVA Gallatin Plant have not been released.

The shutdown will also have broader economic and social impacts on the river. The closure might lead to job losses and economic disruption for communities that depend on the plant for employment and local revenue. Additionally, the shutdown of the Cumberland Fossil Plant is likely to impact export and import activity on the Cumberland River, primarily due to changes in the local industrial landscape. Currently, the Cumberland Fossil Plant utilizes approximately 20,000 tons of coal a day. The plant's

[16] TVA plans to replace coal with natural gas by 2035



Coal barges near TVA Gallatin Fossil Plant, Gallatin, TN (MM 243) *Source: Eagleview CONNECTExplorer*

transition to natural gas reduces the demand for coal and associated shipping activities, which will decrease the volume of cargo transported by the river. This decline might affect businesses and port operations that have been dependent on the plant for a substantial portion of their cargo handling. As a result, there may be a temporary downturn in river traffic and related economic activities until alternative industries or uses for the river's transportation infrastructure are developed.

The decreased transport of coal along the Cumberland River is not a new trend. The Waterborne Commerce Statistics Report from 2017 indicates that the transport of coal along the Cumberland River has been trending downward since at least 2008. However, total freight transported along the Cumberland River between 2008 and 2017 has remained relatively stable due to an uptick in the transportation of other material along the river. The transition away from transporting and utilizing coal as an energy source may present opportunities for economic diversification and the development of alternative energy sources, leading to new investments and industries along the river.

liquid fuels such as sustainable aviation fuels, establishing the state as a hydrogen hub for production, transportation, exports, and industrial use, and conducting a comprehensive workforce assessment.

8.2 Construction Schedule for U.S. Army Corps of Engineers

For decades, the USACE has faced persistent underfunding from Congress, leading to frequent construction delays, particularly for major projects on the Cumberland River. However, with the passage of Water Resources Development Act (WRDA) 2020, WRDA 2022, and the Infrastructure Investment and Jobs Act (IIJA) 2021, there is optimism that project timelines will improve. The recently enacted WRDA 2024 focuses on making waterways more navigable, reducing flood and storm damage, restoring aquatic ecosystems, maintaining ports and harbors, and supporting water supply and storage projects.

The cost-sharing structure for construction has been adjusted to 65/35, with most of the funding coming from the general treasury and the remaining 35% from the Inland Waterways Trust Fund (IWTF). Historically, new construction and major rehabilitation projects were authorized with a 50/50 cost share, limiting available funds to about $230 million annually. Under this new funding structure, approximately $332 million will be available each year.

Delays in project delivery increase the risk of major lock failures and impacts to waterway commerce. Waterways are often the most cost-effective mode of shipment. Industries that rely on the Cumberland River are typically built to maximize river access, and disruptions can have severe economic impacts on the region. Waterways connect remote areas to each other and to international markets, so closures affect interstate traffic as well as local traffic. Power generation could be disrupted due to coal shortages, and the burden on highway and rail systems would increase significantly.

Additionally, work in TVA reservoirs involving minor structures and fill is currently authorized via a five-year (2023-2028) Programmatic General Permit, issued by the USACE Nashville District.

8.3 Zoning Issues

Nashville and Clarksville, along with many other cities in the Unites States, have been developed along waterways like the Cumberland River. Infrastructure development in these areas have included non-waterway related interests and activities, which are enabled by local zoning ordinances. Waterfronts are viewed as an ideal location for business development because residents are willing to pay a premium for a waterfront lifestyle. As a result, there is decreased opportunity to develop industrial facilities that require waterfront access to operate efficiently.

9. Qualified Opportunity Zones on Proposed Route

The Qualified Opportunity Zone (QOZ) program is a federal strategy offering tax incentives for private sector investments within designated communities, which are referred to as QOZ's. A number of QOZs are present along the proposed route which were designated based on their distressed economic status, recommendation from local officials, and likelihood of private sector investment.

The federal QOZ program offers an avenue to defer capital gains tax when property and development investments are made within QOZs. Taxpayers interested in deferring capital gains and investing in Qualified Opportunity Zone projects need to invest in a Qualified Opportunity Fund to take advantage of the QOZ tax benefits. Eligible uses of program benefits include industrial, commercial, and residential projects in addition to direct business investments. Such investments must be made by 2027.

10. Community Engagement and Support

The KYTC project team and staff at the TDOT recognize the many benefits that this designation would have to users of the Cumberland River. In addition to alleviating congestion on roads in Kentucky and Tennessee, this marine highway designation will allow industrial enterprises along the river to utilize a cheaper mode of material 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 history of commerce on the Cumberland River has been intertwined with the histories of Kentucky and Tennessee from each state's beginnings, and the river's vital transportation role in the two states' current and future economies is readily apparent. The Cumberland River's navigability and proximity to essential transportation infrastructure makes it a critical link between regional industries. Increased freight transport by barge can help our shared regional economies continue to grow, creating new business opportunities and jobs while reducing highway congestion and congestion-related crashes. The designation of this route as a United States Marine Highway will help increase the recognition and visibility of this great resource and help spur further investment in its potential. For these reasons, the Kentucky Transportation Cabinet and Tennessee Department of Transportation propose designating the Cumberland River as new route M-24 in the United States Marine Highway system.

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Appendix A:

Notable Marine Enterprises along the Cumberland River by Mile Marker

Holcim Three Rivers Quarry (MM 7 in Smithland, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Stone aggregates

Cumberland River Quarry (MM 15 in Salem, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Limestone aggregates

Slats Lucas Quarry (MM 17 in Salem, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Limestone aggregates

Grand Rivers Quarry (MM 33 in Grand Rivers, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Stone aggregates

Marathon Petroleum (MM 38 in Kuttawa, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Asphalt

Eddyville Riverport and Industrial Development Authority (MM 43 in Eddyville, KY)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Various

TVA Cumberland Fossil Plant (MM 104 in Cumberland City, TN)

Commodities Handled:
Coal

Source: Eagleview CONNECTExplorer

Nyrstar Holdings (MM 122 in Clarksville, TN)

Source: Eagleview CONNECTExplorer

Source: Eagleview CONNECTExplorer

Commodities Handled:
Minerals/various

Clarksville River Terminals (MM 124 in Clarksville, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Sand, gravel, grain

Ashland City Terminal (MM 162 in Ashland City, TN)

Note: this image is a conceptual rendering of the planned Ashland City Terminal

Source: Ingram Infrastructure Group LLC/NexStar Solutions LLC

Commodities Handled:
Non-hazardous bulk/various

Arcosa Marine (MM 164 in Ashland City, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Materials and supplies for marine equipment construction

Source: Arcosa Marine

Hailey's Harbor River Transportation (MM 180 in Nashville, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Stone aggregates

Holcim US (formerly LaFarge) (MM 183 in Nashville, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Building materials

ExxonMobil Nashville Terminal (MM 185 in Nashville, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Petroleum products

Hunter Marine Transportation (now part of Hines Furlong Line) (MM 186 in Nashville, TN)

Source: Hines Furlong

Commodities Handled:
Various

Marathon Petroleum Corporation (MM 187 in Nashville, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Asphalt and emulsion products

Pine Bluff Materials (MM 193 in Nashville, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Asphalt aggregate, manufactured wire, and petroleum products

Garrott's Sand and Gravel (MM 240 in Gallatin, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Ready-mix concrete and various construction materials

TVA Gallatian Fossil Plant (MM 243 in Sumner County, TN)

Source: Eagleview CONNECTExplorer

Commodities Handled:
Coal