Green River
Marine Highway
M-165

New Route Designation Request

February 2025

TEAM KENTUCKY®
TRANSPORTATION CABINET

Table of Contents

Figures

Tables

Appendix

Executive Summary

The Kentucky Transportation Cabinet (KYTC) is proposing to designate the Green River between river mile marker (MM) 0 and MM 109 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 Green River flows generally north from its headwaters in central Kentucky into northwestern Kentucky before flowing into its confluence with the Ohio River (MH M-70) near Spottsville, Kentucky. There are two lock and three dam systems within the proposed USMHP route. All commercially navigable activity on the Green River occurs in western Kentucky between the river's confluence with the Ohio River (M-70) and the Green River Lock and Dam No. 3 near Rochester, Kentucky and is predominantly related to major coal mining and power generation operations. Commercial activity along the river is largely dispersed among rural land, outside of any major cities. The major commodities conveyed on the river are 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's freight and transportation networks are extensive and the Green River intersects with various rail lines and highways. Congestion is a notable concern in many of the two-lane rural highways located within the vicinity of the Green River. In addition, several major transportation projects are planned, including the rehabilitation of the Rockport Railroad Bridge crossing the river. The designation of the Green River as a new MH will bring the commercial role of the river renewed recognition and visibility, with further investments serving to increase its capacity to strengthen redundancies and reduce congestion and its related costs from the regional highway and rail network.

Green River Lock and Dam No.1 and the US-60 Bridge, Spottsville, Kentucky (MM 9)

Acronyms / Abbreviations

AEP	American Electric Power
EPA	Environmental Protection Agency
FARS	Fatality Analysis Reporting System
FAF	Freight Analysis Framework
IIJA	Infrastructure Investment and Jobs Act
INDOT	Indiana Department of Transportation
INFRA	Infrastructure for Rebuilding America
ITS	Intelligent Transportation Systems
IWS	U.S. Inland Waterways System
IWS	Inland Waterways System
IWTF	Inland Waterways Trust Fund
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
TRIP	National Transportation Research Nonprofit
QOZ	Qualified Opportunity Zone
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 requesting the designation of the Green 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 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.

US 60 Spottsville Bridge Ribbon Cutting, August 2022 *Source: WFIE, 14News, Evansville, IN*

2. Description of the Proposed Route

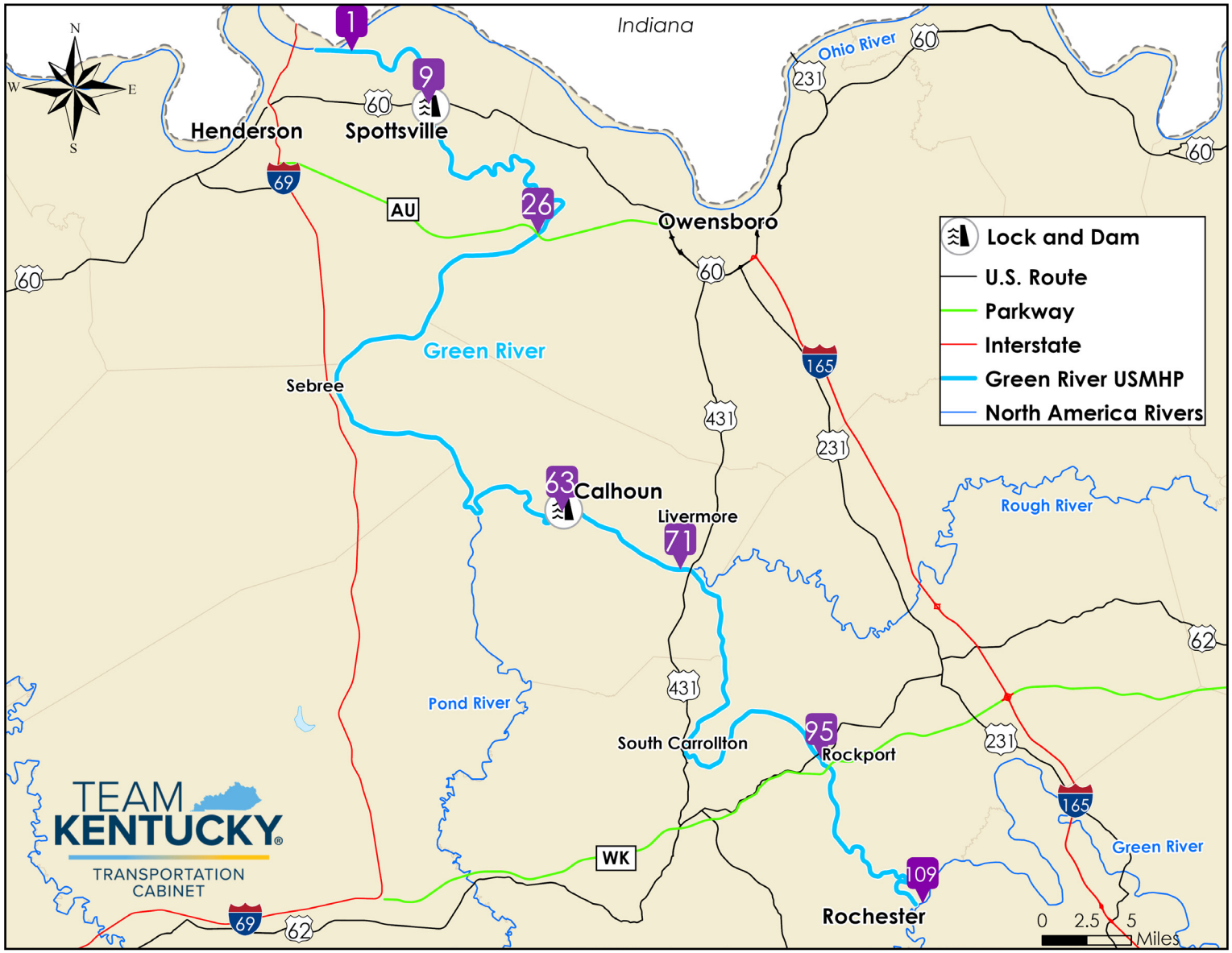
The Green River is a 384-mile-long winding river with a watershed area of 9,800 square miles located within western and central Kentucky. It is the longest river to flow completely within the commonwealth, flowing west from its headwaters in Lincoln County to Green River Lake south of Campbellsville, Kentucky, where it is impounded by the Green River Lake Dam. From this impassable dam, the river flows west through the rolling hills and deep valleys of central Kentucky before turning northwest at the Green River Dam No. 3, locally known as the Rochester Dam, at mile marker (MM) 109 near Rochester, Kentucky. The proposed USMHP route on the Green River includes the section that the United States Army Corp of Engineers (USACE) designates as commercially navigable, from MM 0, where the river meets the Ohio River east of Henderson, Kentucky, to MM 109, at the Rochester Dam.

Beginning at MM 0, where the Green River meets the Ohio River (M-70) east of Henderson, Kentucky, the proposed USMHP route winds through a predominantly flat and rural landscape. Green River Lock and Dam No.1 is located at MM 9 near Spottsville, Kentucky, just south of the US 60 highway river crossing. From Spottsville, the river continues through rural agricultural land, crossing under the Audubon Parkway (AU) at MM 26 and passing Sebree Station (MM 41), a large industrial complex of power generating stations and an aluminum smelter near Sebree and Robards, Kentucky. The Green River Lock and Dam No. 2 is located at MM 63 in Calhoun, Kentucky, and US 431 crosses the river at MM 71 in Livermore, Kentucky. The route passes by two other power generating stations (DB Wilson Generating Station at MM 74 and the Paradise Combined Cycle Plant at MM 99) and a major coal loading facility, as well as the hamlets of South Carrolton (MM 84) and Rockport (MM 95), where it crosses under the Western Kentucky Parkway (WK). The proposed route ends at the Rochester Dam at MM 109 in Rochester, Kentucky.

The commercially navigable portion of the Green River varies in width, but generally ranges from about 200 to 300 feet wide. This section of the river is maintained by the USACE to support barge traffic and other commercial activities. The USACE classifies the waterway as having a nine-foot control depth, acceptable for accommodating barge traffic.

Figure 1 shows the proposed Green River Marine Highway Route including the two operating lock and dam systems at Spottsville and Calhoun as well as the Rochester Dam at the end of the proposed route.

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



3. Lock and Dam System on the Proposed Route

Green River Lock and Dam No. 2, Calhoun, Kentucky *Source: USACE*

There are three dams within the proposed USMHP route. The two dams include operating locks are located at MM 9 near Spottsville and MM 63 in Calhoun. **Table 1** provides descriptive statistics for these two locks. While no longer a navigable lock, the Rochester Dam was recently rehabilitated to continue maintaining water levels to accommodate navigation for the proposed route below the dam.

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

Name	Mile Marker (MM)	Closest Municipality	Year Completed	Lock Chamber Dimensions (feet)	Lift (feet)
Green River Lock and Dam #1	9	Spottsville, KY	1956	600 x 84	8
Green River Lock and Dam #2	63	Calhoun, KY	1956	600 x 84	14

Both lock systems include a single lock chamber equipped to accommodate recreational and commercial vessels, particularly barges. Like most lock and dam systems, the locks and dams along the Green River provide benefits to a broad range of stakeholders. These benefits include the following:

- Recreational uses (boaters and recreation facilities)
- Municipal and industrial water supply
- Managing wastewater discharges
- Flood control

4. Freight Movement, Commodities & Tonnage

By the early 19th century, the Green River had established itself as an important commercial route for early pioneers, with the first steamboat reaching Bowling Green, Kentucky, in 1828. By 1942, Kentucky's Board of Internal Improvements had completed a series of locks and dams, creating a navigable channel to Bowling Green, approximately 190 miles upriver from the Ohio River. In 1969, the U.S. Army Corps of Engineers built the Green River Lake Dam south of Campbellsville, forming Green River Lake and establishing the modern system of maintaining navigable levels on the downstream pools. In 1981, due to a lack of commercial traffic, the Green River Lock and Dam No. 3 at Rochester discontinued locking operations, effectively creating the current existing commercially navigable section of the river now proposed for designation in the USMHP.

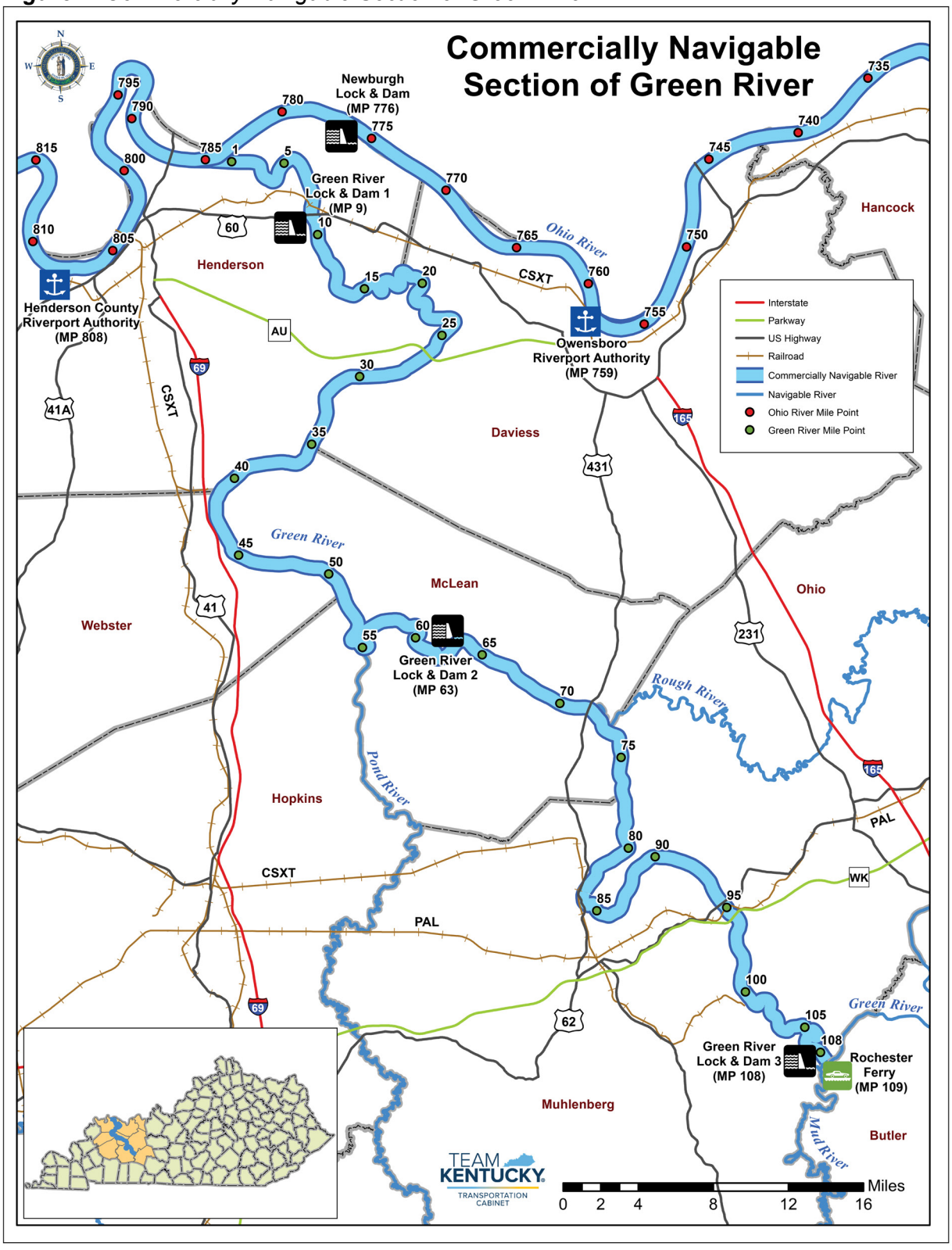
The Green River valley initially played a significant role in the timber industry, supplying logs to sawmills in Evansville, Indiana. However, in 1820, Kentucky's first commercial coal mine, known as the "McLean Drift Bank" opened near the Green River in Paradise, Kentucky (MM 100). Surface mining in the region began in 1922 and the export of coal using rail and the Green River has been a predominant commercial activity ever since. In addition to coal, the river also supports the transportation of industrial and agricultural goods, which can access domestic and international markets via the Ohio 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 all border Kentucky and contribute to the state's 1,020 miles of commercially navigable waterways, 109 of which are located on the Green River. Commercially navigable sections of the Green River are identified in **Figure 2,** below. 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. 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.

Figure 2. *Commercially Navigable Section of Green River*



- **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 (BNSF) and Union Pacific (UP), which are Class I railroads operate track in Kentucky under lease agreements. **Figure 3** presents Kentucky's active rail lines. Six of Kentucky's seven active public riverports have rail access. Railroads have been historically linked with the coal mining industry, but also links 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.[1] CSX and the Class II Paducah & Louisville Railway (P&L) both serve the region and industries directly surrounding the proposed USMHP route along the Green River, with railroad crossings at MM 8 (CSX) and MM 95 (P&L).
- **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. Owensboro-Daviess County Regional Airport, located approximately seven miles from the Green River, is the closest airport with limited commercial flights and the Henderson City-County Airport and the Madisonville Municipal Airport are general aviation airports within 20 miles of the Green River.
- **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 Green River near MM 35, MM 53, and MM 69.[2]

4.2 Green River 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).[3] The most recent version (5.6.1) of the FAF provides data on freight movements by mode for 132 domestic regional zones. The Green River traverses one FAF zone, which is Zone 219: Remainder of Kentucky.

While FAF Zone 219 includes a geographical area with parts of other key navigable rivers, notably parts of the Ohio River, Cumberland River, and Tennessee River, understanding how freight moves within rural FAF zones is relevant to understanding how the rivers that make up this zone work together to support diverse commodity flows.

In 2023, approximately 379,000 tons of freight worth an estimated $294 billion were transported within Zone 219. Of this total tonnage, approximately 43% accounted for inbound and 31% accounted for outbound freight flow. Approximately 46% of the total freight tonnage in Zone 219 was transported by truck and the remaining freight was moved by pipelines (32%), rail (10%), and water (9%).

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

2 https://pvnpms.phmsa.dot.gov/PublicViewer/

3 https://www.bts.gov/faf

Figure 3. *Kentucky Active Rail Lines Map*

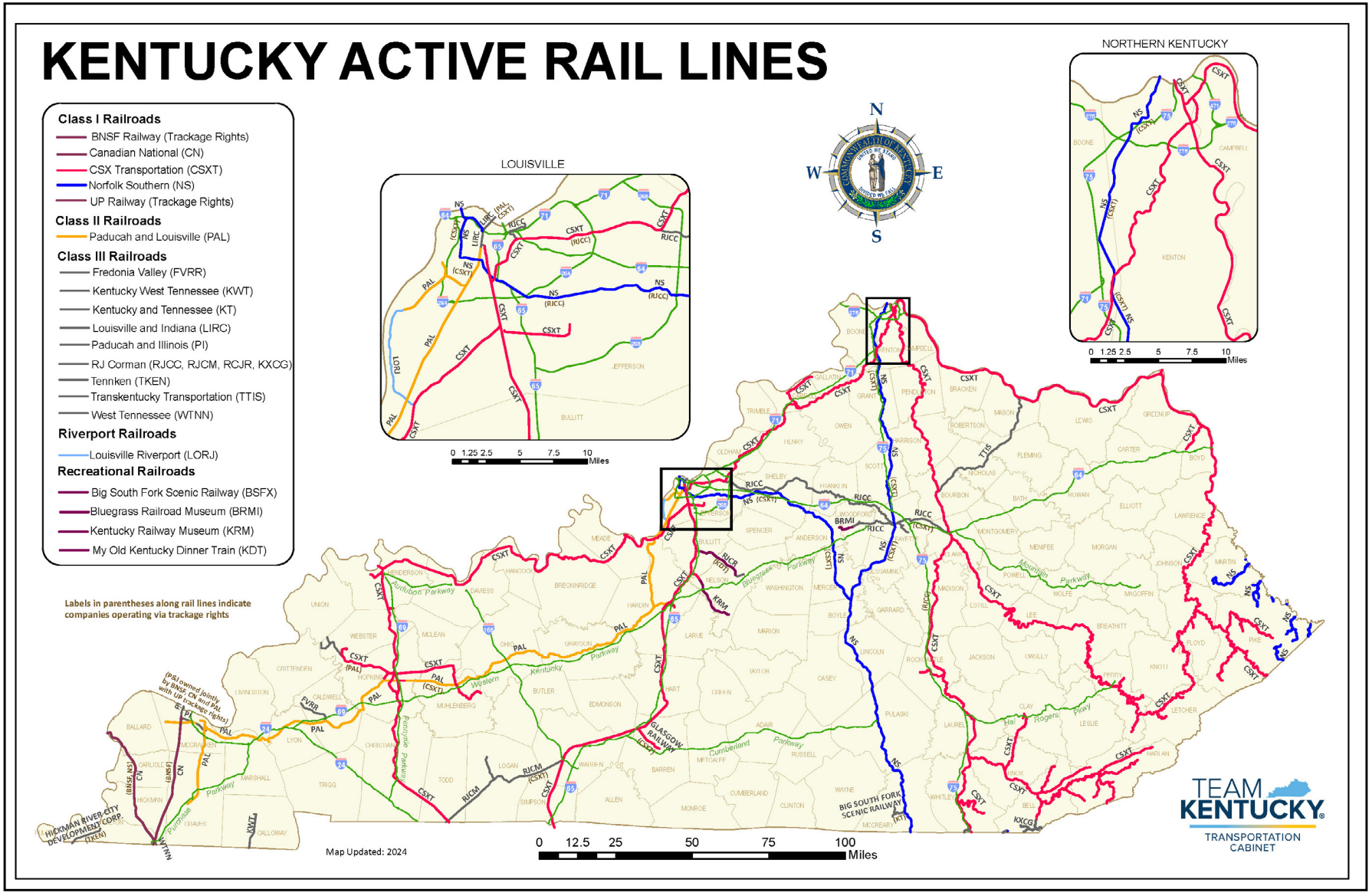


Table 2. *Top Commodities Shipped Within, Out, and Into FAF Zones 219, 2023*

Commodity	Tons Within	Commodity	Tons Outbound	Commodity	Tons Inbound
Gravel	29,135	Gravel	9,414	Base metals	6,375
Cereal grains	10,191	Cereal grains	5,398	Gravel	4,910
Logs	7,244	Motorized vehicles	3,516	Natural sands	4,452
Waste/Scrap	4,018	Basic chemicals	3,397	Mixed freight	3,009
Animal feed	3,302	Base metals	3,209	Plastics/rubber	2,766

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

The FAF also identifies commodities that are shipped within, out, and into a particular FAF Zone. Excluding coal and petroleum-based products, **Table 2** presents the top five commodities by tonnage that were shipped within, out, and into FAF Zone 219 in 2023. This table shows that gravel is the most commonly shipped commodity outside of coal and petroleum-based products in Zone 219.

The USACE Geospatial database provides link tonnage data on waterways by commodity group over time.[4] In 2020, the Green River supported the movement of nearly 1.5 million tons of cargo. Upbound commodities include crude materials, manufactured goods, farm products, and machinery waste. The most widely dispersed commodity group delivered on the Green River is coal. However, coal shipments are expected to continue declining as coal-fired power plants continue to close and convert to natural gas. The decline in coal traffic offers both an opportunity and necessity for the existing commercial marine shipping capacity to expand into shipments of other bulk commodities, as well as manufacturing inputs and finished goods. This transition would include new and expanded riverside operations as well.

The USACE also provides monthly tonnage reports for locks on the Green River.[5] **Table 3** presents the cumulative upbound and downbound tonnage by major commodity group for two of the three locks located on the Green River 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. The highest concentration of freight movement along the river occurs nearest to the Green River's confluence with the Ohio River.

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

Code	Commodity	Upbound Tons (KTONS)		Downbound Tons (KTONS)		Total Tons (KTONS)	
	Lock and Dam No.	1. Spottsville	2. Calhoun	1. Spottsville	2. Calhoun	1. Spottsville	2. Calhoun
10	Coal, Lignite and Coke	677.0	617.0	-	-	677.0	629.0
40	Crude Materials, Inedible, except Fuels	610.1	-	7.0	12.0	617.1	12.0
70	All Manufactured Equipment and Machinery	-	-	0.1	-	0.1	-

Source: USACE

[4] https://geospatial-usace.opendata.arcgis.com/datasets/2f90f830c8f641b59353ac5ce128da7a_0/explore
[5] US Army Corps of Engineers Lock Performance Monitoring System, Monthly Tons Report

5. Surface Transportation Interchanges

5.1 Network Connections

The proposed Green River USMHP route meanders through central and western Kentucky, intersecting with several highways and interstates. Near Spottsville, Kentucky, US 60 crosses the Green River at MM 9 before it continues across Kentucky. Between MM 41 through MM 45 near Sebree, the Green River crosses KY 56 and parallels I-69 before turning east and crossing US 431 near Livermore, Kentucky between MM 71 and MM 72. From Livermore, the Green River turns south again, crossing KY 85 near MM 75. In Rockport near MM 95, the Green River crosses US 62 before connecting with KY 70 at the proposed USMHP terminus near Rochester at MM 109.

Several railroad lines run adjacent to or cross the Green River at multiple locations. Primarily, Class I CSX Transportation runs north/south and east/west within the region where the proposed Green River USMHP is located, crossing the river near MM 8 in Spottsville. In addition, the Class II Paducah & Louisville Railway runs east/west and crosses the Green River near Rockport at MM 95.

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

MM 40:
The Century Aluminum Sebree LLC operates barge loading and docking facilities on the Green River with connections to I-69.

MM 41:
Sebree Station has two material elevators and a dock with direct connections to I-69, although there are plans to demolish at least part of the coal conveyance system now that the generating plants exclusively use natural gas.

MM 44:
While not currently utilized or regularly operated, a barge loading dock is present along the Green River with close connections to I-69 via KY 56.

MM 61:
A dormant loading dock is located along the Green River with direct access to KY 138.

MM 71:
Perdue AgriBusiness operates a feed mill and grain elevator for imports and exports along the Green River via container barges. The facility has connections to US 431 via KY 138

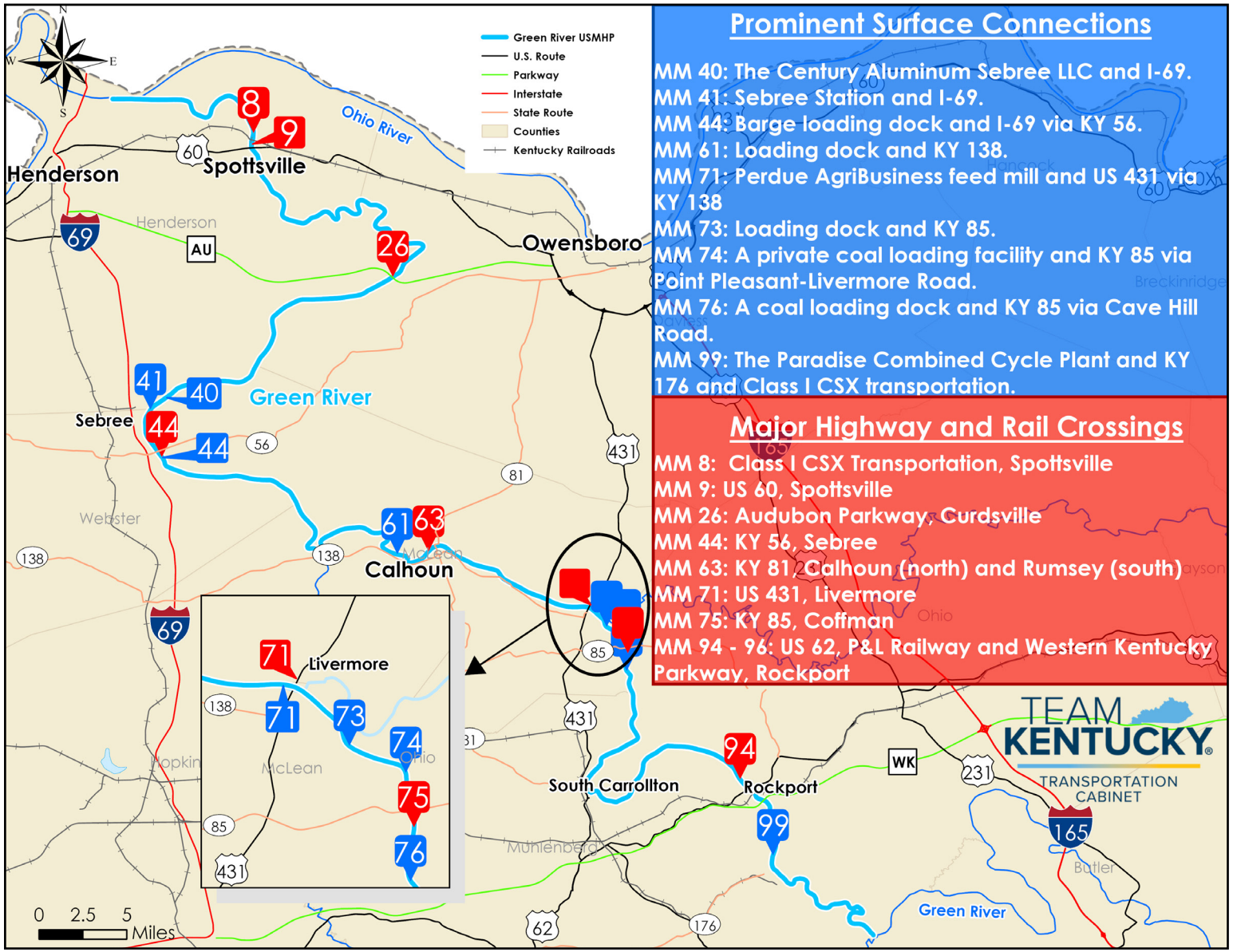
MM 73:
A dormant loading dock is located along the Green River with access to KY 85.

MM 74:
A private coal loading facility is located along the Green River with access to KY 85 via Point Pleasant-Livermore Road.

MM 76:
A coal loading dock is located along within a coal distribution facility along the Green River with access to KY 85 via Cave Hill Road.

MM 99:
The Paradise Combined Cycle Plant has a coal loading dock that was used when the facility burned coal as the Paradise Fossil Plant. The facility has connections to KY 176 and Class I CSX transportation.

Figure 4. *Surface Connections and Crossings*



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

MM 8:
Class I CSX Transportation, Spottsville, Kentucky

MM 9:
US 60, Spottsville, Kentucky (indirect connection to I-69 via US 41, located 8 miles northwest of the Green River)

MM 26:
Audubon Parkway (AU-9005), Curdsville, Kentucky

MM 44:
KY 56, Sebree, Kentucky (direct access to I-69, located 0.5 miles west)

MM 63:
KY 81, Calhoun (north) and Rumsey (south), Kentucky

MM 71:
US 431, Livermore, Kentucky

MM 75:
KY 85, Coffman, Kentucky

MM 94 - 96:
US 62, the Class II Paducah & Louisville Railway, and Western Kentucky Parkway all cross the Green River in Rockport, Kentucky.

5.2 Highway Safety

Table 4 presents fatal crash statistics for Kentucky from the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS). The proposed Green River USMHP route does not cross through any major metropolitan areas, as it travels through relatively uncongested rural towns and farmland. However, fatal crashes can and do occur in both rural and metropolitan areas for all roadway classes. While fatality rates in Kentucky have declined steadily over time, it has the 8th highest fatality rate on rural non-interstate highways in the U.S.[6] Diverting freight traffic from the regional highway network to the Green River 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%
United States	1.33	42,514	5,936	59%	54%

** Fatalities per 100 million Vehicle Miles Travels (VMT)* *Source: NHTSA Fatality Analysis Reporting System*

6 https://tripnet.org/reports/rural-connections-kentucky-news-release-09-19-2024/#:~:text=News%20Release%3A%20Kentucky's%20Rural%20Roads,Highest%20in%20U.S...%20%7C%20TRIP

5.3 Roadway Congestion

Roadway congestion poses significant hurdles to the economic vitality of Kentucky. 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.

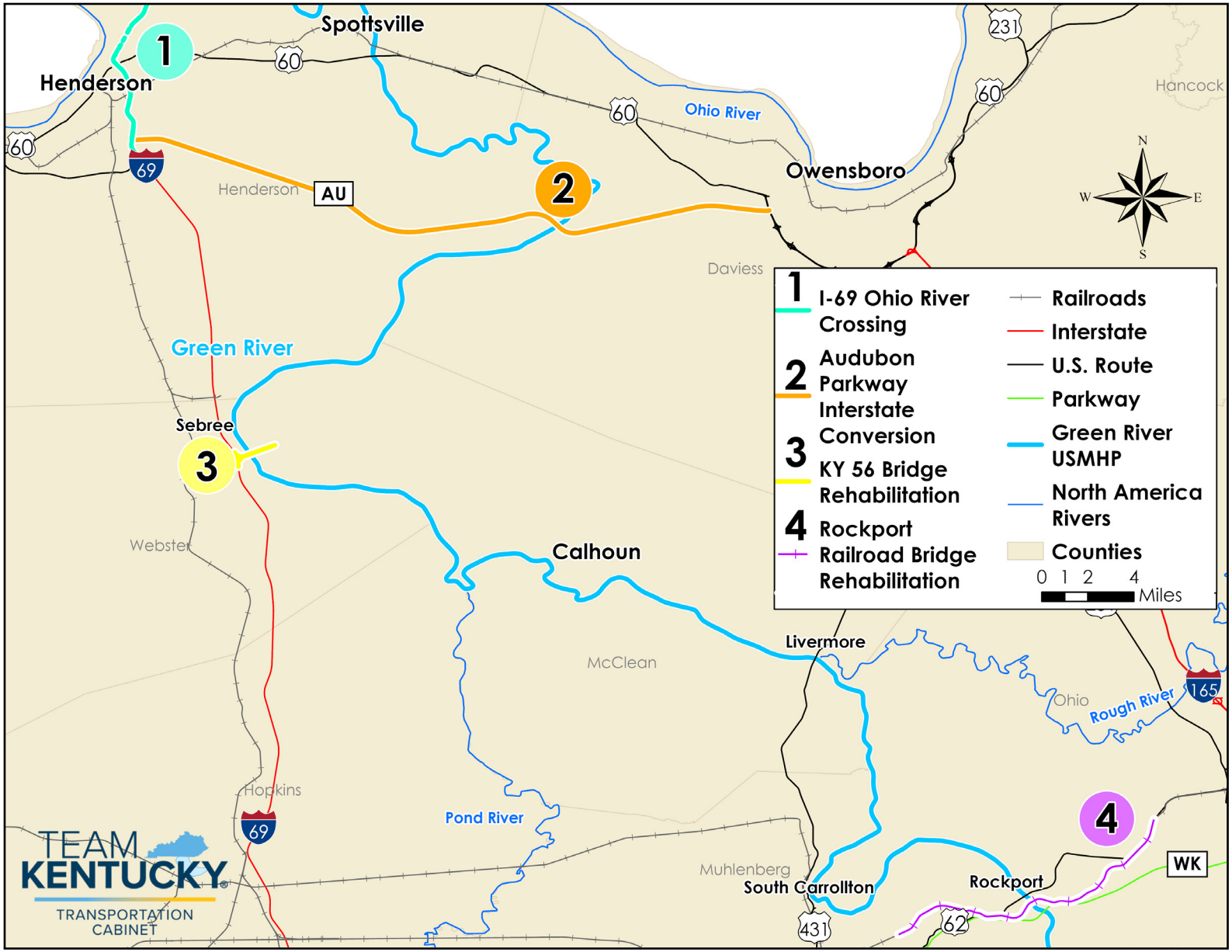
Western Kentucky's roads, highways, and bridges form a vital connection for the prosperity of the state's economy. In 2020, the state's transportation system carried 46.5 billion annual vehicle miles of travel. Without this infrastructure, access would be severely limited because of Kentucky's diverse 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 the 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 businesses, shippers, and manufacturers.

6. Current & Planned Transportation Improvements Near the Green River 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 along the Green River, with descriptions for each project provided below.

1. **1. I-69 Ohio River Crossing; Henderson, Kentucky and Evansville, Indiana**
   The KYTC and the Indiana Department of Transportation (INDOT) are jointly planning and constructing a new interstate crossing over the Ohio River between 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 Ohio River crossing is anticipated to commence in 2027. When completed, I-69 will be continuous from the Kentucky / Tennessee state line to the Canadian border in Port Huron, Michigan.
2. **Audubon Parkway Interstate Conversion, Daviess and Henderson Counties**
   As a part of a larger effort to convert portions of Kentucky's parkway system to interstate facilities (examples include I-69, formerly the Purchase Parkway and portions of the Pennyrile and Western Kentucky Parkways and I-165, formerly the Natcher Parkway), KYTC plans to designate the Audubon Parkway between I-69 in Henderson and US 60 in Owensboro as I-369, a spur of the I-69 system. This conversion is intended to coincide with the completion of Section 1 of the new I-69 Ohio River crossing, which would complete I-69 in Kentucky south of the Ohio River. As part of the conversion effort, KYTC is upgrading the Audubon Parkway to meet FHWA's interstate standards. This includes plans to upgrade pavement conditions and correct other roadway and structure deficiencies.
3. **KY 56 Bridge Rehabilitation, McLean and Webster Counties**
   Rehabilitation work on the KY 56 bridge crossing will commence in the summer of 2025, completing the rehabilitation of this connection between McLean and Webster Counties, which provides vital access for north McLean County and southwestern Daviess County to I-69. A new concrete deck for the bridge was completed in 2022. This crossing, as well the construction of a new US 60 bridge in Spottsville in 2022 and planned upgrades to the Audubon Parkway, ensure that vital east-west corridors across the Green River remain available to serve existing communities and future economic growth.

Figure 5. *Notable Transportation Improvement Projects*



4. **Rockport Railroad Bridge Rehabilitation Project, Muhlenberg and Ohio Counties**
In 2022, The USDOT awarded an Infrastructure for Rebuilding America (INFRA) grant to rehabilitate of the 100-year-old Rockport Railroad Bridge that serves as a vital link across the Green River for the P&L Class II railroad. The 100-year-old bridge carries more than 110,000 freight carloads annually[7], including chemicals, grain, coal, lumber, steel, and petroleum. The project will replace the deck of the bridge and upgrade the electrical and mechanical components that allow the bridge to be raised to accommodate river traffic.[8]

7. Notable Marine Enterprises

Commercial operations on the Green River continue to reflect the role of coal mining and power generation in the region, but also include agriculture, manufacturing, and the service industry for barge operations. **Figure 6** presents a map of current riverside operations, with descriptions for each provided below.

MM 1:
Evansville Marine Services operates commercial marine services at the junction of the Ohio and Green Rivers, including barge fleeting and repairs. The Crounse Corporation operates a fuel dock on the Green River at MM 1. Evansville Marine Services uses the banks of both rivers to marshal and store barges and has extensive operations upstream on the Ohio River in Owensboro and downstream in Evansville, Indiana.

MM 40:
Century Aluminum Sebree LLC in Robards, Kentucky is an aluminum supplier. Century's Sebree aluminum smelter has a production capacity of approximately 220,000 metric tons per year. The company operates a dock used for loading and unloading barges. Commodities handled: aluminum billet, molten, sow, and slab.

MM 42:
Sebree Station in Robards, Kentucky is gas-fired energy generation station. Operated by the Big Rivers Electric Company headquartered in Owensboro, the complex historically included three coal-fired power plants that received coal via barge. However, one of the plants has been demolished and the remaining two have converted to natural gas received via pipeline. While the docks and conveyer systems remain, much of this system is expected to be demolished this year.

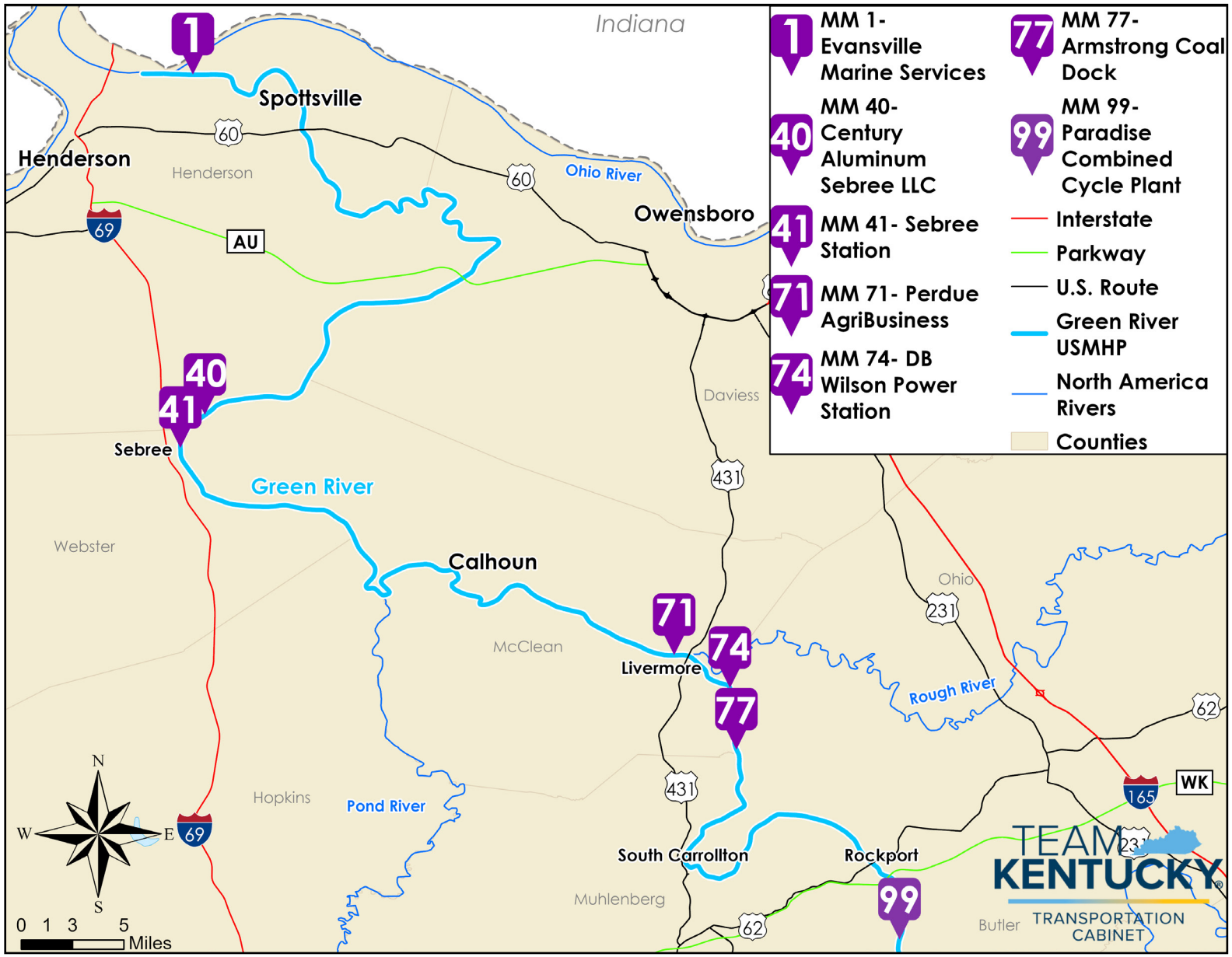
MM 71:
Perdue AgriBusiness in Livermore, Kentucky operates a feed mill and grain elevator for imports and exports along the Green River via container barges.

MM 74:
DB Wilson Power Station in Centertown, Kentucky is a coal-fired power plant operated by the Big Rivers Electric Corporation. The plant receives coal via barge deliveries from docks and a conveyer system.

MM 77:
Armstrong Coal Dock in Centertown, Kentucky services Armstrong's mining operations in Ohio and Muhlenberg Counties on a 116-acre preparation site, and has a throughput capacity of 1,200 tons per hour. The barge loading facility is capable of loading 2,500 tons per hour. Armstrong Coal controls more than 300 million tons of proven and probable coal reserves in Western Kentucky

[7] https://www.14news.com/2022/09/13/gradd-getting-17m-rehabilitate-green-rivers-rockport-railroad-bridge/
[8] Biden-Harris Administration Announces $1.5 Billion from the Bipartisan Infrastructure Law for 26 Transportation Projects Nationwide | MARAD (dot.gov)

Figure 6. *Notable Industrial Operations and Enterprises*



and produces approximately 9.5 million tons of coal annually from three surface mines and three underground mines.[9]

MM 99:

The Paradise Combined Cycle Plant (formerly known as Paradise Fossil Plant) is a natural gas power plant operated by the Tennessee Valley Authority (TVA). Located just east of Drakesboro, Kentucky, it was at one point the highest power capacity power plant in Kentucky. The plant originally consisted of three coal units. Units 1 and 2 were retired in 2017, and replaced with the natural gas units, and Unit 3 was retired in 2020. The combined cycle natural gas plant had a capacity of 1.02-gigawatts (1,025 MW) as of 2017. The Green River is used as a cooling source for the plant and for barge transportation. Commodities handled: coal (historically), petroleum, natural gas and related products.

It is important to note the Green River's advantageous location between nearby riverport operations on the Ohio River (M-70) in Owensboro, Kentucky; Evansville, Indiana; and Henderson, Kentucky. The barge tending operation at MM 1 services commercial activity from both the Green River and these other ports. As these port operations continue to grow, the Green River and the access to the interior of Kentucky that it provides will also grow as a natural candidate for new development and expansion.

8. Public Benefits of Moving Freight via Rivers

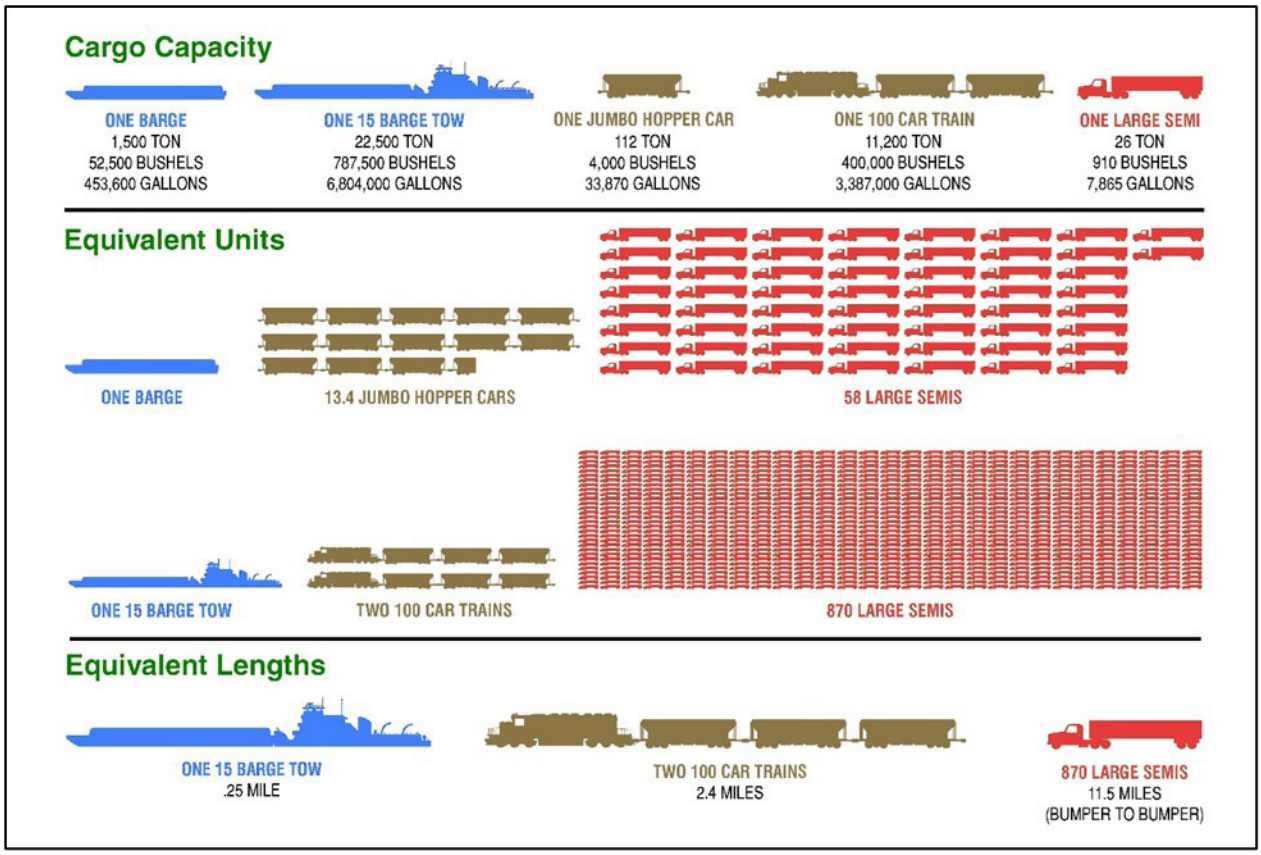
Trucking and rail are the predominant modes of freight transportation in Kentucky. Improving the number and capacity of Green River USMHP network connections will provide valuable transportation alternatives and reduce congestion related to commercial truck traffic. For example, as shown in **Figure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

Additional economic benefits include the following:

- **Cost** - In 2019, 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.[10]
- **Safety** – While heavy trucks are only involved in 15% of all fatal vehicular crashes, the fatality rate per million miles traveled is 40% higher for heavy trucks than for passenger vehicles.[11]
- **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.[12]
- **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.

9 https://www.mclanahan.com/resource-library/armstrong-coal-revives-mines-with-mclanahan-rotary-breakers
10 Waterways System: Learn about the Future of our Waterways
11 https://www.fmcsa.dot.gov/safety/data-and-statistics/large-truck-and-bus-crash-facts-2021#A3
12 https://railroads.dot.gov/rail-network-development/freight-rail-overview

Figure 7. *Cargo Equivalents by Mode*



- **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.

9. Potential Impediments

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

9.1 Market Trends for Coal

Coal mining has played a significant role in Kentucky's economy. 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, due to legislative efforts to upgrade facilities and the competitive price of natural gas, the coal industry in Kentucky has significantly declined over the years, including in the region around the proposed USMHP route. Along the Green River, the Paradise Combined Cycle Plant and the Robert Reid Power Plant at Sebree Station were converted to run on natural gas and ceased burning coal in 2020 and 2022, respectively. Kentucky Utilities' Green River Plant at MM 82 closed entirely in 2015 and is now demolished.

An old dragline excavator sits idle at the closed Equality Mine in Ohio County, KY, MM 87

Source: Eagleview CONNECTExplorer

While coal-driven enterprises along the Green River have closed, industrial infrastructure and network connections are still present. Armstrong Coal remains an active coal shipper and the DB Wilson Power Station continues to receive coal. However, the significant barge capacity available in the region presents a unique opportunity for economic diversification and the development of alternative delivery methods, leading to new investments in existing and new industries along the Green River.

9.2 Construction Schedule for the 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 Green 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 new provisions under WRDA 2024 focus 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. Waterways are often the most cost-effective mode of shipment. Industries that rely on the Green River are typically built to maximize river access, and disruptions can have severe economic impacts on the region. As these waterways also connect remote areas to each other and to international markets, these closures affect interstate and local traffic.

10. Qualified Opportunity Zones on the Proposed Route

The Qualified Opportunity Zone (QOZ) program is a federal strategy to stimulate economic development by 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 QOZ 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.

11. Community Engagement and Support

The KYTC recognizes the many benefits that this designation would have to users of the Green River. In addition to congestion alleviation on roads in Kentucky, 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 program. KYTC is currently soliciting letters of support from a variety of elected officials, organizations, industrial enterprises along the river, and planning agencies.

12. Conclusion

The KYTC would like to thank the U.S. Department of Transportation's Maritime Administration for the opportunity to propose a new U.S. Marine Highway Route, the M-165, to include the Green River between MM 0 and 109. The history of commerce on the Green River has been intertwined with the history of Kentucky from the state's beginnings, and the river's vital transportation role in the state's current and future economies is readily apparent. The Green River's navigability and proximity to essential transportation infrastructure, including major nearby port operations on the Ohio River, make it a ready candidate for new and expanded marine commerce. As the most efficient friendly mode of freight transport, commodity flow by barge helps 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 U.S. Marine Highway will help increase the recognition and visibility of this great resource and help spur further investment in its potential.

For questions and additional information, please contact:

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Appendix A:

Notable Marine Enterprises along the Green River by Mile Marker

Evansville Marine Services (MM 1 in Evansville, IN)

Commodities Handled:
Fuel; barge/marine service

Source: Eagleview CONNECTExplorer

Century Aluminum Sebree LLC (MM 40 in Robards, KY)

Source: USDOC-ESRI

Commodities Handled: aluminum billet, molten, sow, and slab.

Sebree Station (MM 41 in Robards, KY)

Source: CONNECTExplorer

Commodities Handled:
Coal (historically), natural gas

Perdue AgriBusiness (MM 71 in Livermore, KY)

Commodities Handled:
Grain

Source: CONNECTExplorer

DB Wilson Power Station (MM 74 in Livermore, KY)

Source: Google Earth Pro

Source: CONNECTExplorer

Commodities Handled:
Coal

Armstrong Coal Dock (MM 77 in Centertown, KY)

Commodities Handled:
Coal

Source: CONNECTExplorer

The Paradise Combined Cycle Plant (MM 99 east of Drakesboro, KY)

Source: Google Earth

Commodities Handled:
Coal (historically), petroleum, natural gas and related products