Technical Memorandum No. 2—Forecasting the Future of Kentucky's Freight Economy

This Technical Memorandum (Technical Memorandum 2) follows Technical Memorandum 1 which provides a basic understanding of Kentucky's freight transportation economy for the 11 public riverports. Technical Memorandum 1 identifies the existing conditions, inventories strengths and weaknesses, and conveys the roles of the riverports. It also provides an overview of contemporary coordination efforts, key takeaways from port visits, and planned Kentucky Riverport Profiles. Technical Memorandum 2 presents freight forecasts describing the freight market for Kentucky's 11 public riverports, including all relevant freight modes, and identifies long-term forecasts for regional modal freight flow demands. Base year data is derived from 2018 TRANSEARCH modal commodity flow data, incorporating available updates for economic conditions in 2020 to account for the impact of the pandemic.[1] Three 2045 future scenarios are also presented, intended to represent a range of possible future outcomes. Results are presented at the statewide level, followed by regional analyses for competitive "market hinterland" areas for each public port.

At the statewide level, forecasts show growth in overall freight market tonnage. Considering rail-based, highway, and waterborne modes, freight moving through the combined hinterland (defined as all counties within approximately a 90-minute one-way drive time from the nearest port) is anticipated to grow between 10.7% and 24.5% by 2045 depending on the scenario. Finally, this Technical Memorandum 2 contains a brief summary of the March 2021 virtual freight summit and the April 2021 outreach with riverport directors.

[1] A database to access extensive forecast data for each hinterland area will be provided to the Kentucky Transportation Cabinet. Moreover, the team held a virtual training session January 28, 2021, to present the content and recommend best practices to export output tables.

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1. INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) and Kentucky Cabinet for Economic Development (CED) are conducting this *Kentucky Riverports, Highway, and Rail Freight Study* to explore the role of freight in Kentucky's economy, focusing on its public riverport system. This document is one in a series of Technical Memoranda that describe key milestones throughout the study, organized into six basic tasks shown in **Figure 1**. This Technical Memorandum specifically addresses Task 2 and portions of Tasks 3 and 4.

Figure 1. Outline of Six Study Tasks

2. FREIGHT FORECASTS

Freight forecasts have been developed to describe the total freight market for Kentucky's seven operating public riverports, including all relevant freight modes, and identify long-term forecasts for regional modal freight flow demands. Similar information was considered for the four developing public ports with forecasts derived from potential rail and truck diversions.

Forecasts are multimodal, representing the annual total of individual commodity movements in tons and value across a range of potential future scenarios. Base year data is derived from 2018 TRANSEARCH modal commodity flow data, incorporating available updates for economic conditions in 2020 to account for the impact of the pandemic.[2] Further, forecasts consider each riverport's "hinterland" which includes all counties within a 90-minute drive from each port; this means hinterlands overlapped in some cases. It also means that Kentucky's combined hinterland (**Figure 2**, next page) extends into Missouri, Illinois, Indiana, Ohio, West Virginia, and Tennessee. The focus of the forecast scenario analysis is to identify potentially

[2] TRANSEARCH data has multimodal origin-destination freight flows, as annual totals in tons and value. Base year flows for 2018 with forecasts to 2045. The geographic detail provided includes Kentucky, neighboring-state and river-adjacent riverport market counties, and the state portions of Business Economic Areas (BEAs) Canada & Mexico imports and exports are identified; all other overseas imports and exports are in total.

divertible freight that can be shifted from truck or rail, depending on the distance (for example, less or more than 400 miles) onto the inland waterway system.

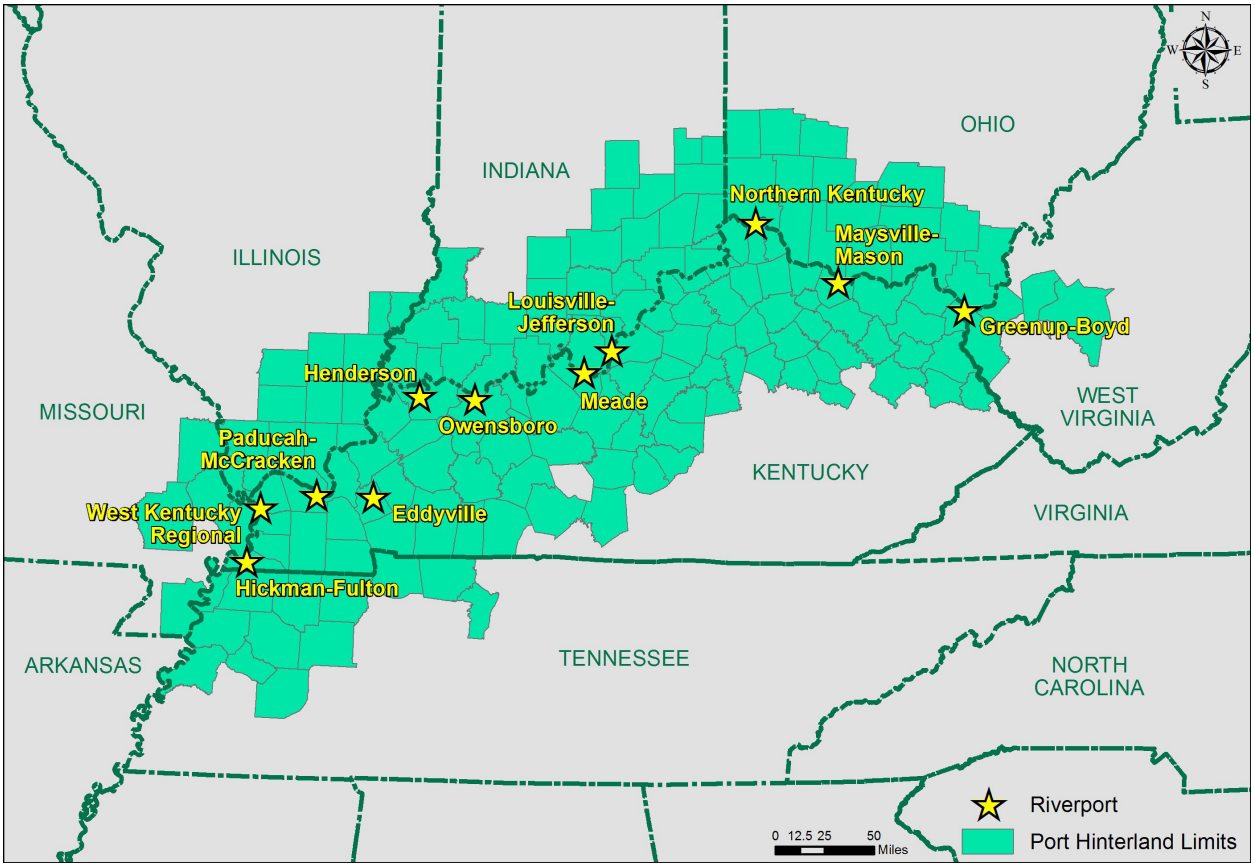

Figure 2. Combined Hinterland Footprint

Three Future Year Scenarios

Three 2045 forecast scenarios were developed to help understand the potential freight demand consistent with different future growth for the Commonwealth's economy. The baseline forecast and two alternative scenarios of freight demand are driven by forecasts of industry production, consumer and business consumption, and trade. The scenarios are:

- **Baseline** is the most likely of possible paths for the overall economy without further major disruptions or shocks.
- **Optimistic Growth** reflects higher investment and employment with generally optimistic economy performance. This scenario projects average gross domestic product (GDP) growth 0.4% higher than the baseline per year.
- **Pessimistic Growth** reflects slower investment and development with generally pessimistic performance of the economy below its potential. This scenario projects average GDP growth 0.6% below the baseline per year.

Table 1 summarizes key differences between the future year scenarios, comparing economic forecast growth scenarios against 30 years of historic trends. Values represent average annual growth as percentages; for example, potential output showed 2.5% average growth over the 30-year historic trend analysis. The table compares the top-line and key component elements of the economy.

Table 1: Comparison of US Economic Forecast Scenario Indicators

Avg. Annual Real Growth (%)	Historic Avg 1989-2019	2045 Baseline	2045 Optimistic	2045 Pessimistic
Potential Output	2.5	1.9	2.3	1.4
GDP	2.5	1.9	2.3	1.3
Consumption	2.7	2.2	2.5	1.5
Business Fixed Investment	4.3	2.6	3.2	1.8
Government	1.3	0.7	1.1	0.5
Exports	4.9	2.8	3.4	2.5
Imports	5.1	3.2	3.4	2.6
Average Annual Growth (%)				
Labor Force	0.9	0.5	0.8	0.4
Productivity	1.9	1.6	2.0	1.2
Industrial Production	1.8	1.3	2.0	0.7
Inflation (% GDP Deflator)	2.1	2.1	1.8	3.4
Unemployment	5.8	4.4	4.2	5.1

The first row in the table (Potential Output) represents the potential for the economy if all sectors (goods and services) were fully utilized. Gross Domestic Product (GDP) in the second row is the broadest measure of historic and predicted actual output for the economy; however, the optimistic scenario anticipates slower growth versus the prior 30 years (possibly due to lingering supply chain issues). The subsequent factors include:

- **Consumption**—which makes up around 70% of the US economy and has historically grown faster than overall GDP
- **Business fixed investment**—which also shows less growth than 1989-2019.
- **Government spending**—currently higher than historic levels with the several pandemic government stimulus/recovery spending packages
- **Exports**—opportunities growing more moderately for sales to foreign customers
- **Imports**—pace slows versus recent decades yet remains faster than overall economic growth

While import/export growth is forecasted at lower growth rates than prior trends, trade remains a greater opportunity for growth than domestic markets.

All three future scenarios assume ongoing and planned local, state, and federal (Port Infrastructure, Marine Highway, and U.S. Army Corps of Engineers, etc). projects are completed including the Chickamauga and Kentucky Lock and Dam. However, no new investments to modernize the river system are assumed. Another assumption in the forecasts is that there are no disruptions that would change the relative competitiveness between ports and regions. This means that potential diversion to inland waterway transport could change future riverport freight volumes forecasted if identified opportunities are captured. It should also be noted that forecasts do capture truck tonnage, including drayage from ports to rail; however, TRANSEARCH is not measuring secondary truck movements such as parcel pickups or local deliveries.

Divertible freight (for inland waterway transport) is defined as a commodity type that is currently being moved via another mode, but traditionally can be carried by barge.

Energy market insights have been incorporated into these forecasts; for example, shifts in energy fuel-use away from coal is reflected. The forecasts also account for natural gas, solar, and wind adoption, electric vehicle use in fleets, etc. The magnitude and adoption pace of these assumptions vary between the different scenarios too. However, there are still opportunities beyond factors incorporated in this economic forecast—such as ethanol production, biofuels, etc.

Combined Statewide Forecast

Forecasts at the statewide level show growth in overall freight market tonnage. **Figure 3** (page 5) presents a visual comparison between scenarios for each mode. Considering rail-based, highway, and waterborne freight modes, freight moving through the combined hinterland is anticipated to grow by 10.7% to 24.5% by 2045, varying by scenario. Even the low-growth scenario is projected to see an increase in total tonnage versus 2018 figures; in other words, even if riverports do not capture extra traffic, market growth is anticipated.

A decline is forecasted for rail, largely tied to the long-term decline in coal. Coal also influences future trends for waterborne freight and the trucking industry although the impact is less pronounced for those modes as a smaller proportion of the total business has been coal transport. The more significant future growth is in trucking where forecasts are projected to be between 25.7% and 42.2% over existing volumes, most due to manufactured goods growing in volume.

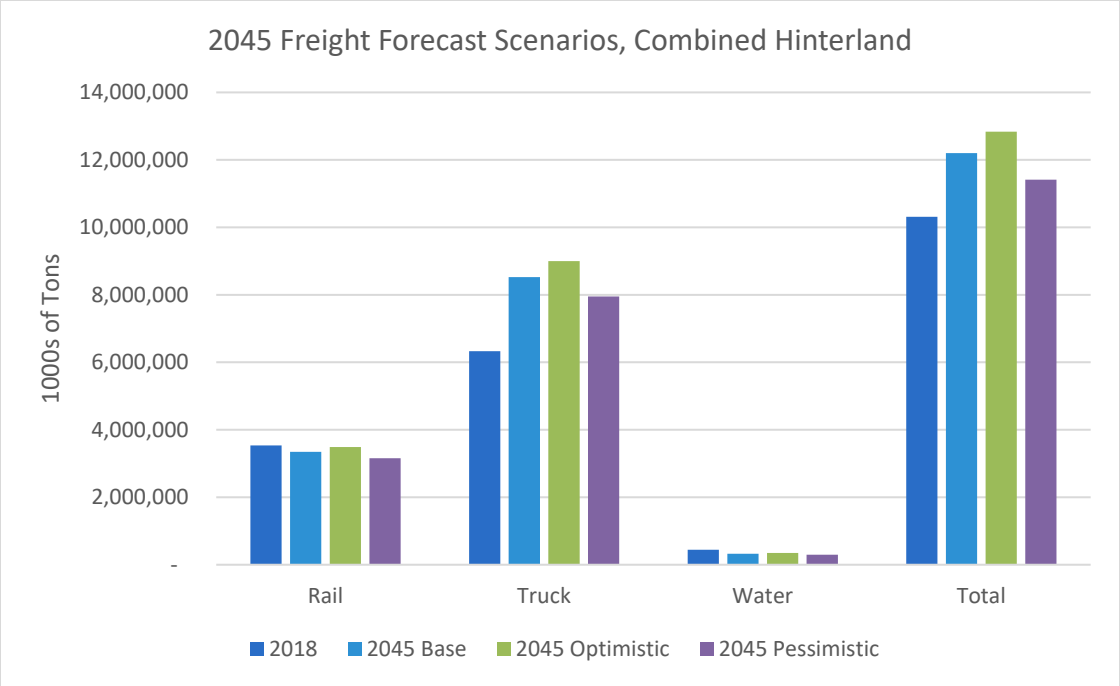

Figure 3: Comparison of Statewide Modal Freight Forecasts between Scenarios

The long-term forecasts for each of the 11 public riverport hinterland areas are summarized in **Table 2**. The range of percentages shown compare 2018 tonnage versus the pessimistic and optimistic 2045 projections. The second column indicates how many counties comprise each hinterland.

Table 2: Forecast Comparison between Port Market Hinterlands

Port Hinterland	Hinterland Counties	Rail Growth	Truck Growth	Water Growth
Eddyville	32	-15% to -6%	30% to 48%	-51% to -43%
Greenup-Boyd	25	-22% to -14%	17% to 32%	-44% to -35%
Henderson	30	-29% to -21%	23% to 40%	-27 to -16%
Hickman-Fulton	21	-9% to -2%	32% to 49%	-13% to 32%
Louisville	37	4% to 16%	28% to 44%	-37% to -27%
Maysville-Mason*	32	4% to 15%	21% to 36%	-15% to -2%
Meade*	29	3% to 13%	29% to 46%	-15% to -1%
Northern KY*	44	5% to 16%	21% to 37%	-36% to -25%
Owensboro	21	-28% to -20%	25% to 42%	-40% to -31%
Paducah-McCracken	32	-17% to -9%	29% to 46%	-48 to -39%
West KY Regional*	27	-11% to -4%	28% to 45%	-4% to 13%

* Developing ports.

The overall size of the potentially divertible freight market and the pace of growth forecasted are key to understanding future potential for Kentucky riverports. Ideally, riverports can serve county freight markets that are large in divertible tonnage and fast growing. However, forecasted riverport hinterland markets are comprised of county markets that vary in tonnage volume and growth. In **Figure 4**, the market size (represented by the size of the dots) and the growth rate (represented by shaded county outlines) are combined to represent the interplay between both factors. The implications of this combined data may help guide port market development efforts.

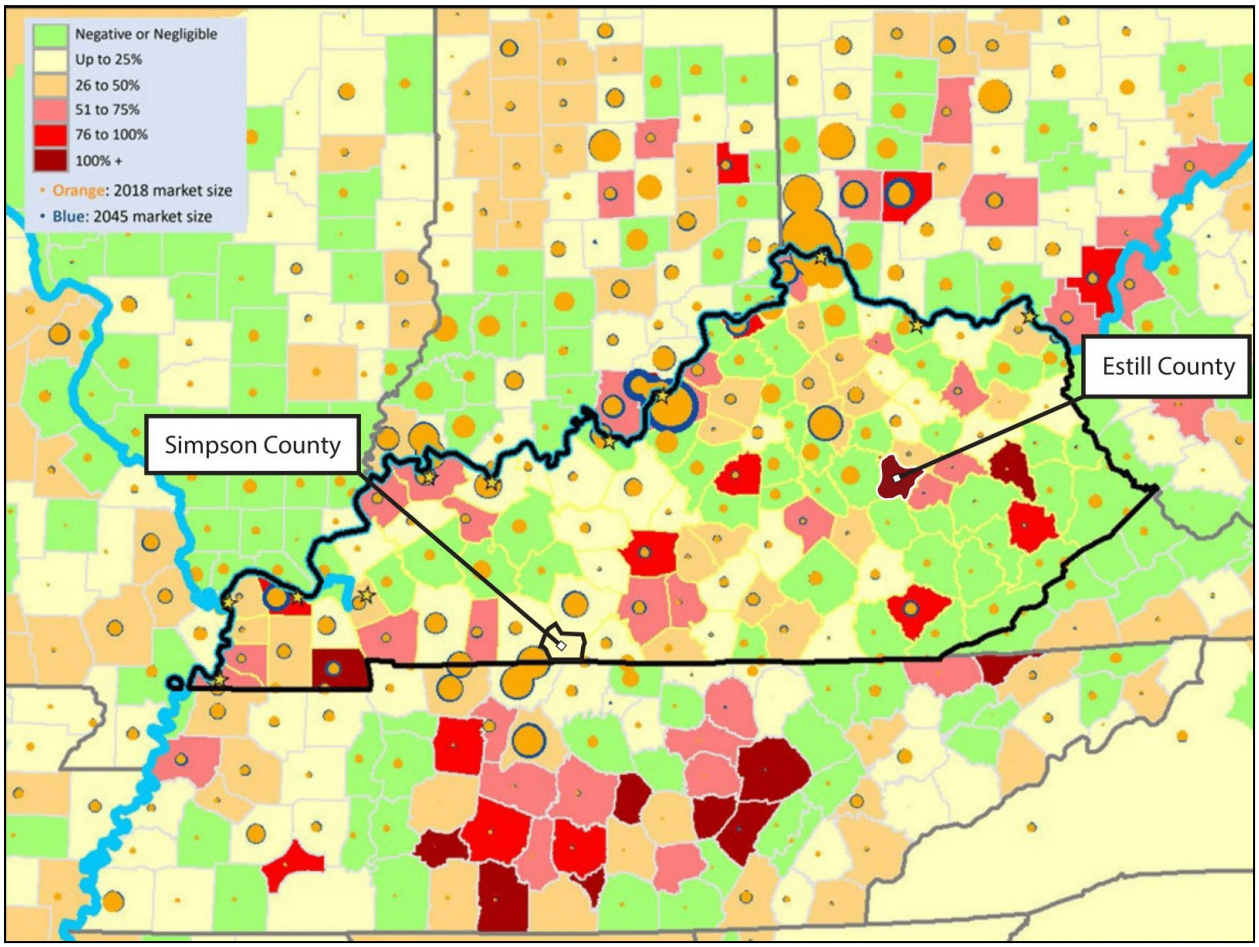

Figure 4: Market Growth (Dots) versus Change in Divertible Shipment Sizes (County shading)

For the larger dots on the map in slower growth counties (for example, Simpson County), freight may lack shippers looking for potential changes or new approaches, such as potential diversion of freight to a riverport. At the same time, faster growing counties that have small tonnage volumes (for example, Estill County), may not benefit enough from the economies of scale of waterborne transportation to realize potential diversion to riverports. Small tonnage and/or slower growth markets are not excluded from potential diversion to riverports, but they may be lower priority opportunities to pursue.

Figure 5 (page 7) summarizes corridors of interest that project increases in potential water-divertible growth. As expected, interstates generally carry the largest share as most of the freight moved by truck. Pink lines, representing freight that could be potentially diverted to a waterborne mode, represent a relatively large share of the total truck-based freight volumes (dark blue lines). The 2045 projections (bottom) show sizeable growth versus 2018 (top) but most of the growth occurs in non-waterborne modes.

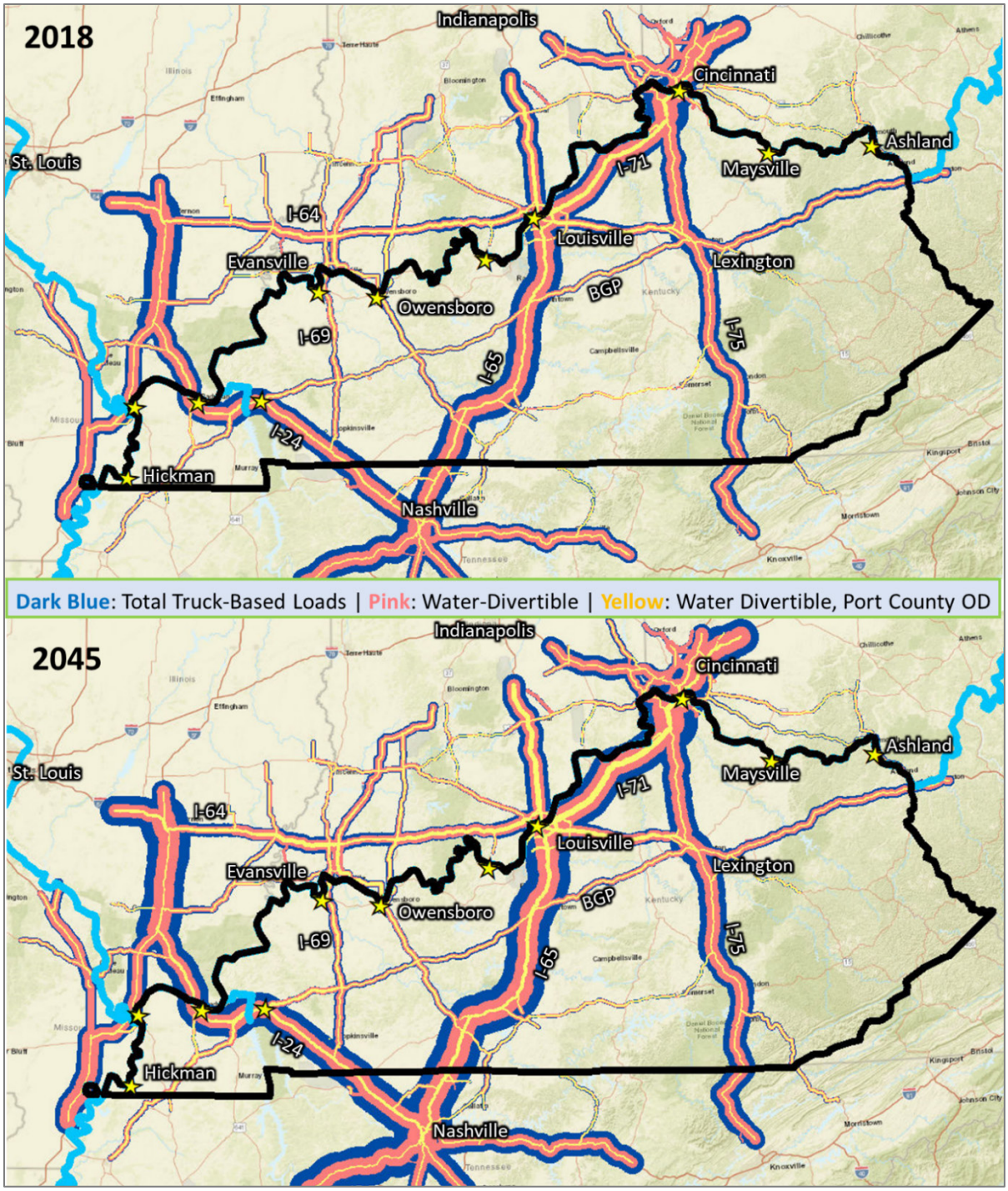

Figure 5: Corridors of Interest for Divertible Freight

PORT-BY-PORT ANALYSES

Each hinterland's current and future tonnage forecast—including mode, direction, and commodity—were considered. Many regions are projected to see a drop in coal volume—ranked as the largest commodity in 2018 for six port hinterlands; however, that volume drops by 2045, and grain replaces coal as the top commodity (by volume) in 2045 for most of the western region riverports. While Louisville and Northern Kentucky hinterland areas include sizeable air freight operations, these volumes were not included as there is minimal opportunity for diversion to waterborne modes.

There are three overall trends to note for the respective hinterland forecasts:

1. Trucks represent the highest modal share by volume.
2. Water-based modal flows are projected to decrease in each future scenario compared to existing volumes. This decline is driven by the degree to which coal and other fossil fuels comprise a disproportionate share of Kentucky's waterborne commerce market, and the projected decline in the size of this market nationally. Rail-based modal flows are also projected to decrease for *most* regions—particularly in the far western sections of the state— also primarily tied to the long-term decline of the coal industry.
3. The volume of freight moving through each hinterland is substantially greater than flows originating from or destined to the area. This implies riverports have potential opportunities as possible intermediary interchange points for those flows moving through their port hinterland.

Developing ports do not have water-based transport volume to divert in the base year. This also means that developing ports have 100 percent "diversion" growth potential since any mode is feasible. Technical Memoranda 4 and 5 will elaborate on the expected growth of each port by commodity based on the Capital Improvement Program needs that riverport directors provided.

Port-Specific Forecasts

The following subsections contain forecasts for each of the eleven public ports. Forecasts include mode, direction, and commodity.

Eddyville Riverport

The 252-acre Eddyville Riverport lies along the Cumberland River/Lake Barkley, with an I-24 interchange within two miles of the facility. While there is no rail access onsite, the nearby industrial park, also owned by the Eddyville Riverport and Industrial Development Authority, is served by short line rail. The riverport currently has a public dock, grain facility, and fertilizer operation. Throughout its 32-county hinterland (**Figure 6**), agricultural production is forecast to experience the most growth.

Figure 7 presents modal freight forecast scenario comparisons by mode (left) and directional freight flows (right).

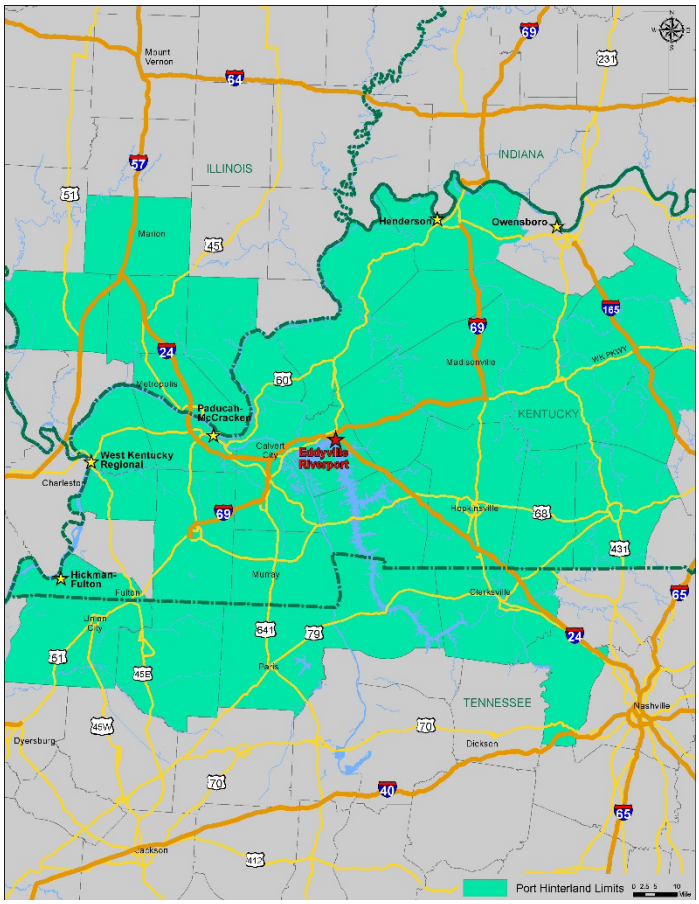

Figure 6: Eddyville Hinterland

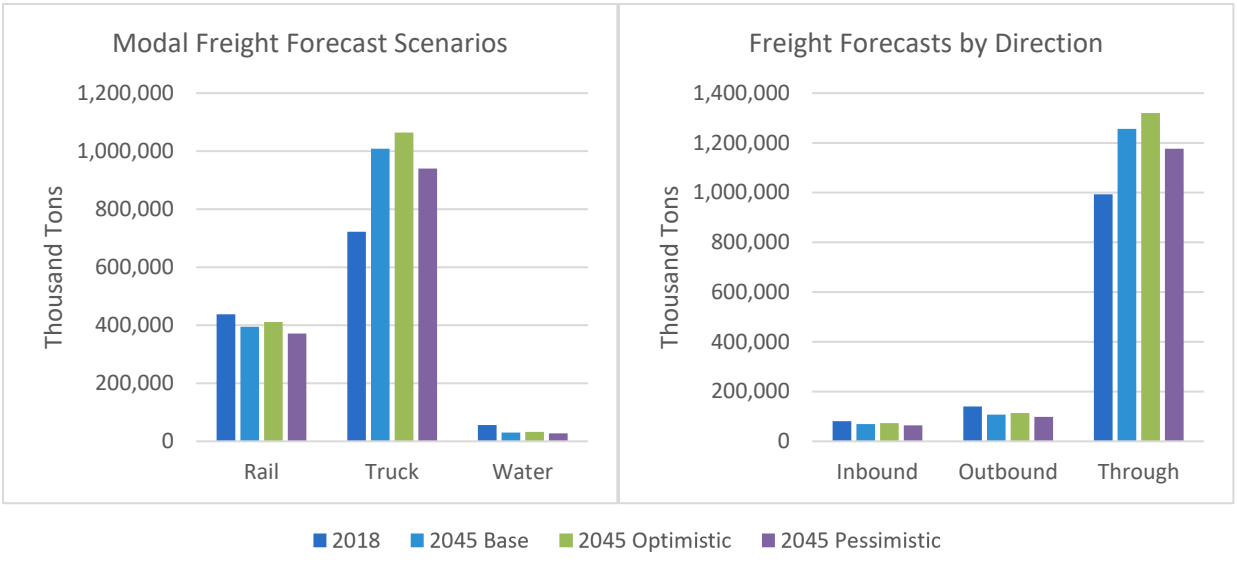

Figure 7: Comparison of Modal (left) and Directional (right) Forecasts, Eddyville

Figure 8 presents the top commodities. Like its nearest neighbors, grain replaces coal as the top commodity for the Eddyville hinterland. Mixed consumer products in warehouses rank second, with the largest growth from 2018. As with other Kentucky riverports, diversion of warehousing and distribution freight to waterborne transport will be a growing requirement and opportunity in years ahead. Coal remains in the third-ranked slot by volume though it is expected to continue declining.

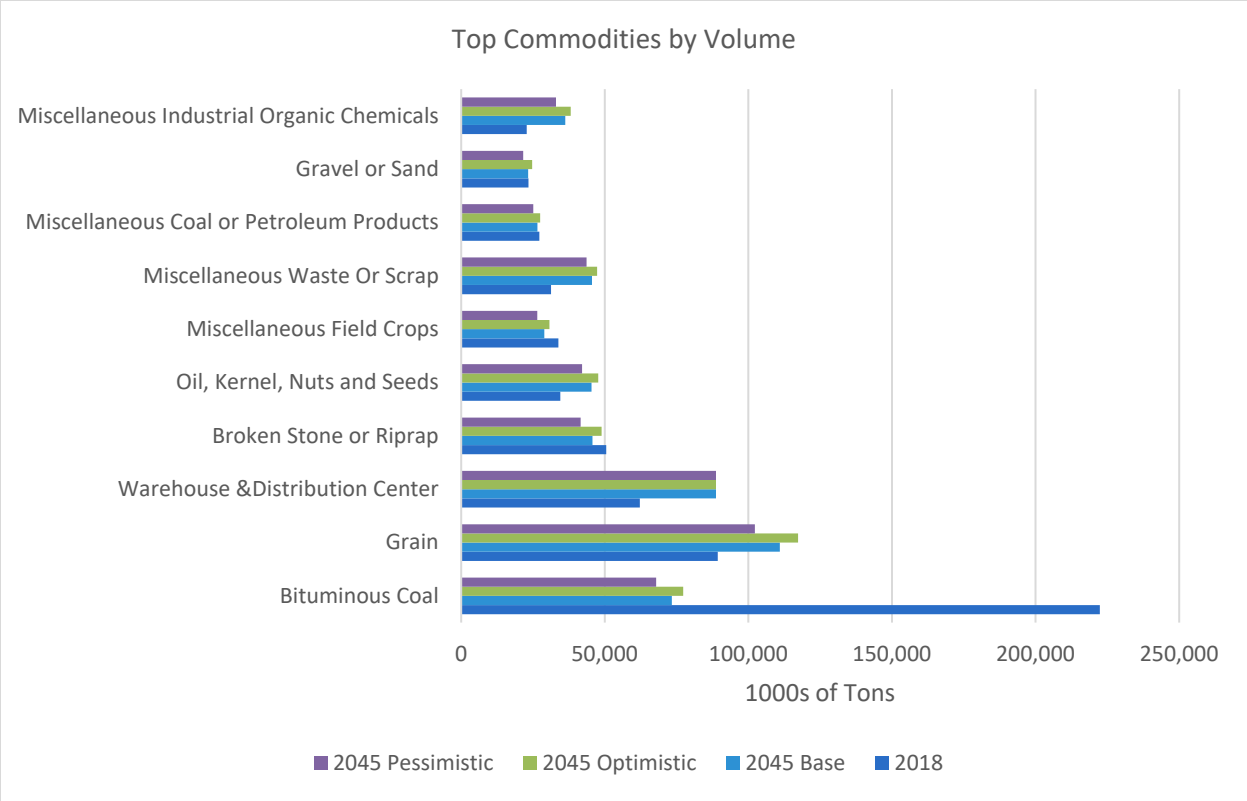

Figure 8: Top Commodity Flows, Eddyville

Located on Lake Barkley, the Eddyville Riverport has several positive attributes: it does not have to contend with wide river gage variations, it has available waterfront land, it is near the Ohio River with access to the Tennessee-Tombigbee Waterway System and is located within an established agricultural area supporting inbound grains and outbound fertilizer movements. The production of grain and soybeans within Eddyville's hinterland supports its growth prospects. But handling that volume will require investment to sustain Eddyville's truck access capacity for delivering grain to the riverport while supporting other commodity flow activity and marine-related industrial development. Eddyville's configuration allows it to offer on-site flexibility accessing its terminals and more berthing capabilities. Further, the port has interest in growing warehousing and distribution which aligns with forecasted commodity growth (**Figure 8**) and contemporary inland development opportunities. The board of directors will likely need to be assertive to promote their vision of growth and make necessary infrastructure investments for the commodity growth potential.

Greenup-Boyd County Riverport

The Greenup-Boyd County hinterland includes 25 counties in Kentucky, Ohio, and West Virginia, shown in **Figure 9**. Physically located in Wurtland, the port covers 29 contiguous acres with additional developable sites nearby. The port facility has direct rail access via CSX and is within one mile of US 23, a four-lane arterial connecting to I-64. On-site assets include facilities to handle concrete, industrial minerals, shipping containers, and more—plus a solid waste treatment plant.

Declines in coal have been especially challenging for the region although growth in several manufacturing and resource-based commodities provide opportunities for growth. **Figure 10** shows modal freight forecast scenario comparisons by mode (left) and directional freight flows (right).

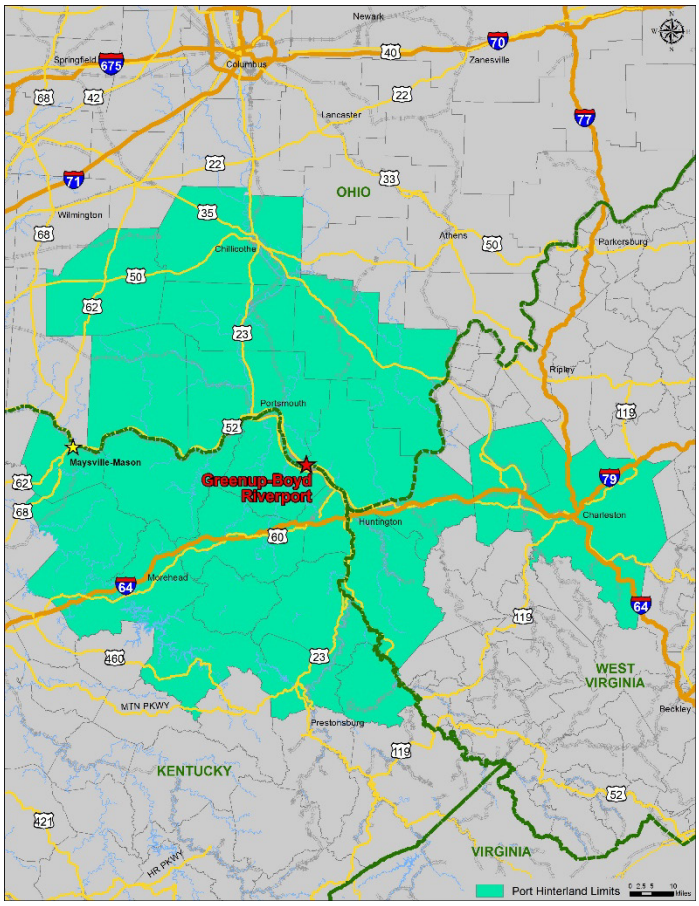

Figure 9: Greenup-Boyd Hinterland

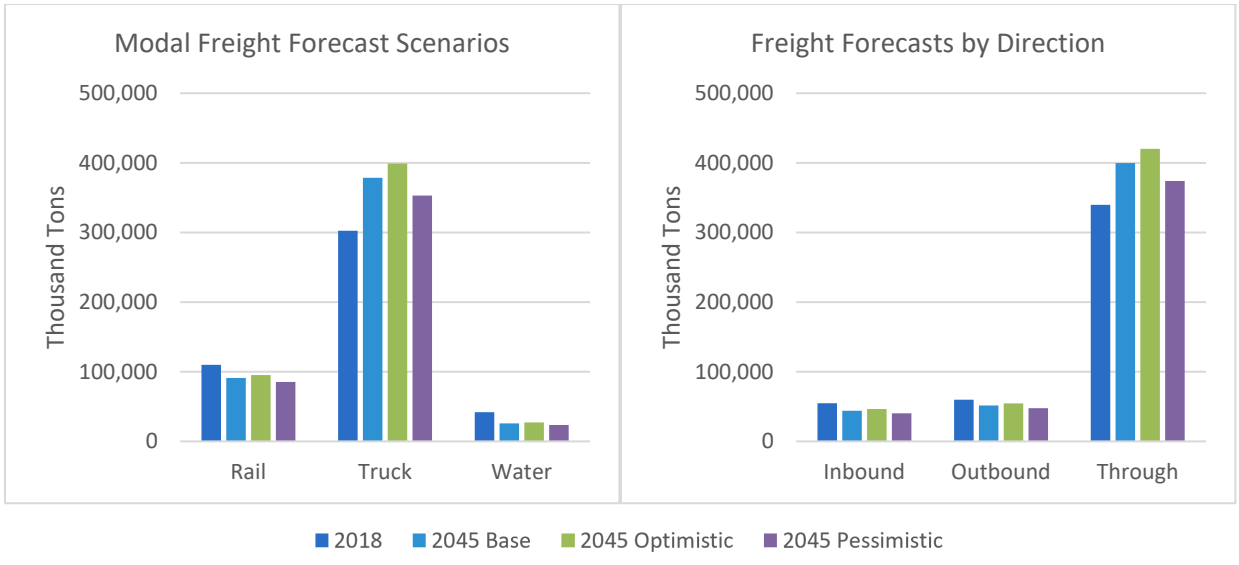

Figure 10: Comparison of Modal (left) and Directional (right) Forecasts, Greenup-Boyd

Figure 11 presents the top commodities for the hinterland. Despite decreases industry-wide, coal still represents one of the top two commodities by volume. Consumer products in warehouses grow substantially although they may be difficult to divert to waterborne transport. Broken stone demand ranks it third in volume, reflecting construction activity. Natural gas availability regionally helps boost shipments of industrial chemicals in the region, a good potential waterborne commodity.

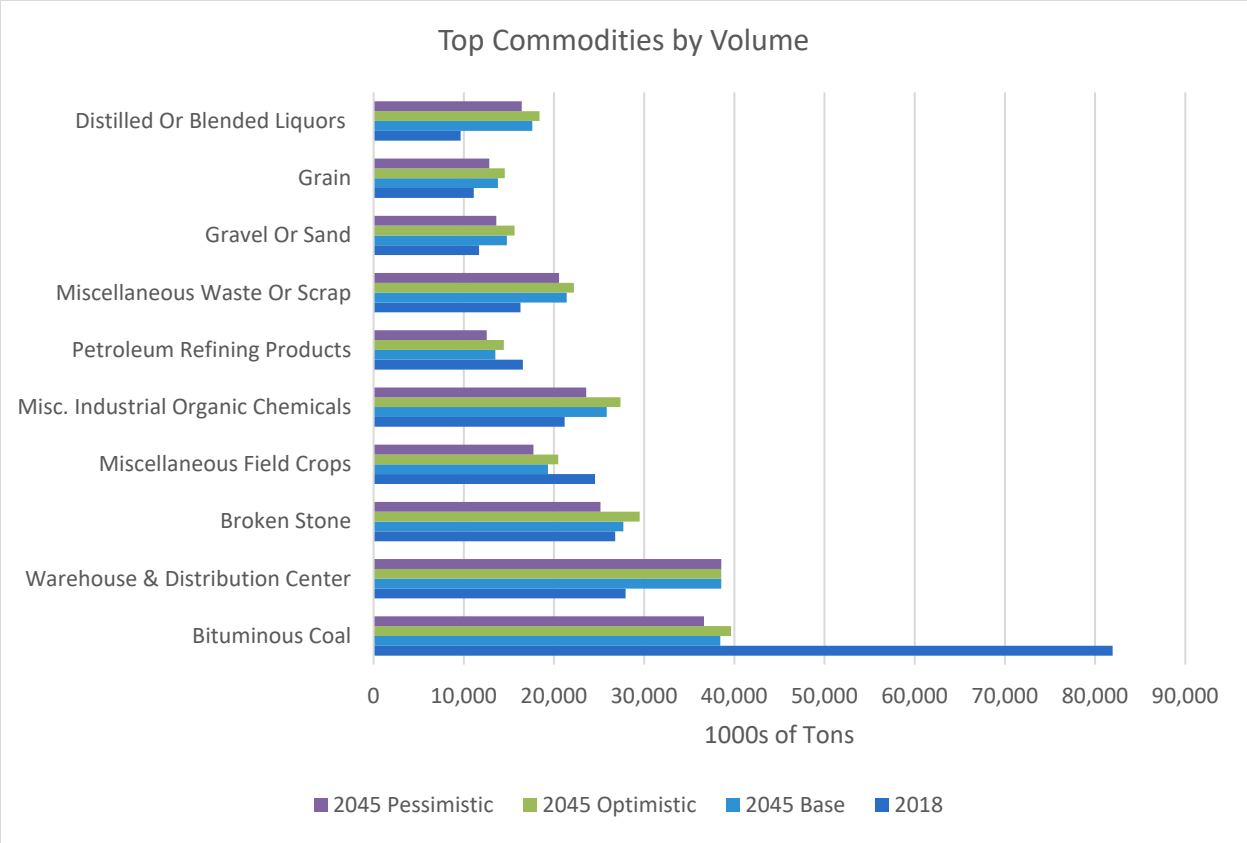

Figure 11: Top Commodity Flows, Greenup-Boyd

Green-Boyd County Riverport has limited ability to offer multiple loading and unloading opportunities with its current configuration. Additional river access to load and unload barges would support future expansion opportunities, sustain existing customers, and provide an avenue to improve existing mooring infrastructure.

Grain has growth potential across the hinterland; and with a new truck scale, nearby resources—an industrial wastewater treatment plant, available berthing area, and industrial park—allow for multimodal options to support industrial development. Greenup-Boyd County has area available to offer intermodal connectivity to Columbus, Ohio with the CSX railroad. Such an intermodal facility could transfer truck-bound cargo from the highway system, reducing highway congestion, decreasing carbon emissions, and improving safety.

Henderson Riverport

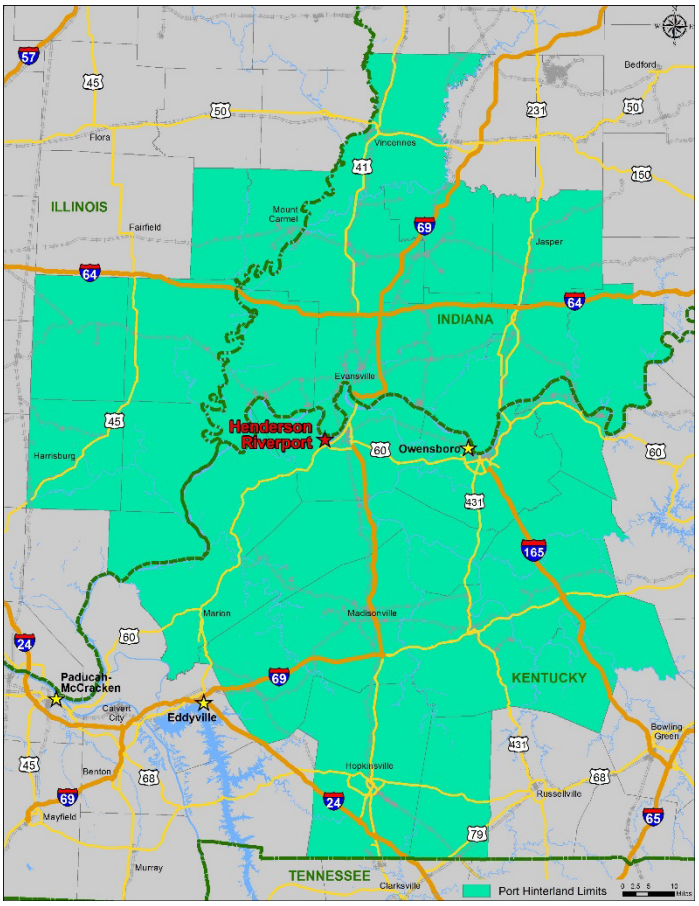

Figure 12: Henderson Hinterland

Henderson Riverport in Henderson County is located in an agricultural and manufacturing-based region. Its hinterland encompasses 30 counties (**Figure 12**), divided between Kentucky, Indiana, and Illinois. The port itself is located on 236 acres west of the city with Class I on-site rail, two docks, warehousing, a fertilizer facility, and equipment to process aluminum, alloys, polymers, and corn. I-69 is the nearest interstate, relying on state-designated truck routes along KY 136 and KY 425 (Henderson Bypass) for access.

Figure 13 below presents modal freight forecast scenario comparisons by mode (left) and directional freight flows (right).

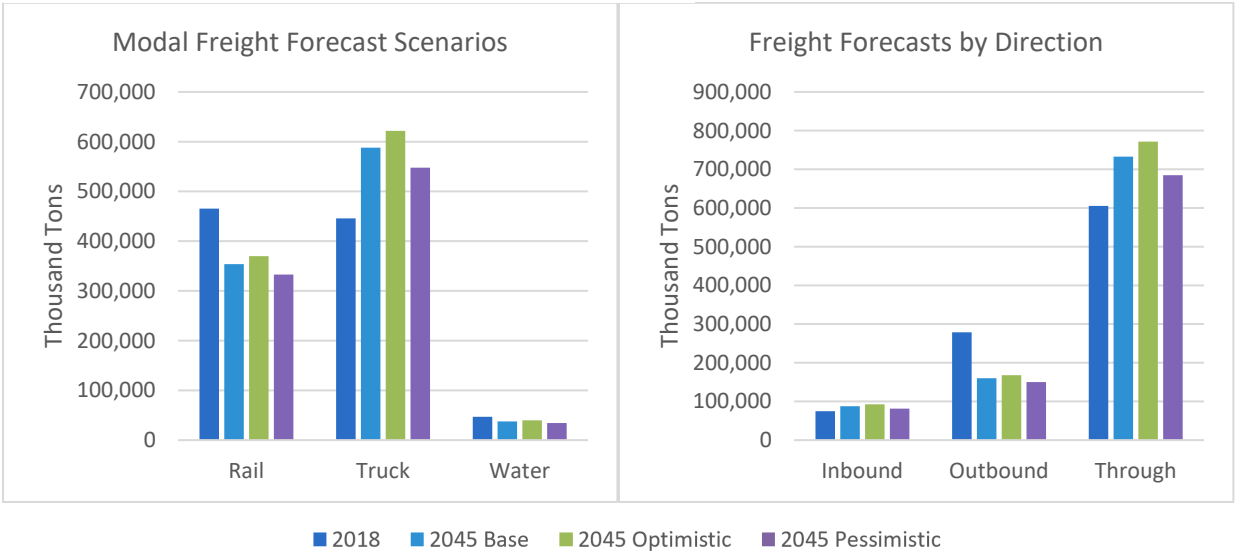

Figure 13: Comparison of Modal (left) and Directional (right) Forecasts, Henderson

Figure 14 presents the top commodities for the hinterland. Grain overtakes coal as the top commodity due to the drop in coal volumes forecasted. There is increased potential in other top growth commodity

categories including primary iron/steel products, especially important for regional manufacturing. There is also growth in consumer products handled through warehousing and distribution centers, although diversion of those shipments to water transport could prove challenging. Also, soybeans (categorized as "oil, kernel, nuts, and seeds" in the chart) are increasing to become the third or fourth highest volume commodity in the region in 2045.

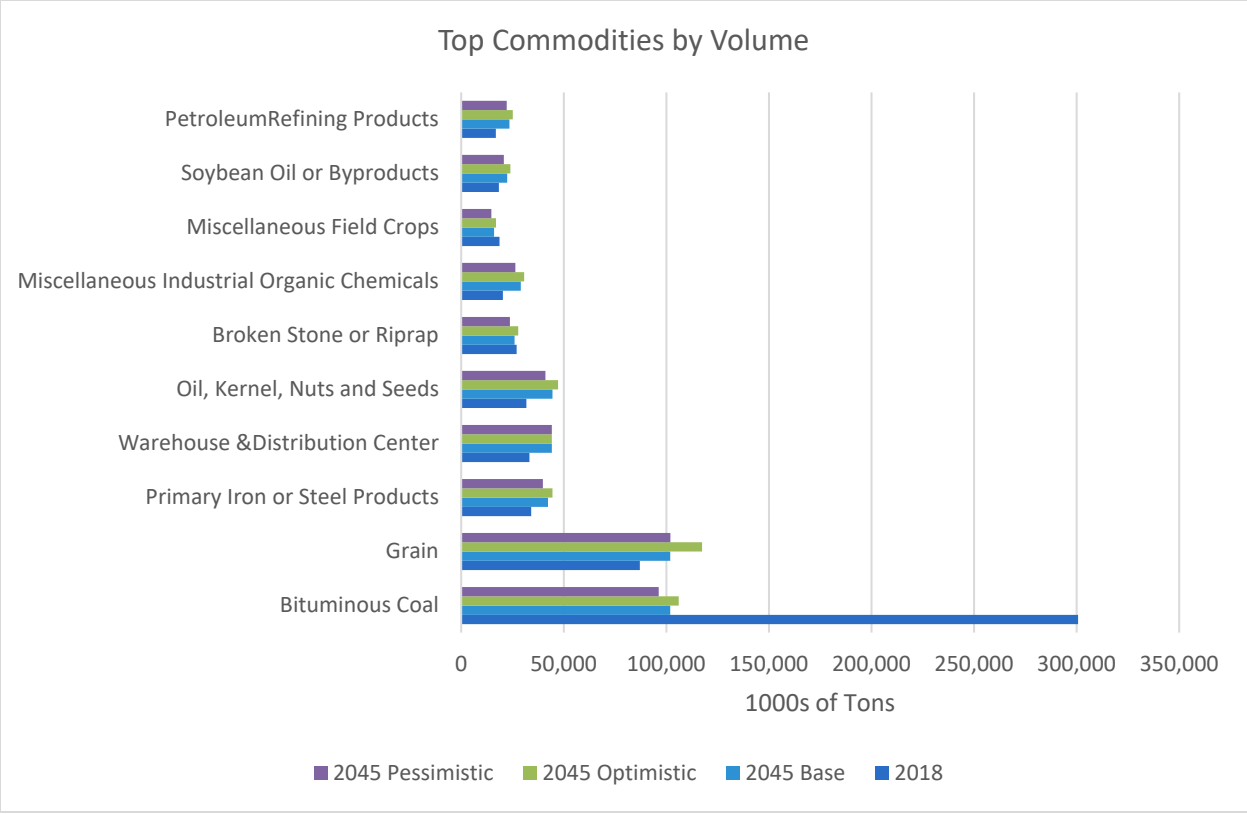

Figure 14: Top Commodity Flows, Henderson

Henderson is an established riverport with infrastructure that was developed over several decades. It benefits from having on-dock rail and an on-dock transit warehouse and other warehouse within its gates, plus various laydown areas. The port boasts a heavy materials shoreside crane and conveyor equipment that supports the primary iron and steel cargo movements and can serve grain markets.

However, over its history, the riverport sold riverfront land that disrupts contiguous riverfront access. While grain and agricultural products offer growth opportunities, it will require investment to sustain that growth. An ongoing challenge is having adequate and reliable access to utilities that fully serve industrial and commercial clients. However, the cost of power has been increasing and is quite high—a deterrent for potential clients to invest for industrial purposes. Henderson could benefit from a modernization and upgrade of its warehouses, and from infrastructure investment to support growth—handling primary iron or steel products, and especially aluminum products.

Hickman-Fulton County Riverport

The Hickman-Fulton County Riverport lies along the Mississippi River at the western edge of the Commonwealth. Forecast opportunities are mostly from north-south movements in western Kentucky extending across an agricultural and manufacturing riverport hinterland of 21 counties in Kentucky, Illinois, Tennessee and Missouri (**Figure 15**). The port covers ten acres with three docks; primary commodities handled are fertilizer, coke, grain, steel, and general cargo. KY 94 provides the nearest arterial access; a short line railroad also serves the site.

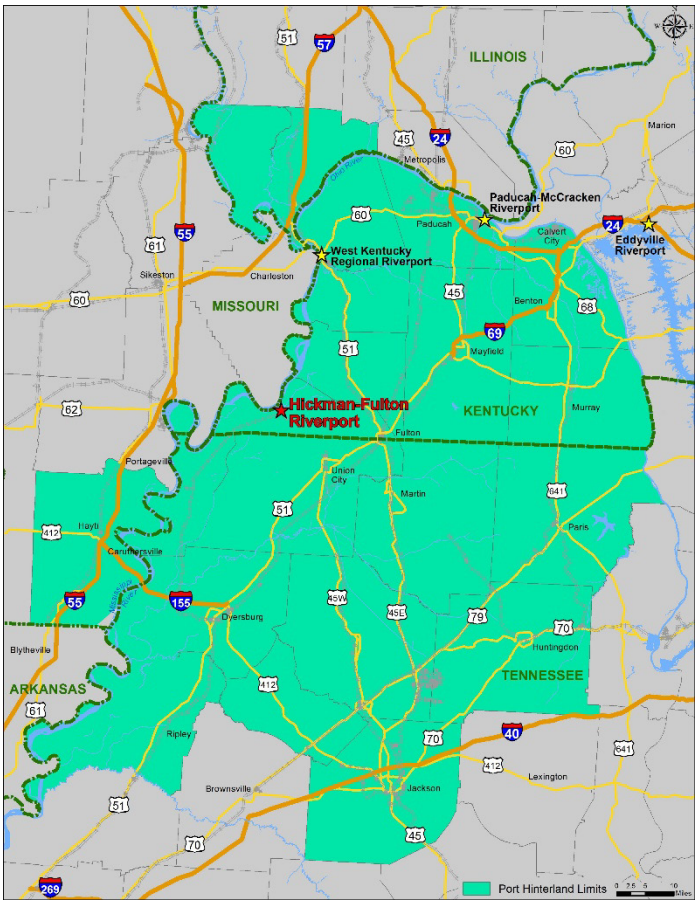

Figure 15: Hickman-Fulton Hinterland

Figure 16 presents modal freight forecast scenario comparisons by mode for the hinterland area (left chart) and directional freight flows into, from, and through the hinterland (right chart).

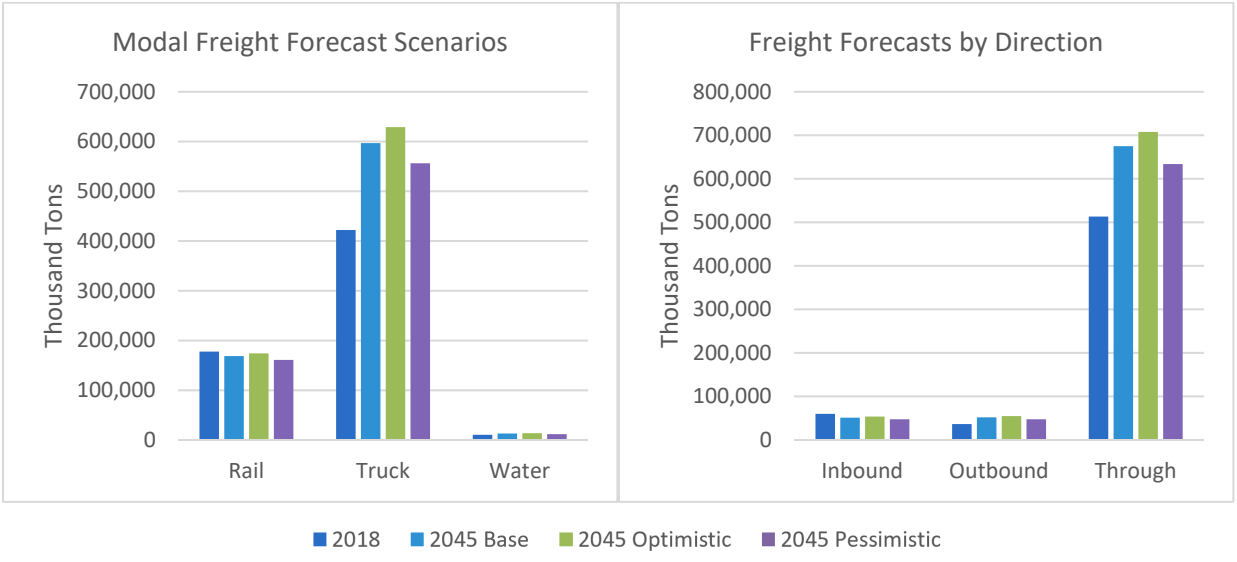

Figure 16: Comparison of Modal (left) and Directional (right) Forecasts, Hickman-Fulton

Figure 17 presents the top hinterland commodities by volume. As shown, grain replaces coal in the top volume in two of three future scenarios. Mixed consumer products in warehouses rank second although

there are challenges to divert these to water transportation. Soybeans (as Oil, Kernel, Nuts and Seeds) are forecast to become number three ranked in the region, emphasizing the growth in importance of agricultural shipments regionally. Waste or scrap is also significant in tonnage volume and represents a commodity category that can make good use of efficient water transport. The growth in regional shipments of plastics and synthetics is second only to warehouse & distribution center traffic as new plants are put into service, providing another opportunity for the riverport to potentially capture new commodity traffic.

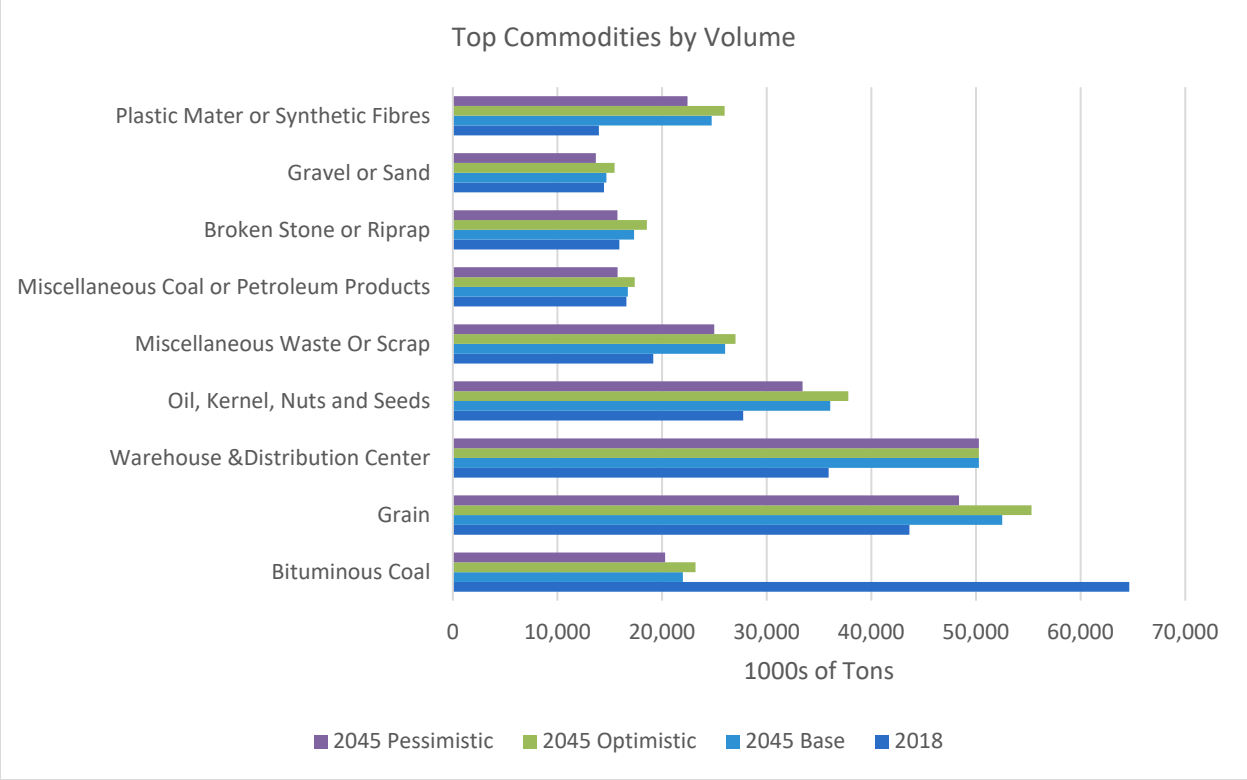

Figure 17: Top Commodity Flows, Hickman-Fulton

Accommodating this growth in key commodity throughput with grains, scrap, and industrial products requires investment in bulkheads and laydown area, cranes, and conveying and other handling equipment. Hickman already handles a fair amount of grain and aggregate having proximity to key crop-growing areas of western Kentucky and Tennessee. Investing in higher speed, more efficient handling equipment will lower operating costs and lead to higher throughput capabilities while offering better price incentives for farmers to move additional grain and soybeans through Hickman. Additional bulkhead capacity, efficient off-load and conveyance equipment, and convertible bulk silo storage will position Hickman to diversify its capabilities and be prepared for increased volumes of plastic and synthetic fibers. Long term investments in distribution and warehousing could support intermodal development in the hinterlands.

Louisville Riverport

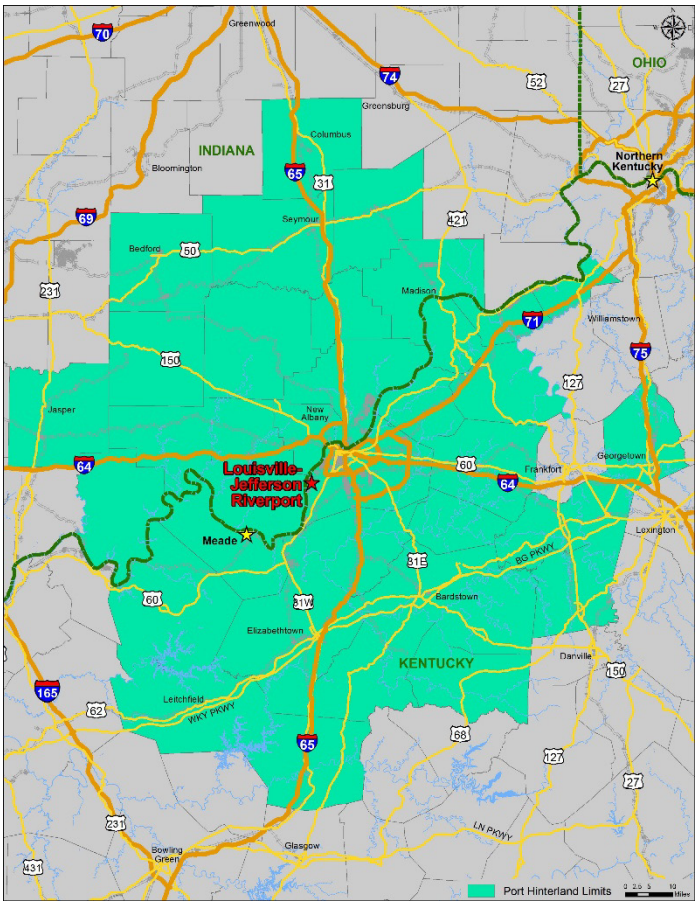

Figure 18: Louisville Hinterland

Louisville's 37-county hinterland region (**Figure 18**) covers portions of Kentucky and Indiana, representing a mix of agricultural, resource, and manufactured commodities in the region. With over 2,000 acres along 1.5 miles of river frontage, it is the largest port facility in the state, served by a robust interstate and rail network.

Modal freight forecast scenario comparisons by mode (left) and directional freight flows (right) are shown in **Figure 19**. Both inbound and outbound freight flows for the region are anticipated to grow versus 2018 volumes.

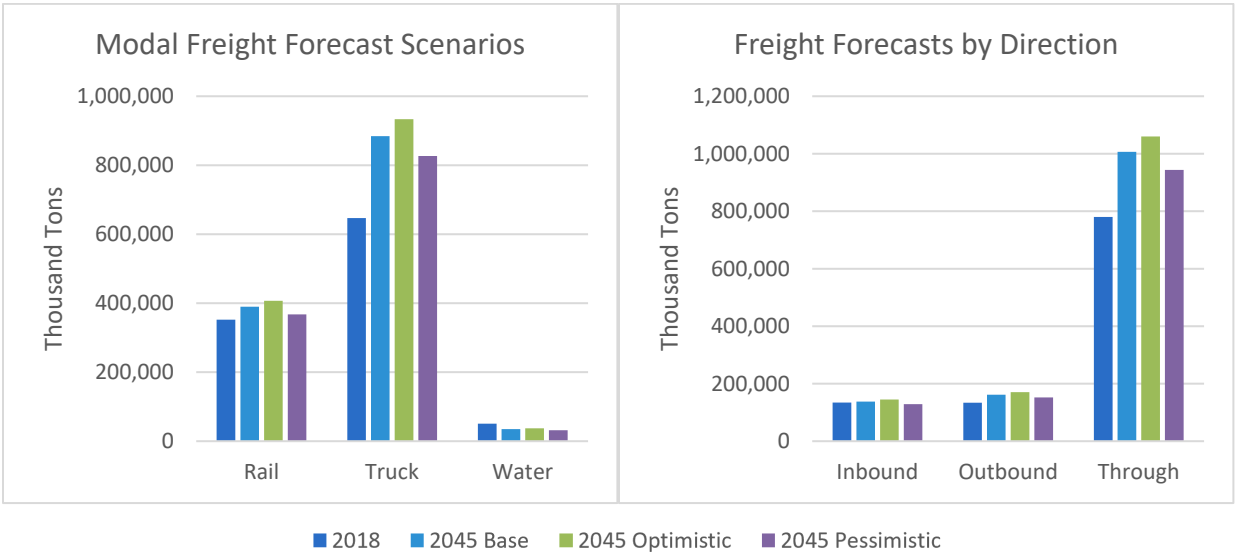

Figure 19: Comparison of Modal (left) and Directional (right) Forecasts, Louisville

Figure 20 presents the top commodities for the hinterland with the forecast scenario tonnage in 2045. The diverse commodity categories signify a strong potential to divert freight flows to the waterway mode. The top category is key construction industry material input: broken stone/riprap. Volumes in this category are forecasted to decline slightly from 2018 levels; broken stone/riprap and coal are the only top commodities projected to decline in 2045. Mixed consumer products in warehouses and distribution centers become the second largest category in all but the optimistic growth scenario. Those products are challenging to divert to water without a new innovative container service offering. More conventionally, petroleum products are forecasted to see the greatest volume growth in the region, although the riverport is not currently positioned with a tank terminal for such liquid bulk cargo. The grain growth forecasted is fourth-ranked in 2045. Iron and steel products for manufacturing are also forecasted with significant growth. Motor vehicle production is sixth-ranked but with little tonnage growth forecasted and challenging to divert to water transport.

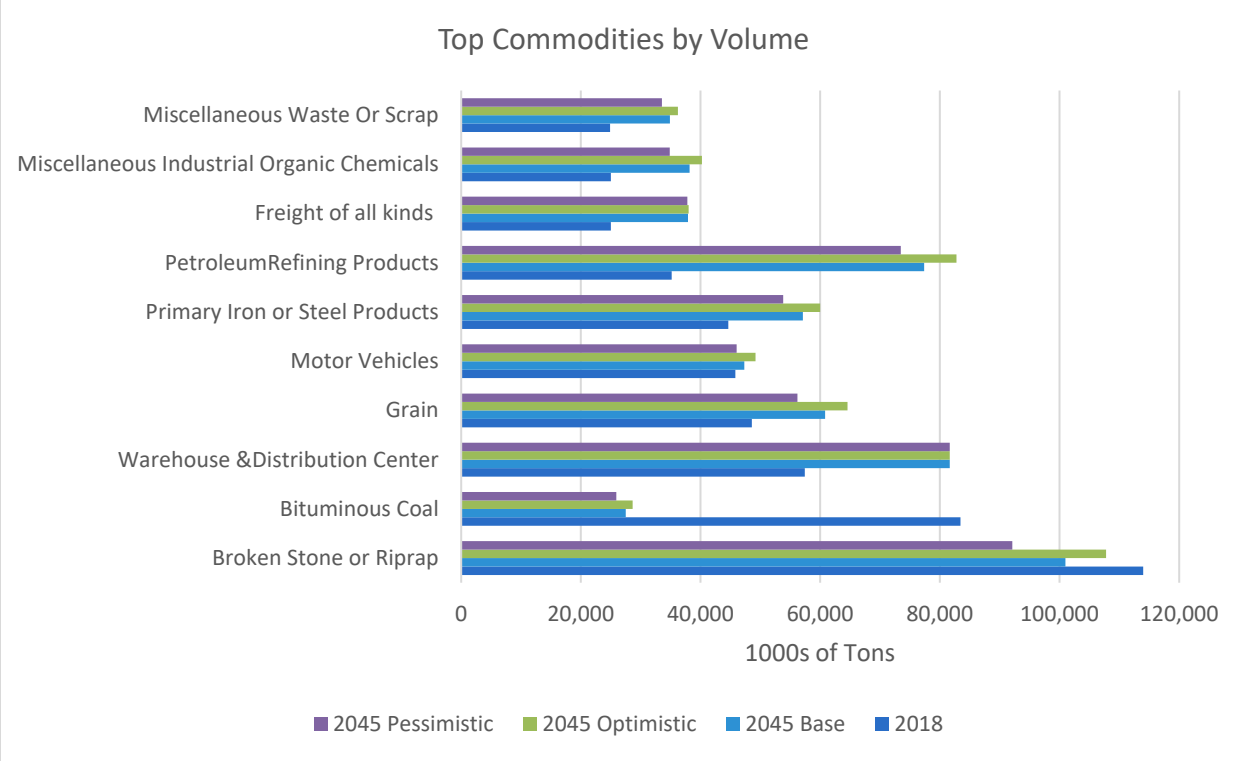

Figure 20: Top Commodity Flows, Louisville

The Louisville Riverport has several advantages with 13 miles of rail on port property, contiguous riverfront land, extensive laydown area, nearby warehousing and industrial areas, a large metropolitan setting, the nearby UPS World Port operation, and available labor. This riverport is underutilized, developed to handle coal, but now can take advantage of its core attributes.

To move to the next level, this riverport requires investment to enhance and extend access to the river through new bulkheads. With expansion underway in the auto industry, having a larger crane to accommodate the modern-sized steel rolls will be important. Because of its proximity to Kentucky's largest population base, access to interstates and rail networks, and the World Port, developing Louisville as a multimodal port with a vision toward container service has many merits. It has the room, it has the river frontage, and it has the connections to make a viable container riverport. Additionally, the port has expandable bulk commodity yards with a double-track loop and belt loader.

Maysville-Mason County Riverport

The Maysville-Mason County Riverport is under development, conducting studies to determine the most appropriate site and development patterns to pursue. Its hinterland covers 32 counties in Kentucky and Ohio as shown in **Figure 21**.

There is a recommended 140-acre site in the Charleston Bottom area, just north of the US 68 William Harsha Ohio River bridge and near US 62 with connections to I-75 and I-64. This location has access to Class I and Class III rail.

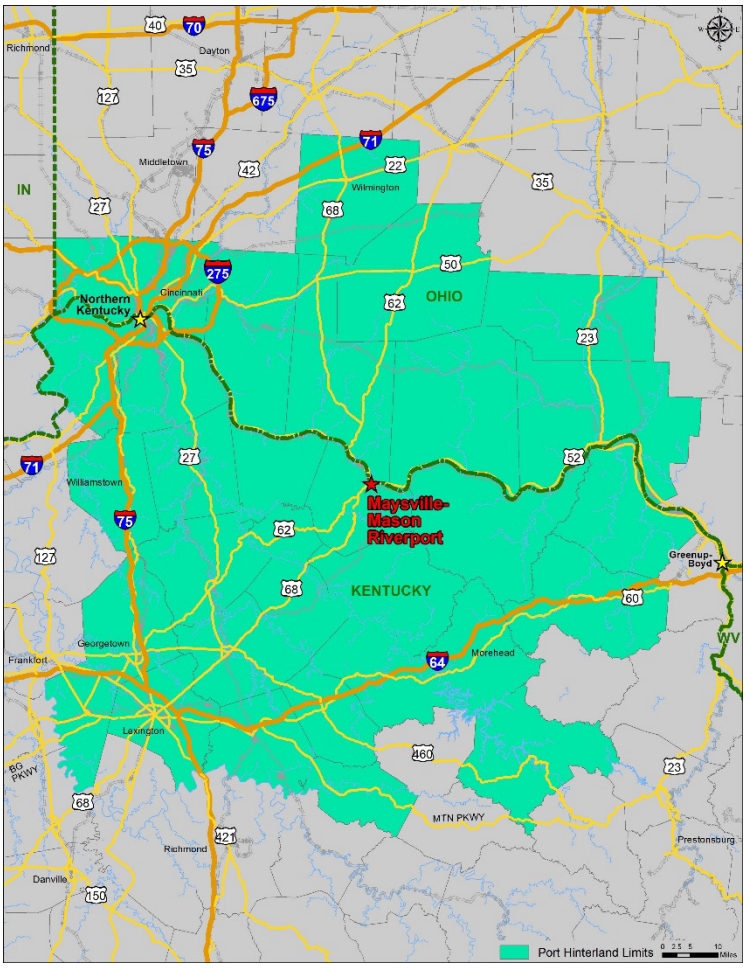

Figure 21: Maysville-Mason Hinterland

Figure 22 presents modal freight forecast scenario comparisons by mode (left) and directional freight flows (right). **Figure 23** shows top commodities for the hinterland. Construction use of broken stone/riprap sustains demand as the top category but with little if any regional growth in tonnage. Mixed consumer products in warehouses and distribution centers show the greatest growth but are challenging to divert to water transport. Grain is third-ranked in the regional forecast, with substantial growth by 2045. Iron, steel, and industrial organic chemicals also see growth as the next ranked categories for potential diversion by 2045.

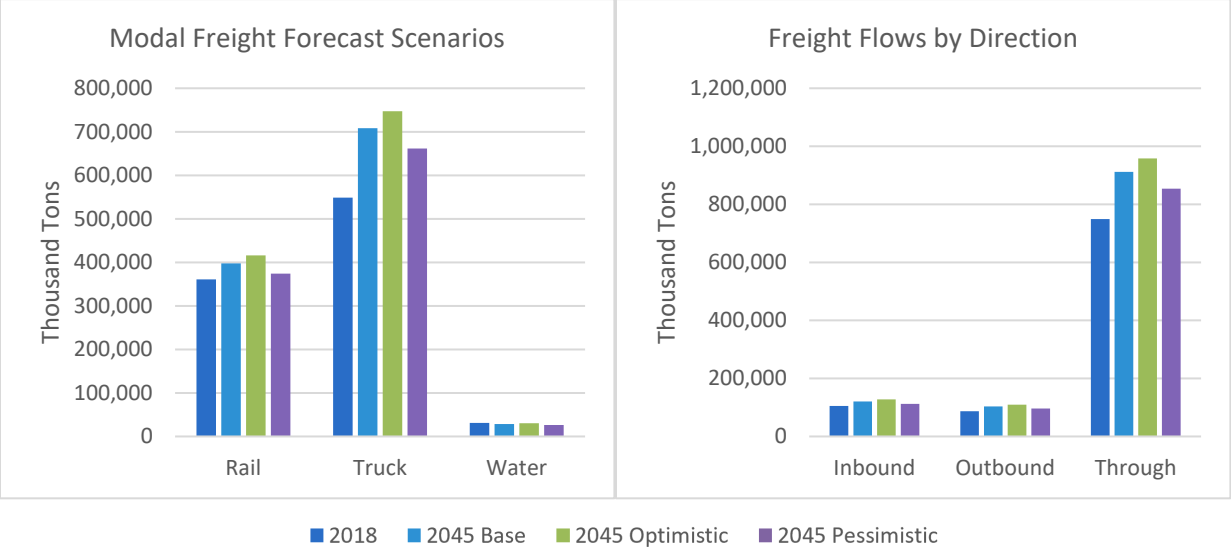

Figure 22: Comparison of Modal (left) and Directional (right) Forecasts, Maysville-Mason

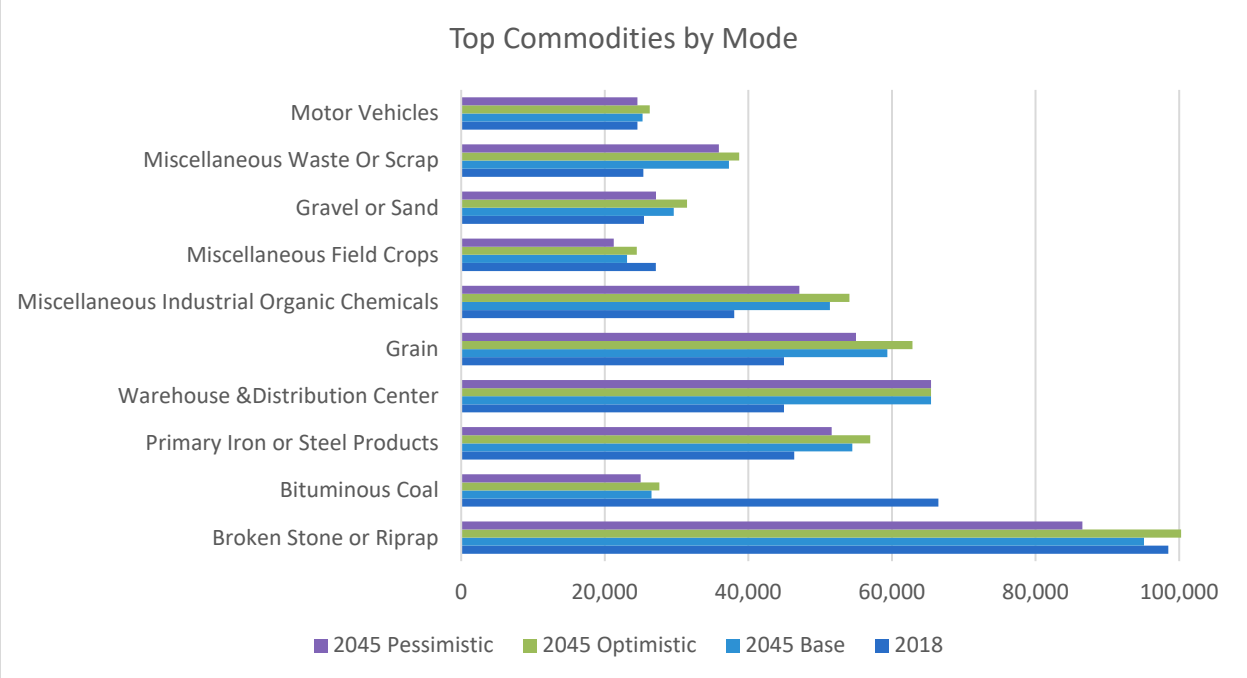

Figure 23: Top Commodity Flows, Maysville-Mason

As a developing riverport, Maysville has several opportunities. It has available land and riverfront access to offer dedicated space for bulkheads, mooring facilities, and laydown areas. With its geographic position upriver from Northern Kentucky, access to available industrial areas and a short line railroad that could offer on-dock service offers greater hinterland access to key regional population areas. The short line rail connection would offer multimodal access from river to rail to central Kentucky. Investing in its riverport infrastructure for multimodal purposes could reduce truck traffic volumes for the cargo to be moved, which improves safety, lowers emissions, and sustains highway infrastructure.

Meade County Riverport

Prior to its recent acquisition, the Meade County Riverport covered 550 acres along the Ohio River. Nucor is constructing a $1.7 billion steel plant using scrap steel as a feedstock to manufacture flat plate steel product. Because of the location where Nucor is building, the grain barge loading facility at the riverport was removed to accommodate Nucor's needs. Shown in **Figure 24**, this hinterland region represents 29 counties including portions of both Kentucky and Indiana.

There is a potential for agricultural and resource-based commodity growth, particularly in iron/steel considering recent Nucor investments.

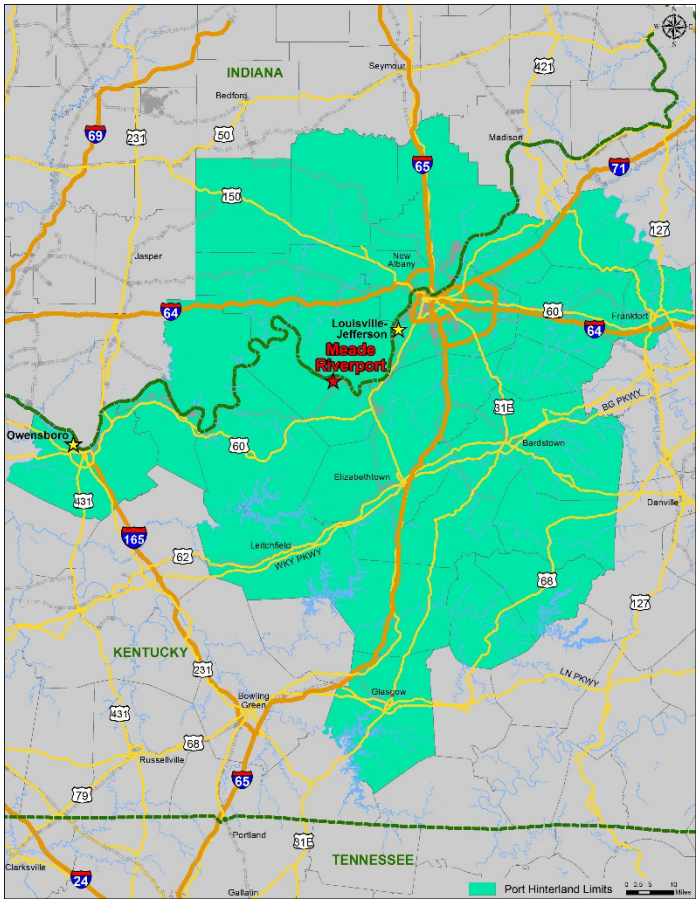

Figure 24: Meade County Hinterland

Modal freight forecast scenario comparisons by mode (left) and directional freight flows (right) are presented in **Figure 25**. As shown, both inbound and outbound regional freight flows are expected to increase. **Figure 26** presents top commodities for the hinterland.

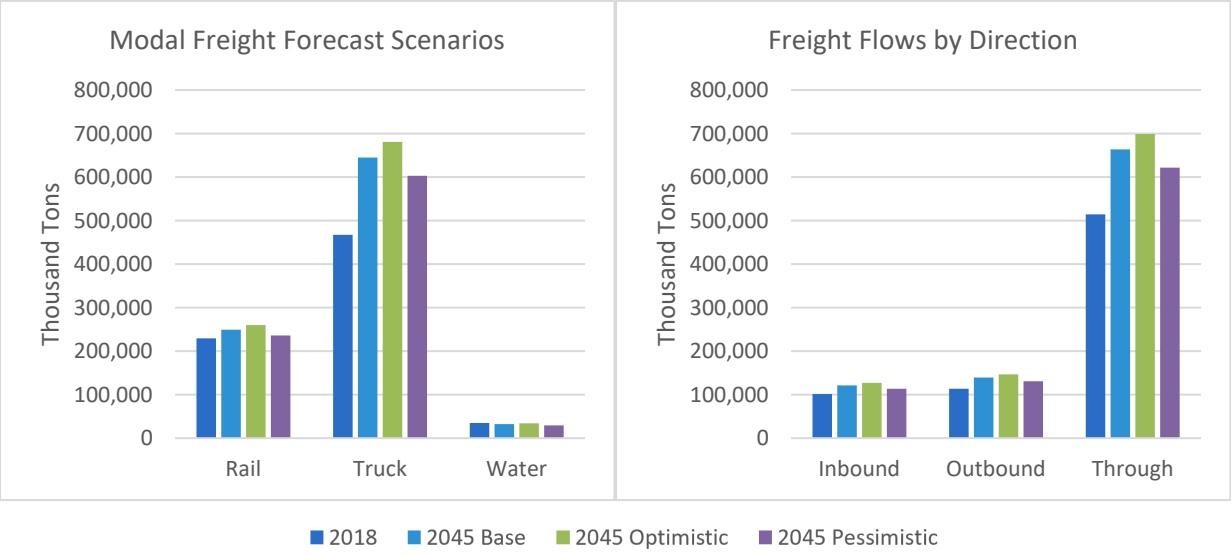

Figure 25: Comparison of Modal (left) and Directional (right) Forecasts, Meade

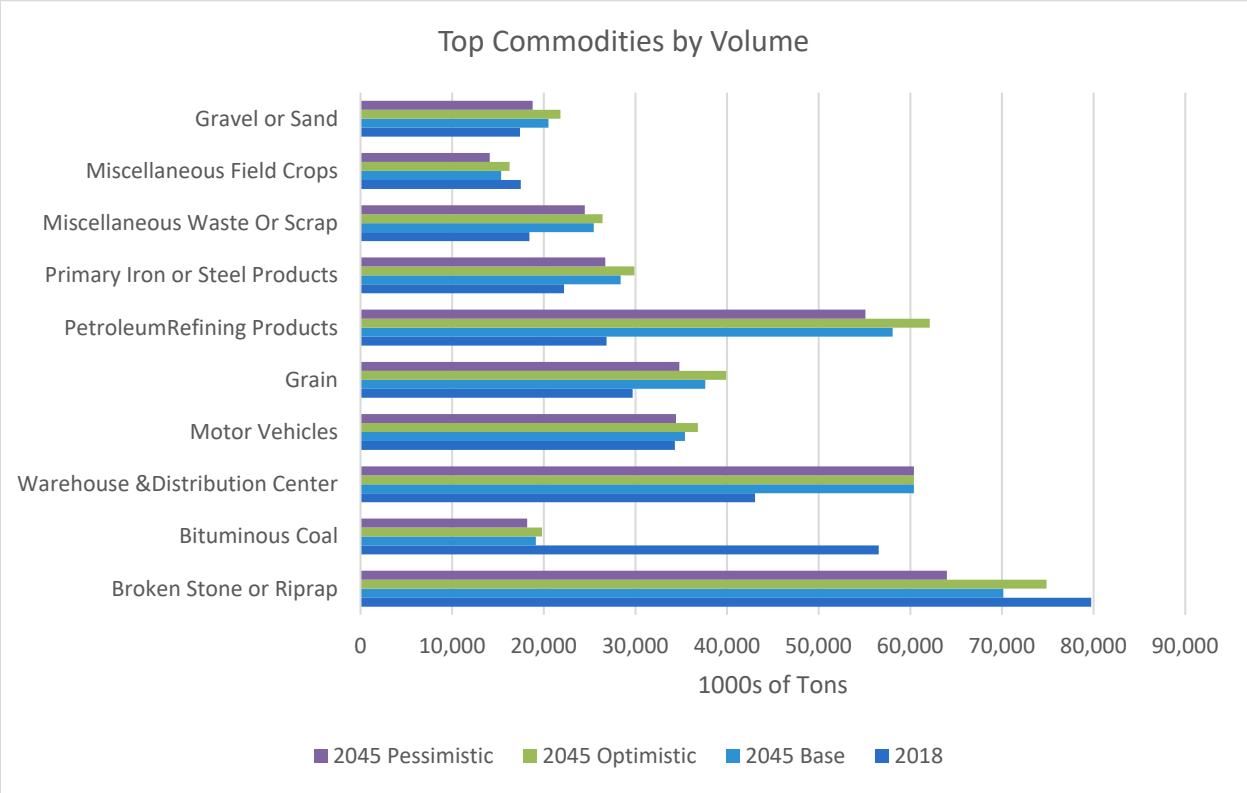

Figure 26: Top Commodity Flows, Meade

Construction use of broken stone/riprap sustains this category in first place but with a decline in volume forecasted. Mixed consumer products in warehouses and distribution centers show substantial growth although these are challenging to divert to water transport. Petroleum products are forecasted to see substantial volume increases as well. Grain is fourth-ranked with faster growth than motor vehicles tonnage by 2045.

Meade County was an operating riverport until Nucor bought the land where a grain barge loading operation was located to accommodate its needs. Meade County is looking to construct a new grain barge elevator to provide local farmers means to send grain to market via river. For the new grain barge loading operation, Meade County will need to acquire land to access the river and about $12 million to construct the grain barge loading facility.

Northern Kentucky Port

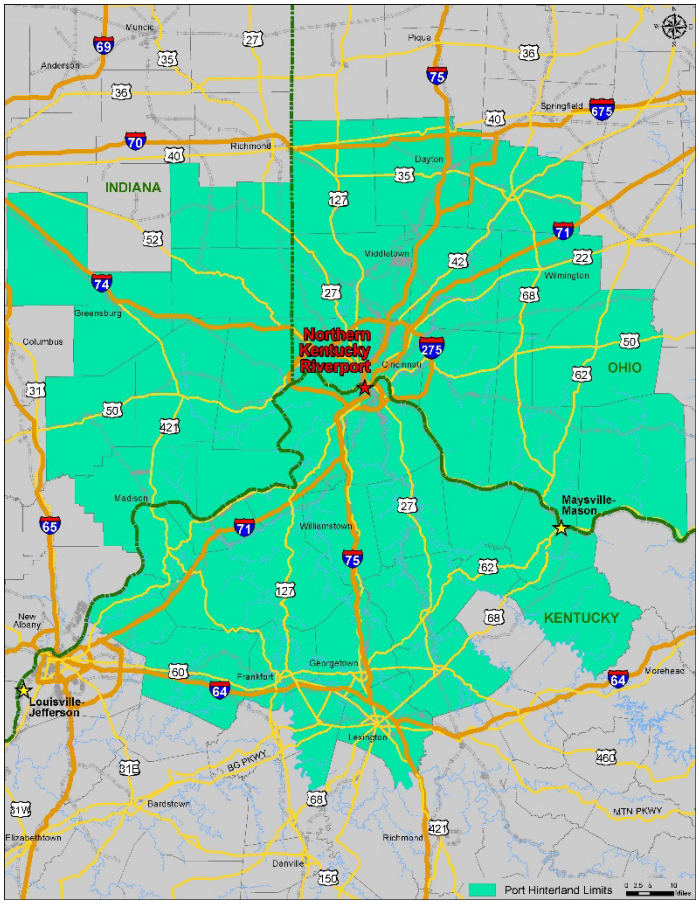

Figure 27: Northern KY Hinterland

The Northern Kentucky Port (NKP) is somewhat unique. Unlike other public port operations in Kentucky, they have no dedicated infrastructure and no current plans to develop such infrastructure. NKP is a legal entity without any physical port infrastructure. Rather, in partnership with the Port of Cincinnati, statistics for the region encompass facilities along 219 miles of the Ohio River and 7 miles of the Licking River. The Kentucky side of the Ohio River has 54 docks plus seven docks/terminals on the Licking River. The corresponding hinterland (**Figure 27**) covers 44 counties, divided between Kentucky, Indiana, and Ohio.

The Cincinnati metro area's economy continues to offer development potential.

Modal freight forecast scenario comparisons by mode (left) and directional freight flows (right) are shown in **Figure 28**. Inbound and outbound regional freight flows are projected to increase in most scenarios in the 2045 analysis year.

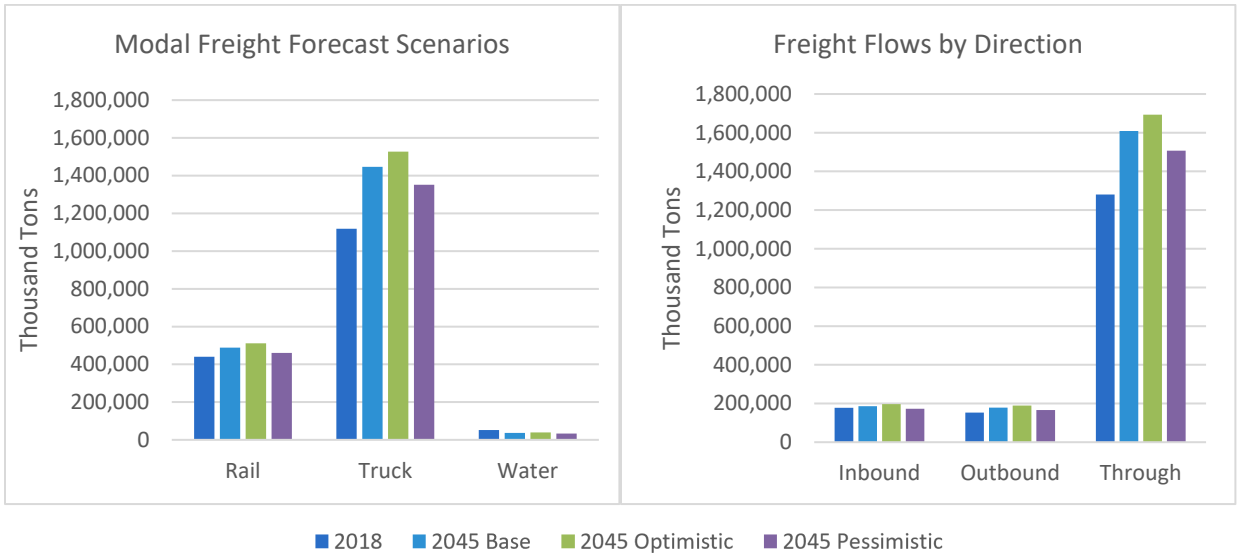

Figure 28: Comparison of Modal (left) and Directional (right) Forecasts, Northern KY

Figure 29 presents top commodities for the hinterland: broken stone/riprap, mixed consumer products in warehouses, iron/steel, and grain. In the hinterland region that could be served by the Port of Northern Kentucky, construction-related broken stone and riprap remains the top tonnage commodity forecasted for 2045. Also, with the sixth largest commodity category of sand and gravel, the rate of growth forecasts is modest compared to some other categories such as the manufactured products, mostly consumer products, handled through the region's warehouses and distribution centers, which is second ranked, seeing substantial growth in the forecast. The ties to manufacturing, including, among other sectors, the auto industry in Kentucky, contributes to the forecast growth for primary iron or steel product tonnage, ranked third by 2045. Agriculture market growth in demand for grain is significant under each of the 3 growth scenarios, ranked fourth in the region. Waste and scrap volumes also are forecasted to increase reflecting growth in the region's economy, and for commodity shipments often suitable for inland waterway transport. The increase in organic chemicals tonnage reflects competitiveness in regional production and continued demand from other industry sectors. Finished motor vehicle manufacturing within the riverport hinterland is forecasted to continue at near the current level. While coal volumes are forecasted to continue to decline significantly, the energy commodity category of refined petroleum products is forecasted to increase enough in volume to hold eighth place by 2045.

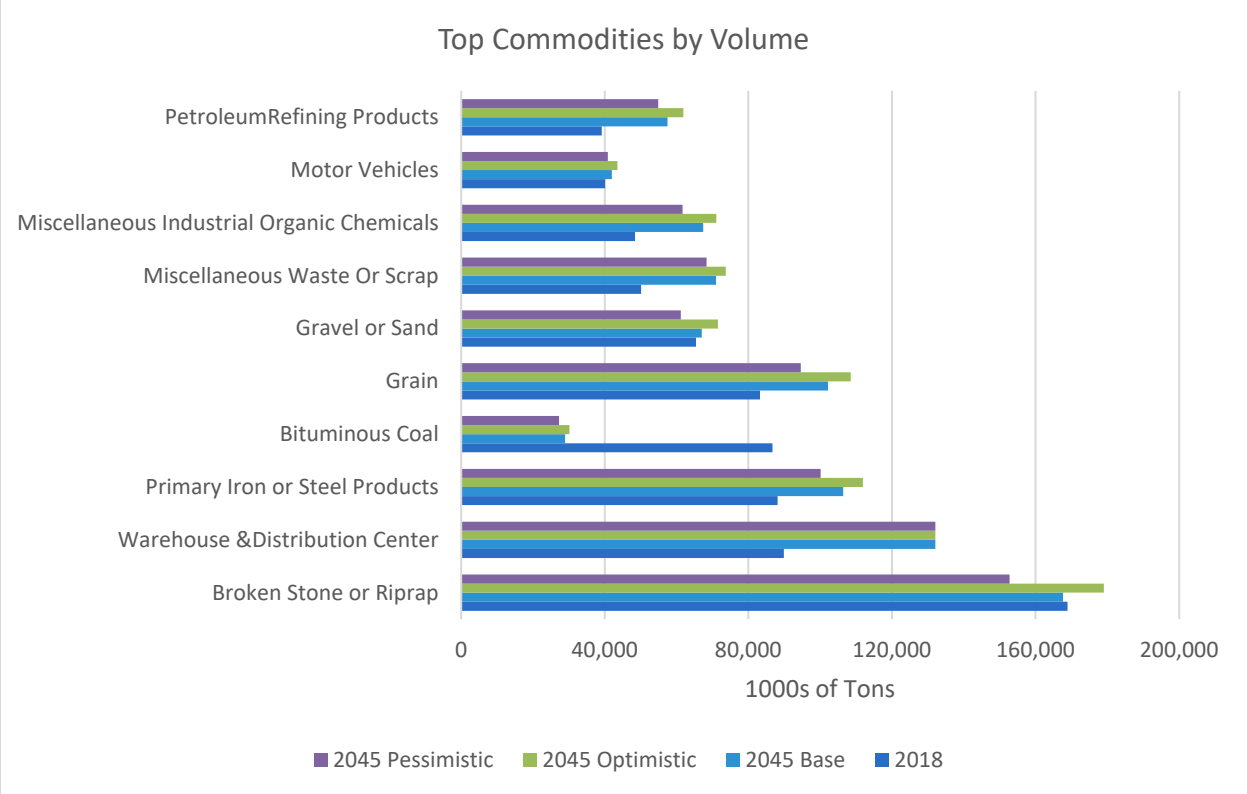

Figure 29: Top Commodity Flows, Northern KY

Northern Kentucky is a "developing" riverport but has no riverfront land and no plans to buy land, let alone invest in a riverport for Northern Kentucky. Instead, the riverport authority focuses its efforts on industrial areas while emphasizing river access through Ohio riverports. The Licking River flows through northern Kentucky and has seven miles of navigable capabilities as it flows into the Ohio River. There is land along the Licking River with industrial opportunities that could support river traffic and economic activity of northern Kentucky.

Owensboro Riverport

Owensboro's riverport is located north/west of the city on 340 acres. KY 331, which is currently being reconstructed to improve accessibility, provides access to US 60 (Ford Expressway) and I-165. It also has direct rail access via CSX.

On-site assets include two docks, warehousing, yard storage, and facilities for fertilizer, agricultural manufacturing, bulk milling, and polymer manufacturing. The corresponding hinterland covers 21 counties in two states (**Figure 30**).

Figure 31 presents modal freight forecast scenario comparisons by mode (left) and directional freight flows (right).

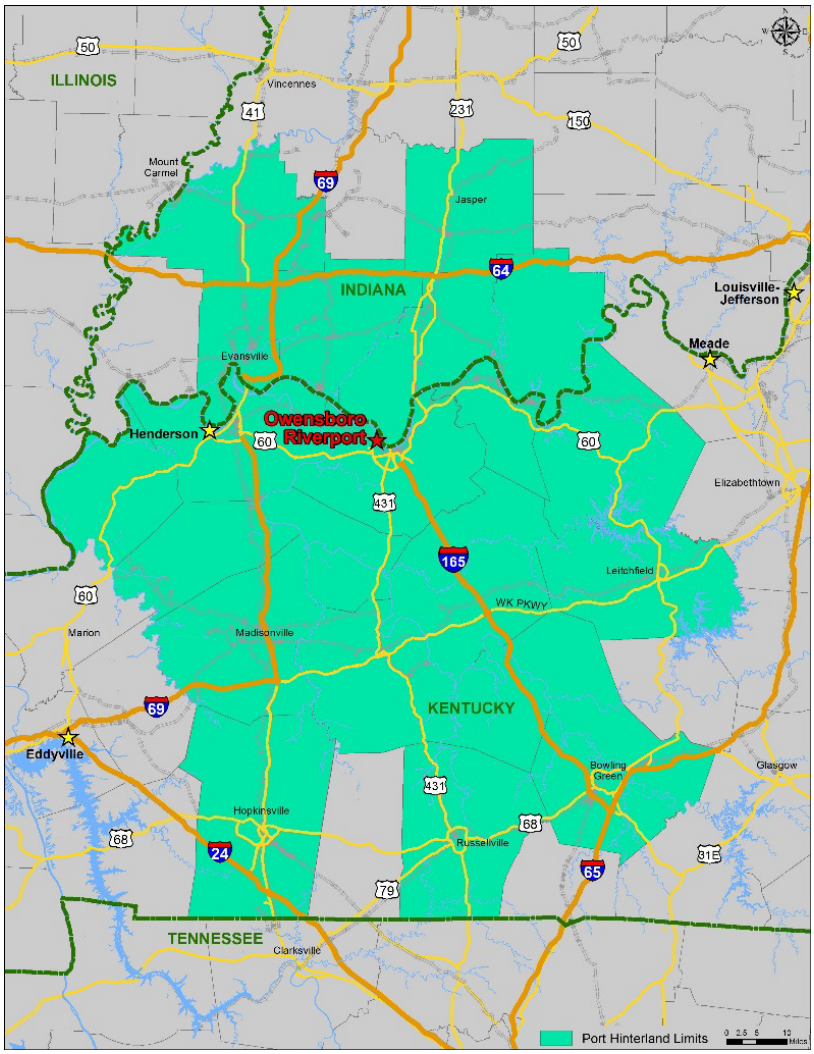

Figure 30: Owensboro Hinterland

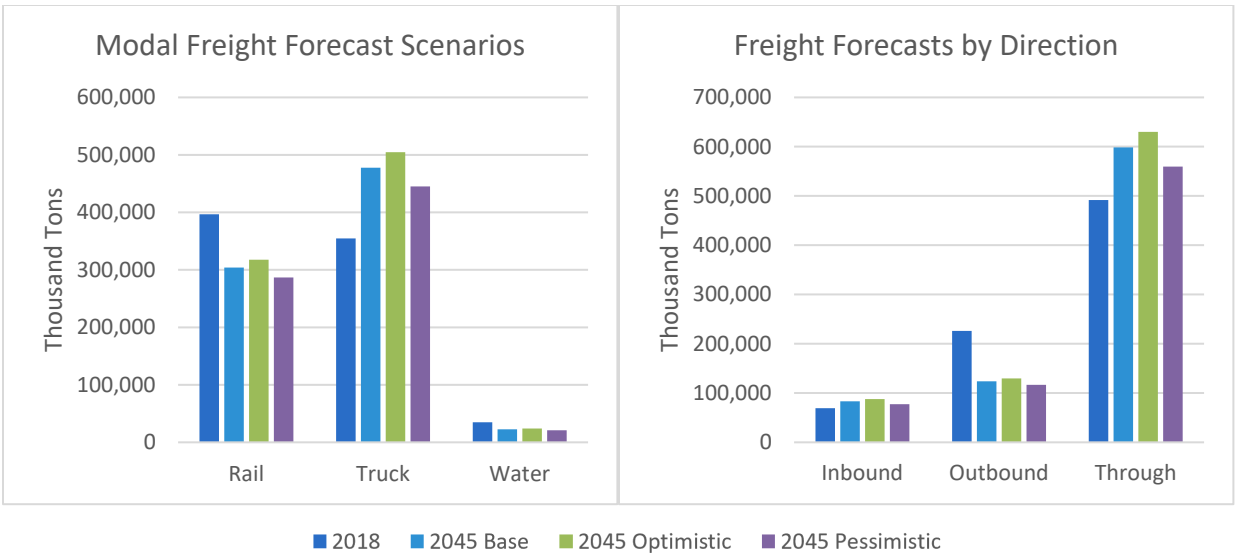

Figure 31: Comparison of Modal (left) and Directional (right) Forecasts, Owensboro

Figure 32 presents the top commodities for the hinterland. Motor vehicles and motor vehicle parts represent the top two commodities by volumes for the hinterland, reflecting regional importance of auto manufacturing. Primary iron/steel is forecast to be fourth-ranked in tonnage, also reflecting regional manufacturing. The third-ranked mixed freight of all kinds (in other words, different commodities moved together, common in wholesale or retail) and warehouse and distribution center traffic reflect the substantial growth forecast for retail and consumer products, although these are challenging to divert to water-based transport. Plastic products categories are also forecasted to see substantial growth and may provide opportunities for diversion given their typical handling requirements.

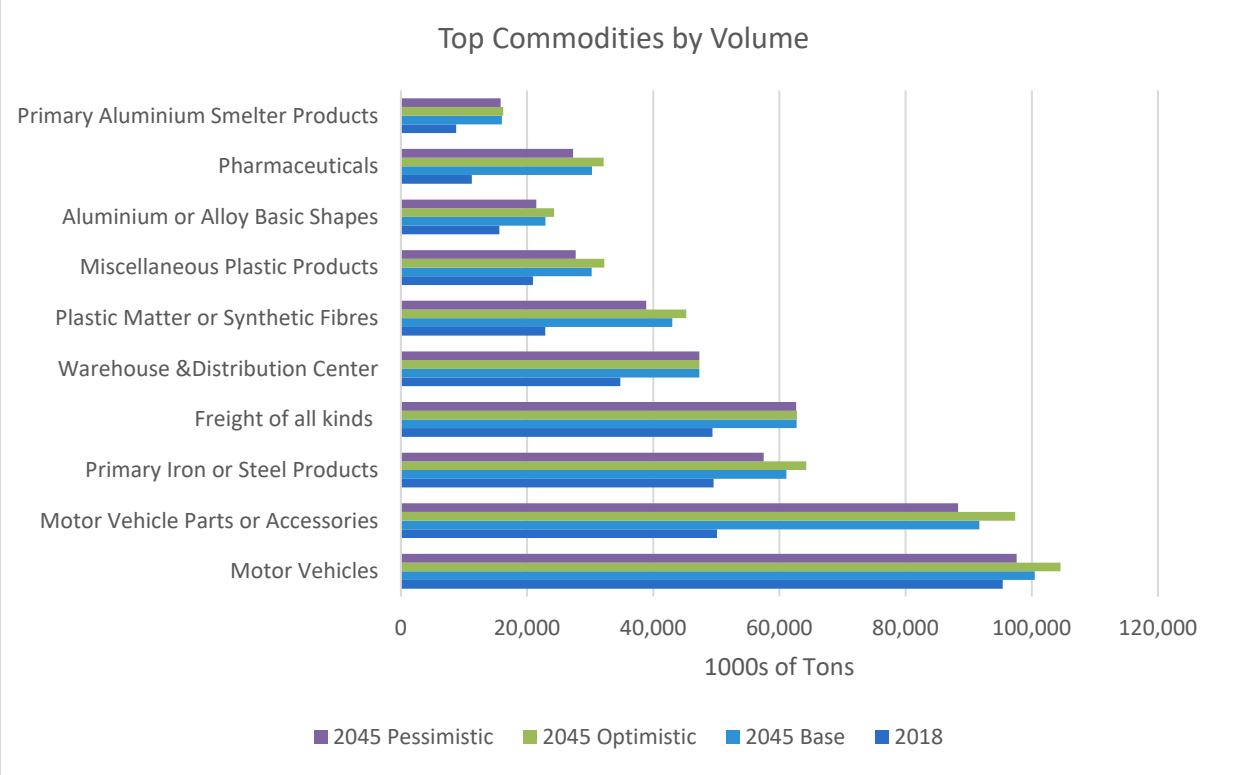

Figure 32: Top Commodity Flows, Owensboro

The port is poised for growth, supporting regional trends from manufactured commodities—including aluminum already handled by the port facility. Further, rail access supports diversion potential, including commodities like plastics and synthetic fibers, motor vehicle parts and accessories, and the finished or near complete motor vehicle market itself. During the second port visit, the port was handling large quantities of Jeep Commander frames via rail to their manufacturing facility in Toledo, Ohio.

Owensboro is a multi-faceted and developed riverport, epitomizing what a riverport can offer. Its infrastructure supports several customers, commodities, and products. Being an aluminum delivery point on the London Mercantile Exchange greatly benefits it as an aluminum hub.

With its diverse cargo and customer base, Owensboro has been able to invest and support demand for services. However, its infrastructure is aging and needs riverfront investment, changes to inbound and outbound gate flow patterns, and new warehouse capacity and capabilities for expected growth in iron and steel, plastics and fibers, aluminum, vehicle manufacturing, and other sectors. As a prominent riverport, its volumes attract volumes because of its scale, capability, and customer base.

Paducah-McCracken County Riverport

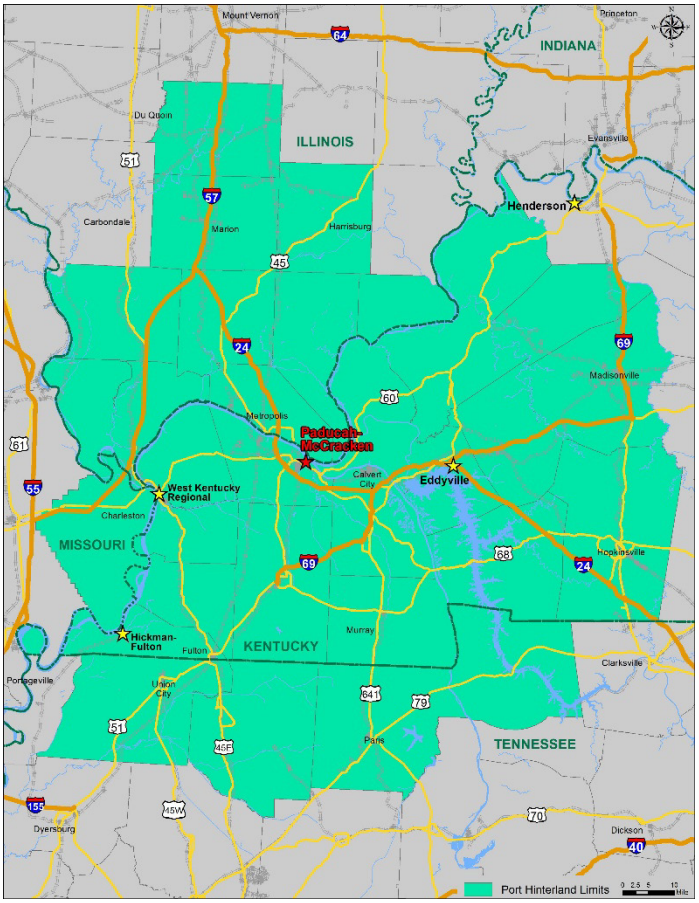

Figure 33: Paducah-McCracken Hinterland

Shown in **Figure 33**, Paducah's hinterland covers 32 counties in four states: Kentucky, Illinois, Missouri, and Tennessee. The 48-acre port facility is located near the confluence of the Ohio and Tennessee rivers with additional undeveloped acreage west of the city. The site has no direct rail service, relying on US 60 to access I-24. The site includes areas for bulk commodities, general cargo, and warehousing.

Figure 34 presents modal freight forecast scenario comparisons by mode for the hinterland area (left chart) and directional freight flows into, from, and through the hinterland (right chart). **Figure 35** presents the top hinterland commodities by volume.

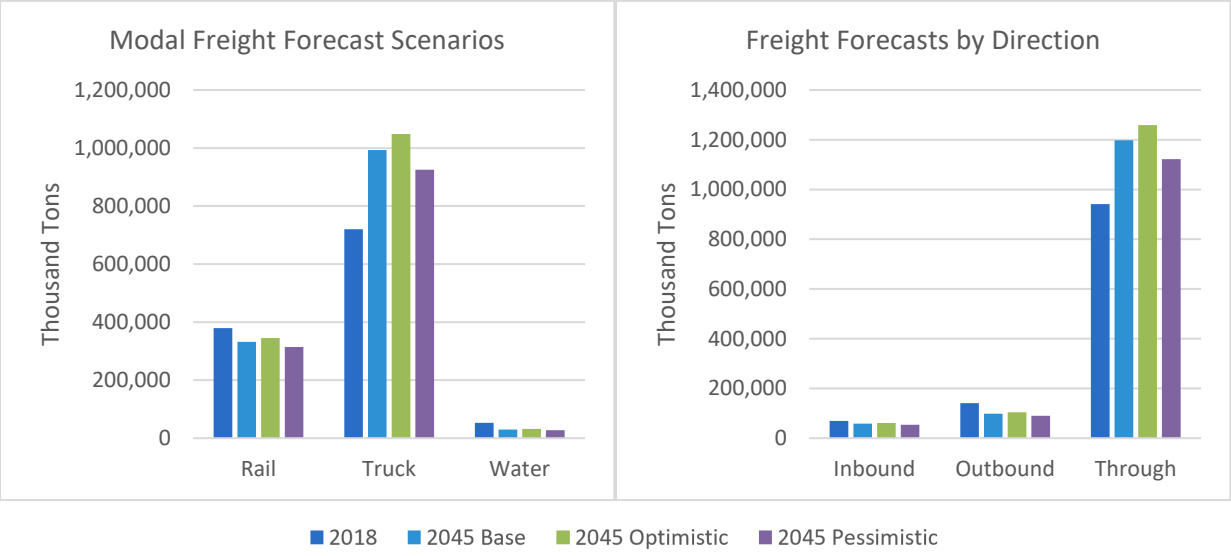

Figure 34: Comparison of Modal (left) and Directional (right) Forecasts, Paducah-McCracken

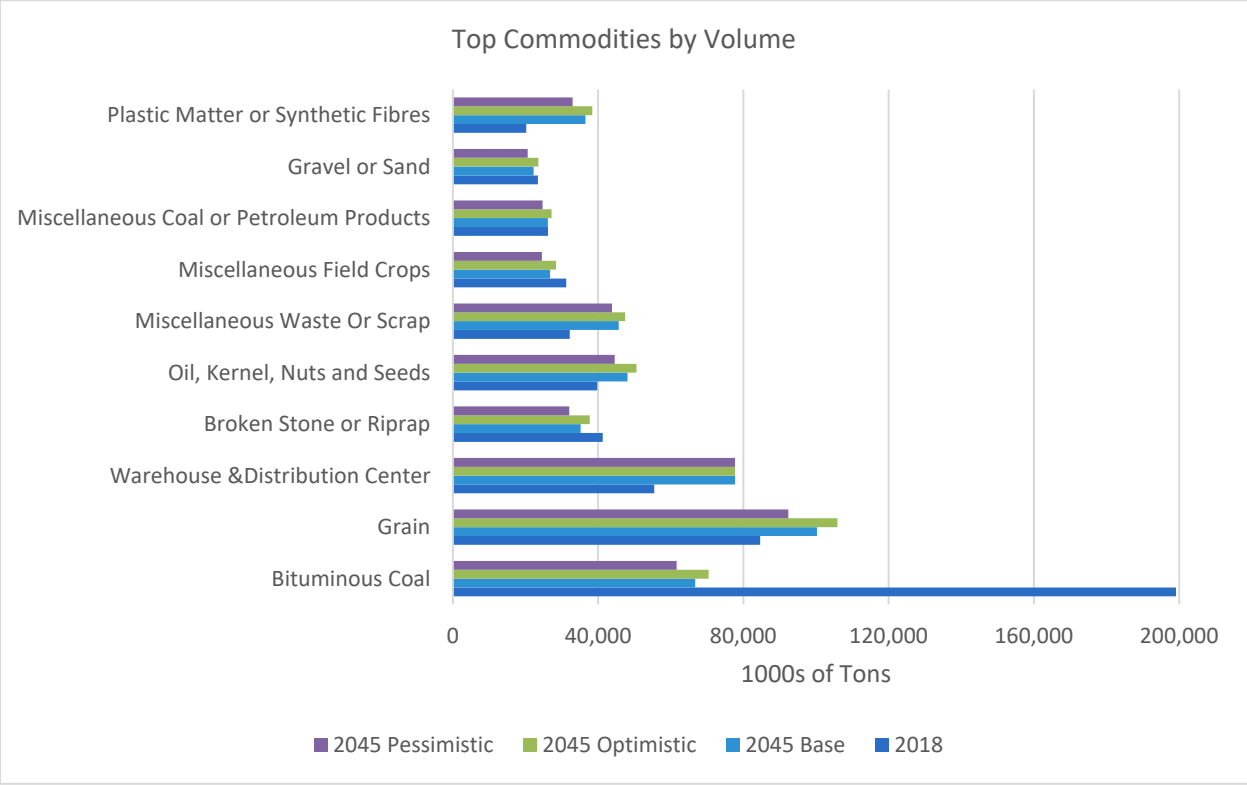

Figure 35: Top Commodity Flows, Paducah-McCracken

In the forecast scenarios, grain replaces coal as the top commodity for the Paducah hinterland. Mixed consumer products in warehouses and distribution centers rank second although these can be challenging to divert to waterborne transport. Coal remains in the third-ranked slot by volume though it is expected to continue declining. Soybeans, represented by the "oil, kernel, nuts and seeds" category, is fourth-ranked—also reflecting the growing relative importance of agricultural commodity shipping to the region. Waste and scrap shipment volumes increase as fifth-ranked in the region. However, despite what appears to be a lower volume for sand and gravel, tenants handling these two commodities reflect needs-based or customer-inspired investment in Paducah.

Being at the crossroads of the inland river system, the Paducah Riverport offers several options for shippers and barge operators alike. Here, the Tennessee River System (which includes Lake Barkley and access to the Tennessee-Tombigbee River) meets the Ohio River, with the Mississippi River nearby.

Unfortunately, Paducah has limited direct access to the river to transfer cargo, other than its main dock and bulk transfer facility. It does not have direct access to rail but has access to several road networks. While it has received funding for container efforts, it does not have a crane adequate for container service nor does it have the laydown or terminal space to accommodate high throughput container volumes. Its aggregate yard is served by its bulk transfer crane through a conveying system. However, the handling equipment on the aggregate site is antiquated and in need of replacement.

With proper investment, Paducah could attract increased volumes of aggregates to support regional requirements. For long term growth, it will require additional direct river access through land acquisition and terminal development.

Western Kentucky Regional Riverport

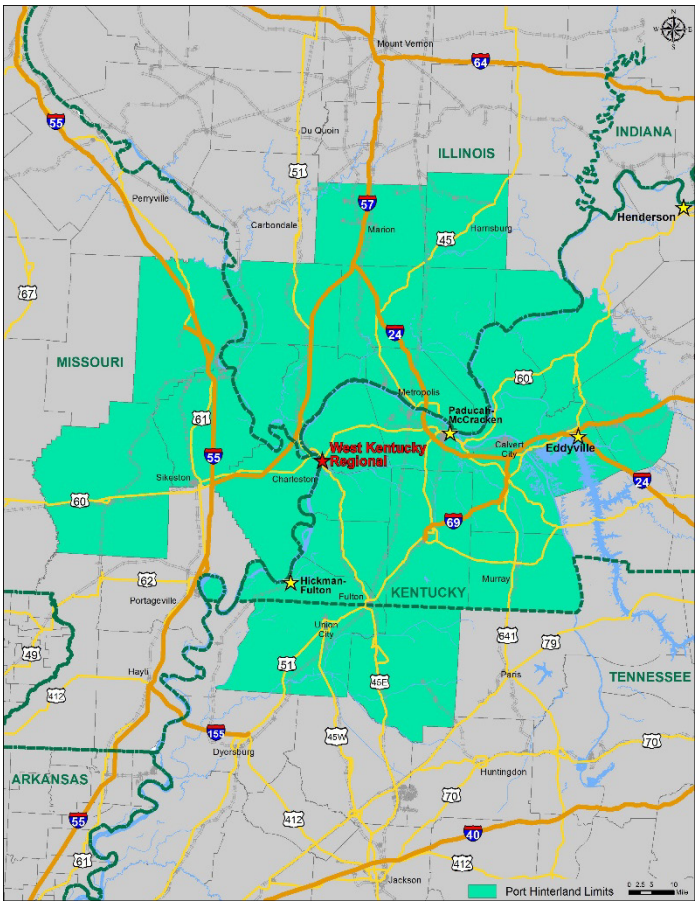

Figure 36: West KY Hinterland

The westernmost developing port, West Kentucky Regional Riverport represents a 27-county hinterland covering portions of Kentucky, Illinois, and Missouri. Extents are shown in **Figure 36**. With a mix of agricultural, resource, and manufacturing growth in the region, rail- and truck-based flows are poised for growth. Potential sites are being explored near river mile 950.1 to have access to four interstates via US 60 and US 62. Class I rail access is expected in this area.

Figure 37 shows modal freight forecast scenario comparisons by mode (left) and directional freight flows (right). Outbound freight flows for the region are anticipated to increase versus 2018 volumes while inbound decline.

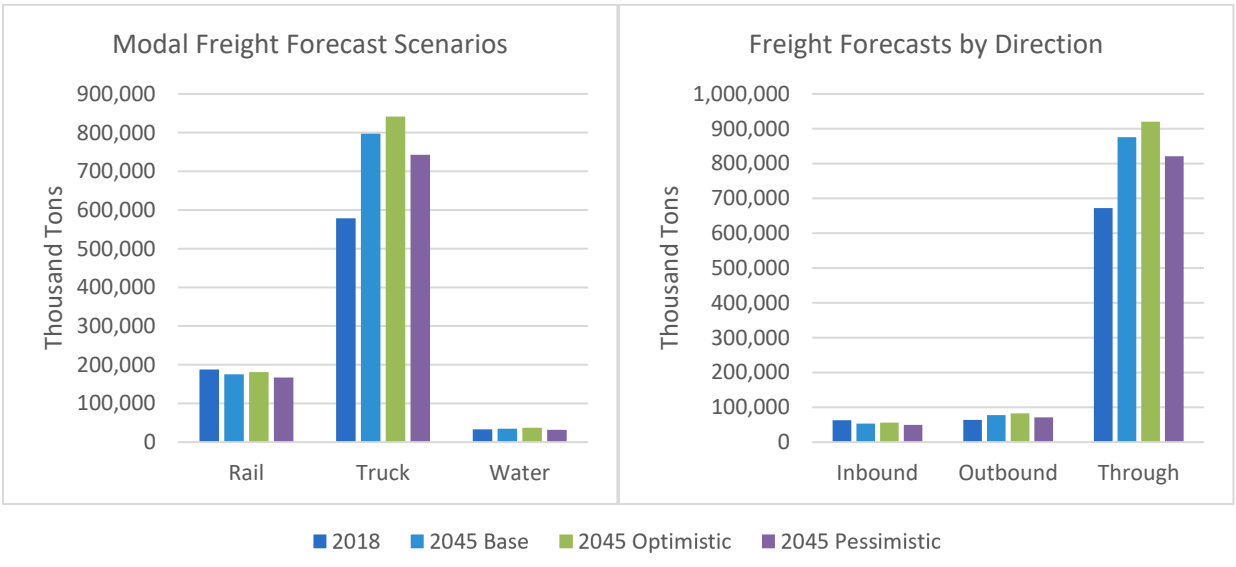

Figure 37: Comparison of Modal (left) and Directional (right) Forecasts, West KY

The top commodities for the hinterland are shown in **Figure 38**. Coal production drops substantially, from the top volume to fifth, replaced by grain. There are strong growth forecasts for mixed consumer products in warehouses—ranking it second, although these are challenging to divert to water transport. Soybeans (categorized as Oil, Kernel, Nuts, and Seeds in the chart) are ranked third, followed by substantial growth in waste/scrap. Plastics and synthetic fibers are forecast to show substantial growth to move up to fifth-ranked by 2045, reflecting growing regional shipments driven by plant expansions in the region.

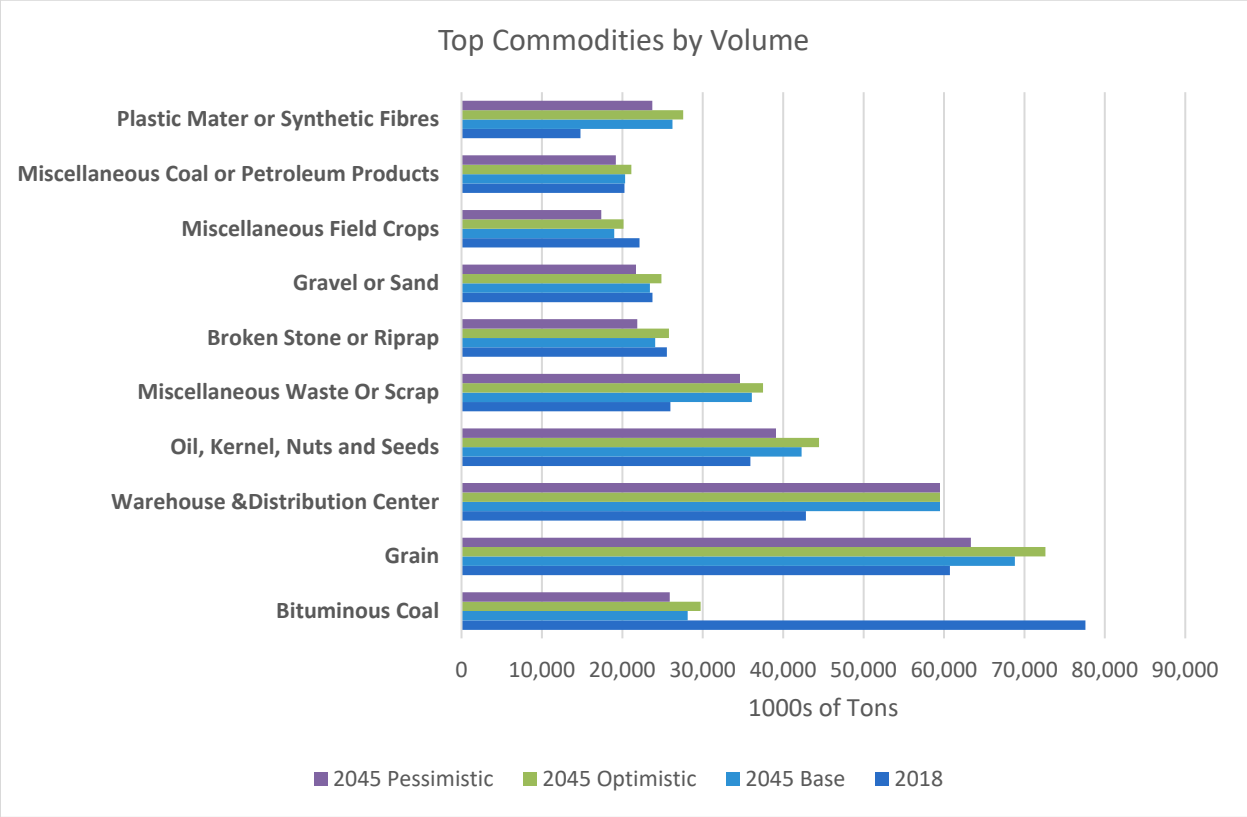

Figure 38: Top Commodity Flows, West KY

The Western Kentucky Regional Riverport is a developing riverport that would be near both Hickman and Paducah riverports. It is focusing its efforts to handle high-volume commodities such as mineral mining, fertilizer, grain, and scrap steel. It will require upwards of $20 million for land acquisition and investment to construct a commodity throughput operation. A regional market study should be undertaken to see how three closely spaced riverports have enough commodity volume available without jeopardizing one another. Port leaders feel that to be fully successful, they require the US 51 bridge be replaced with a higher capacity structure to connect to I-24, I-69, and I-55 to expand their competitive reach. There is a nearby papermill operation that could benefit using the inland river system, possibly with inbound feedstock.

3. KEY POLICY ISSUES

Development of America's Marine Highway Program since 2007 and the Port Infrastructure Development Program since 2010 shows a growing federal recognition for the movement of goods by water. Investment levels are expected to remain consistent with the U.S. Department of Transportation's focus on supporting transportation as a whole and avoiding comparing modes. The key issue is moving goods in the most efficient manner possible for their value, necessary transport time, and critical need (hazard events).

The inland waterway system—including the Mississippi and Ohio rivers—provides benefits to the entire United States. According to the Maritime Administration, "The water transportation industry generated some $36.1 billion in gross output in 2007, of which $10.7 billion was value added."[3] Further, the federal government prioritizes investment in the inland waterway system. For example, the U.S. Army Corps of Engineers' Fiscal Year 2020 civil works budget was "…$4.827 billion in discretionary funding for the Civil Works program, including $2.308 billion for commercial navigation, $1.011 billion for flood and storm damage reduction, and $187 million for aquatic ecosystem restoration."[4]

The Commonwealth can capitalize on the benefits and investment to leverage its riverport system to a greater extent than it does now, which in turns helps support the economy of Kentucky. **Figure 39** provides an ever-present depiction of the value of inland waterways to move goods; the economics of freight movement on the inland waterway remains compelling as the most energy and environmentally efficient mode of transport due to the virtue of the economies of scale.

[3] Source: "America's Marine Highway Report to Congress," USDOT/Maritime Administration, April 2011. Available at https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/intermodal-systems/marine-highways/3051/maradamhreporttocongress.pdf.

[4] Source: "Fiscal Year 202 Civil Works Budget of the U.S. Army Corps of Engineers," Department of the Army, March 2019. Available at https://dredgingcontractors.org/wp-content/uploads/2017/07/FY20-USACE-Civil-Works-Budget-Press-Book.pdf.

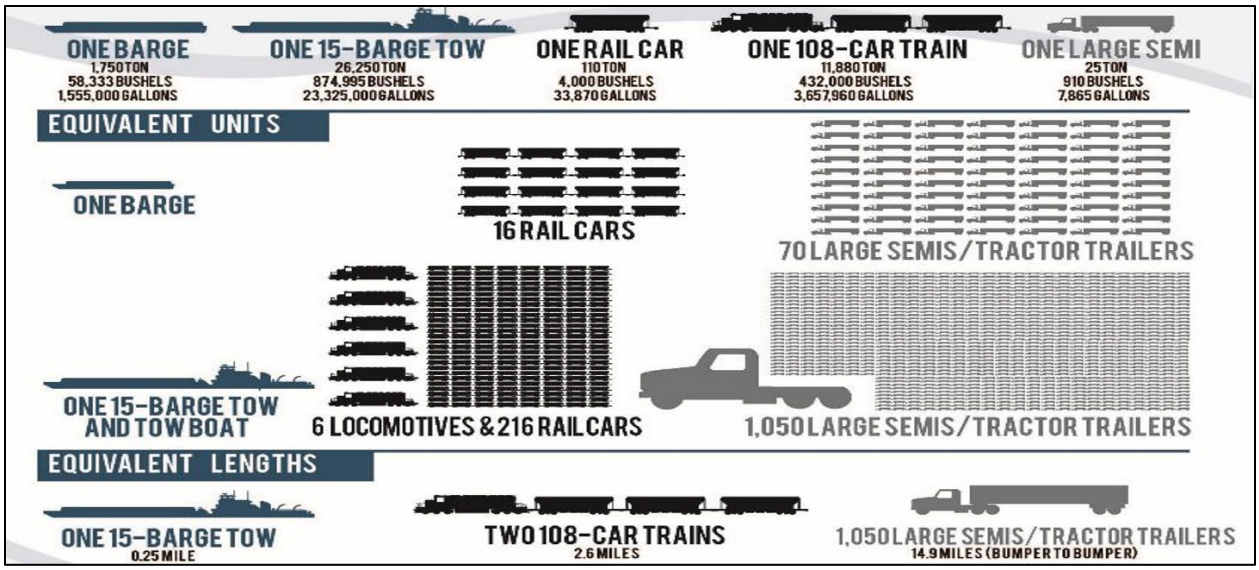

Figure 39. Marine Highway Economies of Scale

Moreover, it is important to consider which investment needs to prioritize. While container-on-barge services for manufactured goods may be possible, there are customers currently demanding better infrastructure for bulk goods—including construction and agricultural products. The first market is influenced by the federal housing and highway appropriations policies and/or appropriations. The second market is affected by U.S. Department of Agriculture technical and funding policies and/or appropriations.

Additionally, the Commonwealth may see an increase in share of service sectors within state economic activity, which typically generate and consume less freight tonnage than manufacturing or resource extractive activities. As services grow, the share of types of commodities available within the state will shift. This could also shift the operations and equipment needed to shift with this demand at the ports, discussed further in Section 4.

Finally, domestic and international production and trade policies also affect the potential for Kentucky exporters to competitively access and sell to growing foreign markets. This includes coal: on August 19, 2021, the Federal Government initiated a formal climate review of the federal coal program; this means a pause of federal oil and gas leasing and conveys current federal policy points affecting Kentucky.[5]

At the state level, Kentucky's economic development policies may affect the potential of Kentucky riverports' ability to grow due to the competitive nature of states vying for economic development investments by industry, including those industries that depend on freight shipments. The result is a shift of port demand to ports in other states including Illinois, Indiana, and Ohio. Based on the findings in this Technical Memorandum, Technical Memorandum 3 and Technical Memorandum 4 will explore funding sources and

[5] See https://public-inspection.federalregister.gov/2021-17827.pdf for more information.

programs aimed at modernizing the ports for changing commodity markets for a new economic base and the final report of the Kentucky Riverport, Highway and Rail study will offer specific policy recommendation for strategies to both prioritize investment in these areas and capture markets in specific geographic and industry sectors supported by the findings shown in **Section 2** of this report.

At the federal level, evolving policies towards infrastructure funding and interstate operations of the freight network are currently uncertain. Multiple proposals for new federal financial support for transportation infrastructure are being considered. These policies may affect the ability of Kentucky's freight system to handle and take advantage of potential growth. **Section 4** dives deeper into how the international trade trends also affect the potential for Kentucky exporters to competitively access and sell to growing foreign markets.

4. INTERNATIONAL MARKET IMPACTS ON KENTUCKY'S ECONOMY

The inland waterway system benefits the entire nation and particularly states—such as Kentucky—that have such a substantial reach of river navigation available through public riverports. Forecast demand for commodity transportation potentially benefiting from the waterways is evidence of the systems' future importance to Kentucky's economy. Kentucky potentially will see long-term changes in the composition of business and employment across the Commonwealth; these may affect commodity demand and the potential for inland waterway use. This is especially important for historically high-volume cargoes and the potential future growth in new goods handled by ports; in other words, coal, aluminum, agricultural products, unfinished lumber (logs), and manufactured goods.

There are several policy issues that affect the realization of the potential for the Commonwealth to tap into these forecasted markets, including increased federal infrastructure investment required to sustain a transportation system where key river locks are predominately past their economic design life, and unscheduled lock and dam closures can reduce reliability and shipper choice of water transport.

Coal Products

Bulk shipping demand for the fleet size and shipping rates depends on tonnage demand and distance to move domestically and overseas, in other words, ton-miles. Growing demand for coal and iron ore in China could mean Australia capturing a significant portion of the Chinese market demand for iron ore and coal. As a result, the United States would expectedly be more competitive for exporting agriculture commodities (in other words, grain and soybeans) to Asia. The benefit is likely the greatest opportunity for Kentucky, given the dry bulk ocean fleet capacity should be adequate to handle the potential increases in Kentucky dry bulk export production.

In addition, the recent and near-term increases in China coal demand have been influenced in part by Chinese policy to shut down small domestic coal mining operations, substituting its demand with import coal. However, slower (long-term) economic growth in China is expected since its workforce (size) and economy will likely peak, and there will be less coal demand in other countries. Moreover, those still demanding coal can more competitively source their product from Australia.

Aluminum

Aluminum waterborne trade on Kentucky's waterways is projected to grow by approximately 4 percent each year in the next 40 years. Specific Aluminum products handled by the Kentucky's public river ports are anticipated to grow at an even faster rate. For example, the American Bureau of Shipping (ABS) projects aluminum sheet products to grow by 9 percent each year largely due to growth in the shipbuilding market.

Agricultural Products

The transportation of agricultural products domestically and internationally shipped from the Midwest can be a beneficial commodity for Kentucky Riverport development. According to the Kentucky Corn Growers Association Kentucky produces more that 225 million bushels and most of it stays in the state for livestock, ethanol, bourbon, and food processing with 110 million bushels exported; however, only 31.6 million bushels are exported via the Ohio River, the rest goes to neighboring states to be exported. Moreover, the recent development of a hog house in China that serves a herd six times larger (416 million head) than the United States means more demand, such as the projected increase in corn exports - 26 million tons between 2021-2022. Further, the Soy Transportation Coalition would like to see faster transportation (which includes transfer) time and the provision of a backhaul to make soybean a more sustainable commodity for international trade for the United States on which Kentucky can capitalize. River transportation via the Ohio and Mississippi Rivers is ideal for farmers who often operate on small margins.

Unfinished Lumber

While logging seems like a possible growth market for Kentucky, shipping by water is more complicated and expensive than Georgian pine trucked short distances to the coast or in the Pacific Northwest. The future market remains to be seen but is a consideration in the Commonwealth.

Manufactured Goods

Considering these factors and market trends, Kentucky will potentially see long-term changes in business and employment due to federal policy and the forecasts referenced in Sections 2 and 3. In addition, long-term changes could leverage the potential advantage of shipping via the Port of South Louisiana and New Orleans. Moreover, the development of FuturePort in Plaquemines Parish and a nearby, comparable Port

of New Orleans facility could mean container-on-barge ultimately becoming a reality. This means manufactured goods, including component inputs for manufacturing, may see a growth via intermodal freight demand, and for example growth in the Kentucky auto parts industry.

Need for Investment

Kentucky infrastructure changes will therefore require new investment to improve riverport access by road and rail, for shippers to choose inland waterway transport. The inland waterway system itself requires infrastructure investment for the lock and dam system to continue to operate with sufficient reliability for waterway shippers. Moreover, the consideration of other, new commodities (more manufactured goods via container-on-barge) means a focus on the infrastructure necessary for such services. Finally, projected job growth and economic impacts based on the riverports' projected investment is addressed in Technical Memorandum 4.

5. STAKEHOLDER OUTREACH

Beyond technical analyses, the study includes targeted outreach efforts: sharing information with a wide audience in a series of virtual freight summits and collecting insights from individual port leaders. Below is a summary of the respective March 2021 summit and April 2021 riverport visits to convey what was learned and first understand port needs. The summit summary and visit notes are in **Appendices A** and **B**, respectively.

March 2021 Virtual Summit

The study team hosted the second project summit, entitled, *Second Kentucky Summit on Economic Development Strategies to Leverage Kentucky Riverports and Freight Network* from March 24-26, 2021. The virtual summit provided an opportunity for the project team to engage with port leaders, economic development staff, industry representatives, and other stakeholders to focus on opportunities to leverage the riverports, highways, and rail system to promote economic development.

Seven sessions were held over three days. Sessions ranged from 45 minutes to two hours, and expanded on the following topics:

- Opening Session
- 2021 Changes in Federal Transportation and Trade Policies
- What's New in the Neighborhood? Updates from Adjacent State Riverports
- Forecasting the Future of Kentucky's Freight Economy
- How Will the Future of Freight Impact Other Modal Operations?
- Freight Infrastructure Needs and Kentucky's Funding Process

- Economic Development and Riverport Markets

Recordings, presentation materials, and a written summary of each session is presented on the study website[6] hosted via KYTC.

April 2021 Port Visits

The study team conducted a second round of in-person interviews with the Kentucky public riverport directors and key team members. Visits were made to the seven operating and four developing riverports. The riverport visits and interviews were conducted during April 2021 as shown in **Table 3**.

Table 3: Port Visit Schedule

Organization Interviewed	Status	Visit Date
Eddyville Riverport and Industrial Development Authority	Operating	April 28
Greenup-Boyd County Riverport Authority	Operating	April 26
Henderson County Riverport Authority	Operating	April 28
Hickman-Fulton County Riverport Authority	Operating	April 30
Louisville-Jefferson County Riverport Authority	Operating	April 27
Maysville-Mason County Riverport Authority	Developing	April 26
Meade County Riverport Authority	Developing	April 27
Northern Kentucky Port Authority	Developing	April 26
Owensboro Riverport Authority	Operating	April 29
Paducah McCracken County Riverport Authority	Operating	April 29
West Kentucky Regional Riverport Authority	Developing	April 30

The second round of in-person interviews sought to review riverport packet material sent ahead of time including the *Riverport Visit Discussion Guide*, individual riverport profile, and an example Riverport Profile and Graphic example. The interview also sought perspective on the following key items:

- Port Market Discussion and Hinterland Opportunities
- Port Investment Strategy and Capital Investment Plan (CIP) and Scenarios
- Port Existing and Potential Future Facility Overview (Tour/Pictures and Video)
- Discuss existing/future facilities and capabilities, and infrastructure profile

[6] https://transportation.ky.gov/MultimodalFreight/Pages/Kentucky-Riverports,-Highway-and-Rail-Freight-Study.aspx

A discussion of the capital investment needs, investment strategies, “SWOT” analysis, and other economic development opportunities will be explored further in upcoming technical memoranda.

KENTUCKY RIVERPORTS, HIGHWAY & RAIL FREIGHT STUDY

Appendix A: March 2021 Summit Notes

Tables

Figures

1. INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) and Kentucky Cabinet for Economic Development (CED) held the second summit for the *Kentucky Riverports, Highway and Rail Freight Study* during March 24-26, 2021. Titled *Second Kentucky Summit on Economic Development Strategies to Leverage Kentucky Riverports and Freight Network*, the virtual summit provided an opportunity for the project team to engage with port leaders, economic development staff, industry representatives, and other stakeholders to focus on opportunities to leverage the riverports, highways, and rail system to promote economic development.

Seven sessions were held over three days. Sessions ranged from 45 minutes to two hours, and expanded on the following topics:

- Opening Session
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- How Will the Future of Freight Impact Other Modal Operations?
- Freight Infrastructure Needs and Kentucky's Funding Process
- Economic Development and Riverport Markets

The event was publicized via email invitations to key stakeholders and associations, with announcements on the project website[1] and social media. Over 124 participants registered with 133 unique attendees between the seven sessions.

A future third summit will provide updates on technical analyses and continue to engage with interested parties. All three summits will be documented in a separate technical memorandum.

Baseline Survey

Prior to the summit, a survey was sent to registered attendees to gauge the audience's interests and understand their background to tailor panelist and moderator content. Minimal responses were received.

Report Organization

The following sections describe key content from each session. Recordings and meeting materials are accessible via the study website and KYTC's YouTube channel[2].

[1] https://transportation.ky.gov/MultimodalFreight/Pages/Kentucky-Riverports%2C-Highway-and-Rail-Freight-Study.aspx
[2] https://www.youtube.com/playlist?list=PLFou1OwtHzfReFWW7xtcVxtw8SNj7LNiG

2. SESSION 1: OPENING

Wednesday, March 23, 2021, at 10:00 AM Eastern

Presenters:	Jimmy McDonald	Deputy Project Manager & Senior Freight and Logistics Planner, Metro Analytics
	Mikael B. Pelfrey	Director, KYTC Division of Planning
	Jeff Taylor	Commissioner, Department for Business Development
	Kristina Slattery	Deputy Commissioner, Department for Business Development
	Chandler Duncan	Project Manager & Vice President, Metro Analytics

Presentation Content

Jimmy McDonald, deputy project manager with Metro Analytics for the *Kentucky Riverports, Highway and Rail Freight Study* opened the summit by welcoming all attendees and walking through Zoom tool-tips—showing participants the multiple way to engage through the platform during the course of the summit. All sessions were recorded and are available for viewing online. A total of 69 individuals joined the session.

Chandler Duncan, the project manager for the Metro Analytics team, recalled the first *Kentucky Summit on the Economic Role of Freight Modes,* which occurred last fall. Since then, the team has been working to develop an understanding of the Kentucky market with relation to the riverports. This summit is presenting the economic development process and how that may change over time for Kentucky riverports. The summit also serves to kick-off the second round of engagement with public riverports across the Commonwealth. All task three components are shown in **Figure 1**. Scheduling of the second round of port visits will commence following the completion of this summit.

Task 3
Engage Stakeholders on Future Needs and Opportunities

Key Activities	Committee Involvement	Key Deliverables
1) **Execute Summit No. 2** 2) **Present future trade and growth scenarios** 3) **Take input from potential policies and projects** 4) **Complete SWOT in collaboration with Ports**	– Summit No.2 attendance – Review and Comment on SWOT memorandum	– Summit and Site Visit Records/Proceedings – SWOT Memo

Figure 1. Task 3 Components

Information gleaned from this next round of engagement will serve to inform investment and performance scenarios, as shown in **Figure 2**.

Figure 2. Outline of Six Study Tasks

Chandler summarized the tasks completed to date and prepared attendees for items to expect from the remaining tasks. Because forecasting efforts are ongoing, investment and performance scenarios will be available this fall.

Jimmy shared the speakers slated for each session this summit. Due to technical difficulties, Kristina Slattery, Deputy Commissioner for the Kentucky Department of Business Development, stepped in and shared remarks on behalf of the scheduled speakers. She discussed the importance of this study and the opportunity it presents by providing a better understanding of the market and capabilities of the riverports. While other states may have been more innovative, soon we will have information indicating what we can do to maximize utility our public riverports. As a state we have access, are centrally located, and are the ideal location for businesses to move goods. Riverports not only support Kentucky industry, but also *are* Kentucky industries themselves. Her team is excited to have the opportunity to work with the riverports.

Commissioner Taylor added to Kristina's comments. Riverports play a huge intermodal role in the economy—particularly for rural communities. He strongly supports this study and is excited for the competitive edge it could provide the Commonwealth. He welcomed comments and reiterated CED's willingness to remain engaged throughout the study effort.

Mikael added comments for Secretary Gray—speaking to his support for this study, transportation planning efforts, and multimodal projects. He knows the Secretary is looking forward to continuing this partnership with CED.

Question and Answers

After opening remarks, there was an opportunity for questions from attendees.

- **Will these recording be made available for us to share with others?**

  Absolutely! The videos will be posted to the study website[3] following the summit.

- **Is there opportunity for OKI to join in on the NKY Port visit?**

  Yes. The project team will coordinate scheduling.

- **How may CED use this study to move Kentucky forward? Or keep the study refreshed?**

  It will be used as a marketing tool and to have a better understanding of what opportunities exist statewide. Currently, each port does not have a great marketing tool. It will serve as a tool to put in front of companies and consultants to be able to answer questions pertaining to the riverports. It will also provide an understanding of what gaps are at each port, especially in terms of infrastructure, to provide insight where resources may need to be invested. For example, if workforce issues are apparent, there could be an opportunity to shift funding and education to supplement. Now more than ever, we expect an influx of funds to local communities from relief funds.

- **How do the riverports have an opportunity to receive those dollars coming to local communities?**

  The legislature will be a have a session to discuss how these dollars will be distributed. Typically, they are funneled through the Department of Local Government.[4] We do not know for sure at this time but will share more information once it becomes available.

- **Kristina, what department are you in?**

  Kristina Slattery
  Deputy Commissioner, Department for Business Development
  Kentucky Cabinet for Economic Development
  Office: (502) 782-1946
  Mobile: (502) 234-4350
  Kristina.slattery@ky.gov
  Old Capital Annex
  300 West Broadway
  Frankfort, Kentucky 40601

- **How can riverports efficiently navigate environmental regulations?**

  The Energy and Environment Cabinet[5] is a wonderful partner to work with on projects. They can facilitate the process and allow for expediting permitting, when possible. Kari Johnson shared her

[3] https://transportation.ky.gov/MultimodalFreight/Pages/Kentucky-Riverports,-Highway-and-Rail-Freight-Study.aspx
[4] http://kydlgweb.ky.gov/
[5] https://eec.ky.gov/Pages/index.aspx

contact at the Cabinet where she serves as a consultant with companies and advises on the permitting processes and timelines.

Kari Johnson
Environmental Scientist Consultant
Commissioner's Office
Department for Environmental Protection
300 Sower Blvd., Frankfort, KY 40601
Office: (502) 782-6989
Kari.Johnson@ky.gov

3. SESSION 2: 2021 CHANGES IN FEDERAL TRANSPORTATION AND TRADE POLICIES

Wednesday, March 24, 2021, at 1:00 PM Eastern

Presenter:	Deb Calhoun	Senior Vice President, Waterways Council, Inc.
	Tim Pickering	Acting Director, Office of Ports & Waterways Planning (MARAD)

Presentation Content

Deputy project manager Jimmy McDonald provided session opening remarks—thanking participants for their attendance and for their thoughts, input, and involvement, which are essential for the development of this study. A reminder of Zoom functionality was provided prior to introducing the goal of this session—to learn about the 2021 changes in the federal transportation and trade policies. There were 77 individuals on this session.

The first presentation was provided by Deb Calhoun, Senior Vice President of the Waterways Council, Inc.[6] (WCI)—the national public policy organization that advocates for a modern and well-maintained system of inland waterways and ports. She has worked with WCI since its inception in 2003, and developed the communications program of its predecessor organization, Waterways Work! Ms. Calhoun also serves as Secretary of the National Waterways Foundation, whose mission is to develop the intellectual and factual arguments for an efficient, well-funded, and secure inland waterways system. WCI advocates for the representatives shown in **Figure 3**, by direct lobbying of Congress, grassroots efforts, and media communications. Deb provided a snapshot of the importance of the inland waterway

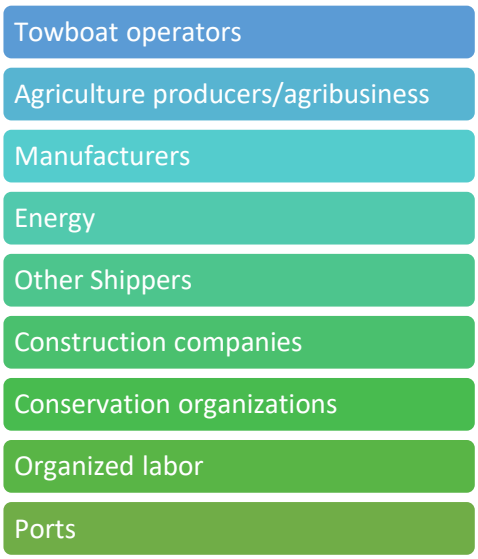

Figure 3. Representatives WCI Supports

[6] https://waterwayscouncil.org/

system, emphasizing the significance waterways have on benefiting the entire nation. The American Society of Civil Engineers (ASCE) released its quadrennial *Report Card for America's Infrastructure*[7] on March 3, 2021. This assessment grades the condition and performance of 17 categories of infrastructure—including inland waterways, locks, dams, drinking water, roads, levees, and more. The primary reasoning behind the inland waterways D+ rating is summarized in **Figure 4**. This is an improvement from the previous D rating. However, the locks are predominately past their economic design life with the average age of 50-60 years; the unscheduled lock and dam closures are very costly.

"We must ensure all of our transportation systems – from aviation to public transit, to our railways, roads, ports, waterways, and pipelines – are managed safely during this critical period, as we work to defeat the virus."
--Pete Buttigieg

Figure 4. ASCE Infrastructure Report Card for Inland Waterways

The new administration seems to be in support of increased funding for America's infrastructure. Going into "infrastructure week" next week, President Biden may introduce a $2 trillion infrastructure package; however, details of the package have not been released. WCI is hopeful for receiving future support, referring to the US Secretary of Transportation, Pete Buttigieg's quote.

Speaking next, Tim Pickering, Acting Director of the Office of Ports & Waterways Planning for the US Department of Transportation's Maritime Administration (MARAD) shared an overview of his team's duties, projects, and the Marine Highway Grant Program.[8] Tim started by providing a snapshot of economies of scale, as shown in **Figure 5**, to emphasize the importance of marine highways.

[7] https://infrastructurereportcard.org/
[8] https://www.maritime.dot.gov/grants-finances

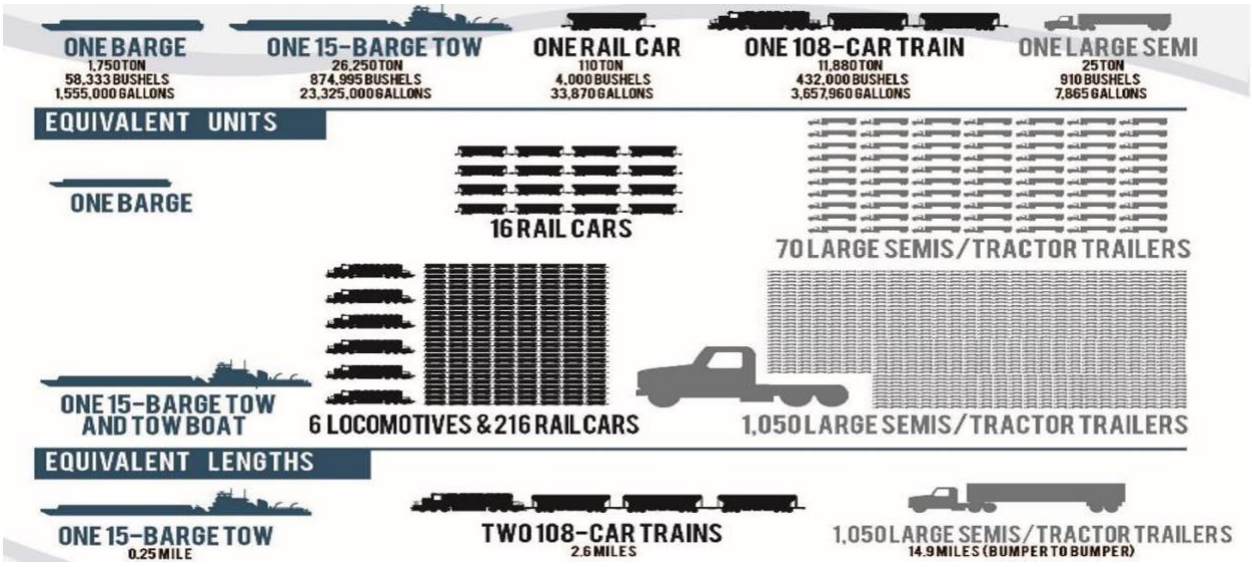

Figure 5. Marine Highway Economies of Scale

He then reviewed America's Marine Highway (AMH) Program, which includes the vast majority of US navigable waterways, and the three steps to receive federal support (**Figure 6)**. AMH grants can be used to alleviate the upfront capital risks associated with initiating new services. Since 2016, MARAD has provided $33.8 million in AMH grants to 18 eligible projects. A notice of funding opportunity for $10.8 million in Marine Highway Grants will be released soon. The notice will include the administration's priorities, but we expect the emphasis will be on emissions and opportunity zones. Look for the notice mid-April. The advertisement cycle will be open for five weeks with awards in late July.

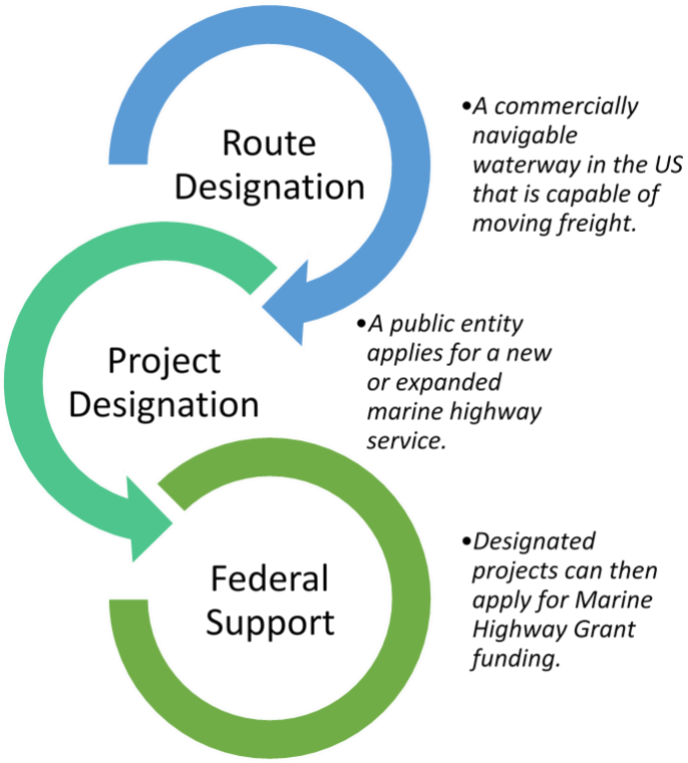

Figure 6. Three Steps of AMH Program

Question and Answers

A question-and-answer session followed the presentations.

- **Is the Harbor Maintenance Trust Fund being successfully used to continue the deepening of coastal ports and the LMR in New Orleans?**

  Yes. We are seeing some much-needed efficiency overlaid on the Harbor Maintenance Trust Fund. About $1.7 billion goes into the fund with the target to expand $1.67 billion annually to cover dredging and harbor maintenance needs. There was a $9 million surplus in 2020. There is funding available to deepen the Mississippi River to get larger ships on it.

- **What would be the best way Kentucky could leverage funding opportunities with the US Army Corps of Engineers (USACE)—working with the WCI or targeting combined projects?**

  Join WCI! As a member of WCI, there is great opportunity with an infrastructure bill. We have a $7 billion portfolio of projects across all geographies; last year's House infrastructure bill allocated $3 billion for waterways although it did not get full approval. We have a great delegation supporting inland waterway projects and proper funding for USACE programs for operations and maintenance, the Harbor Maintenance Trust Fund. The outlook is positive and hopeful. Please reach out to Deb if she can talk to you specifically or provide support.

- **Is there any discussion to include Mexico to USA trade in the Marine Highways Program?**

  Yes. There is an internal proposal at MARAD in the works to request legislative change to add Canada and Mexico. We are still working through the nuances, and it will likely have the requirement to be on US documented vessels.

- **Can and how would they combine with other marine highways?**

  The project can be contiguous and non-contiguous marine highways as long as start and end points are on marine highways.

- **Do you expect any proposal from the President's budget this year?**

  Yes. We are currently conducting a peer review of surrounding states and some successful funding programs to inventory what is working and what innovative approaches exist to leverage public/private dollars.

4. SESSION 3: WHAT'S NEW IN THE NEIGHBORHOOD? UPDATES FROM ADJACENT STATE RIVERPORTS

Wednesday, March 24, 2021, at 2:00 PM Eastern

Presenters:	Mark Locker	Maritime & Freight Program Manager, Ohio Department of Transportation
	Dan Pallme	Assistant Chief of Environment & Planning / Freight & Logistics Director, Tennessee Department of Transportation
	BJ Murray	Section Chief, Marine & Aviation Transportation Program Planning, Illinois Department of Transportation

Presentation Content

This session provided insight to what three neighboring states—Ohio, Tennessee, and Illinois—are doing to support their riverports. Jimmy welcomed participants by providing a brief overview of this session's topic, introducing the representatives from the three neighboring states, and reviewing Zoom how-to's for participants. Throughout the session, 77 individuals attended.

The first presenter was Mark Locker, the Maritime & Freight Program Manager of the Ohio Department of Transportation (ODOT). He opened by providing a snapshot of Ohio's freight system (**Figure 7**) and maritime system (**Figure 8**).

Figure 7. Transport Ohio[9] Freight System Snapshot

[9] https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/transport-ohio/

Ohio has recently updated its state freight plan, which is a robust multimodal transportation plan to maintain freight dollars. Ohio has three port districts with 97 ports/terminals and is looking to potentially add a fourth district. Ohio funds these ports through its biennial budget for ODOT Maritime Assistance Funding, which included $23 million to be awarded to port authorities. Ohio also takes advantage of federal funding opportunities and has recently submitted an Infrastructure for Rebuilding America (INFRA)[10] grant for a project that would install technology to have real-time barge-to-shore information for users to see movements on the Ohio River for scheduled freight deliveries. Additionally, they complete transportation planning studies to identify the needs of the ports and justify future investments supporting industries.

Figure 8. Ohio's Maritime System

Following Mark, Dan Pallme, Director of the Freight and Logistics Division and Assistant Chief of Environment and Planning for the Tennessee Department of Transportation (TDOT) presented. Dan serves as a liaison between TDOT and freight stakeholders to find opportunities to improve access for existing freight and appropriately prepare for the projected increases in freight as it moves in and out of the state. TDOT is unique by providing a competitive rail program[11] that leads to more business on its waterways. These competitive rail connectivity grants seek to strategically expand rail access and opportunities within the state to provide benefits by:

1. Impacting job creation and capital investment by industries that require rail access,
2. Enhancing the marketability of available industrial sites, and/or
3. Reducing highway and bridge maintenance costs by diverting heavy freight from the roadway network to rail.

These grants were open to rail authorities, port authorities, local governments, industrial development corporations, and governmental entities. They provided a total of $10.3 million, with an individual request capped at $2 million, and required a 10% match. Dan shared three of the projects selected in the 2019

[10] https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america
[11] https://www.tn.gov/tdot/transportation-freight-and-logistics-home/competitive-rail-connectivity-grants.html

award cycle that had direct benefits for TN ports. One project (Cheatham County) improved rail track to serve a new riverport, another project (Memphis) installed new track and switches on a public terminal facility at a port, and the third project (Marion County) constructed a rail spur at the Nickajack Port Industrial Park.

Illinois' vision for transportation is for all modes to be integrated, coordinated, planned, and built with the idea that present and future travel options are user-focused, economically supportive, and ecologically sensitive.

BJ Murray, the Section Chief for the Aviation & Marine Transportation Program Planning group at the Illinois Department of Transportation (IDOT), also shared his state's perspective. Illinois' vision for transportation is for all modes to be integrated, coordinated, planned, and built with the idea that present and future travel options are user-focused, economically supportive, and ecologically sensitive.

The marine transportation section was added in 2017. High water events moved transportation from water to the roads to develop a section to better address their freight needs. A Long-Range Transportation Plan kick-started this effort to learn more about freight needs. Illinois has 19 public port districts, 27 locks, Lake Michigan, four large rivers, and the Chicago areas waterways system. Its *Marine Systems Transportation Plan*[12] included an economic impact analysis to identify the benefit the marine system brings to the state. The plan showed legislators the need for funding, and in 2019, $150 million was dedicated to the ports. While guidance and applications for their capital investment program are still being developed, a call for projects is coming soon. All 19 public port districts will be eligible to apply with the goals being to address safety, modal connectivity, state of good repair, economic competitiveness, mode shift, and environmental sustainability. In addition to this funding, there is $24 million through the competitive port investment program (currently a one-time fund but looking to set up an annual appropriation). They also fund ports through State Planning Research funds. IDOT is continually looking to new funding opportunities to support their ports.

Question and Answers

After hearing how a few adjacent states are funding their ports, the presenters responded to participants' questions.

- **Dan, if the rail project is not finished according to the contract, is the DOT obligated to pay back the funds?**

  The timeline for the grants is five years. Of the eight projects, one is already done, and three others are advertised. In 2023, a decision will be made on the status of projects and could decide to not allocate dollars—so if a project does not get finished, the dollars could be recouped.

[12] https://idot.illinois.gov/transportation-system/transportation-management/planning/index

- **Will the Nickajack improvements support the VW Auto plant?**

  No. they have other rail improvements straight to Chattanooga. It will not have water, just rail and truck.

- **What agencies are funding AIS ship-to-shore?**

  We (Ohio) have submitted for an INFRA Grant. The DOT is providing the lion share of funding (state and federal), but the Ohio Rail Development Commission and the safety section are also contributing. For Monroe County, the Development Services Agency had an industrial park development loan program (forgivable loan) and money through the state of Ohio; the port system also contributed.

- **What is your state's largest commodity moved on the waterway system?**

  IL: Outbound food and food product, followed by coal; inbound primarily metal products.

  OH: We still carry a lot of coal, bulk, and break bulk; petrochemicals just became #2 with fracking.

  TN: Petroleum is a major commodity, and our pipelines are almost at capacity. We have seen huge growth in the petroleum industry through our barge system.

- **Check out the fourth edition (Nov 2019) of the US CMTS' Marine Transportation System Federal Funding Handbook:**
  https://www.cmts.gov/posts/8531cee6-1671-4275-9c99-b32fd979e347

- **Since earmarks may come back, are you considering any to fund ports/rail?**

  IL: $40 million of $150 million is earmarked for improvements for the Cairo terminal.

  OH: Nothing specific yet but we are developing a wish list.

  TN: Federal grant programs like INFRA and BUILD are just as important. TDOT has been submitting applications regularly, including one last year along I-69 in partnership with Kentucky.

- **Which blue water port is the largest for your rail traffic?**

  TN: Memphis is blessed with Class I rail connections, many heading to Charleston or Savannah ports.

  OH: We mostly link to deep water ports on east coast as most of our rail lines tie east. A NS "orange train" runs between Jacksonville and Cincinnati daily. Our intermodal facility at Rickenbacker (south of Columbus) has the Heartland Corridor, running double-stacked loads to Norfolk, VA. There is also a CSX yard north of Columbus running double-stacked to Baltimore. We run a good deal of traffic to New York and New Jersey. Canadian National and Canadian Pacific have lines near Cleveland.

  IL: We only have two deep water ports: Waukegan and Illinois International, both on Lake Michigan. IL International is served by six Class I railroads plus the interstate system through Chicago. Our port system is focused on rebuilding, getting utilization and efficiency up. They are in a good position with all modal components represented, just looking for money.

- **What do you see are the biggest challenges/opportunities to moving commodities onto the river?**

IL: Reliability—with aging infrastructure, unscheduled and scheduled outages, etc. Many companies cannot commit to waterborne modes with the limited reliability. We see container on barge as an emerging opportunity, expecting new growth markets. Water is an underutilized mode, and we are trying to find new markets.

OH: General cargo is taking coal's place as it trends downward. We expect growth for container on barge and for repositioning empties.

TN: Two locks are slated to be improved and we already see container on barge moving out of Memphis to Baton Rouge. We foresee really positive growth opportunities moving forward.

5. SESSION 4: FORECASTING THE FUTURE OF KENTUCKY'S FREIGHT ECONOMY

Thursday, March 25, 2021, at 10:00 AM Eastern

Presenters:	Paul Bingham	Director of Transportation Consulting, IHS Markit
	Chandler Duncan	Vice President & Project Manager, Metro Analytics

Presentation Content

In the Forecast session, Paul provided an in-depth discussion of the future freight forecasts developed for the Commonwealth and each individual public riverport facility. A total of 61 attendees participated. Forecasts are multimodal, tracking individual commodity movements for a given year by tonnage and value across a range of potential future scenarios. Data is derived from 2018 base year Transearch data, incorporating some subsequent updates to 2020 that account for the impact of the pandemic. Forecasts address all freight movements through each hinterland—defined as counties with a ±90-minute drive time from each port—not specific to freight moving through the physical ports. The focus of the analysis is to identify divertible freight that could be pulled from other modes onto the river system.

The 2045 scenarios were developed:

- Baseline is the most likely of possible paths for the overall economy without further major disruptions or shocks
- Higher growth reflects higher investment and employment with generally optimistic performance of the economy
- Lower growth reflects slower investment and development with generally pessimistic performance of the economy

Table 1 summarizes key differences between the scenarios, comparing metrics versus 30 years of historic trends. The top row represents both goods and services as potential output with even the optimistic scenario representing a slowdown versus the previous 30 years. The rows below represent components of the top

line conclusions: consumption—which makes up around 70% of the US economy and has historically grown faster than the GDP, business fixed investment, government spending—currently higher than historic levels with various stimulus packages, exports, and imports. While import/export indicators are below historic trends, they still represent a greater opportunity for growth than domestic markets. Workforce projections reflect relatively low population growth and technological advances.

Table 1: Comparison of Forecast Scenario Indicators

Avg. Annual Real Growth	Historic Avg 1989-2019	Baseline	Optimistic	Pessimistic
Potential Output	2.5	1.9	2.3	1.4
GDP	2.5	1.9	2.3	1.3
Consumption	2.7	2.2	2.5	1.5
Business Fixed Investment	4.3	2.6	3.2	1.8
Government	1.3	0.7	1.1	0.5
Exports	4.9	2.8	3.4	2.5
Imports	5.1	3.2	3.4	2.6
Average Annual Growth				
Labor Force	0.9	0.5	0.8	0.4
Productivity	1.9	1.6	2.0	1.2
Industrial Production	1.8	1.3	2.0	0.7
Inflation (% GDP Deflator)	2.1	2.1	1.8	3.4
Unemployment (%)	5.8	4.4	4.2	5.1

On the infrastructure side, all three future scenarios assume ongoing and planned projects are completed—like the Chickamauga and Kentucky Lock and Dam projects Deb mentioned in an earlier session. However, no new investments to modernize are assumed. The relative competitiveness between ports and regions is assumed to remain constant.

Accordingly, **Figure 9** presents a visual comparison between scenarios for each mode. The decline in rail traffic is largely tied to the long-term decline in coal. Coal also influences future trends for waterborne freight and the trucking industry though its less pronounced. Even the low-growth scenario represents an increase versus 2018. Even if riverports do not capture extra traffic, there is still market growth anticipated.

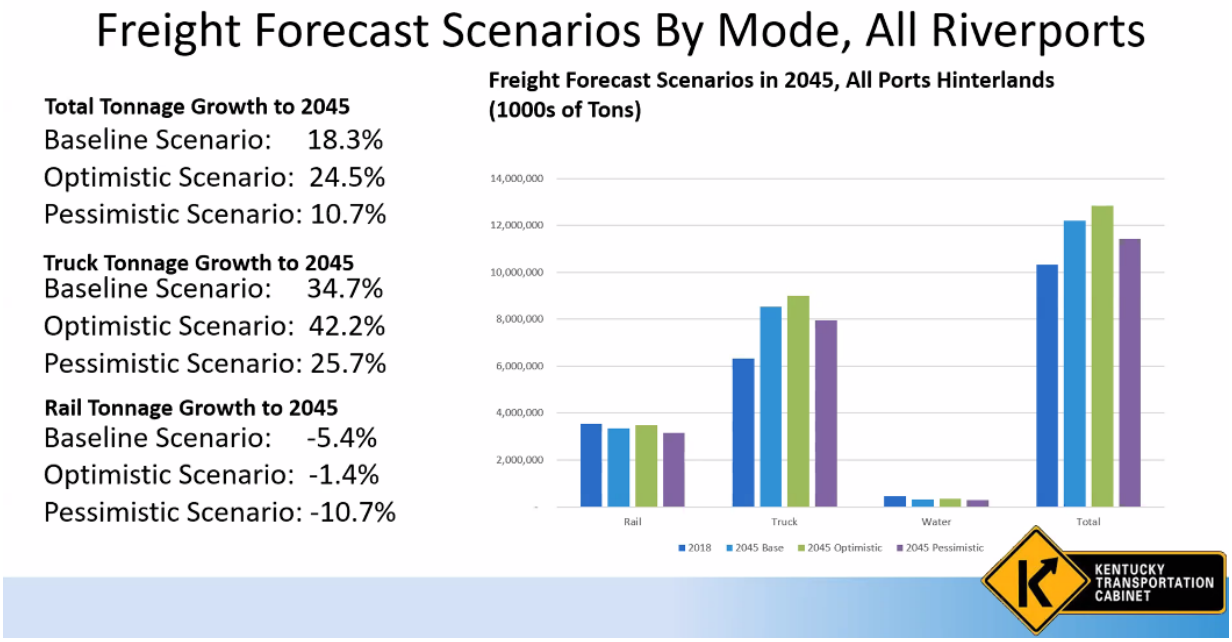

Figure 9: Comparison of Modal Forecasts for Freight between Scenarios

Paul then stepped through the forecasts for each of the 11 port hinterland areas, summarized in **Table 2**. The range of percentages shown compare 2018 tonnage forecasts versus the pessimistic and optimistic projections.

Table 2: Forecast Comparison between Hinterlands

Port Hinterland	Hinterland Counties	Rail Growth	Truck Growth	Water Growth
Hickman-Fulton	21	-9% to -2%	32% to 49%	-13% to 32%
Western KY Regional	27	-11% to -4%	28% to 45%	-4% to 13%
Paducah-McCracken	32	-17% to -9%	29% to 46%	-48 to -39%
Eddyville	32	-15% to -6%	30% to 48%	-51% to -43%
Henderson	30	-29% to -21%	23% to 40%	-27 to -16%
Owensboro	21	-28% to -20%	25% to 42%	-40% to -31%
Meade	29	3% to 13%	29% to 46%	-15% to -1%
Louisville	37	4% to 16%	28% to 44%	-37% to -27%
Northern KY	44	5% to 16%	21% to 37%	-36% to -25%
Maysville-Mason	32	4% to 15%	21% to 36%	-15% to -2%
Greenup-Boyd	25	-22% to -14%	17% to 32%	-44% to -35%

The top commodities by tonnage were also listed for each port hinterland, comparing rank order between 2018 and 2045. Many regions saw a drop in coal: ranked the top commodity in 2018 at six port hinterlands but dropping to the second or third slot by 2045. Grain replaced it as the top commodity by volume in 2045 for most of the western regions. While Louisville and Northern Kentucky include sizeable air freight

operations, these volumes were not included as there is minimal opportunity for diversion to waterborne modes.

Chandler Duncan then described the transportation modeling effort—understanding how the ground transportation system supports the freight movements that Paul presented. Graphics examined national-scale changes, regional markets, state-level flows, and individual corridors. An emphasis was placed on commodities that could be diverted to waterborne modes. Flows are volume-based, with conversion to truckloads occurring later this summer to understand capacity impacts on the highway network.

Dots in **Figure 10** highlighted projected changes in market sizes; largest growth occurs in Louisville, followed by Nashville and Cincinnati. Shaded county outlines identify the rate of growth in divertible shipment sizes.

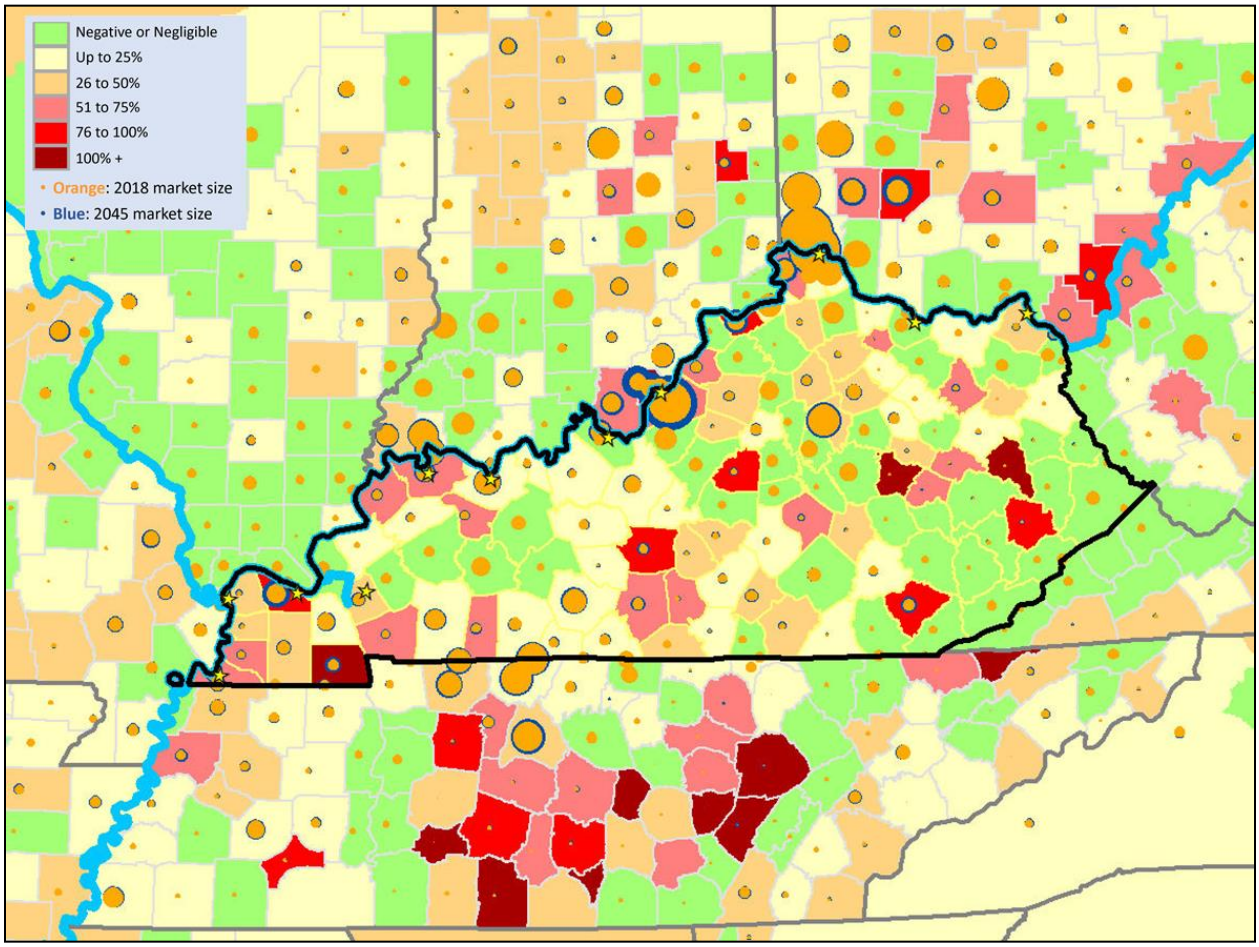

Figure 10: Market Growth (Dots) versus Percentage Change in Divertible Shipment Sizes (County shading)

Figure 11 summarizes corridors of interest that project increases in water-divertible growth. As expected, interstates generally carry the largest share as the majority of freight moves by truck today. Pink lines, representing freight that could be diverted to a waterborne mode, represents a relatively large share of the

total truck-based freight volumes (blue lines). The 2045 projections (bottom) show sizeable growth versus 2018 (top) but most of the growth occurs in non-waterborne modes. The forecasts and network analyses will be discussed in greater detail at the upcoming visits with individual ports.

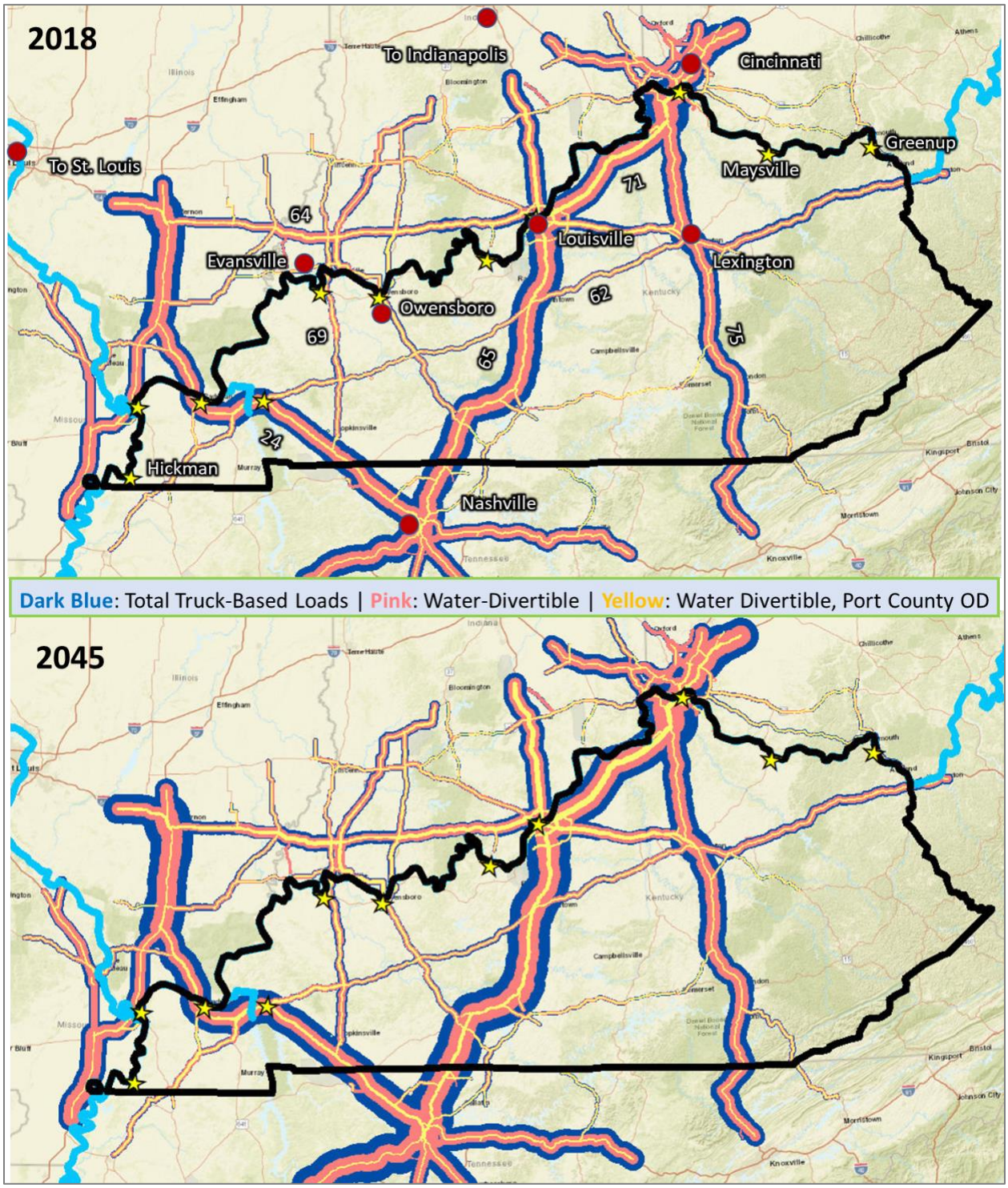

Figure 11: Corridors of Interest for Divertible Freight

Question and Answers

A question-and-answer session occurred throughout the session.

- **Is the 90-minute range defining the hinterlands one-way or round trip?**

  One-way drive time.

- **Do you think the Canadian Pacific (CP) Railroad's purchase of Kansas City Southern (KCS) will have an adverse impact on western Kentucky tonnage forecasts?**

  CP runs east-west across Canada with lines dropping south into Minnesota, Chicago, and Kansas City. KCS owns lines in Mexico and Texas, connecting north through the Gulf Port. If connected—which has not received regulatory approval to date—it'll form a triangular service area between Mexico and Canada. But with limited network in the US, we anticipate less impact on KY markets compared to a hypothetical merger with one of the big four east-west lines in the US. You could see more competition for north-south flows. We could see increased commodity flows between the three countries. Alternatively, we could see increased competitiveness issues with auto manufacturers (for example) shifting operations to Mexico. It is unclear how this could play out, but we do not foresee a huge downturn.

- **Why is rail tonnage anticipated to decline?**

  This is driven by the continuing decline of the coal industry.

- **Does the truck tonnage include local drayage (including last mile drayage from rail and water)?**

  Forecasts capture truck tonnage, including some drayage from ports to rail, but TranSearch does not capture truck activity considered secondary, i.e., parcel pickups or local delivery. The team has been coordinating with KYTC how to address these moves. Primary commodity "last mile" moves are mostly included but only some of the residual activity to connect divertible freight to the ports.

- **What forecast scenarios does the summary cover: one port, all ports? Or is this a forecast for all of KY from the influence of ports?**

  Paul presented a combined statewide forecast initially, followed by individual forecasts for each of the 11 port hinterland areas in subsequent slides.

- **Has the shift to cleaner energy been considered in the forecasts? Are there any impacts for Kentucky ports—such as by commodities used to create electricity with the foreseen shift to zero emissions vehicles?**

  We have incorporated energy market insights into these forecasts. E.g., shifting away from coal is reflected, as discussed. But forecasts also account for natural gas, solar, and wind adoption, electric vehicle use in fleets, etc. These assumptions vary between different scenarios too. However, there are still opportunities beyond what we incorporated in this economic forecast—ethanol production, biofuels, etc.

- **How do we best to determine where infrastructure is most needed to accommodate the growth you are forecasting?**

Infrastructure needs can be identified through a combination of modal analysis, existing infrastructure conditions analysis, and economic development opportunities identification among the industries forecasted for growth. The infrastructure needed to accommodate inadequate capacity can be identified through an analysis of existing network capacity compared with the growth in forecasted demand. The commodity forecasts importantly are demand forecasts and do not assume any transportation infrastructure capacity constraints. To identify infrastructure needs from the growth in commodity demand, matching the physical handling needs for growth commodities with the appropriate infrastructure needed to handle those products can reveal where potential infrastructure bottlenecks could need alleviation. Port-specific infrastructure needs identification also benefits from the assessment of the road and rail access to the port properties and economic development opportunities identification that may be outside of the port properties yet have infrastructure needs of their own to be realized.

- **For any given top commodity listed, will you be able drill down as to the companies represented for each commodity category?**

  The analysis blends several similar datasets. One indicates what commodities are moving though a county while another identifies the top business/industries generating a commodity in a county. However, the two datasets are not linked 1:1. The Freight Finder data with individual business names/industries will be delivered as part of this study.

- **Can you explain how you forecast for developing ports without a baseline existing?**

  For developing ports, we obviously do not have a volume defined. However, forecasts look at the entire hinterland geography. Essentially, the developing ports have 100% diversion potential since they are not handling volumes today.

- **Petroleum and Ethanol provide strong modal transload opportunities.**

- **Can you discuss the diversion challenges?**

  Diversion challenges are multi-faceted including the momentum behind customers used to shipping products using a certain mode of transport or specific transportation providers and the ability of waterborne transportation to demonstrate cost effectiveness and reliability when regular delivery times are likely to take longer than use of truck or rail. Diversion challenges also include physical limitations for cargo handling to and from and at the riverports, those may include infrastructure improvement needs or additions to the skilled riverport workforce. There are also diversion challenges from the financial side of riverport capital and operating budgets, where investment resources to prepare a riverport to capture divertible traffic may not be readily available. In some cases, there may also be regulatory challenges in obtaining approvals for infrastructure or operating improvements. There are also diversion challenges that can come from the capabilities of locations required for the cargo handling at the 'partner' riverports that are at the other end of the shipping or receiving of cargos that could be handled through the Kentucky riverports. The constraints to some potential diversion of cargo originating or destined for the Kentucky riverports hinterlands may be significantly outside of the ability of Kentucky to influence directly when those inland waterway partner locations are in other states, which is common for inland waterway transportation.

- **I assume the next step will be to determine how much of the forecasted tonnage can be captured by each KY port. How will that capture rate be determined, and how will that capture rate consider existing ports within the 90-mile capture area but located in neighboring states?**

The determination of what share of forecasted tonnage can be captured by each Kentucky riverport will ultimately depend on the success of economic development activities promoting the use of each port. The capture rate can be calculated from the aggregation of customer-specific volumes to be handled at particular points of time in the future once those are known. The competitive aspect of the market capture includes future infrastructure and economic development activities being undertaken or planned by out-of-state riverports, some directly competing for the some of the same shipments while other out-of-state riverports are planning for growth that would complement Kentucky riverport activity by being the 'partner' ports at the other end of Kentucky riverport shipments. The current study scope is not attempting to produce individual Kentucky riverport commodity forecasts that would be deterministic regarding potential intra-Kentucky riverport competition. The individual Kentucky riverport draw areas do and will continue to overlap geographically both within Kentucky and in neighboring states.

- **FYI, KCS rail tracks run on the western side of Missouri, approximately a 5–6-hour drive away.**

- **The presentation indicates a significant tonnage increase in truck freight. Considering the aging population and downturn on birth rate, will producers be forced to look at alternative forms of freight logistics?**

  The long-term growth in truck freight reflects the overall growth of the economy, even as national population growth rates slow and the population ages. There are challenges in trucking with availability of qualified drivers interested in those jobs at the levels of compensation offered today. In the long term this forecast includes a continuation of the productivity improvement trends in freight transportation that leverage technology to reduce the amount of labor required for handling forecasted freight demand. There are many innovations in trucking, as in all modes of freight transport, which offer the prospect of higher labor productivity to handle greater volumes without an equal increase in labor. Producers of products will continually look to modal alternatives as part of their logistics network management, which may include use of trucking-supportive modes such as intermodal rail and container-on-barge or containerized river vessels to handle commodities that can be planned to use those networks. The aggregate modal freight forecasts significantly reflect the composition of forecasted consumption across the economy.

- **Find more information in Appendix 2.2 Commodity and Trading Partner Forecasts for 2045 Trade Conditions**

  Note that in Appendix 2, the market identified as "divertible freight" from rail to water is defined as trade reported in the TRANSEARCH database as (1) currently moving by rail in (2) commodities that currently are known to also move in some instances by water and (3) between points that have waterborne commerce facilities. This is not intended to summarize every ton of rail traffic traded with Kentucky that may be carried on part of its journey by water to any destination or intermodal rail facility in the US as the complex range of such options would not fit into a single table.

6. SESSION 5: HOW WILL THE FUTURE OF FREIGHT IMPACT OTHER MODAL OPERATIONS?

Thursday, March 25, 2021, at 1:30 PM Eastern

Presenters:	Ken Erikson	Senior Vice President, Head of Client Advisory & Development, Energy & Transportation, and Policy
	Tim Kizer	Executive Vice President, Louisville Riverport Authority
	William Downey	Director of Government Affairs, R.J. Corman Railroad Group
	Patrick "PJ" Donovan	Planning Center of Expertise for Inland Navigation & Risk-Informed Economics Division, US Army Corp of Engineers

Presentation Content

This panel discussion, moderated by Ken, builds on the forecast data and freight network presented in Session 4, looking at how projected changes may influence modal operations. There were 69 attendees. Before beginning the question-and-answer session, each panelist provided some opening thoughts.

Tim Kizer

At the Louisville Riverport Authority, we consider ourselves to be a critical regional asset throughout the Kentuckiana region. We are a truly multimodal facility. We are developing a strategic plan with a significant capital plan, trying to develop infrastructure that address value to our constituents. Currently we own a 13-mile rail facility with on-site links to CSX, NS, and Paducah and Louisville (PAL). We are excited about expanding across all modes—more so rail and marine than truck although we are looking at creative opportunities for efficient truck deliveries within our grid. With some sizeable infrastructure investments, our marine impact will be substantial. We also have a historic 2,500-foot elevated conveyor system for moving coal to barge, which we are looking to modernize to convert to bulk transload movements—including liquids—to create a high-speed, efficient, affordable bulk transload system. We have studied current trends—precision railroad scheduling, the ups and downs on river system, and disruptions on our highway system. We want to be an efficient provider: if a customer can move more efficiently by rail or barge or small haul truck, we want to empower them to use it. And play our part as a public port to accommodate efficiency.

> "The bottom line for Louisville Riverport Authority: we want to be a supply chain solutions provider, not just a logistics facility."
> --Tim Kizer

William Downey

R.J. Corman is a rail transportation provider based in Nicholasville, KY with a growing footprint in 11 states now operating 17 different shortlines, three in Kentucky. The Commonwealth's network includes five Class I railroads—equivalent to the high-volume, high-speed interstate system on the highway side—plus several

shortline and regional roads—equivalent to higher access state highways and local streets. Shortlines typically provide the first mile/last mile services between facilities and larger Class I interchanges.

In Kentucky, coal is the predominant commodity originating/terminating in the state, even though the overall industry is declining. The rail industry as a whole is continuing to diversify its commodity mix, picking up chemicals, transportation equipment, auto industry, grain and agricultural products, plus aggregates. There is a lot of cargo moving through the state; 2019 saw over 400,000 carloads originating in the state (over 27 million tons of traffic) versus just under 300,000 carloads terminating in state (22 million tons).

The PAL connects several of the state's public ports and derives around 2/3 of its volume from bulk commodities transloaded to barge. There have been significant investments to serve our ports. Rail is connected and capable, with capacity to take on the level of projected freight growth. The last 40 years have seen $700 billion of private investment in modernizing the rail system and we are now pivoting back to growth mode.

P.J. Donavon

The Planning Center of Expertise for Inland Waterways in Huntington, WV provides the data management branch for USACE, specifically understanding the benefit-cost side for investments in the inland waterways system (ports, locks and dams, etc.). The national benefit we provide is the transportation rate savings that this inland navigation system provides to the nation; that is the crux of what we do.

A big part of that analysis is forecasting cost and tonnage. Coal makes up about 25 million tons of the freight moving to/from Kentucky by barge, followed by limestone (8 million tons), sand (5.3 million tons), aggregates (3.9 million tons), and gasoline/aviation fuels (2.4 million tons). Thinking about value, we see $1.4 billion of petroleum moving in and out of the state via the waterway system; coal is running around $1.2 billion. On the Ohio River system, we see more agricultural products south of the KY/WV line at the Big Sandy River, with more aggregates, steel, and petroleum to the north. Kentucky sits in a unique space with that commodity mix. 43 million tons of coal float past us on the river, never touching the shore. It is a domestic system, moving domestic freight from county to county. There's real power digging into the data, looking at freight moves, markets, cost efficiencies.

Question and Answers

A question-and-answer session followed.

- **The ship stuck in the Suez Canal represents a global event, capturing a lot of attention. PJ, how involved does your group get when events impacting freight moves like this happen, whether it's a natural disaster or other event? Transportation infrastructure provides foundational in these forecasts.**

PJ: Reliability is essential; the inland navigation system is reliable though we do face challenges and delays. USACE is actively engaged in disaster response. Our group did a drill looking at the impact of Covid19 on the nine locks and dam in the Huntington District. We modeled safety protocols to maintain 24-hour navigation service; there were some downturns in volumes and delays, but traffic continues moving. Hats off to our industrial partners who were able to keep working, keep moving products to support the economy during this tough time. Will be curious to see how the Suez Canal blockage impacts fuel costs short-term and other micro- and macro-economic impacts.

- **What infrastructure requirements do you see going forward, particularly with a multimodal perspective? What is the process like to improve connectivity amidst the pandemic, infrastructure failures, and other natural disasters? How do we become that solution provider?**

  Will: Looking at rail connections to Class I's or transloading facilities, these are opportunities for customers to improve productivity, reduce emissions, and gain other competitive advantages to access more markets. As a shortline, positioning to bring these benefits to local communities and industries allows for competitive rates. As a local community or business park, having a relationship with a rail provider secures a long-term asset, representing a key piece of infrastructure. Setting up a rail authority with public ownership and a private operator provides a key investment to benefit the community. You can divert freight from crowded highways. You can attract more businesses to your parks/ports. We view ourselves as a small business and are looking to partner with local communities/industries to grow where it makes good business sense—whether it's on our line, at an off-site facility, transload terminals, etc. There are a lot of different perspectives; if I were a site with a spur or rail access, I would want to capitalize on that asset to be more competitive long-term.

- **If a port does not have a spur or is looking to develop elsewhere, what is the process to consider?**

  Will: Look at how big a gap you have to fill. How much of an investment is needed? What is the potential for growth? It is important to have a good relationship with state/regional partners to leverage assets. You have to consider the long-term benefits/growth behind the connection. Both sides can benefit.

  Tim: The dynamics of putting in rail are very isolated to each individual opportunity but always come down to volume and velocity. The recent concept of supply chain solutions moves us into a more competitive environment where creativity is essential. As a public facility, we can offer larger, shared services and choices than a smaller single entity could afford on their own. Louisville has a lot of land and almost 7,000 jobs on our port property. We have opportunities for specialized growth, serving as a collective to extend options to smaller firms and reduce individual investments. Choices are essential, giving our customers options to find the path of least resistance for reliable, low-cost supply chain solutions. Amazon, Walmart, and others are changing how we think about freight movements. Maintaining our infrastructure in good shape to be responsive to client needs is important too.

  PJ: During my time with WV's port authority, we were looking at commonalities of traffic to identify modal shifts in rural economies. What opportunities exist that our rural ports can capture? Do they have the capacity with their existing infrastructure? In our river valley, we have emerging dynamic economies and global supply chains. How can we leverage our capacity, particularly as a green mode, to provide regional benefits?

- **Henderson area rail customers are served directly by our Class I railroad. Should we stay with the Class I service or consider looking for a shortline to enhance local service?**

  Will: There are different factors to consider. A Class I provides the best access to the biggest markets. But if the port is not getting the level of service they desire, a smaller shortline carrier may be beneficial. They generally provide more service with less bureaucracy. The connection could make you more viable or competitive but would also require an additional investment, so it really depends on the amount of service you need.

  Greg: Henderson's service is not restricted to the port. The connection is good, but the daytime operations lead to major block on arterial highways, creating havoc for the public.

  Tim: The question comes down to volume, velocity, and level of service needed by your customer base. With our model, we would use our public rail frontage so that individuals do not have to invest in their own tracks, which can cost around $325/linear foot. We balance up front capital costs, letting them stage cars on our rail and can switch them more often with our own locomotive than a Class I crew can. We are seeing a boom in rail these days, both Class I and shortlines, with expanded services.

- **Should KY riverports consider consolidating tonnage reporting by region (West, Mid, East), similar to CORBA's model near Cincinnati/Northern Kentucky? Do you see this as a good opportunity for KY marketing leverage?**

  PJ: I am an advocate of inland port districts.

- **Has anyone considered a hold design for barges (like an ocean-going vessel) that can carry mixed commodities (for example, steel items, crated goods, bagged goods) similar to LTL truck loads?**

  PJ: When I was at Rahall Transportation Institute (RTI) at Marshall University, we did an economic analysis on a dedicated container on vessel for the inland waterways.

- **What do you hope to see in the upcoming federal infrastructure bill?**

  Tim: We face a growing problem getting consumer goods—including fresh foods—into large urban markets. Rail and river are going to have to play a larger role than just highways. There are fewer and fewer long-haul truck drivers. We have an opportunity to use our rail network to distribute finished goods and food, returning empty containers.

  William: From a policy perspective, we don't want regulations to prohibit growth. We limit greenhouse gas emissions, reduce carbon footprints, etc. Rail covers 2.1% of greenhouse gases but 40% of overland freight volumes. We want to be part of the conversation, a part of the greater logistics solution. Other modal carriers are indispensable to the economy and quality of life. Trucking includes significant costs to build new highways, not to mention impacts to the environment and land use. Looking at projected growth, it is unlikely we could even build sufficient highway capacity to handle the expected volumes. Rail represents a viable, socially beneficial complement to the highway network.

  PJ: 1,200 ft chambers for upper Mississippi; 1,200 ft chambers along Illinois River; 1,200 ft chambers on the Ohio River; proper investment in maintenance to extend the useful life of our locks/dams another 50 years; full support of the marine freight highway with exit ramps to link up with railroad and multimodal systems.

7. SESSION 6: FREIGHT INFRASTRUCTURE NEEDS & KENTUCKY'S FUNDING PROCESS

Thursday, March 25, 2021, at 3:00 PM Eastern

Presenter: Lindsay Hoskins Transportation Engineer, Qk4, Inc.

Presentation Content

Jimmy McDonald started the session by welcoming participants and reviewing Zoom functionality. He introduced speaker, Lindsay Hoskins, a transportation engineer at Qk4 currently working to deliver this Riverport Freight planning study. Lindsay started her career at the KYTC with her most recent position in the Division of Program Management where she helped program the current Six-Year Highway Plan (SYP). Her presentation expanded on the KYTC's funding priority process and provided an interactive opportunity to identify infrastructure needs in breakout sessions following her presentation. A total of 48 individuals logged on throughout the session.

Lindsay provided an overview of the KYTC Division of Program Management and the host of duties they are responsible for, including the development of the SYP which is recommended to the Kentucky General Assembly every two years. She also shared how projects are funded through this plan—programmed with either state or federal funds. Drawing attention to the funding breakdown in the current SYP FY 2020-2026[13] as shown in **Figure 12**, it was evident most of the state's transportation dollars are allocated through federal programs. The anticipated total federal-aid dollars and matching funds scheduled through 2026 is expected to be about $5.2 billion, emphasizing the importance of identifying projects to be programmed in the SYP.

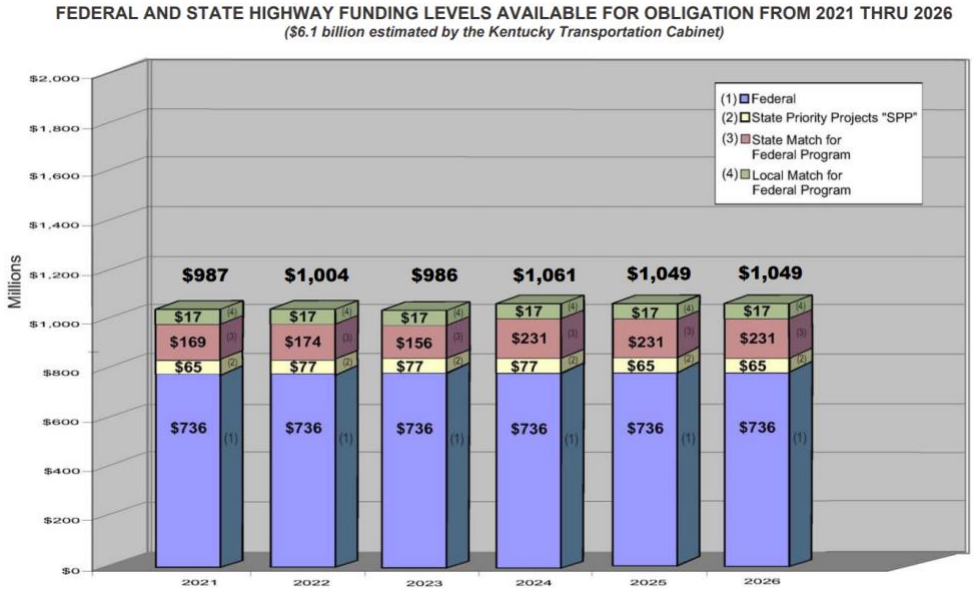

Figure 12. Six-Year Plan FY 20-26 Funding Levels

[13] https://transportation.ky.gov/Program-Management/Pages/2020-Highway-Plan.aspx

KYTC utilizes the Strategic Highway Investment Formula for Tomorrow (SHIFT), a data-driven approach to compare capital improvement projects to prioritize the limited transportation funds available. Kentucky has the 9th largest road system in terms of mileage and the 7th largest inventory of state-maintained bridges in the country, so those limited dollars must stretch. The SHIFT process helps to reduce overprogramming, provides a clear roadmap to construction, and applies to all transportation funding that is not prioritized by other means. The scoring process in SHIFT is based on five key attributes as shown in **Figure 13**.

Figure 13. Five Key Attributes of SHIFT

As shown in **Figure 14**, this eight-step process starts with a list, signifying the importance of the upcoming breakout sessions to identify infrastructure needs surrounding the ports. Lindsay walked through each step of the process and shared where the Cabinet is in the development of the 2022 Recommended Highway Plan.

Figure 14. How SHIFT Works

Immediately following her presentation, participants were broken out into three separate groups to discuss infrastructure needs at each port. Lindsay shared previous outreach efforts the study has conducted to start identifying infrastructure needs, including a survey to KYTC Districts and local stakeholders in late 2020. To-date the top themes were:

- Increased funding for grants that support riverports—including support for domestic and international freight movement and infrastructure development.

- Stable funding for operations and infrastructure. Specifically, for aged infrastructure, improving locks, and container-on-barge initiatives. Other needs include river channel maintenance and dredging needs.
- Marketing support of property and service on a regional, national, and international platform.

Breakout Sessions

Breakout sessions provided summit attendees an opportunity to help identify infrastructure needs surrounding the ports prior to the second round of port visits, to be scheduled immediately following this summit. There were three breakout rooms consisting of 3-4 ports as listed in **Table 3**.

Table 3. Break-out Groups by Port

West	Central/East	Developing
Eddyville	Owensboro	West Kentucky Regional
Henderson	Louisville	Meade
Hickman-Fulton	Greenup-Boyd	Northern KY
Paducah-McCracken		Maysville-Mason

The rooms reviewed regional maps showing the needs identified to-date. The goal was for each port to answer the following questions:

1. Are there existing infrastructure needs not already captured?
2. Based on freight forecasts shown today, are there other infrastructure needs you foresee?
3. Does the port have sufficient equipment to transfer commodities from water to truck or rail? If no, what equipment is needed?

There were not representatives available from all of the ports; however, the second round of port visits will provide another opportunity to voice concerns. Input received will be added to the maps included with the port profiles. Comments received from the breakout sessions are summarized in **Figure 15**.

Eddyville Riverport & Industrial Development Authority

- High-speed internet is biggest need-important for logistics.
- Lake wall shoring and stability of the bank is needed.
- Would need infrastructure to support container on barge-need significant crane investments.
- For the lake, a telehandler is needed.

Henderson County Riverport Authority

- Need structural face-lifts for existing assets and restoration work.
- Maintain existing infrastructure.

Hickman-Fulton County Riverport Authority

- Road connectivity to parkway needs to be improved, currently narrow, two-lane roads.
- Persistent need for dredging operations.
- Poor rail connectivity and location on other side of the floodwall.

Louisville-Jefferson County Riverport Authority

- Congestion relief is needed throughout the city, particularly in the Outer Loop Area.
- City-wide partnership opportunities for grants to include ports.
- Can port divert flows from cross-river traffic to Indiana?
- Can the port pull traffic off I-64/I-65?
- Opportunity to improve SHIFT from ADD perspective-allowing Districts, ADDs, and MPOs to create new CHAFs and shift focus to overall mobility, not just highway-centric.

Owensboro Riverport Authority

- I-165 link to Indianapolis needed to divert congestion away from I-65.
- For growth, property is key.
- Expansions and maintenance of aging infrastructure is important.

Paducah-McCracken County Riverport Authority

- Railroad spur has been abadoned; rail service is needed.
- The bulk yeards conveyor systems need to be refurbished, tower cranes specifically.
- Landlocked (from selling off property) which limits development opportunities.

West Kentucky Regional Riverport Authority

- Support for master plan for reusing a former major site south of town.

Figure 15. Breakout Session Comments

Question and Answers

A question-and-answer period followed the breakout session.

- **Any idea if the legislature may be shifting to lift prohibition on gas tax dollars going to non-highway issues?**

  Representative Sal Santoro has reached out with a bill to allow multimodal investments, but it has not received any traction. The study will include discussion on the next steps for ports to collectively find more innovative finance options within KY and through other federal sources.

- **If a port can prove saving money on road repairs by diverting traffic, is there any way to get credit added from the highway tax?**

  To use state funds, the project has to be a direct roadway investment as the program currently stands.

- **Are on-port roadways considered local roads? Or can they be designated to be eligible for federal funding?**

  Many are city/county roads, but inside the gates are considered private since it's not publicly accessible.

8. SESSION 7: ECONOMIC DEVELOPMENT AND RIVERPORT MARKETS

Friday, March 26, 2020, at 10:00 AM Eastern

Presenters:	Kevin Johns	Economic Development Strategist, Metro Analytics
	Anthony Ellis	Executive Director, KY Innovation
	Adam Wasserman	Managing Partner, GLD Partners
	Derek Cutler	Chief Economist, EBP
	Matt Yates	Vice President, Louisville Riverport Authority

Presentation Content

Jimmy welcomed all to the final session, reviewed Zoom tips, and briefly introduced panelists before handing it over to Kevin Johns, Metro Analytics Economic Development and Globalization Strategist. Kevin invited a team of national and state experts to share their mechanisms to increase revenue streams for the ports. A total of 59 individuals joined the session.

First, Anthony (Tony) Ellis, the Executive Director of Kentucky Innovation,[14] provided an update. His goal is to develop innovation hubs across the state to build vibrant, regional innovation clusters to grow the overall economy. The strategy modernizes Kentucky's support for entrepreneurs and high-tech, high-growth-potential startups by leveraging each region's unique strengths. Tony shared three programs available through KY Innovation with the first being innovation hubs. There are currently six regional hubs as shown in **Figure 16**. They are public-private partnerships that serve as the front door for anyone who wants to be involved in the statewide economic ecosystem.

Figure 16. KY Innovation Hubs

[14] https://www.kyinnovation.com/

A second program is the Kentucky Commercialization Ventures (KCV), a public-private partnership to commercialize university technology through the Kentucky Science and Technology Corporation, University of Kentucky, and the University of Louisville. A third program is the Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) grants and match. These are micro grants and professional services to help Kentucky companies find and manage these federal grants. He shared other capital and state funding opportunities:

- Kentucky Enterprise Fund (KSTC)
- Commonwealth Seed Capital (CSC)
- Angel Tax Credit/Fund Tax credit
- Kentucky Small Business Tax Credit—a non-refundable tax credit for businesses creating full-time jobs and investing $5,000 or more in qualifying equipment and technology
- Kentucky Small Business Credit Initiative—a tool for lenders to use on creditworthy load requests that are just outside of acceptable underwriting standards

Tony shared their 2021-2022 priorities which are to focus of connectivity; metrics, data, and transparency; diversity, equity, and inclusion; industry clusters; maximize investment dollars; and attracting talent and innovation. He extended his support to link riverports to their economic ecosystem and help to improve efficiencies.

Following Tony was Adam Wasserman, a managing partner with Global Logistics Development (GLD) Partners,[15] an independent international investment advisory firm. He focuses on economic strategy, infrastructure developments, ports management, and public policy. Adam shared project partner examples and project examples. Understanding “logistics is a means to an end” he seeks to create connectivity and efficiencies to generate opportunities in a competitive setting. His observations in reviewing the US inland port system are summarized in **Figure 17**. In terms of opportunity, he advocated for investing in legacy business and capitalizing on your location by focusing on 1) which supply chains you can connect with in your area, 2) what multimodal opportunities are available, and 3) incorporating technology to improve efficiency.

[15] http://www.gldpartners.com/

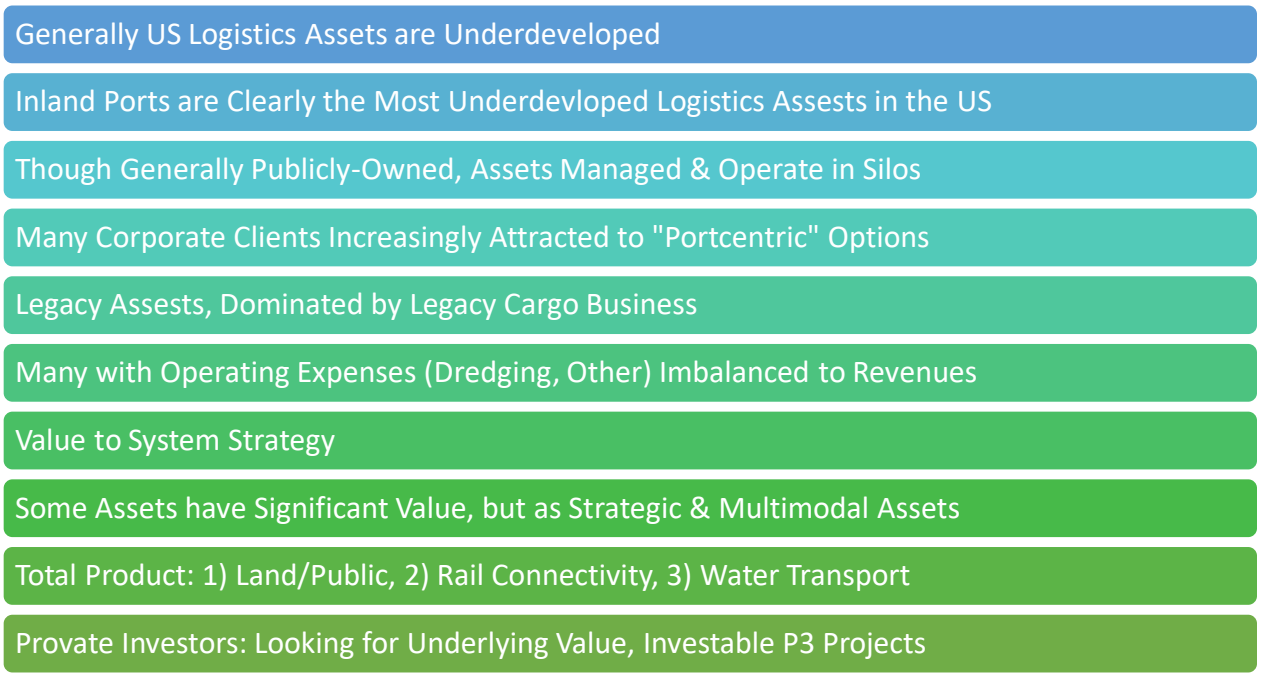

Figure 17. Observations of US Inland Port System

Derek Cutler, the Chief Economist at EBP—a company that provides economic expertise, tools, and analysis to help clients make better decisions on polices—was the third panelist. Derek focused on freight-economy relationships and modes to quantify the role that infrastructure plays in supporting regional economic development. Derek shared a behind-the-scenes perspective through case studies of how to use freight data in planning study. His goal was to provide an integrated understanding of how to use freight data to confront challenges, make informed decisions, and better market the ports. He walked through the process of using the raw data to identify behaviors, enhancing the data to communicate with stakeholders (**Figure 18**), and informing solution planning (scenarios and sensitivity testing) to be able to integrate into a broader analysis to communicate needs in the area or implement change. Essentially, Derek illustrated how data can be interpreted to provide a blueprint for economic analysis.

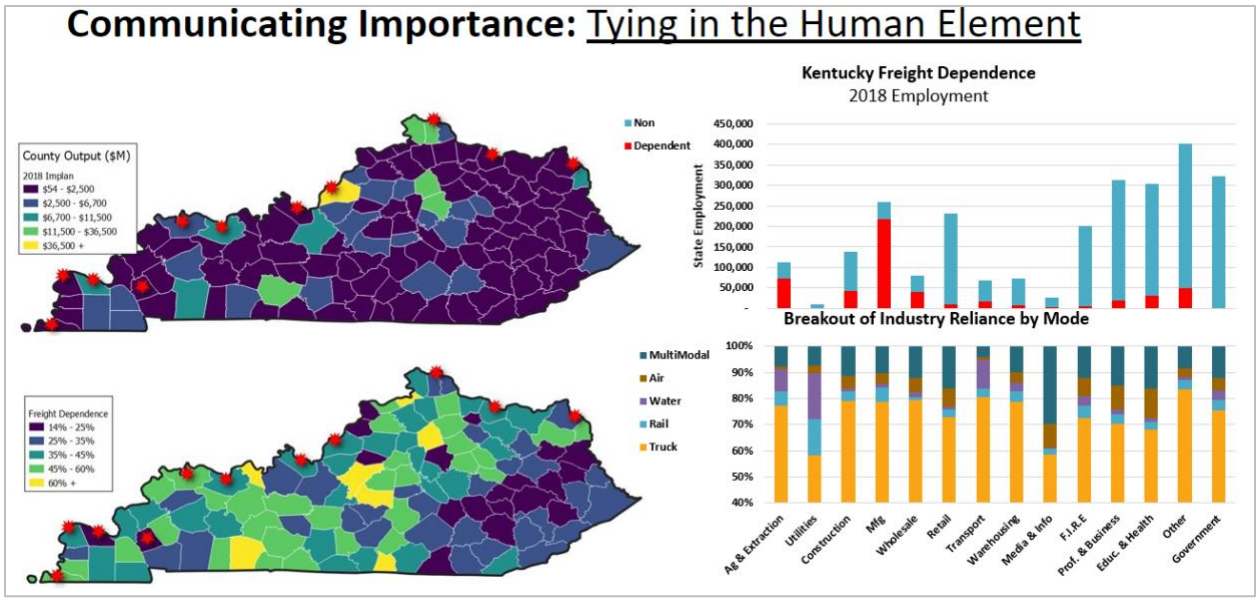

Figure 18. KY Freight Dependence

Lastly Matt Yates, Vice President of the Louisville Riverport Authority, shared insight on how he handles new investment, foreign trade zones, and daily operations. Matt shared his experience working as a local economic developer for the port. He elaborated on how the ports are catalysts for economic development and the importance of developing relationships with local and state economic development agencies. He stressed the importance of how the ports can add value to their communities and attract potential business seeking to locate there.

Question and Answers

The panelists fielded questions after their presentations.

- **Matt, what advice would you give the Kentucky CED to benefit the port system?**

  It is important that the ports benefit the economic vitality of the state overall. It is important they understand what we have to offer to be able to loop us into conversations with potential new businesses. Not just our location, but how we can serve the broader region—what tools we have to offer and how we can support growing industries in the state.

- **Derek, does the case study include freight that just travels through Kentucky, but the destination is not Kentucky?**

  When we are talking about the role of freight in an economy, the emphasis is on inbound, outbound, or internal goods movement in relation to Kentucky, so not explicitly. Through flows do not play a direct role in the Kentucky economy, but they do have implications on the infrastructure (congestion) that can place added costs on Kentucky industries or have to be accounted for explicitly if they utilize Kentucky services. That said, from a communications point of view, through flows are incredibly relevant as these types of analyses can identify who is being affected and make a case for shared investment.

- **Tony, what is your take on the port system trying to "future proof" itself and how to compete.**

  It needs to be more of a continuing conversation of how we can incorporate the port system into conversations we have every day. The time-to-market is a critical piece in the decision-making process, so it is important to have ready-made sites.

- **Do you think that the introduction of innovative automation technology in the barge system and ports can both make the speed imperative work but also generate the human talent needed to create automation, run the software, and reimagine the ports? Do you think that could happen for all of the ports?**

  Tony: There are a limited number of people who have the talent and ability to do this work; the more we make this an interesting area, the more opportunity there will be there.

  Derek: Now more than ever, we are moving towards a knowledge-based economy, and it is important to leverage data to make it more painless to utilize, focus on what we are good at, and what resources we have to attract more opportunities. We need to be looking at what kind of workforce training we have in place or need to help address these problems.

KENTUCKY RIVERPORTS, HIGHWAY & RAIL FREIGHT STUDY

Appendix B: April 2021 Riverport Visits

April 26-30, 2021

For Task 3, Engagement and Future Strategies of the Kentucky Riverports, Highway & Rail Freight Study, the study team conducted a second round of in-person interviews with the Kentucky public riverport directors and key team members. Visits were made to the seven operating and four non-operating or developing riverports. The riverport visits and interviews were conducted April 25 through April 30, 2021. The ordered list is shown in Table 1.

Table 1: Kentucky Riverports Director In-Person Interview Schedule

Organization Interviewed	Status	Visit Date
Northern Kentucky Port Authority	Developing	April 26, 2021
Maysville-Mason County Riverport Authority	Developing	April 26, 2021
Greenup-Boyd County Riverport Authority	Operating	April 26, 2021
Louisville-Jefferson County Riverport Authority	Operating	April 27, 2021
Meade County Riverport Authority	Developing	April 27, 2021
Eddyville Riverport and Industrial Development Authority	Operating	April 28, 2021
Henderson County Riverport Authority	Operating	April 28, 2021
Owensboro Riverport Authority	Operating	April 29, 2021
Paducah-McCracken County Riverport Authority	Operating	April 29, 2021
West Kentucky Regional Riverport Authority	Developing	April 30, 2021
Hickman-Fulton County Riverport Authority	Operating	April 30, 2021

The second round of in-person interviews sought to review riverport packet material sent ahead of time including the Riverport Visit Discussion Guide, individual riverport profile and an example Riverport Profile and Graphic Example for the Henderson Riverport. The interview also sought perspective on the following key items:

1. Port Market Discussion and Hinterland Opportunities.
2. Port Investment Strategy and Capital Investment Plan (CIP) and Scenarios.
3. Port Existing and Potential Future Facility Overview (Tour/Pictures and Video).
4. Discuss existing/future facilities and capabilities, and infrastructure profile.

This document includes the guide sent to the riverport directors before meeting, a demographic review, the meeting agenda, questions and the Capital Improvement Program matrix for framing the discussion. It also contains the respective notes from each discussion.

RIVERPORT DISCUSSION GUIDE

Demographics:

1. Date:
2. Riverport:
3. Participants or Person Responding to Questions:

Agenda:

1. Meet and Greet (Port Staff and any Stakeholders Attending)
2. Brief review of packet items sent ahead of time.
   a. Questions
   b. Example Port Profile and Graphic Example Version
3. Overview of key items to address during the second port visits
   a. Port Market Discussion and Hinterland Opportunities.
   b. Port Investment Strategy and Capital Investment Plan (CIP) and Scenarios.
   c. Port Existing and Potential Future Facility Overview (Tour/Pictures and Video).
   d. Discuss existing/future facilities and capabilities, and infrastructure profile

Port Market Opportunities Questions on Key Market Shifts and Commodity Growth Opportunities:

1. Given your experience and understanding of this riverport community, with the downward shift in coal volumes or market changes away from coal, what investments or changes will you need to make to attract and serve the key commodity growth volumes?
2. Looking at the top commodity growth opportunities, what would be your strategy to attract those commodities and freight generators from your hinterland?
3. Based on your knowledge from commodities and freight generators in your hinterland, what key projects and infrastructure investments will your riverport require to capture those volumes?

Port Investment and Economic Development Strategies:

1. What investment strategies do you have in motion for your riverport now?
2. What are the greatest economic development challenges or weaknesses?
3. Is this strategy funded? (Y or N) If Yes, what does the general mix of funds look like (Public/Private; Fed/State/Local)?
4. What other funding programs does the port use, or would you consider?
5. Is the ports investment strategy part of your current infrastructure plan or capital improvement program (CIP)?
6. Does the port have current unfunded needs (Y or N)?
7. Future (2-5 years) unfunded needs (Y or N)?
8. From your perspective, elaborate on the role transportation plays in your investment strategy (e.g. funding programs, policy, collaboration, etc.)?
9. During the first port visits, it was made clear that the KYTC needs to be a clearinghouse of market data and information. As follow up to that, and given the forecast for commodity flows from within your hinterland and through your riverport, what specific information or data would you need?
10. How does workforce play a role in future opportunities with Kentucky riverports?
11. How can workforce development support the port's current needs?
12. How do you see economic development playing a larger role in port market business growth?
13. What strategies or tools do you want to see developed to be used by your port and the port community throughout Kentucky?
14. How is the port community in Kentucky working together to leverage opportunities for collective and individual port growth?
15. What collective strategies have you seen successfully implemented elsewhere that has not been done in Kentucky?

Key Infrastructure Discussion: Existing and Future:

Purpose: To validate facility existing conditions, describe future facility needs, review capital improvement program categories and align with funding needs in current year and future years. Use Aerial Map of Terminal(s) and CIP Table.

1. Discuss proposed capital improvement program categories (type) and funding cycle (current year and years 2 to 5) both funded and unfunded.
    a. Waterfront Infrastructure (docks, piers, berths, mooring dolphins, bollards, aprons)
    b. Land Acquisition and Land Development
    c. Warehousing (Covered Storage, Transit sheds, Truck bays, Sidings docks, Climate control, Silos)
    d. Equipment (Cranes, Conveyance, Loaders, Forklifts, Stackers)
    e. Highway Access
    f. Rail Access
    g. Security and Technology
    h. Other

2. Please, complete the table for Capital Improvement Program (CIP) supply your own priority project list. The goal is to understand what infrastructure investments the ports are making and what will they need to make considering the presented market forecast scenarios, in current year and in future years both funded and unfunded. Please rank in priority order, provide project title and description, apply a CIP category and place total project cost in the planned current or future year.

Capital Improvement Program (CIP) Port Priority Current and Future Funded and Unfunded Needs

Top Port Priorities	Project Title and Description	Type	Funded (Y/N)	Current FY Year	FY22/23	FY23/24	FY24/25	FY25/26
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

EDDYVILLE

1. Date: April 28, 2021, 9:00 a.m.
2. Participants or Person Responding to Questions:

a. Glen Kinder

Discussion

1. Glen has been active with the riverport eight years (since 2012).
    a. At right place at right time, same church as mayor, but have grown and learned
    b. Challenges with lean staff require community leaders to serve (board members cannot be paid state statute (KRS)), no requirements for board members
    c. City of Eddyville appoint members
2. Challenges include the Eddyville board of directors understanding large "numbers" for capital investment; can't make decision quickly as a result; however, have a good Lake Barkley Economic Development relationship
3. 80% of business looking to locate in KY, want existing infrastructure, so need it first
4. No sewer, so disadvantage, no wastewater, no sewer system can be built overnight
5. Supposedly board members serve at pleasure of the mayor by appointment
    a. A former mayor wanted to replace full board starting in 2011, two appointments annually, serve four years, by 2012 replaced full board
6. KY Association of Riverports is weak, no lobbyists, and get more out of local ED
    a. Even KBT does good job, and just joined as member
    b. KRI nice, but lowest totals among all ports; do have cash (about $1 million)
7. KYTC has no risk assessments, and riverports have no training around this or concepts for decision making
8. KRI three years ago, 2016/2017, legislature was budgeted $3 million, but Gov. Bevin line item vetoed from $3 million to $500,000 and removed language on usage (Will Corsey was rep and had inserted it in the legislation in District 6).
    a. Over life of program issued about $4 million
9. No desire for a rail spur into riverport
10. Can provide authorization of engineering firm to provide "maps" from Master Plan
11. Need warehousing, need elevation changes to access proposed sites
    a. Do not need dredging
12. No training for board members or staff on budgets, grant writing, or how to access funds
13. Sewer important not just for Eddyville, but also state prison (the death row prison) while having own wastewater treatment plant it is not adequate, so Kentucky Board of Justice, who's property adjacent to riverport
14. With Corps have mean 378 feet, right now about 358 feet or so, and if install seawall, need to assure not impacting volumetric without offsetting mitigation requirements
    a. Much of property under 375
    b. So, permitting through Army Corps
    a. Located in Nashville Corps District
15. Legal counsel is Glenn Denton
16. Introduce Glen Kinder to Deb and have her meet Glenn Denton (Denton Law Firm)
17. Has about $20 million capital needs for five years
18. Emphasizes ED – see Amanda Davenport, 940-391-7159, amanda@thinkrural.com (Glen said to access about a video that has been created)

19. New infrastructure important, but need strategic plans working with tenants
20. Technical school in next county, but Michael Taylor at Paducah Barge works with the school on curriculum, and hires students from school
21. How will this study connect with people, telling the story, beyond the words and numbers on the port system
22. See video production company out of Paducah (Josh and Samantha) https://asgfilmmakers.com/, Josh Marberry, 270-217-6959 josh@asgfilmmakers.com
23. Again, on training
    a. Grants and what is out there
    b. How "riverports" work
    c. How "rail" works
    d. Customer engagement, working with them on their business
24. Industrial Park

a. The racing company been gone for years, a BGB Trucking in there (Bobby Bowers)

25. KYTC – help streamline permitting with Corps, KY Environment Cabinet, etc.
26. Have heard of IRPT
27. DRA another source fund; Glen looking to ag fund options, but did not elaborate
28. Area Development District (ADD, run by Jason Vincent) not a strong relationship and need to do so for transportation planning (all DRA grants through them, e.g., planning grant through rural ag and DRA), but challenge admin fees, but DRA pays admin fees
29. No programs funding riverport engineering
30. While they have a plan, need to prioritize with board, but KYTC more money and take what is in master plan and make available to this project, stronger association (KAR), some work KBT complements KAR (possibly could fund a half position at KBT for riverport efforts)
31. See Ann Schnieder former IL DOT

Additional Information:

Riverport Board of Directors do not receive additional compensation for efforts directly associated with the management, supervision, or support of the Port Authority.

Glen Kinder, member of the board of directors for the Eddyville Riverport Authority discussed a strong relationship with the local Economic Development Agency – Lake Barkley Partnership https://www.thinkrural.com/ 270-385-0070 amanda@thinkrural.com.

In the region economic development is seeking ready to build properties or built out facilities ready with existing infrastructure in place – LBP states that 80% of new companies are seeking spec builds with capacity.

One major infrastructure need that the port is struggling with currently, onsite utilities being provided to meet tenant demand for sewer and power. Looking for partnerships with the highway department on use of right-of-way and corrections who already has treatment or sewer capability within the region.

Glen discussed the need to strengthen KAR Kentucky Association of Riverports and mention how KBT Kentuckians for Better Transportation could be a stronger supported of the ports and that a good contact to begin championing that cause is Ryan Ogard.

With only $200,000/$300,000 available at a given time from the KRI Kentucky Riverport Infrastructure fund has not been super helpful. Example is the 2016-2017 Budget for infrastructure improvements at the ports was passed at around $3 million but got vetoed or struck down to $500,000. The port has nearly $20 million in capital infrastructure program needs over the next 5-year period. Glen committed to supplying a CIP Table in response to our request.

Glen supports workforce development efforts to align with port workforce needs and to meet future growth for the port and related industries. He things local vocational schools, economic development, workforce development, and maybe even community and state colleges should be brought together to discuss and implement strategies support port industries.

GREENUP

1. Date: April 26, 2021, 3:00 p.m.
2. Riverport: Greenup
3. Participants or Person Responding to Questions:

Discussion

1) Three acres leased to container company who retro fits that equipment
2) Bruce McGinnis – still operating port, he owns about 200 acres downriver
3) Add downriver from wastewater treatment (Dupont owns land between the two pieces) and upriver about similar distance
4) One unloading place that is permitted, another piece they purchased that had permit with it
5) Installed new truck scale
6) Eastland
7) A & B – the big sites, aluminum
8) C – four miles from 23
    (a) Possibility for hydroponic and hothouses (200 -250 jobs), group in Morehead
9) Limited in product area and what can handle, cannot handle coal, not enough grain in area
10) One option to work with CSX on intermodal, but tunnels on Big Sandy cannot accommodate
    (a) If CSX could cooperate, then develop intermodal, have four acres with rail spur and could put intermodal on the four acres
    (b) Many in area dray containers to Columbus to load on train
    (c) Love to have help around on this
11) KRI funding
    (a) Started to file two years ago for another warehouse, but did not move forward because when using KRI funds have certain terms to follow that adds higher costs
    (b) This year look to fund bush hog to keep it looking “clean” and neat
12) Access to airport from port needs improvement, in road plan to get new road to airport, number three on list

HENDERSON

1. Date: April 28, 2021
2. Riverport: Henderson
3. Participants or Person Responding to Questions:
   a. Greg Pritchett

Port Market Opportunities Questions on Key Market Shifts and Commodity Growth Opportunities:

1. Given your experience and understanding of this riverport community, with the downward shift in coal volumes or market changes away from coal, what investments or changes will you need to make to attract and serve the key commodity growth volumes? ***I would like to look a bulk plastics handling, storage. Just not certain of how market works but given this is traded at Chicago Mercantile Exchange think this might be something to consider. I would certainly be interested in more steel but don't know how to find customers?***
2. Looking at the top commodity growth opportunities, what would be your strategy to attract those commodities and freight generators from your hinterland? ***I don't have a good one and interested In hearing what the KYTC consulting group will tell me.***
3. Based on your knowledge from commodities and freight generators in your hinterland, what key projects and infrastructure investments will your riverport require to capture those volumes? ***We might need to expand one dock and perhaps repurpose another, add a mobile crane but mostly maintain existing assets in a high state or repair. Last we might need to recondition existing rail track.***

Port Investment and Economic Development Strategies:

1. What investment strategies do you have in motion for your riverport now? ***Keeping capital assets in high state of repair by finding and applying for grant funds when available and applicable.***
2. What are the greatest economic development challenges or weaknesses? ***Finding prospects interested in using port services or locating manufacturing plants in the Henderson area.***
3. Is this strategy funded? (Y or N) If Yes, what does the general mix of funds look like (Public/Private; Fed/State/Local)? ***Not fully. Our historical strategy has been to lean towards small restoration projects and find grant funds to through State and regional agencies willing to grant funds***
4. What other funding programs does the port use, or would you consider? ***Federal grants through Department of Transportation Maritime Administration.***
5. Is the ports investment strategy part of your current infrastructure plan or capital improvement program (CIP)? ***Yes, both.***
6. Does the port have current unfunded needs (Y or N)? ***Yes***
7. Future (2-5 years) unfunded needs (Y or N)? ***Yes***
8. From your perspective, elaborate on the role transportation plays in your investment strategy (e.g. funding programs, policy, collaboration, etc.)? ***Not sure what this question means and skipping.***
9. During the first port visits, it was made clear that the KYTC needs to be a clearinghouse of market data and information. As follow up to that, and given the forecast for commodity flows from within your hinterland and through your riverport, what specific information or data would you need? ***Names of leading manufacturers, supplies of the commodities recommended.***
10. How does workforce play a role in future opportunities with Kentucky riverports? ***It would seem to me workforce availability or the lack there is critical to expanding and recruiting manufacturers to the area. Workforce availability has not been a significant a problem for our port, we can find the people we need.***

11. How can workforce development support the port's current needs? ***Being able to find skilled workers is critical to expanding local manufacturers and recruiting new manufacturers. The port has a consolation benefit in added new business only if these existing manufactures or new ones are manufacturing more products thus a need to move more raw materials and finished goods through us.***
12. How do you see economic development playing a larger role in port market business growth? ***See question above.***
13. What strategies or tools do you want to see developed to be used by your port and the port community throughout Kentucky? ***We need a collective marketing plan and refined business tools such as standardized service contracts, leases and Tariff agreement for all public ports in Kentucky.***
14. How is the port community in Kentucky working together to leverage opportunities for collective and individual port growth? ***We swap information and experiences currently.***
15. What collective strategies have you seen successfully implemented elsewhere that has not been done in Kentucky? ***I expect consultants to generate this by studying other state models***

Key Infrastructure Discussion: Existing and Future:
Purpose: To validate facility existing conditions, describe future facility needs, review capital improvement program categories and align with funding needs in current year and future years. Use Aerial Map of Terminal(s) and CIP Table.

1) Discuss proposed capital improvement program categories (type) and funding cycle (current year and years 2 to 5) both funded and unfunded.
   a) Waterfront Infrastructure (docks, piers, berths, mooring dolphins, bollards, aprons)
   b) Land Acquisition and Land Development
   c) Warehousing (Covered Storage, Transit sheds, Truck bays, Sidings docks, Climate control, Silos)
   d) Equipment (Cranes, Conveyance, Loaders, Forklifts, Stackers)
   e) Highway Access
   f) Rail Access
   g) Security and Technology
   h) Other

2) Please, complete the table for Capital Improvement Program (CIP) supply your own priority project list. The goal is to understand what infrastructure investments the ports are making and what will they need to make considering the presented market forecast scenarios, in current year and in future years both funded and unfunded. Please rank in priority order, provide project title and description, apply a CIP category and place total project cost in the planned current or future year.

Capital Improvement Program (CIP) Port Priority Current and Future Funded and Unfunded Needs

Top Port Priorities	Project Title and Description	Type	Funded (Y/N)	Current FY Year	FY22/23	FY23/24	FY24/25	FY25/26
1	Expand Marine Dock (Est. $12 Million cost)		No					XX
2	Recondition Rail loop (Est. $3 Million)		No					XX
3	Replace Roof on Main Warehouse (Est. $500,000)		Part			XX		
4	Purchase Mobile Crane (Est $3 Million)		No				XX	
5	Replace 4 Forklifts (Est $750,000)		Part		XX			
6	Build additional Warehouse (Est. $1,000,000)		No			XX		
7	Pave 2 Roads and restore paved outside storage (Est. $600,000)		Part	XX				
8	Build second elevated Rail dock (Est. $300,000)		No					XX
9								
10								

1. Port owns rail infrastructure, CSX used port to make turnaround, and they have accepted liability and maintenance of track for use of it, daily service five days a week
    a. CSX does the switching for riverport
    b. Historically the loop worked where CSX dropped cars (CTLC and CGB) but changed tariff and CTLC and CGB stopped using CSX. CSX however still brought cars into the port, and complained about track maintenance. Greg called Lauren Brand at MARAD and explained how he wanted CSX to accept liability and maintenance of track. She engaged STB.
2. Graphic
    a. Page 1 of graphic:
        i. 236 acres tract sold
        ii. Delete second bullet on upper left (185 acres comment)
        iii. Removed 24/7
    b. Key Commodity Growth Forecast
        i. Plastics – why was Henderson not included as Owensboro was? Thinking of Owensboro, plastics traded on CME, could there be a delivery mechanism
        ii. https://www.cmegroup.com/trading/energy/petrochemicals/pp-polypropylene-pcw-calendar-swap_contract_specifications.html
        iii. Century Aluminum Sebree smelter 15 miles away and Alcoa in Newburg
            1. Sourcing “greener” aluminum?
            2. https://centuryaluminum.com/investors/press-releases/press-release-details/2021/Century-Aluminum-Publishes-its-Inaugural-Annual-Sustainability-Report/default.aspx
    c. Page 2 of graphic

i. Tenants: need to be updated, what is meant by “long term tenants”? GP: remove “long term tenants”

Additional Information:

Meeting with Greg Pritchett began by discussing how the ports priorities have shifted in recent years, prior years the buy up of land for economic development seemed like a wise move, the primary challenges included getting a strong customer attracted, may have been difficult to get the full attention of state economic development versus just regional or local. Due to cost of holding land risks related to paying note and sitting underused port decided to shift to a different tactic of minimizing Risk with efficiency improvements, maintenance, reconditioning, refurbishing, and repairing existing infrastructure but not growing market share. Keep and grow what we have already and do it well.

One major challenge discussed is workforce development, it is very hard to compete with factories and private sector jobs that can currently provide higher wages doing the same activities of operating heavy equipment or moving freight. Need a way to incentivize, train and retain workforce

Second major challenge that was discussed was related to Utilities available to the port and its tenants, Power rates are very high and access to adequate and reliable utilizes for industrial/commercial is not good.

In response Henderson has put a strategic team in place to deal with the major issues like workforce, growth economic development, and utilities.

a. Need for ED incentive programs or packages to attract customer to the port and hinterlands.
b. Need for better State funding of Riverport projects and programs
c. Need better utilities
d. Need for CSX to repair rail loop as agreed.

Issue with siloed State Agencies that have little ability to change or flex their programs to support growth in economically beneficial programs or to have an innovative program outside what they have always done before. In other words, the agencies can not see outside the box they were created in.

There is little perceived connection between high level folks in KYTC, KCED, KDE, or other major state cabinets or agencies.

A regular port annual or biannual meetings with top decision makers and all port mangers is needed.

HICKMAN

1. Date: April 30, 2021
2. Riverport: Hickman
3. Participants or Person Responding to Questions:
    a. Greg Curlin

Discussion

1. Use to be only game in town, then Riverfront Limestone and Coffey moved in with aggregate
2. COVID and workforce issues, unable to hire because people getting more from government, and competition for workers
    a. Last year paying $10.50 per hour, this year went to $13 per hour, then now going to $15 per hour
    b. Biggest issue
3. Loads grain for Cargill and Bunge loads own (will be CGB)
4. Have small harbor, themselves, Coffey, Bunge
    a. Wepfer handles all the barges
    b. Does not see as us versus them
    c. Have not attempted to out compete
    d. He does wire, others fertilizer, though he does too
5. But if economic development should all be used in this study,
    a. They dredge 150 from center line, but he can lease out Corps to dredge to dock
    b. Look to capital needs to include waterway infrastructure of the harbor with access to the riverport terminal and to the other terminals
6. How do we compete with the Indiana's or now the Illinois investment?
    a. Hit roadblocks: landowners (lawyer in TN coming out of Union City, and she has been lobbying in KY, avoiding TN, but they have been brought in), STB approved it, but lawyer petitioned against it
7. Collectively, individual ports will be challenged for containers but if state believes there is a future, then "direct" or "target" where key infrastructure should be installed to support
8. No funding source for land acquisition (can take a loan to purchase)
9. Missouri is a tenant port structure
10. Industry moving to Hickman is flood insurance requirement (FEMA might dictate this)
11. Spent $1.6 million on PLM crane three years ago

Additional Information:

Meeting with Greg Curlin discussed the Coffey River Construction and Cargill Giles for aggregate growth opportunities with nearly 90% grains and 10% steel wire operations currently. The port wishes to look around to its hinterland growers and brokers to see where they can align opportunities for growth on waterway barge service to those industries.

Current major issues impacting the port is access to labor that is affordable and reliable, much of the workforce has shifted or is not currently working due to COVID stimulus programs and higher private sector wages.

Hickman's primary needs include a $2 Million Conveyor belt upgrade and conversion to make it be able to load outbound grain versus inbound coal. Another $2.5 Million is need for improved storage for queuing product with silos or warehousing. Another $1.2 Million is needed in landside development of the port including possible new land acquisition with zoning for industrial/commercial. There is a major need for laydown space to handle materials.

LOUISVILLE

1. Date: April 27, 2021, 9:00 a.m.
2. Riverport: Louisville-Jefferson
3. Participants or Person Responding to Questions:
   a. Tim Kizer
   b. Matt Yates

Discussion

1. Like to call it a multi-modal port, not just intermodal
2. 13 miles of track (not the 13,000 feet I have been saying)
3. While large metro area, embarrassingly small port with 200k tons on average over thirty years, believes can turn into 20 to 30 million annually with $30 million

a. $15 million dock

4. Antiquated port, and river access terrible, and want same dock design as Owensboro, hope to make it happen in next two years
5. Has many capital projects
6. Concerned with USDOT funding not adequate and directionally wrong
7. Have a tenuous relationship with lease holder, the lease operator and have been doing it for eleven years
8. Funding needs
   a. Waterway access
   b. Highway access – have a 250-mile radius, a daily delivery model
9. Most metal companies moving to larger coils, and would need 92-ton crane to accommodate those
10. Conveyor system be converted to bi way conveyor (a 2,500-foot system)
11. KRS 65550
12. See their filings with STB
13. The “park” around the port was originally developed by the port but much of it is owned by others now
14. 7,000 jobs, 3,000 acres
15. Can issue bonds

Additional Information:

Meeting began with Matt Yates providing a tour of the port property via large scale model of the existing conditions and facility overview. We began meeting with Ken and Tim Kizer stating that all the ports are very thankful for all the of the efforts that KYTC is putting forward with this study and the summits. Next the discussion went to the overall port capabilities. Tim discussed how Indiana and Missouri are current providing hybrid models for state support of the waterways. The port currently has about port has about 300 acres on the riverfront which provide strong opportunities for growth of bulk and multi-modal operations long term. They have a large coal conveyance equipment that is in good condition and could be converted to load or inbound and outbound for aggregate products and/or other bulk commodities. The port has over 1.3 miles of waterway frontage and has an undeveloped site with mooring capabilities. Tim stated that in the next two years he is looking to spend about $15 million with about $9-10 million for waterfront infrastructure or docks and mooring facilities, about $1 million in rail improvements and another $2 million in equipment needs.

Tim mentioned the need to get better funding mechanism in place for all the ports, that there needs to be a collective push for MARAD and Army Corps dollars outside of just the locks and dams, maybe a push to get more of the Inland Waterways User Fees of $0.29 cents per gallon of waterways fuel or the work with the Institute for Waterway Resources. There needs to be access or taxes to provide a state pool of riverport funds with specific incentive programs to help attract opportunities to the waterfront. KRI $500K is not enough, maybe a way would be with a major state bond program that could provide a larger pot by using the $500K as the payment on the service or a one-time major bond. One issue Tim mention about the KRI grant is that you have to use the money by the end of the year, or it goes away.

Tim is interested in better leveraging the population center and the major distribution and warehousing that surrounds the port now to potentially attract multimodal container service via rail and waterway to the port development area. He is intrigued by American Patriot Holdings but remaining a bit reserved on the concept until proven up the river.

He has some short line rail connectivity needs that could help him be more competitive on his rail and barge rates over the long haul.

MAYSVILLE-MASON

1. Date: April 26, 2021
2. Riverport: Maysville Mason
3. Participants or Person Responding to Questions:
    a. Owen McNeill

For further information on the port in development, see https://trid.trb.org/view/155512 and https://thinkmaysvilleky.com/wp-content/uploads/2020/07/Maysville-Mason-KTC-Feasibility-Study-Draft.pdf.

MEADE

1. Date: April 27, 2021, 1:30 p.m.
2. Riverport: Meade
3. Participants or Person Responding to Questions:
    a. David Pace

Discussion

1) Funding new river terminal has doubled, not enough bonding capability to fund $12 million; only outbound grain; can't afford inbound.
    (a) Fertilizer comes through Louisville; had considered salt, but challenging
2) Did not use riverport for Nucor, farmers on board not pleased, but Nucor did pay $20 million for a $12 million, would be $20 if CGB cannot find a location within five miles in three years
3) Getting two good leads and hopeful load harvest 2022, build lease arrangement
4) Farmers suing port
5) New executive judge Leslie Stith from Monsanto but was named in lawsuit suing port, awkward
6) Land was owned by industrial authority, port leased 50, sold three, then CGB leased 15 and now Nucor owns it
7) The port has no land at the port
8) Port opportunities are in 10 million bushel barge grain facility to grow to 20 million and then add inbound
9) Nucor property would not allow access to CGB elevator
    (a) Using to discharge equipment
    (b) Have made progress on river access
    (c) Inbound scrap for plant,
    (d) Electric arc mill
    (e) Then outbound flat plate 3/16 inches to 14 inches by 14 feet

    Million square feet
    (f) $1.7 billion
    (g) Over 400 Nucor, 200 maintenance
    (h) Location population 30,000
    (i) $72,000 plus benefits annually on average
10) Nucor bought land, paid debt
11) Monument Chemical site (next door to it)
12) Traditionally have taxed and bonded to raise revenues, but grain companies desire more lease than capital payments
13) The funding support most important to attractive a shipper, who needs a lease build relationship
14) Property Options
    (a) Quarry - Battletown
    (b) Three owners
    (c) Farmer just past Nucor
    (d) Monument Chemical (first choice)
15) Really need someone to put this together rather than do it themselves
16) Once have property, then need "partner" to borrow money and pay debt (simultaneous effort to get property and partner)
17) Nucor installing rail through Monument Chemical, and that would be beneficial if could build next to Monument Chemical

a) rs per week
b) 5 barges per week (mainly scrap in)

18) Nucor wanted 1,000 acres but got 850 acres
19) Goal is to have partner in place by May then start on a site
20) Partner as large of grain company out there
21) River can vary 54 feet, but during year can vary 430 feet +/-

NORTHERN KENTUCKY

1. Date: April 26, 2021, 8:30 a.m.
2. Riverport: Northern Kentucky Riverport Authority
3. Participants or Person Responding to Questions:
   a. Lee Crume
   b. Robyn Bancroft
   c. Bill Kinzler
   d. Eric Thomas
   e. Scott Adams

Discussion

1) Q (Bill friend of Dave Jahnke): how do riverports in the region work together, is that one goal or outcome to pursue?
2) Eric Thomas (CORBA): Regional effort with CORBA, while eleven ports, there are many private ports and terminals, Ohio had a maritime assistance program and there is no Ohio water program, though Great Lakes with Lake Erie Commission group, but their volumes much lower than river volumes; KYTC more transportation, but missing economic development; definitely with MARAD involved with "highway" designation then go to project phase; Nucor has been a beneficiary of this process
3) Scott James: continue discussion on NOLA quarterly call with Bobby Landry and continues to improve openings; that they are investing heavily in a container terminal is meaningful; what does the transformation to container option look like?
4) OKI worked to get marine highway designation to support funding and encourage
5) Eric: ORC (Ohio River Coalition), to work with private industry; that Ohio is number 8 waterway volume and Kentucky number 7 is important
6) Eric: new port designation for mid-Ohio Valley; really need to take "coalition" approach for Ohio River to seven or so entities from dozens
7) Bill: one, history repeats itself (DINAMO and its predecessor); two, the discussion needs to include barge lines, e.g., Ingram might be adjusting away from old barge line mindset of long haul and mainstream, need to get with the barge lines to get input, Ingram
8) KYTC needs to look at "regionalization approach"
9) Northern Kentucky Riverport Authority: it is partly active, not existent with facilities on the river; Tri-Ed manages authority with board meetings and audit process; private sector handles really well, and they are pursuing economic development case; 25 million square feet projected for area and is all bulk, but can the port help do something different? The port has no resources, having $250,000 in bank, based on $10,000 annually put in there but use authority to raise revenues through tax authority for industrial development, and options other than distribution centers; DCs do their own thing and have many clients behind them, and in post-COVID with bio-pharma gets to be attractive; with DCs more robotic and not a big job generator
10) Licking River – is navigable, but how much land there and does it make sense
    (a) Is there a test opportunity on this river to create something from nothing, removing trucks from highways, leveraging funds; tie this to the "bridge" idea, how can these be linked
    (b) I275, Mary Engels Highway
    (c) Dredging Kentucky side that has sediment settling issues
    (d) At moment navigable 7 miles, but is commercially navigable further upriver
11) Eric: greatest thing public entity can do is provide access on to and off the river

12) Port of Northern Kentucky is a lot of things to people but doing nothing; aspirational could own next bridge as an example
13) Eric: the $500,000 is nice but needs to be higher, perhaps $2 million
14) Upriver has good, high land as head toward Mehldahll 436 Markland Lock at 536, good land within pool
15) Northern Kentucky Port Authority includes Boone-Kenton-Campbell counties and those contingent to these, and this is beneficial
16) What “other” funding or soft funding say a study for region to drill in and
17) NKPA owns 15 acres
18) Bill: what is the action that KYTC accountability to implement actions of this plan, history suggests not much will is that is our guide?
19) NKPA happy to listen to private sector to pursue KRI funding
20) Ohio has codified Lakes Coalition, so how make KTYC river coalition survive new governors and legislatures

OWENSBORO

1. Date: April 29, 2021
2. Riverport: Owensboro
3. Participants or Person Responding to Questions:
   a. Brian Wright

Discussion

1) KAR website outdated, difficult to update with changes, need "policy" aspect for maintaining updating
2) Graphic – where will it be "housed" or memorialized?
   (a) Likes this, sees how KYTC can use it, and each riverport use it too
   (b) Will it be flexible to update?
   (c) Report?
   (d) Website?
3) Will it be with KYTC, KYED?
4) Individual ports?
   (a) See video https://www.youtube.com/watch?v=YQ2eNIJhRYk
5) Prior to submitting KRI
   (a) Annually each riverport updates "data" for infographic
   (b) Already must have a masterplan on file with the state, updated every five years
6) Should there be KAR regions for Corps definitions for cargo reporting volumes
7) Would be good to see all other riverports have a systematic approach using capital "bucket" categories to submit
8) Need accountability among the riverports with a single port of leadership

PADUCAH

1. Riverport: **Paducah-McCracken County Riverport Authority**
2. Participants or Person Responding to Questions:
   a. Tim Cahill

Port Market Opportunities Questions on Key Market Shifts and Commodity Growth Opportunities:

1. Given your experience and understanding of this riverport community, with the downward shift in coal volumes or market changes away from coal, what investments or changes will you need to make to attract and serve the key commodity growth volumes?

Coal is not transshipped through this port so we will not see a decline in revenue relating to potential reduction of coal shipments. I do though feel that we could see some private facilities that are "coal focused" transition into additional competition not only within our "90 mile" logistics Region (TN, KY, IN, IL & MO) but also in more northern areas of KY., IN. and IL. This potential competition could further exacerbate what is already a saturated "port marketplace" within our Region.

General Cargo

Our current General Cargo facility currently contributes less than 2% of revenue. This is down from over 65% prior to 2012 with a large portion of the prior revenue associated with the uranium industry. During 2014 to 2016 general cargo revenue starting to evaporate from 45% of total port revenue to what it is today. In reviewing prior transshipment data, it appears that this drop off of revenue is associated directly with loss of metal industry imports which have been negatively affected by current tariffs on metal imports.

The uranium business evolution in Paducah drove the revenue growth of the Port in 1990's and into early 2010's. USEC facility in Paducah and Honeywell (Metropolis, IL) were major customers via the Megatons to Megawatt program from 1998 into 2014 when the program ended. There is a very small uranium associated revenue component (-2%) in our current storage/warehouse business while Honeywell has announced that they will resume activities in Metropolis, IL in 2023. The plant converts yellowcake to uranium hexafluoride gas known as UF6. We have been involved in the storage of containers of the yellow cake material and provided numerous services associated with the steel cylinders at the backend of the process. Currently revenue potential is TBD, but we have been advised that it will not rebound to the $1M plus per year levels of the past 1990 and early 2000's since the USEC site in Paducah is closed. Our uranium license is active, and we have suitable rubber tire equipment and licensed storage areas in place to accomplish new opportunities along with our General Cargo Crane to transship cylinders from/to barges/trucks.

In 2013 the port purchased a Comansa 53-ton T-Crane based on a retained consultant study and their projections for future Container on Barge shipments into the central U.S. From 2016 to 2019 prior port management doubled down on Container on Barge potential securing Marine Highway designation from MARAD while also winning multiple Federal grants. These efforts resulted in the acquisition of multiple types and pieces of equipment needed to load, unload, transfer, and store containers. The port also received Grant funding for the "hardening" of over an acre plus of storage area within the confines of the general cargo dock. At this time there is not any revenue associated with Container on Barge at the port, but we are still actively pursuing potential opportunities.

The Comansa crane is well suited for breakbulk, project and refined metal shipments. We are actively engaged in discussions with multiple parties at this time. Our FY-2022 budget includes revenue from breakbulk shipments and warehousing for a new customer in the Regional area. There is not a contract in place yet, but negotiations are ongoing with shipments to commence in Aug. 2021. We have been aggressive for this new opportunity, but this customer does have other options due to the number of port facilities within our "90 mile" logistics Region.

Steel prices continue to skyrocket so any relaxation of the current tariff/duty policy on the metal industries could provide immediate and future opportunity in which we have the equipment and employee skillset in place to potentially capture. We are also utilizing our FTZ area at the Port to market potential future metal imports in which the import duty would be due upon cargo "sale and release" from our FTZ warehouse.

Bulk Commodity Yard

Transshipment of multiple types of bulk commodities from barges to ground storage to trucks produces over 80% of the current Port revenue.

In 2017 the Port purchased a Sennebogen 870D ($1.35M) material handler to improve efficiency and reliability to service long term aggregate, sand, and fertilizer business partners.

The existing bulk yard facility utilizes a fixed conveyor system along with three fixed radial stackers incorporated to provide access/storage to multiple designated commodity yard areas. The fixed conveyor system has a replacement cost of approximately $8M. The three fixed radial stackers (two vintage 1966 and one vintage 1970) will cost approximately $1.4M to replace. We also have multiple wheel loaders and hoppers to load trucks.

Southern FS invested over $3.4M in a new fertilizer building within the confines of our bulk yard. The storage and transshipment building opened in March 2020. We anticipate that 50K tons per year or more will be transshipped from barge via PMCRA staff and equipment into the new building. Outbound loading and transshipment via truck is accomplished by Southern FS staff. Multiple grades of fertilizer products are shipped to 13 counties in Western Kentucky along with three counties in Tennessee, nine counties in Missouri and twelve counties in Illinois.

2. Looking at the top commodity growth opportunities, what would be your strategy to attract those commodities and freight generators from your hinterland?

Current bulk commodity diversification consists of aggregates (multiple grades of rock), multiple grades of sand, petroleum coke, multiple types of fertilizer, and lite weight aggregate used to manufacture block. Based on our existing long-term agreements, fertilizer, aggregates (rock) and sand transshipments are controlled via long term contracts with our existing business partners.

Federal waterway (KY Dam), Interstate (I-24 east bound), and Shawnee Power Plant Ash facility reconstruction project contributed to a FY-2021 23% tonnage increase (with still 3 months left) over entire FY-2020 sand shipments which were up 28% over FY-2019 shipments. Pipeline for continued growth appears to be very good with additional construction at KY Dam and West Bound I-24 as both projects have been fully funded with contracts to be awarded later in 2021. Supposedly there is another project at Shawnee Power plant in 2022 which could also contribute up to $100K of additional sand revenue in FY-2023. Our business partner has participated in all prior projects and

they are hopeful to continue in the future. We are budgeting a small reduction in sand shipments in FY-2022 but revenue would grow by over $200K per year for FY's 2023, 2024 & 2025 from just the KY Dam project. Aggregate shipments for FY-2022 and beyond are projected to increase 30% over FY-2021 according to our business partner.

Potential future Federal infrastructure spending under consideration at this time associated with roadway, bridge and other type infrastructure projects could also provide additional revenue opportunities via our business partner transshipment services at PMCRA

Rebuilding the two dome roof structures as proposed in our Federal Grant application would allow us to transfer an existing customer to one of the domes while allowing us to market an existing 20K square foot warehouse. We lost an opportunity in December 2020 because we did not have warehouse space available.

The second dome would allow us to pursue other "dry storage" opportunities with Southern FS or other new customers which we have identified within the 90-mile hinterland.

3. Based on your knowledge from commodities and freight generators in your hinterland, what key projects and infrastructure investments will your riverport require to capture those volumes?

Port Investment and Economic Development Strategies

1. What investment strategies do you have in motion for your riverport now?

We are working on Federal Grant program funding to revitalize and expand our Bulk Yard capabilities as many of the critical infrastructure components are vintage 1960 and 1970.

2. What are the greatest economic development challenges or weaknesses?

On our current site, the lack of land for new customer expansion and not having rail service.

3. Is this strategy funded? (Y or N) If Yes, what does the general mix of funds look like (Public/Private; Fed/State/Local)?

There is no plan to expand the existing footprint of the current Paducah Riverport. There is a plan to revitalize multiple bulk yard components and expand to new areas within our current bulk yard footprint. Bulk Yard revitalization and expansion project will seek Federal Grant funds which will require some percentage of matching funds. Matching funds will need to be raised/pledged from PMCRA, City, County, Regional counties, and current business partners.

The Triple Rail Site in West Paducah does offer the potential for future expansion, however, the Riverport relinquished land holdings in that area many years ago. There is the potential to re-acquire and/or to act as a "sponsor" in development activities in that area.

The revitalization of equipment in the Bulk Yard that we are pursuing via Federal Grant funding should add at least 25 years life to the PMCRA Bulk Commodity facility.

4. What other funding programs does the port use, or would you consider?

The Port currently has two long term loans with Paducah Bank. The loans are associated with the Comansa Crane ($1.9M) and Sennebogen 870D ($900K). We currently utilize an incremental per ton

user fee on products transshipped via the Sennebogen for our primary customer to provide assurance to the bank for the loan repayment. The Comansa does not have a similar mechanism in place.

The Port has in the past and will continue to participate and utilize all State and Federal Grant opportunities when possible. Matching fund requirements for Grants however prove to be the challenge.

5. Is the ports investment strategy part of your current infrastructure plan or capital improvement program (CIP)?

Yes. Upon joining in June 2020 our team initiated and subsequently completed in October a SWOT analysis. Due to the information discovered during that process we have put together a Maintenance and CIP plan which was radically changed from prior administrations. Our plans immediate focus is towards our Bulk Commodity Facility which produces over eighty percent of our revenue. Our focus is to revitalize the most critical infrastructure items and equipment needed to service our current long term contracted bulk commodity customer requirements along with the potential to secure new opportunities, short and long term.

6. Does the port have current unfunded needs (Y or N)?

Yes.

7. Future (2-5 years) unfunded needs (Y or N)?

Yes.

8. From your perspective, elaborate on the role transportation plays in your investment strategy (e.g. funding programs, policy, collaboration, etc.)?

The Port has been revenue challenged for many years. We do not have rail, so our immediate strategy from June 2020 was to focus on barge to truck cargo within the general cargo and bulk commodity markets for utilization within 90 miles of our facility.

We continue to examine and pursue new potential partners and opportunities for the outbound cargo/product marketplace via barge based on trucking/carbon reduction for certain industries. Initial analysis has identified that growth within this service sector will require additional investments and/or most likely a business partner to support (like our Sennebogen subsidy agreement) solution expansion for new service/opportunities.

9. During the first port visits, it was made clear that the KYTC needs to be a clearinghouse of market data and information. As follow up to that, and given the forecast for commodity flows from within your hinterland and through your riverport, what specific information or data would you need?

I am used to having access and utilizing Datamyne for performing discovery and analysis. There are numerous other products in the marketplace which I am sure all could provide similar successful results, but we must have the resources to search for potential opportunities.

As I have stated numerous times, it is imperative that we identify and secure use of a data focused product for discovery and analysis as it related to export and import cargo across all bulk, breakbulk, containerized and other cargo sectors. We just cannot wait for people to call us.

10. How does workforce play a role in future opportunities with Kentucky riverports?

The KY retirement fund match for my workforce will increase on July 1, 2021 to a 26.95% match on wages earned along with 7.65 match for FICA. The state must find a solution, or we will have to find a way to operate differently as almost 35% added to hourly rate and overtime rate is unsustainable in a competitive services marketplace.

11. How can workforce development support the port's current needs?

Our Region has numerous training programs (high school and community college) for developing skilled labor that meets our requirements. There is however competition in our marketplace for those trained assets with other river industry and other business entities that utilize similar skillsets. We also have local availability to temporary employment agencies which meet our insurance requirements for temporary employees on an as needed basis.

12. How do you see economic development playing a larger role in port market business growth?

There appears to be limited economic development opportunities within our Region with a lot of competition from multiple counties for potential business opportunities/relocations. To date we have had multiple calls with multiple counties regarding our facility, a couple of site visits. Our lack of sizeable acreage sites also poses a problem for us along with the lack of rail at our current location.

13. What strategies or tools do you want to see developed to be used by your port and the port community throughout Kentucky?

We need the ability to identify trade flows and potential cargo opportunities. My primary request remains focused on availability to secure our ability to search cargo data which is available in the marketplace - at a cost.

14. How is the port community in Kentucky working together to leverage opportunities for collective and individual port growth?

We had one opportunity that we were not able to service due to lack of rail. We passed along the opportunity to our KY Riverport colleagues and will continue to work to secure opportunities for the good of all the KY Riverports. There are some geographical cargo/trade movement "advantages" for each Port when comparing the individual KY Riverports basis of their location and which river they may be located on. Sometimes another port just has a better cost-effective solution for the potential customer.

15. What collective strategies have you seen successfully implemented elsewhere that has not been done in Kentucky?

I am used to utilizing cargo data for analysis to identify potential new cargo opportunities and customers. Currently we do not have the resources ($$) to support that activity. I have experience with empty container yard consolidation facilities, which do hold promise for KY especially as we continue to examine what the future holds relating to carbon footprint responsibilities and the potential government mandate to reduce carbon emissions across all business sectors.

Key Infrastructure Discussion: Existing and Future:

Purpose: To validate facility existing conditions, describe future facility needs, review capital improvement program categories and align with funding needs in current year and future years. Use Aerial Map of Terminal(s) and CIP Table.

1. Discuss proposed capital improvement program categories (type) and funding cycle (current year and years 2 to 5) both funded and unfunded.
    a. Waterfront Infrastructure (docks, piers, berths, mooring dolphins, bollards, aprons)
    b. Land Acquisition and Land Development
    c. Warehousing (Covered Storage, Transit sheds, Truck bays, Sidings docks, Climate control, Silos)
    d. Equipment (Cranes, Conveyance, Loaders, Forklifts, Stackers)
    e. Highway Access
    f. Rail Access
    g. Security and Technology
    h. Other

Paducah-McCracken County Riverport Authority
2000 Wayne Sullivan Dr. Paducah, KY 42003
Tennessee River Mile Marker 1.3 to 2.0

Aerial from General Cargo Facility towards Bulk Commodity Facility

Paducah-McCracken County Riverport Authority
Bulk Commodity Storage Yard and Transfer Facility
Tennessee River Mile Marker 2.0

2021 Revitalization and Expansion Project

Item #1 - Replacement of Three Fixed Radial Stackers

Item #2 - Dry Storage Dome A & B Roof Replacement

Item #3 – 30K sq. ft. Expanded Storage Pad & Concrete Entry
Demolition of Old Truck Scale

Item #4 - Installation of new 70 Foot Truck Scale
And 240 Foot x 30 Foot Canopy

Item #5 - Bulk Commodity Storage Expansion

Bulk Commodity Storage Expansion
Utilization of Three (3) Fixed Ground Conveyor Systems

CONVEYOR SIZE-----30" X 100' GRASSHOPPER ; W/ 9' DISCHARGE HEIGHT
350FPM, 500TPH OF 100 PCF (STONE/SAND) - CLASS II DRIVE

STRUCTURE:---------42" DEEP TRUSS FRAME
HEAD PULLEY:--------18 X 32 PULLEY 1/2 HB LAGGED
HEAD SHAFT:-------- SHAFT KEYED 3 15/16" C-1045
HEAD BEARINGS:-- 3 15/16 TYPE S-2000
TAIL PULLEY:-------- 16 X 32 WING PULLEY
TAIL SHAFT:-------- SHAFT PLAIN 3 7/16" C-1045
TAIL BEARINGS:---- 3 7/16 TYPE SCM
TAKE UPS:---------- HOOVER LD50-24
MOTOR:------------ 20 HP TEFC 230/460/3/60-1800
REDUCER:---------- DODGE TA 4207 REDUCER, BUSHING, AND MOTOR MOUNT
BACKSTOP:-------- DODGE TA4207BS BACKSTOP
SHEAVES:-------------PACKAGE
GUARD:------------ DODGE TA4207 BELT GUARD
BELTING:---------- 3 PLY 330 PIW 3/16 X 1/16 GRADE 2
20DEG. IDLERS:----(5) CEMA C5 SEALED IDLER
35DEG. IDLERS:-----(22) CEMA C5 SEALED IDLER
RETURNS:---------- (9) CEMA C5 SEALED RETURN
HOPPER:----------STANDARD RECEIVING HOPPER
TAIL GUARD:-------- TAIL GUARD-HOOVER STANDARD
OTHER GUARDS:--LOT RETURN NIPS, EXPOSED SHAFTS
UNDERCARRIAGE:- FIXED HEIGHT-DISCHARGE APPROX 9 FT
AXLE:------------ FIXED SINGLE WHEEL AXLE
TOWING:------ PINTLE HITCH FOR PIT TOWING/MOVING
BELT SCRAPER:---- PRIMARY BELT SCRAPER
PAINT:------------ STANDARD GRAY (non-std colors may be surcharged)
ASSEMBLY---------- HEAD, TAIL, AND DRIVE COMPONENTS
MANUALS-ASSY DRAWINGS

Bulk Commodity Storage Expansion
Utilization of One (1) Radial Stacker

CONVEYOR SIZE-----30' X 100' RADIAL STACKER RUNNING 350 FPM
500 TPH OF 100 PCF MATERIAL, MAX 18 DEG INCLINE

STRUCTURE:---------42" DEEP TRUSS FRAME
HEAD PULLEY:-------18 X 32 PULLEY 1/2 HB LAGGED
HEAD SHAFT:-------- SHAFT KEYED 3 15/16" C-1045
HEAD BEARINGS:-- 3 15/16 TYPE S-2000
TAIL PULLEY:------- 16 X 32 WING PULLEY
TAIL SHAFT:-------- SHAFT PLAIN 2 15/16" C-1045
TAIL BEARINGS:---- 2 15/16 TYPE SCM
TAKE UPS:---------- HOOVER LD50-24 (24" TRAVEL)
MOTOR:------------ 25 HP TEFC 230/460/3/60-1800
REDUCER:---------- DODGE TA 5215 REDUCER
BACKSTOP:------- DODGE TA 5215BS BACKSTOP
SHEAVES/V-BELTS:---PACKAGE
BELT GUARD:---------DODGE TA 5215 BELT GUARD
BELT CLEANER:---------PRIMARY
BELTING:---------- 3 PLY 330 PIW 3/16 X 1/16 GRADE 2
20DEG. IDLERS:----(5) CEMA C5 SEALED IDLER
35DEG. IDLERS:-----(22) CEMA C5 SEALED IDLER
RETURNS:---------- (9) CEMA C5 SEALED RETURN
HOPPER:----------STANDARD RADIAL HOPPER
TAIL GUARD:-------- TAIL GUARD-HOOVER STANDARD
RETURN ROLL GUARDS:-LOT RETURN NIP GUARDS/OTHER GUARDING
UNDERCARRIAGE:--STANDARD PIN SET
AXLE:------------ STANDARD 14'
RAISE/LOWER:----- FIXED HEIGHT
PIT PORTABLE:------PINTLE EYE TOW HOOK FOR PIT PORTABILITY
PIVOT BASE:-------- STANDARD
PAINT:------------ STANDARD GRAY (non-std colors may be surcharged)
ASSEMBLY---------- HEAD, TAIL, AND DRIVE COMPONENTS
MANUALS-ASSY DRAWINGS

2. Please, complete the table for Capital Improvement Program (CIP) supply your own priority project list. The goal is to understand what infrastructure investments the ports are making and what will they need to make considering the presented market forecast scenarios, in current year and in future years both funded and unfunded. Please rank in priority order, provide project title and description, apply a CIP category and place total project cost in the planned current or future year.

Capital Improvement Program (CIP) Port Priority Current and Future Funded and Unfunded Needs

Paducah McCracken County Riverport Authority - FY 2021 - 2031

Maintenance and Capital Improvement ANTICIPTED/NEEDED in next 10 years

Project Description, Notes, Scope, Etc.	Facilities/Equipment Impacted	Impact on Operations	Status	Timeline	Project Cost
Replace Inbound Riverbelt Triple Pantleg Chute	Bulk Operations	replacement of this first imajor inbound chute providing for more efficent and safe cargo handling operations for all bulk commodity inbound to the bulk yard	FY-2021 KRI Grant utilized for construction of chute replacement. Installation completed in April 2021. Awaiting final inspection	Completion scheduled for April 2021	Awaiting final invoice Project just under $37K.
Administration and Bulk Yard office revitalization & mainenance project	Repair and/or upgrade two existing office buildings. Renovation of Admin building along with extensive repairs to roof, walls and windows in bulk yard office bldg.	Improved working and safety conditions for employees and business partners while conveying a more professional business environment to customers	Bulk Yard office repairs completed. Admin office interior repairs completed with exterior repairs/painting scheduled to be completed in July 2021	Scheduled for completion in summer of 2021	Approximately $25,000 to be funded by PMCRA
Bulk Commodity Yard revitalization project. Replace three vintage 1960 & 1970 fixed Mast radial stackers with new machines Main Yard Stacker - 30" x 150' - main transfer from inbound riverbelt to two other fixed conveyor systems feeing sand and rock storage yards. Sand Yard Stacker - 30" x 150' with raidal hopper & fixed conveyor feeder servicing sand storage yard and truck hopper loadout Rock Yard Stacker - 30" x 100" servicing rock yard storage area	Bulk Yard Operations cargo handling and storage	Ensuring long term operational viability for Port for bulk cargo handling & storage for Regional business customer for the next 15-20 years	Pursuing Federal grant funding with PMCRA, County, City, business partners & surrounding counties contributing matching funds	Grant application in 2021 with project implementation from award through calendar year of 2022	Replacement of three fixed mast type radial stackers & 1 radial hopper feeder with fixed conveyor $1,500,000
Replacement of bulk dome roofing systems. Two Storage Domes systems utilzing galvanized steel frames and tarp/cloth covers. One existing customer would immediately move from 20K sq. ft. warehoue into Dome A. Second dome customer is being pursued at this time. 20K warehouse would provide new storage opportuntiy for bulk, breakbulk and project cargo	Two Storage Domes. Existing foundations and walls have been certified as reusable. New roof systems need to be installed.	Increased efficency & cost savings for PMCRA & one customer. Revenue & customer expansion via increase storage capabilities with Dome B and via repurposing 20K feet of warehouse	Pursuing Federal grant funding with PMCRA, County, City, business partners & surrounding counties contributing matching funds	Grant application in 2021 with project implementation from award through calendar year 2022	Dome A: $245,000 Dome B: $276,000
Bulk Yard Storage and Commodity expasion project. Utilize new fixed infrastructure concepts to expand into new storage areas within the current bulk yard footprint for commodity and customer diversification. Utilize three (3) 100' x 30" ground conveyors in association with a new 100 foot radial stacker expand into a currently unused area of the bulk yard	Purchase and utilization of three ground conveyor systems and a 100 foot radial stacker	Customer and product diversification leading to new internal and external Regional job creation. Increase cost effective transshipmentnt capacity in support of Economic Development, Federal and State infrastructure projects	Pursuing Federal grant funding with PMCRA, County, City, business partners & surrounding counties contributing matching funds	Grant application in 2021 with project implemention from award through 1st half of calendar year 2022	$550,000
Partial paving of bulk yard to develop a new paved storage solution for customer and product diversity. Additonally the project includes paved ingress and egress area into and out of current bulk yard which will reduce potential product carry back on truck chassis and tires leaving the bulk yard. Project also includes demolition of an old truck scale foundation which will improve transit safety and sight lines within the bulk yard.	Paving/conrete of approximately 30K sq. feet of bulk yard	Provide a new paved storage pad area along with creating potential enviromental and safey improvements for ingress/egress and transiting within the bulk stoard yard.	Pursuing Federal grant funding with PMCRA, County, City, business partners & surrounding counties contributing matching funds	Grant application in 2021 with project implementation from award through calendar year 2022	$150,000
Purchase of new 70' truck scale to service growing agriculture bulk commodity sector expansion	Install new 70 fott truck scale	Increase effecancy with trucking outbound cargo trucking operations. Reduce truck dwell times resulting in more efficent fuel consumption	Pursuing Federal grant funding with PMCRA, County, City, business partners & surrounding counties contributing matching funds	Grant applicatioin in 2021 with project implementation from award through calendar year 2022	$140,000
Replacement of primary 4 - 4.50 cubic yard bucket for Sennebogen	Bulk Operations	Replacement of primary bulk commodity bucket to insure safe and reliable cargo transshipment of bulk commodities	Pursuing FY-2022 - KRI Grant Funding	FY-2022	$60,000
Bulk Yard River Berth dredging and cell stabilizaiton project	Bulk Operations	Provide safe berthing for barges during bulk commodity transfer operations	State or Federal Grant Funding with match funds provided by PMCRA	Jan. 2022 - Dec. 2022	$400,000
Replacement of wheel loader fleet (3 units) equipment utilzied for truck loading operations	Bulk Operations	Improved fuel effecience and envirormental	Funded by Riverport with State and Federal Grant Assistance	FY - 2023	$1,000,000
Development of Riverport West Marine and Intermodal Logistcs Hub. Multi-cargo facility incorporating liquid & dry bulk, containerized, general and Ro/Ro cargoes. Marine, rail, warehousing and distribution centers. In conjuction with Regional Economic Development Authorities, Class 1 railways, Shortline railroads, manufacutures, distributors, renewable energy developers and 3PL service providers.	Port Expansion - Land Purchase, Equipment Purchase	Port Expansion - Land Purchase, Equipment Purchase	Planning Development- would seek Federal, State, and PPP partnership investment	FY 2024 to commence Planning stage. Build out over 20 years. Engagement and planning with Paducah & McCracken County Economic Development	$25M up to $100M Phased project incorporating new riverfront marine cargo facility/operations and intermodal logistics hub for barge/rail/truck/air cargo
Replacement of the General Cargo Crane	General Cargo Operations	Riverport operations will be reduced due loss of cost effective cargo and logistics managment resulting in lost jobs and economic	Planning development would seek Federal and State funding	July 2027- June 2028	$5.0 million
Replacement of bulk material handler purchase in 2018 and fixed conveyor system (built in 1970's). The system will have exceeded it's useful life. We will investigate the benefits of a barge mount crane and conveyor system. The projected hours on material handler will be approx. 31,200 hours during the time frame	Bulk Operations	Jobs and Customers will be lost, Increased heavy truck traffic on Kentucky state roads increasing road maintenace and crash incidents. Would allow for eco-friendly improvements.	Planning and development would seek Federal and State funding, however currently no federal funding is provided for bulk operations	July 2028 - August 2029	$12.0 million

WEST KENTUCKY

1. Riverport: West Kentucky Regional Riverport Authority (Wickliffe, KY)
2. Participants or Person Responding to Questions:
    a. William “Bill” Miller (Acting Director) – 270-217-6339
    b. David Rambo (Board Chairperson)
    c. Judge Todd (Ballard)

Demographics:

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    d.

Agenda:

1. Meet and Greet (Port Staff and any Stakeholders Attending)
2. Brief review of packet items sent ahead of time.
    a. Questions
    b. Example Port Profile and Graphic Example Version
3. Overview of key items to address during the second port visits
    a. Port Market Discussion and Hinterland Opportunities.
    b. Port Investment Strategy and Capital Investment Plan (CIP) and Scenarios.
    c. Port Existing and Potential Future Facility Overview (Tour/Pictures and Video).
    d. Discuss existing/future facilities and capabilities, and infrastructure profile

Port Market Opportunities Questions on Key Market Shifts and Commodity Growth Opportunities:

1. Given your experience and understanding of this riverport community, with the downward shift in coal volumes or market changes away from coal, what investments or changes will you need to make to attract and serve the key commodity growth volumes?

As a "Developing Port" we focused on the local high-volume commodities that would benefit from the lower cost of waterway transportation. The Riverport Feasibility Study completed in March 2021 identified "Phase 1" opportunities for a Mineral Mining operation, Fertilizer operation, Agriculture products, Scrap Steel operations under P3 agreements within 12 to 24 months. Phase 1 operations reflects an annual tonnage volume of 530,000. Phase 2 after 2022 identified additional opportunities with Phoenix Paper for raw material and finish goods as well as the developing Asian Carp processing operations in Wickliffe, KY. The Study did not include any current cargo movement over the Kentucky Riverports in the region. As a developing port, we desire to enhance the River Counties region for economic development by working closely with the Kentucky Economic Development Cabinet and Riverports in the region.

2. Looking at the top commodity growth opportunities, what would be your strategy to attract those commodities and freight generators from your hinterland?

Our Strategy is to serve local business opportunities in the WAVE counties (Ballard, Carlisle, Hickman, and Fulton counties in Kentucky) currently requires movement to out of state facilities, which results in higher risk of truck accidents and road maintenance expense, or the commodity is dormant due to the cost of the longer haul trucking. Currently, no Class 1 local rail access is in region. The commodities must be trucked outside of the region to gain rail access.

3. Based on your knowledge from commodities and freight generators in your hinterland, what key projects and infrastructure investments will your riverport require to capture those volumes?

The Riverport will require approx. $17 to $20 million dollars to fully develop Phase 1. For long term success for our region and Kentucky, we support the U.S. 62 Bridge replacement to be a 4- lane Interstate qualifying design that will forester a Federal Infrastructure development of I-157 east that will connect Kentucky to states west of the Ohio River, I-24, I-69, and I-55 that would significantly enhance the opportunity for manufacturing and warehouse distribution development in Western Kentucky.

Port Investment and Economic Development Strategies:

1. What investment strategies do you have in motion for your riverport now?

The Riverport's investment strategies are to complete a feasibility study and Phase 1 archeological and environmental studies on the Mayfield Creek Site. The studies were funded by Federal grants from the Delta Regional Authority (DRA) of $40,000, a United States Department of Agriculture (USDA) of $54,000, and local donated funds of $40,000. Once completed, we will secure P3 agreements with our customers and potential investors. The Riverport portion of the build out is 44.2% of the $17 to $20 million projection ($7.5 to $8.8 million) for the common equipment and development of the operation. Each customer will be responsible to develop their building requirement on property leased to them from the Riverport. We are in the process of requesting a local grant of $200,000 that will be used for matching funds for U.S. DOT "Raise" or "PIDA" Grant as a rural project along any available state assistance, professional services for the P3 agreements, and remediations for the archeological and environmental findings. We have requested a USDA review, if the project qualifies for their loan program. Once developed, the Riverport will be a self-funded operation that will be an asset to expand existing business and attract new opportunities to Kentucky that promotes a

public benefit with livable wages and benefits, safer and reduced maintenance expense on our state and local highways in an environmentally friendly matter.

2. What are the greatest economic development challenges or weaknesses?

The greatest economic development challenge is to secure federal and state funding assistance.

3. Is this strategy funded? (Y or N) If Yes, what does the general mix of funds look like (Public/Private; Fed/State/Local)?

NO, the general mix of funding is 44.2% for common equipment and development of the operations and 58.8% Public/Private for Phase 1.

4. What other funding programs does the port use, or would you consider?

Public/ Private/ Federal and State funding (Grants and loan programs).

5. Is the ports investment strategy part of your current infrastructure plan or capital improvement program (CIP)? ***Yes***

6. Does the port have current unfunded needs (Y or N)? ***YES***

7. Future (2-5 years) unfunded needs (Y or N)? ***YES***

8. From your perspective, elaborate on the role transportation plays in your investment strategy (e.g. funding programs, policy, collaboration, etc.)?

Transportation will increase job opportunities in the towing and industries as well as enhance the maintenance/repair jobs, construction activity in the region.

9. During the first port visits, it was made clear that the KYTC needs to be a clearinghouse of market data and information. As follow up to that, and given the forecast for commodity flows from within your hinterland and through your riverport, what specific information or data would you need?

We believe that the KYTC and the Economic Development Cabinets must work together with each region to develop a target industry growth plan in order to provide the required transportation infrastructure that will foster economic success across Kentucky.

10. How does workforce play a role in future opportunities with Kentucky riverports?

Technology, environmental, data collection, terminal operational planning, and soft skill training in the middle/high school grades will improve. These items play a major role in the international business market. The industries attracted by a Riverport operation also provide in-direct good wage and benefit jobs via the warehouse, trucking, construction, and manufacturing industries that will not require a college degree.

11. How can workforce development support the port's current needs?

State funded Training and Apprentice programs.

12. How do you see economic development playing a larger role in port market business growth?

As stated in question #9 - We believe that the KYTC and the Economic Development Cabinets must work together with each region to develop a target industry growth plan in order to provide the required transportation infrastructure that will foster economic success across Kentucky.

13. What strategies or tools do you want to see developed to be used by your port and the port community throughout Kentucky?

Currently the State of Kentucky provide a $500,000 annual grant for Kentucky Riverport Improvements. These grants require a 50% match from the local Riverport. A larger grant amount with a reduced match, amount similar to the federal programs, the funds could be used for better improvements instead of items needed repair.

14. How is the port community in Kentucky working together to leverage opportunities for collective and individual port growth?

Public Riverport in Kentucky are owned by a county and/or city government. They do not work together because they work with the local economic development group. We do support each other for general issues only.

15. What collective strategies have you seen successfully implemented elsewhere that has not been done in Kentucky?

16. State Operated Port Authority – Example NEW York/New Jersey, Maryland, Virginia, North and South Carolina, Georgia, and Indiana. We believe this would result in low capital cost requirements for the entire port system and ensure spare parts are available without the current delays. This could also attract manufacturing to Kentucky.

Key Infrastructure Discussion: Existing and Future:

Purpose: To validate facility existing conditions, describe future facility needs, review capital improvement program categories and align with funding needs in current year and future years. Use Aerial Map of Terminal(s) and CIP Table.

16. Discuss proposed capital improvement program categories (type) and funding cycle (current year and years 2 to 5) both funded and unfunded.

As a "Developing Port", funding needs will be in the current year. We will need to be able to secure the equipment along with the construction activities. We have shown the cost projections by categories below for the Phase 1. Future development will be open to base on the P3 partnerships and new business opportunities to the region.

a. Waterfront Infrastructure (docks, piers, berths, mooring dolphins, bollards, aprons) – $1.411 million (mooring dolphins, dock improvements)
b. Land Acquisition and Land Development - $985,000.
c. Warehousing (Covered Storage, Transit sheds, Truck bays, Sidings docks, Climate control, Silos) - $9.3 million (Grain Solos, Indoor Storage (Fertilizer and Clay), and Truck Scale Station)
d. Equipment (Cranes, Conveyance, Loaders, Forklifts, Stackers) - $4.591 million
e. Highway Access - $150,000
f. Rail Access – N/A at this time. Potential Rail Access development in the future within 1 mile of the port
g. Security and Technology - $430,000
h. Other - $400,000 (Feasibility Study ($50,000),
Phase 1 Archeological and Environmental Studies($84,000),
Professional Services ($266,000)

Please, complete the table for Capital Improvement Program (CIP) supply your own priority project list. The goal is to understand what infrastructure investments the ports are making and what will they need to make considering the presented market forecast scenarios, in current year and in future years both funded and unfunded. Please rank in priority order, provide project title and description, apply a CIP category and place total project cost in the planned current or future year.

Capital Improvement Program (CIP) Port Priority Current and Future Funded and Unfunded Needs

Top Port Priorities	Project Title and Description	Type	Funded (Y/N)	Current FY Year	FY22/23	FY23/24	FY24/25	FY25/26
1	Feasibility Study	H	Y	$50,000				
2	Archeological Study / Environmental Phase 1	H	Y	$84,000				
3	Professional Services	H	N	$100,000	$166,000			
4	Waterfront Improvements	A	N	$0	$1,411,000			
5	Land Development	B	N	$0	$985,000			
6	Equipment	D	N	$0	$2,900,000	$1,700,000		
7	Highway Improvements	E	N	$0	$162,000			
8	Rail Access	F	N	$0	$0	$250,000	$250,000	$250,000
9	Security and Technology	G	N	$0	$430,000		$100,000	$100,000
10	Warehousing (See Below)	C	N	$0	$9,300,000			

Warehouse Expense is projected to under a P3 agreement. Current and Future partners may request incentives to bring business to Kentucky.